

سلسلة الكتاب الإلكتروني



الجامعة العربية المفتوحة  
Arab Open University

# المؤتمر العالمي الأول للتعليم المفتوح الدور، التحديات و الحلول

الجامعة العربية المفتوحة - دولة الكويت  
25 - 27 نوفمبر 2013

# التنظيم والجهات الراعية

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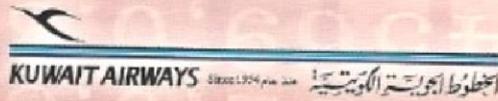
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## تقديم الكتاب الإلكتروني

يشكل تنظيم المؤتمر العالمي الأول للجامعة العربية المفتوحة حول التعليم المفتوح بالتعاون مع المركز الإقليمي للبرمجيات التعليمية علامة فارقة في مسيرة الجامعة حيث استقطب المؤتمر مشاركة عدد كبير من الباحثين من القارات الخمس، كما حظي بمشاركة عدد من الوزراء وأعضاء مجلس أمناء الجامعة ومسؤولي بعض الجامعات المحلية والإقليمية والدولية.

وفي الواقع، فإن إعداد وتنظيم هذا المؤتمر ليس إلا حلقة في سلسلة من الأنشطة التي تم التخطيط لها في إطار الخطة الإستراتيجية الثالثة للجامعة العربية المفتوحة (2012-2016)؛ وذلك لتحقيق عدة أهداف أساسية من أهمها:

- رفع سمعة الجامعة ومكانتها في الأوساط المحلية والإقليمية والدولية.
  - تشجيع أعضاء هيئة التدريس من جميع فروع الجامعة على تقديم مشاريعهم البحثية في مؤتمر عالمي مما سيسهم في تطوير مسارهم المهني، وخدمة مجتمعاتهم.
  - العمل مع باحثين من الدول والجامعات المختلفة لتطوير أساليب التعليم المفتوح المختلفة وتبادل الخبرات والتجارب في هذا المجال.
  - طرح التحديات التي يواجهها التعليم المفتوح خاصة في البلدان العربية، وتقديم حلول عملية لتجاوز هذه التحديات.
  - تطبيق معايير ضمان الجودة العالمية بكل مهنية في كل أشكال التعليم المفتوح والمدمج.
- ونظر لأهمية المواضيع التي طرحت في هذا المؤتمر، فإننا نضعها في متناول الباحثين ضمن كتاب الكتروني لتدشن الجامعة بهذا سلسلة من الكتب الإلكترونية التي ستصدرها متتالية حول الندوات العلمية التي عقدتها الجامعة والتي تناولت مواضيع مختلفة هدفها تطوير التعليم والتعلم وما يرتبط بهما في البلدان العربية.
- ورغم الجهود الكبيرة التي بذلت لإعداد هذا الكتاب، فإن النصوص المقدمة لا تخلو من بعض الأخطاء والهفوات التي نرجو أن تستدرك من طرف أصحابها. وأخيراً، فإن الشكر موصول لكل من أسهم في إنجاح المؤتمر من قريب أو من بعيد. والحمد لله رب العالمين...

أ.د. مصطفى عشوي

نائب مدير الجامعة للتخطيط والبحث والتطوير



كلمة معالي وزير التربية و وزير التعليم العالي

الدكتور نايف فلاح مبارك الحجرف

السادة سعادة معالي الوزراء..

السادة الوفود المشاركة في المؤتمر..

السادة المشاركون من داخل و خارج دولة الكويت..

يسعدني أن أرحب بكم في دولة الكويت بصفتي ممثلاً لحضرة صاحب السمو الشيخ صباح الأحمد الجابر الصباح حفظه الله.

لاشك أن مجتمعاتنا العربية تواجه تحديات هائلة في شتى المجالات وخاصة في قطاع التعليم الذي يشكل أحد الأسس الهامة في إعداد الأجيال التي تتحمل مسؤولية البناء الحضاري، ومسئولية الإبداع في شتى الميادين التي تحقق التطور والتنمية الشاملة ببلداننا. وهذا ما يتطلب اعطاء الأولوية لهذا القطاع من منظور استراتيجي تحدد بدقة رؤيته ورسالته وأهدافه.

وفي هذا الإطار، فإن جميع مؤسسات المجتمع وخاصة المؤسسات الأكاديمية مطالبة بالعمل والتعاون على تهيئة بيئة متطورة لإحداث نقلة نوعية في مجالات التعلم والتعليم، وفي مجال تنمية القدرات والمهارات الضرورية لإحداث هذه النقلة أو الطفرة الحضارية في ظل التقدم التكنولوجي السريع وخاصة في مجال تكنولوجيا المعلومات والاتصالات، وفي مجال بناء مجتمع المعرفة.

ومن هنا تبرز أهمية ربط المنهج التعليمي بالتقنيات التكنولوجية الحديثة وتطبيقاتها المتطورة لايصال المعرفة لكل أبناء المجتمع، ولتطوير القدرات والمهارات لكل العاملين في شتى الميادين. ولعل التعليم المفتوح بأشكاله وأساليبه المختلفة قد برز في السنوات الأخيرة كأحد الأساليب المرنة في تطوير التعليم

والتعلم حتى أصبحت بعض الجامعات التي تتبع هذا الأسلوب، والتي تراعي معايير الجودة العالمية، منافسا حقيقيا وإيجابيا للجامعات التقليدية

التي بدأ بعضها في اعتماد هذا الأسلوب ولو بصفة جزئية، كما حرصت بعض الحكومات العربية على تبني انشاء الجامعات الحكومية الإلكترونية كخيار مستقبلي معتمد.

ونحن إذ نؤمن هذه التطورات في مجال استعمال التكنولوجيا الحديثة في إيصال المعرفة لكل أبناء المجتمعات العربية من خلال مؤسسات أكاديمية رائدة في هذا المجال فإننا ندعو إلى مزيد من الجهد لترقية التعليم المفتوح بأشكاله وأساليبه المختلفة، وتطويرها وفق معايير الجودة العالمية المعتمدة في مجال تطوير الأنظمة التربوية مما سيسهل عملية تبادل الإعتماد والإعتراف بين المؤسسات الأكاديمية في البلدان العربية من جهة، وبين البلدان العربية والبلدان المتقدمة من جهة أخرى.

ولاشك أن هذا المؤتمر الذي تنظمه الجامعة العربية المفتوحة بالتعاون مع المركز الإقليمي للبرمجيات التعليمية سيسهم من خلال برنامجه العلمي الثري، ومن خلال المتخصصين، وصناع القرار من عدة بلدان شقيقة وصديقة، في طرح التحديات التي تواجه التعليم المفتوح والدمج آملين أن يطرح المشاركين والمختصين خلال جلسات عملهم الضوء على الاتجاهات الجديدة في التعلم والتعليم بصفة عامة وعلى الأفكار الابتكارية في مجال التعليم الإلكتروني والمفتوح بصفة خاصة وذلك في ضوء التطورات التكنولوجية المتواصلة، بهدف تطوير أساليب التعلم في بلداننا العربية، والإسهام في ترقية المجتمعات العربية للوصول بها إلى مصاف مجتمعات المعرفة.

وأخيراً، أحيي كل من أسهم في إعداد هذا المؤتمر، وعمل على إنجاحه، راجياً لكم التوفيق في أعمالكم، وإقامة طيبة في دولة الكويت لضيوفنا الكرام.

# بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ

## كلمة الأستاذة الدكتورة موزي عبدالعزيز الحمود مدير الجامعة العربية المفتوحة

معالي الدكتور/ نايف فلاح مبارك الحجرف – وزير التربية ووزير التعليم العالي ممثل حضرة صاحب السمو أمير البلاد حفظه الله ورعاه، راعي هذا المؤتمر.

السادة/ معالي وزراء التربية ووزراء التعليم العالي والبحث العلمي الأستاذ الدكتور/ حسان دياب من الجمهورية اللبنانية والأستاذ الدكتور/ خميس كجو كنده من جمهورية السودان.

السادة ضيوف المؤتمر / الحضور الكرام...

السلام عليكم ورحمة الله وبركاته..

بالأصالة عن نفسي، وبالنيابة عن مجلس أمناء الجامعة العربية المفتوحة، وعلى رأسه صاحب السمو الملكي الأمير طلال بن عبد العزيز رئيس المجلس، وبالنيابة عن جميع المنتسبين للجامعة، أستاذة وإداريين وعاملين وطلبة، يسرني أن أرحب بكم على أرض الكويت المضيافة، بمناسبة انعقاد المؤتمر العالمي الأول للتعليم المفتوح، والذي تنظمه الجامعة العربية المفتوحة، بالتعاون مع المركز الإقليمي لتطوير البرمجيات التعليمية، تحت رعاية حضرة صاحب السمو أمير البلاد الشيخ/ صباح الأحمد الجابر الصباح حفظه الله ورعاه، الذي رعى هذه الجامعة منذ أن كانت فكرة حيثُ بارك اختيارها للكويت مقراً لها، وشرفها بحضوره عند افتتاحها، وشرفها كذلك برعايته وحضوره مرة أخرى عند تدشين صرحها الجديد في الكويت والذي يضم في ساحاته الآن آلاف الطلبة من الكويتيين والعرب، حيث بلغ إجمالي الطلبة في الجامعة اليوم قرابة الثلاثون ألف طالب في فروعها السبعة في البلاد العربية المختلفة، وها نحن اليوم نجتمع في هذا المحفل العلمي الرفيع تحت رعايته، فشكراً لسموه وهنيئاً للجامعة دائماً رعايته لها ولأنشطتها.

السيدات والسادة حضورنا الكرام ..

لقد كان قدر الجامعة العربية المفتوحة أن تحمل مشعل الريادة لنوع جديد من التعليم الجامعي، وهو التعليم (الالكتروني) والتعلم عن بُعد وكان للجامعة شرف الريادة كذلك في الإضافة إليه كنموذج للتعليم (المدمج) وذلك بالمزج بين اللقاء المباشر والتعليم المفتوح، لمقابلة متطلبات الاعتماد المحلي في معظم دولنا العربية، والله الحمد أثبتت الجامعة مكانها ومكانتها في الساحة العلمية، وذلك بما يتفق مع رؤية مؤسسها وصاحب فكرتها الأساسية صاحب السمو الملكي الأمير طلال بن عبد العزيز، حفظه الله، وتوجه مجلس أمنائها الموقر،

حيث يتيح هذا النموذج فرص التعليم العالي ذي الجودة العالمية الرفيعة لأبنائنا وبناتنا العرب، ممن لم تمكنهم ظروفهم العملية أو المادية والتزاماتهم الأسرية من الانتظام في التعليم الجامعي التقليدي في الجامعات الحكومية أو الخاصة.

لقد سعت الجامعة العربية الى توفير تخصصات يَطْلُبها المجتمع العربي كتخصصات تقنية المعلومات IT، وإدارة الأعمال واللغة الانجليزية والتربية سواءً على مستوى الدراسات الجامعية الأولى، أو مستوى الدراسات العليا (الماجستير)، وقريباً ستضاف العلوم الهندسية والدراسات القانونية وذلك ضمن نموذج فريد (للتعاون الكامل) مع أحد أرقى الجامعات والأكثر عراقة في التعليم المفتوح في العالم وهي الجامعة المفتوحة في بريطانيا.

السادة الحضور:

يأتي مؤتمرنا هذا كأول مؤتمر يُعقد بالتعاون مع المركز الإقليمي لتطوير البرمجيات التعليمية، وهو المركز المعني بتطوير أساليب التوأمة بين المناهج العلمية وأساليب التكنولوجيا الحديثة، أملين أن يثمر هذا التعاون في تطوير نظامنا التعليمية على كافة المستويات. ويستضيف المؤتمر المختصين والعاملين والباحثين في حقل التعليم الالكتروني والتعليم المفتوح من جميع قارات العالم ودوله، وذلك بهدف نشر الوعي والمعرفة في وطننا العربي، باستخدام التكنولوجيا المتقدمة ووسائلها وتطويعها لأهداف تطوير التعليم، وإتاحة سبل التعليم المستمر والتعلم مدى الحياة دون التضحية بالكفاءة والجودة والتي يتم التحقق من توافرها وفق أعلى المستويات ووفق متطلبات الاعتماد المؤسسي والأكاديمي المحلي والعالمي.

وقد تتفقون معي أيها السادة والسيدات، أن اعتماد الجامعة وبرامجها من قبل ثمان دول عربية (بافتتاح فرع السودان في هذا الشهر وانضمامه إلى قافلة الجامعة)، وخضوعنا لمعايير الجودة من قبل مؤسسة الاعتماد البريطاني يلخص كثيراً مما أود تأكيده من توافر معايير الجودة المطلوبة والحرص على تطبيقها في جميع برامج الجامعة ومناهجها لضمان كفاءة وجودة مخرجاتها وخريجيها.

السادة الحضور:

لقد تحقق للجامعة إنجازات كثيرة بفضل الدعم الكبير الذي تلقتة الجامعة، ولا زالت، من وزارات التعليم ووزارات التعليم العالي والمجالس العليا للجامعات بدول الفروع، فلولا هذا الدعم المشهود لما تمكنت الجامعة من خدمة طلبتها على هذا النحو المتميز، فشكراً لجميع الوزراء العرب وأمناء المجالس العليا والعاملين فيها وأجهزتهم الداعمة، كما لا يفوتني أن أشكر العاملين في الجامعة من أساتذة وأعضاء إدارتها وإدارييها ومدراء فروعها والعاملين معهم فيها على عملهم المتواصل والدؤوب لرفعة الجامعة وتقديمها، فلولا إيمانهم بعظمة رسالتهم وعظم مسؤوليتهم لما ترسخت أركان الجامعة، وكذلك الشكر موصول لطلبتنا الأعزاء وأولياء

أمورهم ممن وثقوا في الجامعة وانتظموا في برامجها، في الوقت الذي لم تكن مكانة هذا النموذج التعليمي راسخة في دولنا، فهم بالتأكيد خير رُسلٍ لجامعتهم في مجتمعاتهم.

ولا يفوتني أن أذكر بأن للجامعة الزميلة (الجامعة المفتوحة في بريطانيا) فضل كبير في دعم الجامعة لتقديم خدماتها التعليمية المتميزة، ولولا ثقتها بهذه الجامعة لما كان نجاح وانتشار هذا النموذج ممكناً في المجتمعات العربية المتحفظة في قبول التغيير والتردد في الخروج عن المألوف ضمن نماذج التعليم التقليدي، ولكنها المبادرة والريادة والشراكة المثمرة هي ما مكننا من ذلك.

وقبل أن أنهى كلمتي أيها السيدات والسادة، استميحك العذر لإرسال برقيات شكر سريعة ولكنني أجدّها مستحقة:

- وأولها لمجتمعاتنا العربية:  
"بأنه خلال السنوات الثلاث أو الأربع الأخيرة شهدنا إنشاء عدد من الجامعات الحكومية والخاصة التي تتبع نظام التعليم الإلكتروني أو الافتراضي مثل الجامعة الإلكترونية في المملكة العربية السعودية، والتوجه لإنشاء الجامعة الافتراضية في الكويت، وجامعة حمدان بن محمد للتعليم الإلكتروني في الإمارات، وهذا والله الحمد يرسخ ما أوجدته جامعتنا الفتية من ثقة في هذا النموذج التعليمي المتجدد والرائد وهو بالطبع لم يترسخ أساساً إلا بثقة أبناء مجتمعاتنا العربية فيه، فشكراً لهم".

- وثانيها لحكوماتنا:  
"بأن هناك دعوات كثيرة من قبل حكومات بعض الدول العربية الشقيقة للجامعة بفتح فروع لها، والجامعة العربية المفتوحة بكل فخر تعلن عن فتح فرع السودان منذ بداية الشهر الحالي، والعمل جارٍ لإنشاء فرع اليمن .. كما أن الدراسات جارية لفروعٍ قادمة على امتداد الساحة العربية بمشيئة الله، فشكراً لدعم حكوماتنا العربية لنا".

- وثالثها لوزرائنا في دول الفروع:  
"فكلنا أمل أن ينظر معالي وزراء التعليم العالي بإيجابية وحماس إلى عملية الاعتماد المتبادل لشهادتنا بين الدول العربية، الأمر الذي سيجلب لخريجينا من جميع فروعنا حق العمل في أي دولة عربية، فهي جامعة واحدة ومناهج واحدة، وهذا ما نأمل تفهمه وتسهيله من قبل الزملاء والإخوة معالي الوزراء في دول الفروع وهم إن شاء الله فاعلون، والشكر مقدماً لهم، ونحن مستعدون لأي متطلبات تسهل ذلك".

- أما الرابعة والأخيرة:  
"فبها أتقدم باسمي واسمكم، بشكر خاص لرئيس الصندوق العربي للإنماء الاقتصادي والاجتماعي والعاملين فيه لإيمانهم ودعمهم للعمل العربي في كل مجال وعلى رأس كل ذلك مجال التعليم، فشكراً لكم استاذ عبد اللطيف الحمد، وشكراً لفريق عمل الصندوق، والشكر موصول كذلك لرعاة مؤتمرنا

وعلى رأسهم مؤسسة الكويت للتقدم العلمي مديراً وعاملين، ولبنك الكويت الوطني ومؤسسة الخطوط الجوية الكويتية، وللشركة الوطنية للاتصالات، وللإعلام الكويتي المقروء والمسموع، ولممثليه المتواجدين معنا في القاعة اليوم، ولا أنسى الإخوة والأخوات أعضاء اللجنة التنظيمية واللجنة العلمية والإعلامية للمؤتمر، وعلى رأسهم الأستاذ الدكتور مصطفى عشوي/ نائب مدير الجامعة لشؤون التخطيط والتطوير والبحث العلمي فلولا دعم الرعاية وجهود المنظمين لما شهدنا هذه التظاهرة العلمية".

مع خالص الشكر والتقدير لحضوركم جميعاً، حفظكم الله وأسعد أوقاتكم.

والسلام عليكم ورحمة الله وبركاته،،،

**The 1<sup>st</sup> International Conference on Open Learning:  
Role, Challenges, and Aspirations**

**25-27 November 2013  
State of Kuwait**

**Conference Themes**

Theme 1: Techniques and Methods of Open Learning.

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Theme 5: The Role of Open Learning in the Growth and Development.

Theme 6: Successful Experiences in Open Learning.

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# OpenEssayist: An Automated Feedback System that Supports University Students as they Write Summative Essays

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## Abstract

OpenEssayist is an automated, interactive feedback system designed to provide an acceptable level of support for students as they write essays for summative assessment. There are two main components to the system: (1) a linguistic analysis engine and (2) a web application that generates feedback for students. The main pedagogical challenge in the e-assessment of free text is how to provide meaningful “advice for action” in order to support students writing their summative assessments. We have built a first working version of the system in which we use unsupervised graph-based ranking algorithms (following Mihalcea & Tarau, 2005) to automatically extract key words, phrases and sentences from student essays. We have developed several external representations of these summarisation techniques. For examples, key words and key phrases can be viewed in a word cloud or in a dispersion graph, and they can be explored and organised into groups. Holistic approaches have also been tested using ‘mash ups’ where key words and key sentences are highlighted in context in the essay itself, helping students to investigate the distribution of key words and its potential implications for the clarity of the narrative. This paper will report the findings from our pilot studies of the interactive models associated with the summarisation techniques.

## Keywords

Automated feedback; essay writing; summary; external representations

## Introduction

OpenEssayist is a web application that has been designed to assist students while writing their essays for summative assessment. ‘Summative assessment’ is defined as “an assessment that is administered at the end of a learning sequence. It is designed to form a judgement about learning that is often reported in terms of grades or scores and is underpinned by a set of quality assurance processes” (Whitelock, 2011, p. 341). Students who are new to writing essays in higher education and who have returned after a break of many years to undertake a Masters Level qualification often experience difficulty in writing their first summative essay and ‘drop out’ of the course (Simpson, 2003). Therefore the goal of this application is to provide students with feedback on their draft essays before they submit them for summative assessment.

OpenEssayist consists of two major components (1) a linguistic engine and (2) a web application that generates feedback for students (Van Labeke et al, 2013). Understanding how to provide appropriate feedback to students to enable them to move forward with their essay writing is the focus of this paper since providing meaningful feedback or “advice for action” (Whitelock, 2011) needed to be user tested before the system went live in September 2013. A round of supervised, observed user testing was therefore organised, having six participants.

This paper reports on how well the participants understood a range of external representations generated by OpenEssayist in order to assist with essay improvements before submission. The findings have informed the selection of the final representations that will be used for students following a postgraduate module entitled “Accessible online learning: Supporting disabled students”. This postgraduate module runs in September 2013 for about 20 weeks and contributes to a Master of Arts

(MA) in Online and Distance Education. All modules, materials and support are delivered online. Students on this module, as is the case for most of the students at the Open University (OU), are part-time, mature students, many of whom have not been in formal education for a long period of time.

The user testing was designed to understand how to provide meaningful representations of the analysis of draft essays by exploring text analysis outputs and visual analysis outputs

## **OpenEssayist: The Linguistic Engine**

Our approach is to extract different kinds of summaries from the student user's essay, and to present them to her in different ways using a variety of external visualisations. The approach is primarily focused on user understanding and self-directed learning, rather than on essay improvement, and it engages the user on matters of content, rather than pointing out failings in grammar, style, and structure. Our approach contrasts strongly with established Automated Essay Scoring and Automated Writing Evaluation systems (including Criterion (Burstein et al, 2003), Pearson's WriteToLearn (based on Landauer's Intelligent Essay Assessor (Landauer et al, 2003) and Summary Street (Franzke and Streeter, 2006)), IntelliMetric (Rudner et al, 2006) and LightSIDE (Mayfield and Rosé, 2013)). Rather than telling the user in detail how to fix any incorrect and poor attributes of her essay, our system encourages the user to reflect on the *content* of her essay. It uses linguistic technologies, graphics, animations, and interactive exercises to enable the user to comprehend the content of her essay more objectively, and to reflect on whether the essay adequately conveys her intended meanings.

### **Essay Analysis Output**

To run OpenEssayist, the test participant pasted her essay into a web form and selected 'analyse'. The system first returned a representation of the essay that looked very similar to the input, but in which some structural components were identified by different colours (introduction, conclusion, discussion, title, heading, etc.).

In a different view, the key words and key phrases of the essay were presented as a list arranged in rank order of 'key-ness' (which can be thought of as importance, or as representativeness of the text as a whole). In other views, key sentences (those most representative of the text as a whole) were presented both inline in the text 'mash up' view, and in a list in order of importance.

In addition to the core summaries of the essay (key words, key phrases and key sentences), additional specialised data structures were made available, including a 'chord diagram' depicting the results of the key sentence analysis, an 'adjacency matrix' depicting the same, visualised networks depicting the key sentence and key word analyses, and the intersection between the essay's key phrases and words found in the assignment question.

The system was developed by experimenting with a corpus of 267 student essays. While developing the system, much effort has also been devoted to observing and measuring a wide variety of essay attributes (Field et al, 2013). We continue look for ways to exploit these results and, ultimately, to devise effective models of feedback informed by them.

## **The Empirical Study**

The user testing adopted a cognitive walkthrough (Lewis et al, 1990; Polson et al, 1992) as a usability inspected method since it focuses on evaluating a design for user learning through exploring the system, i.e. OpenEssayist. We suspect that our students will prefer to learn how to use the system without resorting to a user guide as supported by the findings of Carroll & Rosson (1987) and Fischer (1991). The system is embodied within an incremental approach to learning and so users will learn how to use and work with features that are of benefit to them. In our case, this means producing external representations of the analysis that will easily translate into changes that students will make to their draft essays.

### **Participants**

Six adults from the Institute of Educational Technology volunteered to take part in the empirical study. They all had experience of either writing summative essays for modules at the Open University UK or had designed essay questions for Open University modules.

Table 1: Demographic profile of participants

Pseudonym	Gender	Mean = 34	Experience of OU essays
Stuart	Male	32	Student who has written OU essays
Albert	Male	33	Student who has written OU essays
Gerald	Male	35	Student who has written OU essays
Nora	Female	28	Student who has written OU essays
Lucy	Female	41	Author of OU essay questions
Sarah	Female	32	Author of OU essay questions

The mean time for each testing session was 59.2 minutes. This allowed the observer to probe participants’ reactions after they completed using OpenEssayist. Data from each participant was recorded and transcribed and a systematic manual analysis of screen use was carried out.

## Findings

### Text Analysis of Essay Structure

The first external visualisation the users were presented with illustrated how OpenEssayist had analysed the structure of the essay.

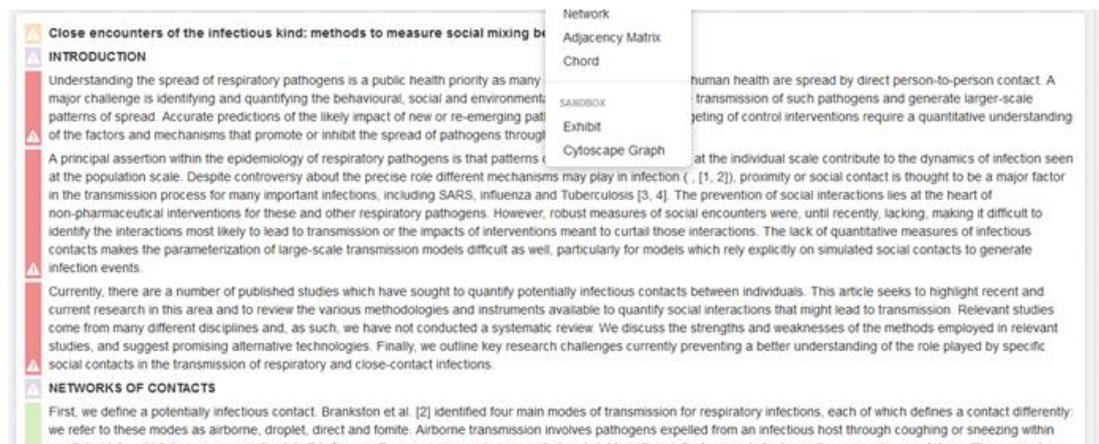


Figure 1: Essay structure prepared by OpenEssayist

The reason for presenting this view was to stimulate user thinking about the structure of their essay. The questions which accompanied this view were as follows:

"Do you think the introduction section as recognised by OpenEssayist is about the right size, or has OpenEssayist got it wrong? Do you think you should try to lengthen the introduction? Or the conclusion?"

Some users commented that displaying the structure of the essay was helpful but that thought that pink was an unsuitable colour for labelling the Introduction. The participants reacted to this pink mark-up as to a red warning sign. They recommended the colour coding needed to be changed. However, with respect to demonstrating the structure of the essay to the user Nora said:

"I can see the benefit because it is talking about the structure. It will help you understand where you need to work in, the different sections, what you are missing maybe you need to fill in a bit more or not."

### Visual Analysis of Essay Structure

Another set of representations to illustrate the structure and parts of the assignment was a pie chart depiction and a bullet chart (see Fig. 2). The pie chart illustrated the sizes of the different parts of the

essay as recognised by OpenEssayist whilst the bullet chart illustrated how close the assignment matched the required number of words for the essay.

Lucy remarked on the visual representation in the following way:

“That’s not bad. I can see how much of an introduction it (the essay) has got. How much of a conclusion it has got.”

With respect to the bullet chart, Lucy wanted to know about some ideal values for word counts so that the visualisations could help her change her draft. She said:

“It’s showing me a number of words so my question will be OK I can see that given my story or given the target I have in my TMA, what should it look like? What’s an ideal? What would be expected here?”

This was a constant remark made by the participants that they wanted to see how their draft essay would compare with an “ideal” essay that gained very good marks.



Figure 2: Pie and bullet charts illustrating essay structure

### Visual Representation of Essay with Key Words and Key Phrases

OpenEssayist also displays the key words and phrases from the essay. The key word view was an interactive one in which the participants were able to organise the key words into new groups, using as many groups as they wished (see Fig. 3). This interactive task was designed in order to assist the participant in reflecting on the positions and use of particular key terms in the essay

All the participants worked with the clustering task. 3 out of the 6 participants found the task did make them think about how the key words mirrored how the question had been answered but they found the key word and key phrase list more useful, saying that it acted as a summary of the main issues that had been addressed.

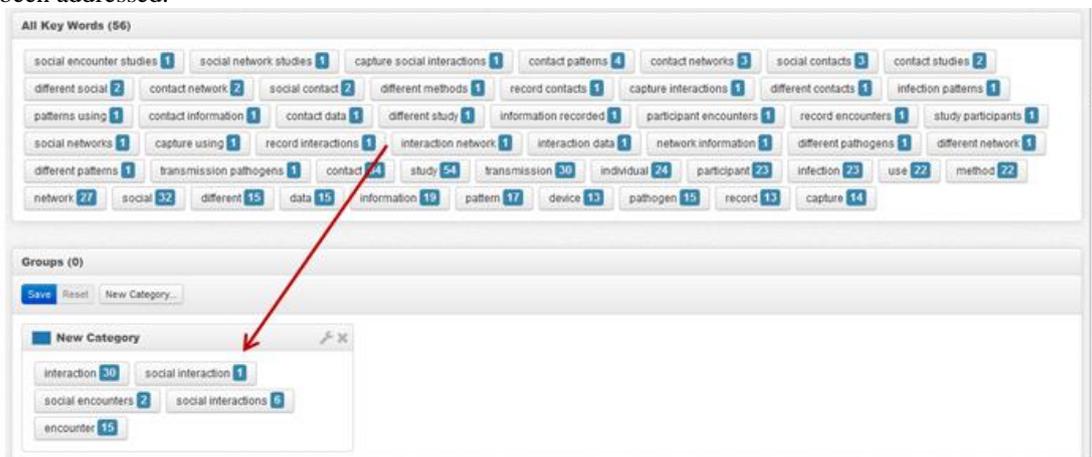


Figure 3: Clustering key words

## Summary

OpenEssayist presents the essay's key sentences as a list (see Fig. 4). Stuart remarked that:

“The summary is an extension of the key words and phrases and will make me think about whether this is really what I wanted to say in the essay.”

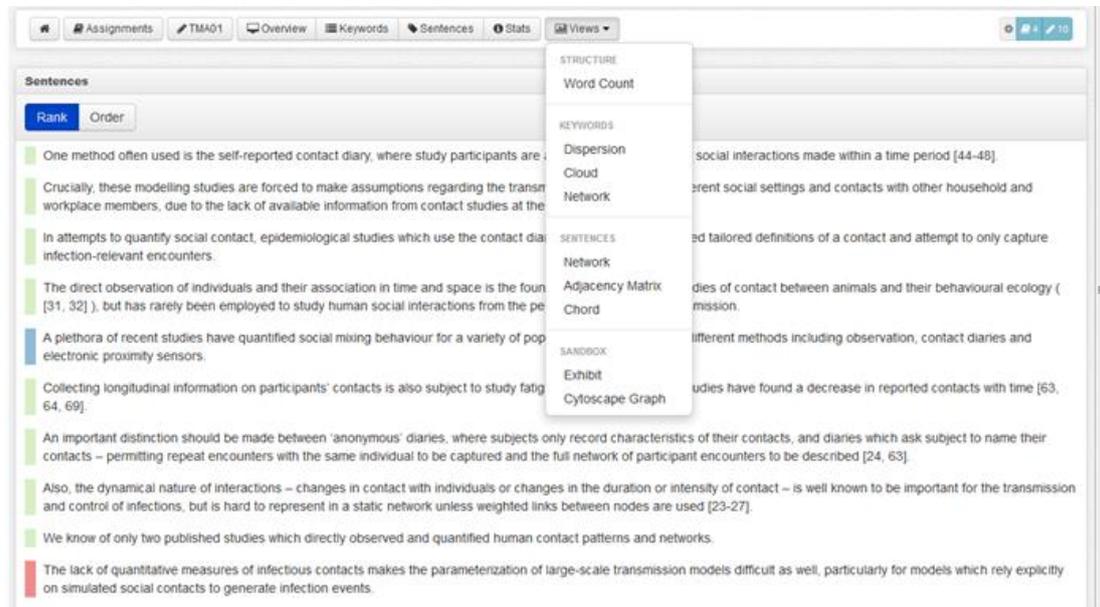


Figure 4: Key sentences summary

## Key Words and Phrases Highlighted in the Essay

Fig. 4 illustrates the raw text of the essay with features extracted by the EssayAnalyser in context. In this instance the key words were displayed but key phrases could also be displayed. Sarah commented about this visualisation in the following way:

“So actually now on reflection, now I am looking at it, yes another way of looking at it, to see how well you’ve structured and how well you’ve got the right information in your introduction, conclusion particularly. Personally for me would be good because they were probably one of my weakest areas as a student. So that would be useful.”



Figure 5: Key words illustrated in main text of essay

## Complex External Visualisations

The following three visualisations were also tested with the participants. These included the dynamic, moving spring (Fig. 6), the chord diagram (Fig. 7) and the adjacency matrix (Fig. 8). The reasoning behind the chord diagram and the adjacency matrix view was to help the user see how their arguments were being progressed in the essay. The reasoning behind the dynamic, moving spring view was to

give the user some understanding of how the key words were chosen by the system, and how they were related to each other.

These were indeed complex representations which all the participants found difficult to understand. An example of their reactions is illustrated by Stuart's remark:

“A lot of people struggle with visual representation of things. I need a lot of help to interpret that and what that might mean.”

According to Bertin (1981), in order to perceive a graphic, two stages of perception are required. The first is to identify the elements in question and the second is to determine what is the relationship among those elements. The problems that arose for the participants with these complex visualisations were that the given elements were not immediately legible or comprehensible. More importantly, for the participants, the relationship between the signs in the graphic imposed too much of a cognitive load and the participants gave up trying to interpret them. They asked questions about how these visualisations could help the improve their essays and Lucy mentioned:

“If I was a linguist and I was analysing structure of text that might be interesting. I am not sure a student would know what to do with that if I'm perfectly honest.”

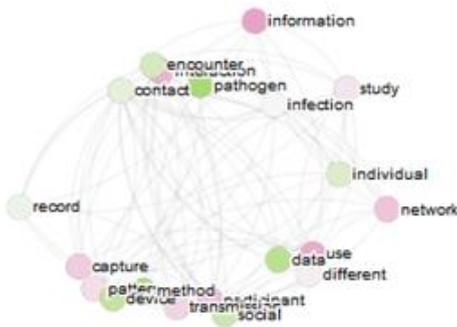


Figure 6: Key word spring

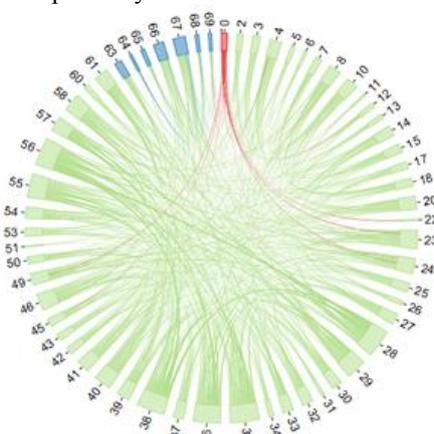


Figure 7: Chord diagram

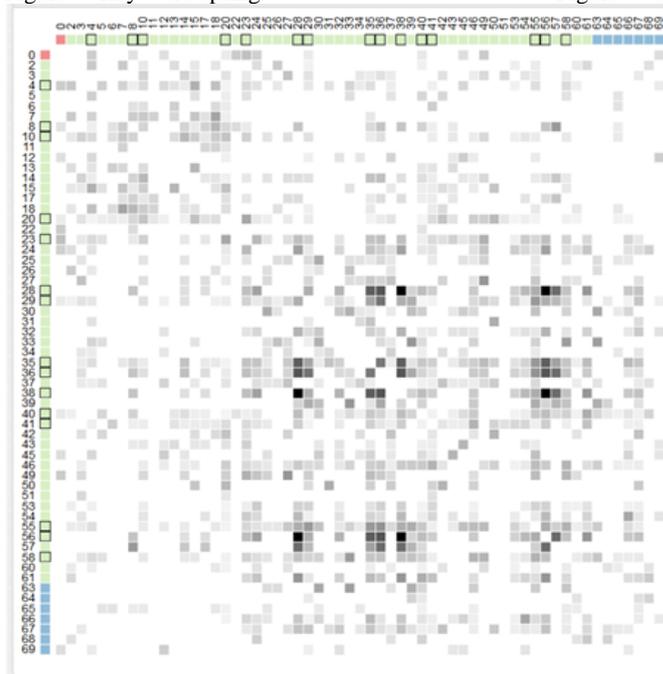


Figure 8: Key sentence adjacency matrix

## Conclusion

The user testing set out to understand how meaningful the external representations presented by OpenEssayist were to a group of users familiar with the types of summative assessments used by the Open University. A mixture of texts and graphics were understood by the participants with respect to the structure of the essay, i.e., the introduction, discussion and conclusion. The representations encouraged reflection on how key words and phrases were positioned within the text and whether the draft essays were adequately addressing the assignment question.

However, the more complex visualisations were more difficult for these “naive users” to comprehend. One suggestion from a participant was that these complex graphics could not be acted upon to facilitate further visual inspection. Although some interactivity was available, these did not provide further clarity for the user. These findings support the work of Wise et al (1995) who concluded that:

The success of other text visualisations will likely be determined by whether the user can manipulate them along the lines of their analytical intuitions.

Our future work into visual representations for OpenEssayist will concentrate on the visual metaphors that capture how concepts become understandable and the decisions that can be made for essay improvements.

Another area for exploration is animating the transitions (Yee et al, 2001) from one view of a representation to another that reduces the user’s incomprehension. Understanding graph structure, which is at the core of our representations, is indeed a well known and long term problem for creators of information visualisations. For us the complex graphics in which we were trying to illustrate nearness produced confusion.

These are interesting times for formative assessment. The provision of timely and pertinent formative feedback is becoming more widely available with the rapid developments that are taking place in web technologies. The challenge is how to exploit new insights from the Natural Language Processing domain to improve formative feedback.

## Acknowledgements

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# Enhancing Open Learning with Video Tutorials and Online Classrooms – a case study from Arab Open University, Oman

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## Abstract

The effectiveness of open learning is increasing worldwide because of the flexibility in accessing the learning materials from anywhere at any time. The use of Internet resources is high nowadays either in campus based course delivery or in distance education stream. This paper presents the experience of the author in successfully implementing open learning through online video tutorials and online classes in addition to the traditional face-to-face classes in Arab Open University (AOU), Oman branch. In AOU Oman branch, majority of the student strength comprises of working class people. The learning environment in AOU is mainly a mixture of independent study, and scheduled tutor-assisted sessions making the environment, blended in nature. In blended learning environment the number of face to face classes is less compared to traditional class room teaching. This gap can be bridged using video tutorials and online classes. Video tutorials from the course tutor will be very effective, especially for weak students. Online classes make the communication easier for students with their tutors. The course M359 – Relational Databases: theory and practice offered by AOU was taken as the case study to implement the online class. The software used in the development of video tutorial and online classes includes Camtasia Studio, Snagit and WizIQ. The findings of this research showed that the implementation of the above methods made high impact on students in better understanding and learning the concepts of M359 course.

## Keywords

Open learning, Online Class, Online Video Tutorial

## Introduction

Oman is a fast developing nation especially in the area of higher education. His Majesty, Sultan Qaboos bin Said, has placed great importance on the development of nation's valuable human resources i.e. students. According to his majesty, nations are built with the efforts of its citizens. The effectiveness of open learning is increasing worldwide. Open learning offers flexibility to the learners that they are able to study what they want, when they want and where they want (Open Colleges, n. d.). It is delivered either via traditional teaching methods or online. Open learning is supported by a variety of methodologies which includes printed textbooks, face-to-face lectures, online classes, video tutorials etc. Online learning or online learning is one of the methodologies in open learning. Hadengue (2004) describes online learning, as an educational concept, which utilizes local area networks (LAN), wide area networks (WAN), or the Internet to communicate and spread digital material in support of learning and students and teachers interaction. According to Syed (2006), it is said to be an innovative way of learning suited to meet today's learner's learning requirements, particularly as the industrial economy evolves into a knowledge based economy. The major benefits of online learning are:

- Allows two-way interaction between students and tutors via Internet.
- Learning can be achieved irrespective of distance, location and time zone.
- The resources can be accessed anytime from anywhere.
- Online materials can be updated easily and students can access the updated material immediately, without any delay.
- Some students are little embarrassed in classrooms to ask doubts or to express their ideas. Through online learning, they feel confident to clear their doubts and to express their ideas, which will lead to quality learning.

Online learning utilises technology and the internet for the delivery of learning (Gregory, S., Thuwayba, B., & Shirley Miske., 2008). Usually, this occurs through the use of computers, mobile phones and portable media devices using the internet. The idea of online classes is adopted in many educational institutions world-wide. These classes enhance learning in all subject areas through access to remote locations. Students and teachers from places far distant from each other and can share information. Communicating on-line eliminates the constraints of time and place. Online video tutorials are also an effective tool in teaching (Larry, n.d.). They offer many advantages. Students can watch video tutorials at their own convenient time. They will be more interested in watching video rather than traditional face-to-face classes. Video tutorials gain more concentration from student's side. These types of tutorials are good to explain lengthy and complex step-by-step procedures. The student can play the video any number of times until he understood the concept. The drawback of these tutorials is sometimes they are not specific to student's need and found to be complex to understand. But if the video tutorial is prepared by the corresponding tutor, it will be more effective since the tutor knows the scope of the course and the capabilities of his/her students. Students also will be interested to hear from their own tutor. In addition to traditional face-to-face classes, online video tutorials and online classes can be considered as best methods of open learning. The need and effectiveness of video tutorials and online classes by the course tutor itself in an open learning environment is discussed in the paper. The implementation of online video tutorial and online classes of course M359 – Relational Databases: theory and practice offered by AOU is presented as a case study in this research. Camtasia Studio, Snagit and WizIQ are the software used in the development of video tutorial and online classes.

The rest of the paper is organized as follows: - In the next section, background of the study is explained followed by related work. Online Video Tutorials and online classes are explained in the following section followed by Implementation. Results and findings are presented in the subsequent section followed by conclusion and future work.

## **Background to the study**

Arab Open University (AOU) is a non-profit, private Pan Arab University founded in 2002 (AOU, 2008). The university occupies several campuses located across the Middle East, including in Kuwait, Jordan, Saudi Arabia, Egypt, Bahrain, Oman and Lebanon. The learning environment in AOU is mainly a mixture of independent study, and scheduled face-to-face classroom sessions making the environment, a blended nature. In blended learning environment the number of face to face classes is less compared to traditional class room teaching. Most of the time, the students undertake self-study with the help of Internet resources, and conducts combine study with friends. In some of the courses tutors find it difficult to complete the topics within the stipulated time. Also the student understanding may vary in a class. Some of them will be quick learners, when compared to others. But due to time constraints, tutors may not be able to put extra concentration on weak students. There are lots of educational resources available in YouTube; but it is difficult to find out all the topics from a single resource. Perhaps, we have to search many resources to satisfy our needs. It is difficult to find a single resource customized according to the course outcomes of a particular course. So to support the students to overcome the above problems and to enhance their knowledge, the idea of implementing online video tutorials and online classes were adopted.

The implementation of open learning can lead to several benefits to students in Oman. Access to AOU, Oman branch is easily available mainly to students in Muscat, the capital of Oman. But there are many students studying at AOU Oman, who are far away from the campus. So students from interior regions of Oman find difficult to access the university to clarify their queries. If online teaching systems are popular, it will be easier for students to communicate with their tutors who are far away (geographically) from the university campus since majority of the students in Oman use Internet and web enabled mobile phones.

## **Related Work**

In mid 1990s, distance education courses were widely available, where the course materials (hard copy) were either posted to the student or converted into electronic form and uploaded into a website, so that students can download and study it. With the advent of Internet, things have changed. Internet was considered as a strong medium for teaching and learning and multimedia components called learning objects were designed which allows having a sharable and reusable environment. One of the

more popular learning object based system is LMS (Learning Management System), a software application suite that organizes and standardizes learning content, dividing the course into modules and lessons, supported with quizzes, tests and discussions (Downes, 2005).

*MATHLINE* is the first discipline-based educational service offered by Public Broadcasting Service (PBS) in U.S. (Portway, n.d.). *MATHLINE* launched its services in 1994-5 with a year-long professional development program for teachers of mathematics at the 5-8 middle grades. The main mission of *MATHLINE* was to provide students' high quality learning that will help them to become math literate adults and to deliver teachers with professional development opportunities via distance learning courses, video conferences, and electronic learning forums. *Project Homeroom*, a two-year trial program provides 500 Chicago-area elementary and high school students with computers, printers, modems, and network services for home use to extend the learning experience beyond normal school hours and to help students to improve problem-solving and information processing skills. *Cable in the Classroom* is an eighty-four-million-dollar per year project of the cable television industry that supplies free cable TV hook ups and 525 hours per month of commercial-free programming to schools (Cable in the Classroom, n.d.).

*Massachusetts Educational Television (MET)*, operated by the Massachusetts Department of Education, provides daily educational video programming throughout the state via television stations (Massachusetts educational television: program guide, 1985). In 2005, UK government launched *Teachers TV*, an education television channel which provided video and support materials for those who work in education in the UK, including teachers, school leaders, teacher trainers, and support staff. But the government funding for this channel was withdrawn April 2011, but all the content was made available for those organisations that would be able to provide free access to all the material for teachers nationally in the UK (*Teachers TV*, n.d.).

## **Methodology**

The implementation of online teaching was done by preparing video tutorials and by realizing online classes.

### **Online Video Tutorials**

Video tutorials present a huge amount of information within a short time. This method is quite inexpensive, since these video tutorials can be uploaded to popular social sites and can be shared freely. But even though a lot of video tutorials are available in Internet, in most of the video tutorials the contents may not match with what a student is exactly looking for. This will lead to waste of time in searching the precise video. Another problem is the accent of the tutor. Some students may find difficulty in understanding the accent. Language complexity is yet another problem. Most of the video tutorials are provided by eminent professors from reputed universities. So their level of explanation may be bit complex for an average student to understand. Also when we search for a specific video tutorial, sometimes we get into other related tutorials, and the search gets diverted. So s/he is deviated from the original objective which leads to waste of time.

These disadvantages made the author to think of recording and publishing his own video tutorial. There are several advantages for this. Students are already comfortable with the tutor since they are attending his/her regular face to face classes, which is inevitable part of blended learning. So the accent and the language of the tutor will not be a problem for them. Video tutorials can be constructed on specific topics according to the course objectives and outcomes set by the University. Students who miss the regular class can view the video tutorial to understand the topic. Even students from other branches of AOU can benefit from these videos.

### **Online Classes**

Students from interior parts of Oman are studying at AOU, Oman. Majority of these students are working in public sector/ private sector. During the semester, it was noticed that the student attendance was poor in some of the courses. This happens due to their official and/or other commitments. So the

result is that, they are not able to physically attend the classes scheduled in the University. Also due to some unexpected holidays, and bad weather, some regular classes were cancelled. Arranging extra classes were really challenging since it is difficult to find a common time slot acceptable for all students. Likewise, students from Salalah, the southern Omani province which is about 1000 kilometres away from AOU, Oman have major difficulty in learning courses since they have only one face-to-face session per month. So to overcome all these problems and to support the students, the idea of implementing online classes was initiated.

## Implementation

### Software

#### *Camtasia Studio*

Camtasia Studio is a video screen capturing utility that makes it easy to create video tutorials (Johnstone, 2010). Fig.1 shows the recording dashboard of Camtasia Studio. If the video includes narration by the tutor, connect the microphone and select the *Audio on* button and adjust the audio levels. To select the area either *Full screen* option can be selected or a *Custom area* can be defined by setting the *Dimensions*. The recording is saved in .camrec file. The size of the file is less compared to other video formats; but still the quality of the video is not compromised. Using Camtasia studio, we can record live webinars. Editing of the recorded video is also possible in Camtasia Studio.

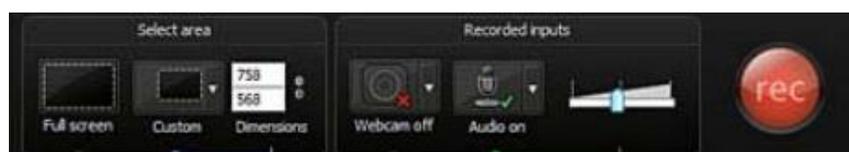


Figure1. Camtasia Studio - Recording Dashboard

#### *Snagit*

Snagit is a screenshot program that captures video display and audio output. It is created and distributed by TechSmith, and was first launched in 1990. Capture anything on the screen with the ultimate screen capture tool. With Snagit's easy-to-use tools, we can quickly create images and videos.



Figure2. Snagit

#### *WizIQ*

WizIQ is an online teaching platform that offers virtual classroom software for teachers, trainers, colleges and universities, high schools, and training and tutoring centers (The WizIQ Platform, n.d.). To use WizIQ, no need to download any other software. After installation, using a web browser we can successfully run an online class. It also includes features to develop tests and other types of assessments. The software WizIQ was purchased by AOU, Oman as part of the funded project from TRC (The Research Council, Oman).

## Development of Video Tutorial

The course, M359 – Relational Databases: theory and practice was chosen for this research because of the complexity of the course and low marks compared to other courses. This advanced computing course offers perspectives on relational databases. It introduces database management systems and the facilities required to store and access large collections of data in a shared user environment (Relational Databases: theory and practice, n.d.) It is a challenging level 3 course. Another reason of choosing M359 course as a case study is that failure rate in MTA (Mid Term Assessment) of this particular course was high compared to the previous semesters. So to support the students in preparing for final exam, the decision of implementing video tutorials of this course was taken. The topics were chosen according to the interest of the majority of the students, after discussing with them. Camtasia Studio and Snagit software were used in the development of video tutorial.

The existing power point presentation of the chosen topics was opened in Camtasia Studio. Using the microphone, narrations were recorded to the power point slides while navigating through the presentation. Fig. 3 and Fig.4 shows the recording of one of the slides in the presentation.

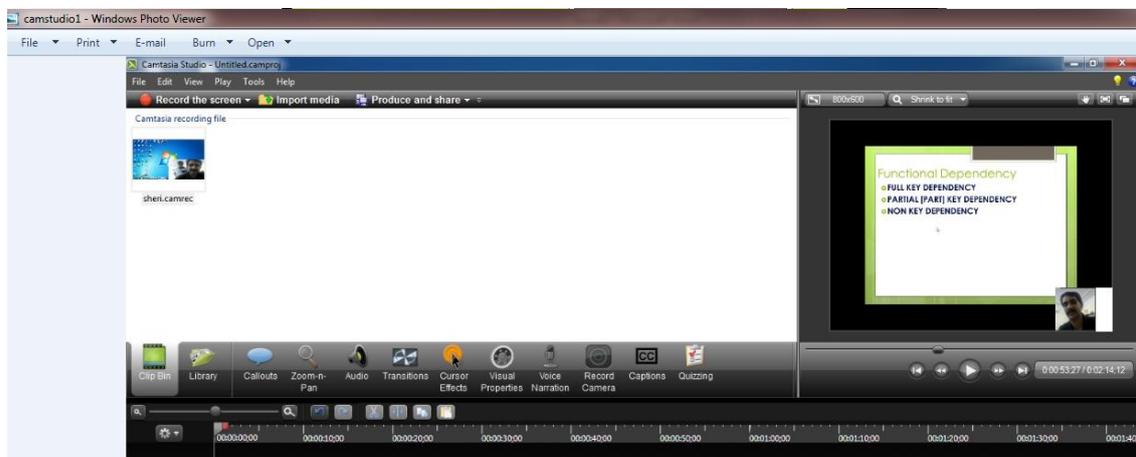


Figure3. Development of M359 Power Point Based Video Tutorial



Figure4. Recording of audio

To make the students well prepared for the final exam, another video tutorial was prepared on M359 Mock Final Exam, Spring 2013. This tutorial was developed using Snagit and made available in YouTube. All the students who registered in M359 course were able to view and understand the different parts/ sections of Exam.

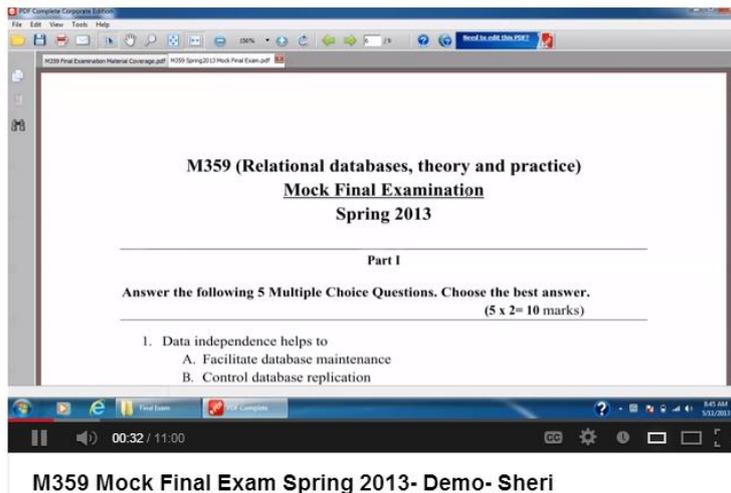


Figure5. Development of M359 Mock Final Exam Video Tutorial using SnagIt

### Implementation of Online Classes

Like in the development of video tutorial, the course M359 was also chosen to implement the online class. First an orientation session was done to introduce to the students, the features of WizIQ such as how to use microphone, how to raise their hands in case of any doubts, how to use chat box etc. Later the class of M359 was scheduled. As shown in Fig.6. to schedule a class, a title, date and time of class, the purpose of the class etc. must be filled. After the class is scheduled, the tutor can invite attendees (Fig.7.) and can start the class.

There is an option to record the class also. So the students, who can't attend the class on scheduled time can access the recorded class later.

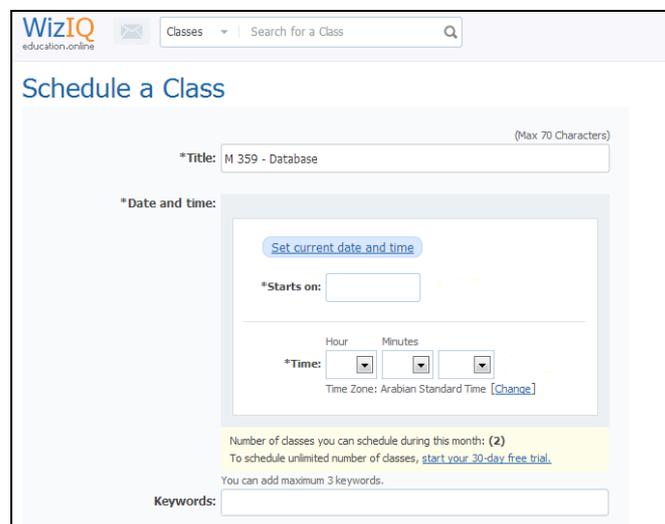


Figure6. Scheduling an online class

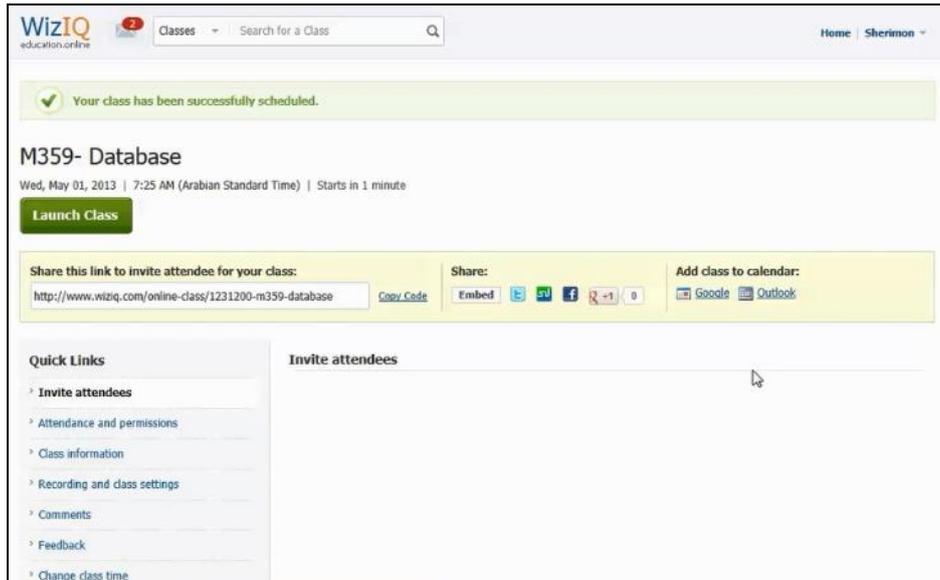


Figure7. Successful Registration of online class

The purpose of the class was to discuss Block 5 – Further Database Features. Tutors can interact with the students either by using Blackboard or by opening an existing document. During the class if a particular student was to ask questions, the student can raise their hands and then microphone will be transferred to them. Fig. 8. & Fig. 9. shows the tutor in an online class.



Figure8. Online Class – Screenshot #1

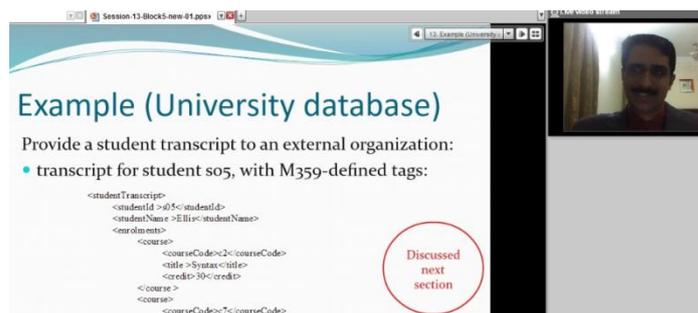


Figure9. Online Class – Screenshot #2

## Results and Findings

One of the main focuses of this research is to determine if the use of online learning has improved students to understand the topics of M359 very clearly. The online learning methodologies were implemented after the MTA (Mid Term Assessment) of M359 course. The link of video tutorial was

published in YouTube and about 80-85% of the students viewed it. The video tutorial on M359 Mock Final Exam was visited by around 90% of the students. This made them to understand the specific topics which need more attention while preparing for final exam. The online class to discuss Block 5 – Further Database Features was attended by more than 75% of the students.

To find the impact of online learning on students, a comparison of the results of final exam of M359 were with the results of MTA of M359 was taken. The total sample size was seventy three subjects taken from three class sections. It appears that most of the students who score low marks in MTA were able to get high scores in Final Exam. The results are visualized in Fig.10. This indicates their better understanding and learning of the course material as well on their better exam preparations through online learning.

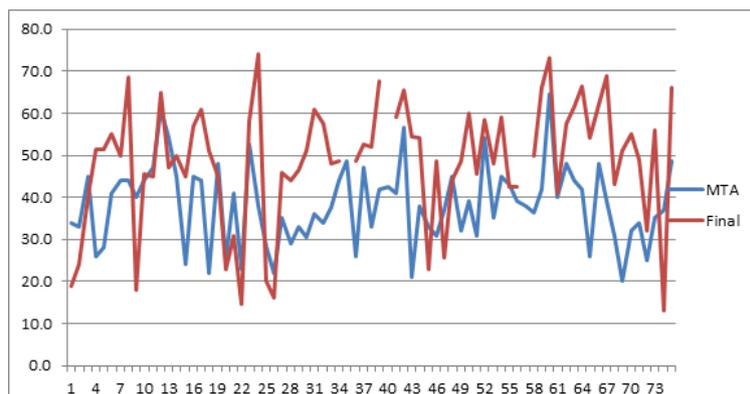


Figure10. Analysis of Student Marks (MTA Vs. Final)

## Challenges

The availability of high bandwidth and more sophisticated web enabled devices are really a challenge to open learning systems. Also the implementation of networks in interior regions of Oman is doubtful.

## Conclusion and Future

Students should be motivated to learn, either intrinsically (comes from within the student) or extrinsically (comes from the tutor). In this paper, the implementation of online learning through online video tutorials and online classes were presented. The course M359 – Relational databases: theory and practice was taken as the case study for both cases. An innovative approach of implementing online classes was presented to the students. The results of this research revealed the fact that the implementation of online learning methodologies made high impact on students learning and understanding. So this may be a challenge to the traditional face-to-face mode of teaching. But still traditional face-to-face learning cannot be replaced by any technologies. It must be supported with online learning methodologies. To achieve its full potential, technology must be integrated into all areas of the curriculum, not confined to "computer classes" as an add-on to the curriculum. Web offers us the potential to expand our classrooms beyond geographical boundaries. What we have to do is to take full advantage of emerging technologies in our teaching. The results were really inspiring, so the author is planning to implement the idea in other courses in a more effective way from the beginning of the semester.

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# An Automated Academic Advising System for E-learning Based Institutions

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**Abstract** – In this paper, an automated academic advising system which automatically advises the student during an online courses registration session is suggested. When a list of courses are available for registration, this system awards a priority value for each course and outputs for the student a sorted list, starting from most important course to the least important one. This priority value is mathematically calculated on the basis of some common techniques used by any experienced academic advisor. In addition, the suggested system is applied on Arab Open University's students who are seeking for a Bachelor of Information Technologies and Computing from the Kuwait Branch and a Graphical User Interface implemented in MATLAB is used to prove its effectiveness.

**Keywords** – Academic advising, e-learning, blended learning.

## Introduction

Though e-learning and blended learning are two different learning systems, they both rely on the use of technological tools such as Web, Internet, Intranet, CDs, etc. (Moore J. L., Dickson-Deane C., and Galyen K., 2011). These concepts are rapidly growing due to their various advantages (Spector J. M., Merrill M. D., Merriënboer J. V., and Driscoll M. P., 2008), (Liu Su-H., Liao Hsiu-L., and Pratt J. A., 2009), (Torrente J., et Al., 2010). One of their important advantages is time saving. Indeed, an e-learner can remotely, attend off-campus courses, access all needed learning materials and communicate with any of the administrative or academic staff of the learning institution to which he/she belongs. Such services are made available to the student through the institution's online virtual environment, commonly called "Learning Management System" (Mahnegar F., 2012).

However, both learning systems are also suffering from many disadvantages. For instance, while studying at distance, e-learners are not only physically distant, they are also mentally far away from the learning institution to which they belong and, more precisely, mentally far away from the tutor who is supposed to teach, guide, and give them advices. Consequently, e-learners might start exploring negative emotions that might affect their motivation to learning and discourage them to carry on their e-learning endeavour. Therefore, an "up-to-date" e-learning system (in terms of technological tools) is not the only factor leading to its success. An academic interaction between the e-learner and an academic advisor who instructs, gives advices and guides the e-learner to conveniently achieve his/her goals is also an important factor. This leads to the indispensable need of what is called an "Online Academic Advising System". Indeed, many e-/blended learning based academic institutions are now focusing on promoting and facilitating their advising process by creating online tools, that are accessible by the student at anytime and anywhere, and that might help the e-learner in quickly answering any of his/her pending questions.

However, many of the available online advising systems are asynchronous where, for instance, the advisee communicates with the advisor via email or by filling an online application that is sent to the advisor who then studies the case and replies within one or two days (G. Alex Ambrose and Laura Williamson Ambrose, 2013). These processes are reliable but are also relatively lengthy and require vigilant advisors who are always "online" to answer students' requests. On the other hand, some of the e-learners' requests tend to be repeated with time and, hence, some of them can be systematically answered. So, allocating a human tutor for the process of asynchronous advising while it can be computerized is a waste of time for both the tutor and the student, and a financial waste for the academic institution.

One of the most routine and time consuming e-learners' advising requests are those related to courses selection and registration. For an e-learner, especially a fresh one, this could be a complicated process since he/she has to identify his/her registration possibilities by attentively reading and understanding the courses' objectives and learning outcomes, and identifying their prerequisites. Hence, the e-learner perceives that it is better and more efficient to ask the question to a more experienced person, i.e. the academic advisor. However, though the academic advisor is more versed in the courses objectives and

outcomes, this person should also closely study the student's profile before giving him/her an appropriate advice, which is also considerably time consuming.

Now, imagine a blended learning based academic institution, such as the Arab Open University (AOU) – Kuwait Branch, where thousands of e-learners are asking for academic advising at the same time, usually at the beginning of each semester, to know what courses to register. An asynchronous online advising system is obviously not the ideal solution and is not straightforward. One alternative solution is “Automated Academic Advising – AAA” system.

In this paper, the academic advising in the context of courses selection and registration at the Arab Open University – Kuwait Branch – is investigated and an online academic advising system permitting its automation is suggested. The suggested system automatically optimises the graduation efficiency of the student taking into consideration not to negatively affect his/her GPA. Indeed, this system automatically guides the student during the registration process and permits him/her to register the correct courses as if an experienced academic advisor is giving him/her advices. Generally speaking, the suggested system identifies the possible courses that a specific e-learner can register in a given academic semester, automatically allocates a priority for each course, and finally sorts them from the most important to the least important one.

In the first part of this paper, the present registration system at the AOU is investigated and the ITC program academic plan used as a test-case plan for our advising system is presented. In the second part, the academic advising in the context of courses selection and registration at the AOU – Kuwait Branch – is studied and the academic advising major factors are identified. Finally, a mathematical model that combines all the identified factors is presented, graphically implemented in GUI-MATLAB and validated on several AOU students.

## **The AOU Registration System**

The Arab Open University is a blended learning based institution with several branches around the Arab World. Recently, it has been earning itself a reputation for its success in credibility and high educational issues. At present, the AOU has eight branches with five different faculties and it offers under and post-graduate degrees in many disciplines.

### **AOU degrees requirements**

To acquire a degree, a student affiliated to a given AOU faculty must complete a specified number of credit hours (CH) which is common to all the AOU branches including Kuwait Branch. For instance, an AOU student must complete 132 CH to acquire a Bachelor of Science (BSc) in Information Technologies and Computing (ITC) from the faculty of Computer Studies. These credit hours are distributed among the university's available courses which are in turn classified into three main categories: Mandatory University Requirements ( $\approx 15\%$ ), Faculty Mandatory Requirements ( $\approx 75\%$ ) and University Electives ( $\approx 10\%$ ).

On the other hand, completing all the required credit hours is not the only condition to acquire an AOU degree. The student must also maintain a GPA more than 2 and each semester the student's GPA becomes less than 2, the student gets one academic warning. Receiving 4 successive warnings, a student is automatically expelled from the university.

### **Registration System at AOU**

Each semester, the students use a rigorous online system called “AOU Student Information System” – AOU SIS – which guides them to register their courses online. The AOU SIS is a user friendly interface providing for each student his/her academic standing and graduation requirements: completed and remaining credit hours, list of all mandatory, faculty and elective courses, student's GPA, etc..

Moreover, the AOU SIS provides the student with the list of courses that are available for registration – whereas a course is “available for registration” if the student has already completed all its prerequisites. However, this system does not give the student any academic advice. It does not tell the student which of the available courses should be registered first. Consequently, a student especially a fresh one, who is registering online, could unintentionally ruin his/her academic plan.

### **A Test-Case Academic Plan: The ITC Program**

The ITC program of the faculty of computer studies at the AOU will be used as test-case plan to prove the effectiveness of the suggested automated academic advising system. Figure 1 illustrates the ITC

program courses hierarchy which shows the entire mandatory courses. While AR111, AR112, GR101, TU170 and all “EL” are university mandatory courses, all other courses are faculty mandatory courses. On the other hand, to complete all the graduation requirements, an ITC student must add to these mandatory courses an equivalent of 9 CH elective courses. However, elective courses are not presented here because their impact on the student’s study plan is negligible.

Figure 1 also shows the mandatory prerequisite of each course. Indeed, a course that is attached to lower level courses in the hierarchy is considered as a prerequisite for these lower level courses. For example, M129 (Applied Calculus) is a mandatory prerequisite for M130 (probability and statistics) so the student cannot register M130 unless he/she has already completed M129. Another example is English communication skills “EL111” which is a mandatory prerequisite for T175A, M131, M105, M150A, EL112 and T103.

Moreover, the academic plan illustrated in Figure 1 suggests that some courses are “preferred prerequisites” for other courses (represented by dashed lines). For instance, M150A is a preferred prerequisite for T103. So, though the student is allowed to register T103 and M150A after completing EL111 (their mandatory prerequisite), it is preferable to register M150A before T103. Indeed, from an experienced academic advisor point of view, it would be easier for the student to pass the T103 course after completing M150A.

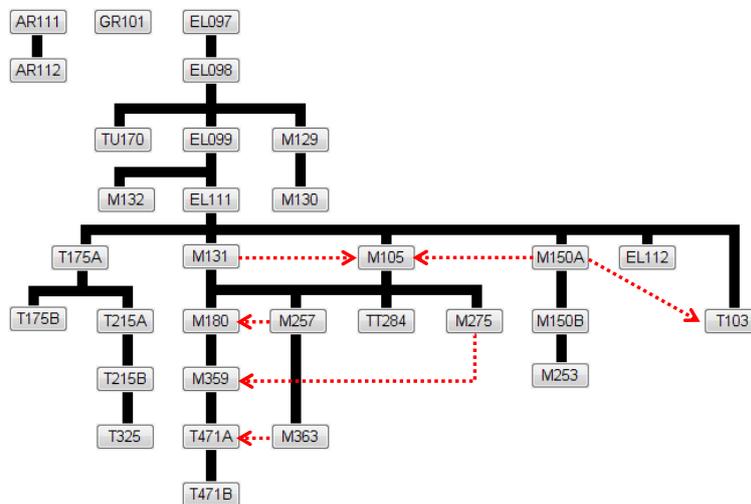


Figure 1. Test-Case Academic Plan: The ITC Program's Courses Hierarchy

## Academic Advising in the context of courses selection and registration

According to O'Banion (1972), there is a general agreement concerning the importance of academic advising for the efficient functioning of the learning institution and the effective functioning of the students. Nowadays, with the rapid technological growth and the increased adoption of modern communication systems in learning institutions and the rise of e-learning and blended learning systems, the student-advisor interactions are increasingly mediated by technology. Nonetheless, Ambrose (2013) stated that “the application of technology use in distance education and blended learning should not simply be about being more efficient in serving more students; instead, these practices should be about serving and engaging more students more effectively”. Therefore, even in a blended learning institution such as the AOU, the e-learner should be the ultimate beneficiary of any computerized academic advising system.

In the context studied in this paper, i.e. the context of courses selection and registration, the academic advising becomes narrowly focused on *how to help the student to efficiently achieve the graduation requirements*.

### Increasing the Graduation Efficiency (GE)

Generally, efficiency describes the extent to which time and effort are well used to perform a given task. In our context, “graduation efficiency – GE” would be defined as the number of completed credit hours over the time settled to pass them, where time can be measured by the number of completed semesters. Mathematically speaking, if “x” is the number of completed credit hours and “t” is the number of completed semesters, the graduation efficiency would be calculated as follows:

$$GE(x, t) = \frac{x}{t} \quad (\text{Eq. 1})$$

While the completed credit hours  $x$  in (Eq. 1) is basically a simple ascending variable, the time needed to complete  $x$  is not easily predictable and depends on many factors such as the student performance, planning and the university regulations. Indeed, as per (Eq. 1), a student's GE is inversely proportional to time and hence, *minimizing time increases the graduation efficiency*. Under ideal circumstances where the student has no problems in passing any course (the student does never fail any course) and in keeping up a high GPA, time can be minimized (so GE maximized) if the student respects the following conditions:

- To register the maximum allowed credit hours per semester which is generally fixed by the university regulations. For example, an AOU student can register a maximum of 21CH/semester.
- To follow a successful long term study plan: give more priority to a course that is a prerequisite (or preferable prerequisite) for many other courses and give more priority to speciality courses.

Nevertheless, this is only true for "A students" (excellent students) and cannot be generalized on all other students. Medium and poor students face other problems such as a low GPA and academic warnings which would threaten the future of their academic standing. Therefore, keeping a GPA up is also an important factor that should be taken into consideration in any academic advising system.

### **Increasing the GPA**

The student's performance and GPA are susceptible to decline at any time. When this happens, issues that are more problematic than a GE decrease such as obtaining academic warnings arise. As such, increasing the GPA becomes more important than increasing the GE since academic warning consequences are much more critical. Hence, it would be better to sacrifice the graduation time for the sake of a GPA enhancement. In practice, it would be better for the student to re-register the courses he/she previously failed to enhance his/her GPA rather than registering new courses to increase his/her GE (which also would be more difficult with a low GPA).

Moreover, to avoid the GPA decrease of a student, it would be better for the student to firstly register the courses that are considered as "preferable prerequisites" to other courses (cf. Figure 1).

### **Graduation Efficiency VS GPA**

Increasing the GE and keeping up a good GPA are both important factors that affect the academic standing of the student. During the academic advising process, a compromise between "increasing the GE" and "GPA enhancement" must be defined and it should revolve around the "student benefits" (Ambrose 2013). An academic advising system should hence *optimise the GE taking into consideration the GPA enhancement* rather than always trying to increase the GE at the expense of the GPA. This idea forms the basis of the AAA system detailed in the remaining part of this paper.

## **The Automated Academic Advising System at AOU**

The AAA system detailed here can be easily integrated as a part of the actual online registration system at the AOU, i.e. the AOU SIS. It is an intelligent tool that would help the student in identifying the most suitable courses for him/her. It allocates a priority for each of the available courses and presents them in a priority ordered list.

In the remaining part of this paper, let: " $L$ " be the list of available courses for a given student, " $x$ " be an arbitrary course of this list  $L$  ( $x \in L$ ) and  $Pr(x)$  be the priority awarded to the course  $x$ .

### **Calculating a Course's Priority**

The priority  $Pr(x)$  of each course  $x$  in the list of available courses  $L$  is based on a simple 4-digits mathematical positional number system. So,  $Pr(x)$  is expressed as  $Pr(x) = a_3a_2a_1a_0$ . For the AOU AAA system  $Pr(x)$  is calculated in base 10 as follows:

$$Pr(x) = \sum_{i=0}^3 a_i(x) \times 10^i \quad (\text{Eq. 2})$$

Where the coefficients  $a_3$ ,  $a_2$ ,  $a_1$  and  $a_0$  also depend on the characteristics of the course  $x$  and are calculated as follows:

- $a_3$  is the product of two variables  $Fail(x)$ ,  $CH(x)$ :
  - $Fail(x)$ : A Boolean variable defining whether the student has failed the course  $x$  before or not.  $Fail(x)=1$  (resp. 0) if the student failed (resp. never failed) the course before.
  - $CH(x)$ : The equivalent number of credit hours of the course  $x$ .
  - $a_3=CH(x)$  (resp.  $a_3=0$ ) if the student failed (resp. never failed) the course  $x$  before.
  - For the AOU AAA system,  $a_3$  can take any value between 0 and 8 (8CH is the highest equivalent number of credit hour that an AOU course can have).
- $a_2$  is the product of two variables  $Delay(x)$ ,  $GT\_Pref(x)$ :
  - $Delay(x)$ : A variable defining whether the registration of the course  $x$  should be delayed or not. Indeed, a course  $x$  must be delayed when one of its preferred prerequisites is not yet completed. As such,  $Delay(x)$  is set to 0 (otherwise  $Delay(x)=1$ ).
  - $GT\_Pref(x)$ : The minimum number of semesters that the student would need to graduate after passing  $x$  as a preferred prerequisite for other course(s). For example, when seen as a preferred prerequisite to M105, the student would need at least 5 successive semesters to graduate after completing M150A (respecting the hierarchy in the academic plan: he/she would register M150A, M105, M180, M359, T471A and T471B successively – cf. Figure 1).
  - For the AOU AAA system,  $a_2$  can take any value between 0 and 5 (refer to the preferred prerequisite courses in Figure 1).
- $a_1$  is the product of two variables  $Delay(x)$ ,  $GT\_Mand(x)$ :
  - $Delay(x)$ : Previously defined.
  - $GT\_Mand(x)$ : The minimum number of semesters that the student would need to graduate after passing  $x$  as a mandatory prerequisite for other course(s). For example, when seen as a mandatory prerequisite for M150B, the student would need at least 2 successive semesters to graduate after completing M150A (respecting the hierarchy in the academic plan: he/she would register M150A, M150B, and M253 successively – cf. Figure 1).
  - For the AOU AAA system,  $a_1$  can take any value between 0 and 8 (refer to courses hierarchy in Figure 1).
- $a_0$  is the product of two variables  $Delay(x)$ ,  $Type(x)$ :
  - $Delay(x)$ : Previously defined.
  - $Type(x)$ : The type of the course  $x$ . For a faculty course (resp. university course)  $Type(x) = 2$  (resp.  $Type(x)=1$ ).
  - For the AOU AAA system,  $a_0$  can take any value between 0 and 2.

Though base 10 is the most intuitive base for human beings, this is not the only reason for selecting this number as the base of our positional numbering system. Indeed, for the AOU AAA system, the highest value that a digit  $a_i$  can take is 8 and hence, any value bigger than 8 would be a valid base.

### The AAA algorithm

The AAA system automatically calculates the priority of each course  $x$  in the list of available courses  $L$  and then sorts these courses from the most important to the least important one (sorted list:  $SL$ ). Trivially, the equation (Eq. 2) suggests that the course with the highest priority is the one with the highest  $a_3$ , that is, a course the student previously failed. By this way, the AAA system always suggests to remove, as fast as possible, any 0 grade in the student's GPA while giving more priority for failed courses with higher weights (i.e. higher number of CH).

In addition, when two or more courses in the list  $L$  have the same AAA value, the one with the highest  $a_2$  value appears first. For instance, if the student already failed two courses (which are equivalent to the same number of credit hours), the course which appears first in the  $SL$  is the one with no preferred prerequisites, and blocking the maximum number of courses before graduation (as a preferred prerequisite). We note here that when a course is not a preferred prerequisite for any course, it is considered as a preferred prerequisite for the courses it is already blocking as mandatory prerequisite.

Recursively, when two or more courses have the same  $a_3$  and  $a_2$  values, the value of  $a_1$  would decide which one of them appears first in the  $SL$ . For instance, if two courses in the list  $L$  were never registered by the student before, both have no preferred prerequisite and both block the same number of

courses before graduation (as preferred prerequisites), the course which appears first in the SL is the one blocking the maximum number of courses before graduation (as mandatory prerequisite). Finally, when two or more courses have the same  $a_3$ ,  $a_2$  and  $a_1$  values, the value of  $a_0$  would decide which one of them appears first. For instance, if two courses in the list L were never registered by the student before, both have no preferred prerequisite and both block the same number of courses before graduation (as preferred and mandatory prerequisites), the course which appears first in the SL is the faculty course (and not a university or elective course).

Therefore, the AAA system always award highest priorities for failed courses, then for most important preferably prerequisite courses, then for most important mandatory prerequisite courses in the study plan and finally for the faculty courses. As such, a student who always registers the courses with highest priorities ensures that:

- He/She is following the best way to keep his/her GPA and hence, avoiding earning academic warnings.
- He/She is following a long term successful academic plan which permits him/her to optimise his/her GE, since he/she is:
  - registering the most important preferred prerequisites courses at the correct time.
  - registering the most important mandatory prerequisites courses at the correct time.
  - registering faculty courses as soon as possible.

### Validation: Implementation of the AAA system in GUI MATLAB

To validate the suggested AAA system, it has been implemented in GUI-MATLAB (Matlab's Graphical User Interface) and applied on many fictive students who are considered to belong to the ITC program of the Faculty of Computer Studies at AOU. The suggested algorithm proved its effectiveness in every test, however, due to the paper size limitation, only two tests are here presented.

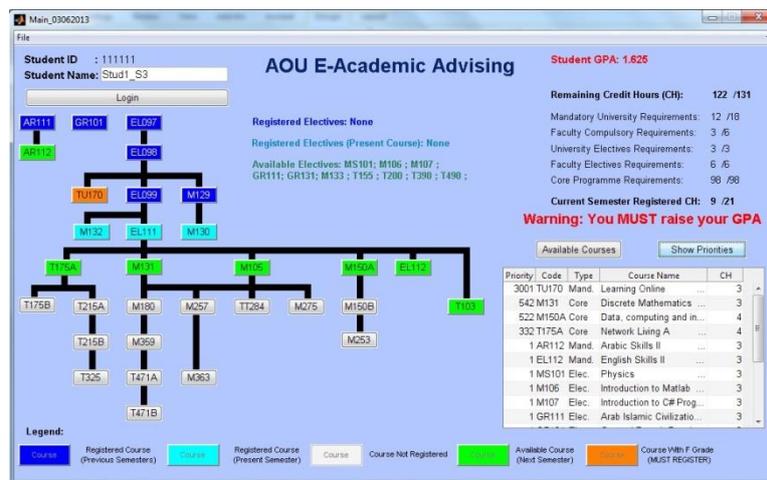


Figure 2. Snapshot of the implemented AAA system in GUI Matlab:  
A Student who previously failed TU170 course, and is currently completing: EL111, M132 and M130

Figure 2 is a snapshot of the implemented AAA system applied on a student who previously failed the TU170 course, and is currently completing: EL111, M132 and M130. During the registration period, this student is allowed to register any course in the following list:  $L = \{T175A, M131, M105, M150A, EL112, T103, AR112 \text{ and other elective courses}\}$  since he/she is supposed to complete their EL111 mandatory prerequisite. From an experienced academic advisor's point of view, this student should most importantly re-register the TU170 course in order to increase his/her GPA. The second registration priority the advisor would award is for M150A and M131 courses which are preferred prerequisites for the M105 course. Then, though M105 is an important requisite in the study plan (it blocks so many courses in the academic plan), an advisor would suggest postponing its registration until the student completes M150A and M131. Consequently, the advisor would then suggest for the student to register the T175A course, a requisite blocking 3 successive courses in the ITC plan hierarchy. Figure 2 shows that the output of the implemented AAA system is totally coherent with what an experienced advisor would suggest for the student. Another example is shown in Figure 3. The correspondent student is currently completing M105, M150B and T215A courses and is supposed to select from the following list during the registration

period:  $L = \{T175B, T215B, M180, M257, TT284, M275, M253, EL112, T103, AR112$  and other elective courses}. The academic advisor would strongly recommend this student to register the M257 and M275 courses because those are important preferred prerequisites for the important M180 and M359 mandatory requisites respectively. An advisor would not advise the student to register the M180 course before completing M257. Therefore, he/she would then recommend registering the T215B course which is blocking the T325 course in the ITC hierarchical plan while all other remaining courses do not block any of the remaining courses. If the student wants to register more courses to graduate faster, the advisor would suggest him/her to register any one of the remaining available faculty courses. Figure 3 shows that the output of the implemented AAA system is totally coherent with what an experienced advisor would suggest for the student.

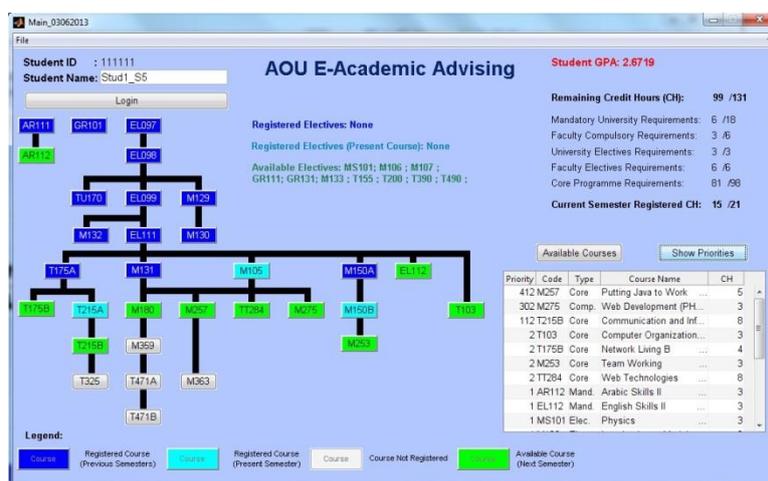


Figure 3. Snapshot of the implemented AAA system in GUI Matlab:  
A Student who is currently completing: M105, M150B and T215A.

## Conclusion

In this paper, an automated academic advising system which guides the student during an online registration session is suggested. It has been proved as an efficient tool that helps the student in optimizing his/her graduation efficiency by selecting the correct courses at the correct time. Indeed, it has been applied and validated on students at the Arab Open University who are seeking for a Bachelor of Science in Information Technologies and Computing from the Kuwait Branch. The validation results proved the effectiveness of the suggested automated academic advising system. Though this advising system has been validated on only one type of the AOU students, the mathematical aspect of this system permits its generalization over all types of students who are registered in any of the Arab Open University's Faculties and Branches.

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**THE APPLICATION OF COMPUTERS IN DEVELOPMENTAL  
WRITING CLASSES**

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**October 25<sup>th</sup> 2013**

## **The Application of Computers in Developmental Writing Classes**

### **ABSTRACT**

The application of computers in writing classes is a relatively new paradigm in education. The adoption of computers in writing classes is gaining ground in many universities, especially in the United States (US). Numerous issues can be addressed when conducting computer-assisted courses (CAC). However, few studies conducted to assess students' reactions, attitudes and development in such courses. A qualitative quantitative study is designed at a US Midwestern university to highlight details about students' development in a computer-assisted introductory writing course. Both qualitative and quantitative data are collected over a time span of an academic semester. Data sources include surveys and questionnaires, e-mail messages, student interactions, discussions and acts of writing during the semester. Content analysis is applied to find out the type of electronic interactions that took place between the students and the instructor and the students themselves. As for quantitative data, a Repeated Measure Multivariate Analysis with ANOVA is applied to find out the statistical differences between the group levels of this study.

Eleven students were enrolled in this study. To attain a deeper understanding of the students' learning experience, the study looks at how students respond to the instructions delivered by the instructor through the 'Blackboard' platform, the learning materials or feedback provided online or offline, the nature of interactions, and the students' cognitive development throughout the course.

The findings indicate that computer-assisted learning helps students become independent learners. Moreover, students' individual differences and learning styles affected their performance in the course. Some of the findings aligned with other research studies. These include: (a) readiness of resources (b) students' transition to the web-based learning (c) course and time flexibility are very positive aspects.

## **The Application of Computers in Developmental Writing Classes**

### **Introduction**

Research in the area of computer-mediated communication (CMC) and instruction has shown that using technology can provide students with a sense of empowerment and development of communicative abilities. It develops confidence in the students' learning abilities.

The concept of computer-mediated education (CME), i.e. the different manifestations of students taking courses via technology at the university level is not a new one. Thanks to increasing opportunities for interaction on the Internet, it is becoming possible not only to transmit instruction, but also to facilitate communicative and collaborative learning for 'writing students'.

A snapshot at traditional college classrooms gives an image of an instructor and a group of students who interact during the scope of a class period. However, the traditional classroom, described above, is no longer the only 'optimal' setting for teaching and learning. With the advent of educational technology, an 'optimal' classroom requires adequate technological aids, computers in particular to facilitate the learning process (See Mende, 1997, Powers, & Mitchell, 1997, Roybler, 2000, Rogers, & Kappus, 1995, and Schutte, 1996). In fact, the 'optimal' classroom is one, which instructors and students create, specifically to suit their own purposes and needs, and can change as the needs require. Communication between instructors and their students in such classrooms can take place either synchronously (at the same time), asynchronously (at different

times), or both. As educators, we should ask ourselves: how we can impact students' learning by applying technology (teaching efficacy), and how we can bring the world into the classroom.

Some of the aspects of this case study are: the application of technology (teaching efficacy), learning environment, access to technology, teaching style, developmental issues, and self-efficacy. A major goal of this qualitative quantitative study is to explore how each of these factors impacts the subjects' progress throughout a developmental writing course offered by a Midwestern University in the USA. This study intends to explore the benefits and limitations of teaching university-level developmental writing courses through the Internet-based Blackboard platform. So, the study will be an attempt to give insights into the effects of applying computers in developmental writing classes. It predicts that dramatic solutions will be explored to solve some of the difficulties that students encounter in basic/developmental writing courses. For example, spelling, grammar, fluency, and lexical problems can be significantly solved by the application of some of the Internet features. The study also predicts that the application of computers can facilitate and reinforce the currently dominant process-oriented approach among students of developmental writing.

### **Justification & Rationale:**

Currently, technology is having an unparalleled impact on societies since the Industrial Revolution. In fact, the potential impact of one form of modern technology, i.e. the Internet has been likened to that of the printing press more than 500 years ago (Crawford, 1995; Hemphill, 1995). These days, students have greater opportunities for

taking university courses online. Black, et. al. (1995) highlight the importance of using computers as indispensable educational tools in the sense that students are highly motivated to use and work on them as they move further into the 21<sup>st</sup> century.

What this study hopes to do is pointing out the areas of difficulty for developmental writers and how computers can help in overcoming all or some of these difficulties. From the outset, I would like to make it clear that what I mean by the general term “computer” is the combination of ‘Word Processing’, the prepackaged educational website called ‘Blackboard’ and the ‘External Links and Internet’. These platforms, as well as the ‘Discussion Board’, which is part of ‘Blackboard’, will be used interchangeably throughout this research paper.

Some questions that this case study needs to answer are:

1. What is special about computer-aided writing classes over traditional writing classes?
2. What is the impact of computers on students’ progress in writing classes in terms of pedagogy and fluency (language related matters)?
3. Do computers empower students and instructors of writing or not?
4. What is the impact of accessing the Internet-based Blackboard platform, particularly its ‘Discussion Board’, E-mail, and ‘External Links’ features on developmental writing students?
5. What extra merits can a computer add to the writing class that a traditional class cannot?

### **Research Question:**

The primary question of this research study is:

How and to what extent does the application of computers in writing classes affect the progress and fluency of developmental writing students? More specifically, what is the effect of using the Internet-based Blackboard platform, particularly its 'Discussion Board', E-mail, and 'External Links' features?

Potential limitations of the study are the following:

- The population will be limited to (11) basic/developmental writing students.
- Conclusions and recommendations of the study are restricted to the population surveyed.

### **Definition of Technical Terms Used in This Study:**

General familiarity with the following terms will help readers follow references to specific functions of the computer throughout this research paper.

#### ***Blackboard:***

A software developed by universities to offer courses online to students. It provides students with course-related information such as: announcements, course information, staff information, course documents, assignments, books, communication, discussion board, external links and student tools.

***Computer Mediated Communication/Education (CMC/E):***

CMC/E describes computer applications that facilitate communication and/or education. Examples include electronic mail, computer conferencing, and electronic bulletin and discussion boards.

***Discussion Board/Conference:***

Users post asynchronous messages to be read and responded to by a larger group of people. Bulletin Boards can be public (open to any Internet user) or private (open only to members of a particular group, e.g. a class).

***Discussion List/Listserv:***

Through e-mail, participants form groups to discuss (asynchronously - the writer and reader do not need to be online at the same time) topics related to particular themes. An e-mail message of any of the users is distributed to all subscribers of that list.

***Electronic Mail (e-mail):***

Users send and receive individual written messages. It is the online equivalent of sending a letter through the regular mail.

***External Links:***

A function in the blackboard software that Links learners with the outside world.

***File-Transfer Protocol (FTP):***

A function through which users can transfer files from their Internet accounts to their computer hard drives (flash memories) and vice versa.

***Hypertext:***

Hypertext is a non-linear text that consists of units of information called chunks, fragments, cards, frames, folders, or most the common unit is “pages” documents.

***World Wide Web (WWW):***

A worldwide 'library' of pages of pictures, texts, data, graphics, audio and video connected through keyword links. Through WWW, users can view documents, and then connect to other related documents anywhere in the world by clicking the mouse on a word or phrase. Popular software interface, such as Netscape or Internet Explorer, facilitate the navigation and use of the WWW.

**Review of Literature:**

The literature reviewed for this study includes material both in print, i.e. books, journal articles, etc., and online. The review presents a brief explanation of the idea of switching from a traditional writing classroom to a computer-aided writing (CAW) classroom. A good part of this review of literature is dedicated to the factors that play

significant roles in (CAW) classes. This review is never comprehensive, nor is it meant to be.

With the introduction of Computer Aided/Mediated Communication/Education (CMC/CME) into the field of education in the late 1960s, there is a noticeable paradigm shift in education at all levels. Mason, Robin & Kaye (1989) provide an overview of the research and experimentation in teaching and learning with CMC during the 1980s. That is, the courses that are developed at one particular time and accessed by students at another time. This of course, allows students greater flexibility in scheduling efforts and in the learning process in general.

Sandholtz, Ringstaff, and Dwyer's (1997) stated certain stages of instructional evolution. This study takes for granted the first four of the stated stages; these are: (1) Entry (2) Adoption (3) Adaptation (4) Appropriation. This study starts basically with the fifth stage, which is '**invention**', where the instructor changes his/her classroom into a student-centered, individualized, collaborative, project-based learning environment. Normally, these are the five stages through which instructors move as they transfer from instructor-centered lecture-based instruction to a more student-based dynamic mode of instruction. The first stage '**entry**' is a period of initiation when instructors are approaching the practice of using computers for instruction with either fear or enthusiasm. The second stage is '**adoption**' during which instructors essentially use computers as an add-on. That is an attempt to manipulate technology to fit existing teaching strategies. The third stage '**adaptation**' sees technology being integrated to a much greater degree. Practically, traditional teaching techniques stay very much in place, but instructors start to see some real possibilities for the new technology. The major

theme of adaptation is productivity. Instructors realize that they may be able to accomplish more through the use of technology than with traditional approaches. The fourth stage ‘**appropriation**’ is when the instructors master the technology to the extent that their attitude toward technology starts to change. At the end of ‘appropriation’, instructors can no longer imagine teaching without technology, i.e. the new practices gain ground or replace the old ones. By the time instructors get to the fifth stage, which is ‘**invention**’, they redress their classrooms into a fully student-centered, individualized, collaborative, project-based learning environments. Since the focus of this study is on the last part of the fourth stage, and the whole fifth stage, this study will concentrate on the evaluation and progress of student learning through this growth in instructional techniques.

Research has recurrently showed that, overall, students have a positive reaction towards the use of computers in language classrooms. In a case study that attempts to assess the students’ attitude towards computers in language classrooms, Boyd & Davis (1995) found out that on a 5-point Likert scale where 1 = very negative and 5 = very positive, the student mean was 3.92, which is relatively high.

Bloch, and Brutt-Griffler (2001) conducted a study that focused on how teachers implemented software for composition classroom purposes and how their students responded to the implementation. The focus was on human-computer interaction (HCI). The study took a yearlong implementation of CommonSpace in L2 writing environment for undergraduate and graduate writers in an ESL writing composition program at a large Midwestern University.

The researchers concluded that the CommonSpace as a tool for students' negotiation and construction of meaning could be successfully incorporated into L2 composition methodology. The general conclusions that were reached by this study were: (1) that in comparison to similar classes that did not have this component, some of the class time was devoted to learning how to use computers, the Internet, and e-mail. That is because many students came from countries where these technologies were not pervasive. (2) the software provided a means by which teachers could write clear and concise comments that could be read and understood by students. (3) the software facilitated peer review by enabling students to send files to each other regardless of what platform they were using; or, students could respond to each other simply by exchanging seats in a computer lab. (4) the software provided an environment for students in which they could easily access external links, such as writing handbooks, or online dictionaries. (5) the software allowed for the electronic exchange of papers, which broke down some of the constraints of time and space for both teachers and students.

Sankar (2000) investigated student attitudes about Web vs. lecture formats and how they affect learning outcomes. Attitudes toward the Web along with learning strategies were measured using a survey and learning performance by test scores. The findings suggest that students tend to enroll in the format according to their attitude and learning strategies. When they do not, learning outcomes are adversely affected. ESL students who were recent immigrants preferred the Web format. The conclusion is that matching course formats with students' attitudes and learning strategies enhances learning performance.

Computers become immense libraries of sound materials for language learning classrooms. In her Dissertation, Ozen (2000) concluded that online learning paves the way for students to become independent learners. Independent learning in the sense that traditional learning in no way can provide. In their research on implementing Common-Space (basically the Internet) in the ESL composition classroom, Bloch & Hirvela (2001) indicated that despite occasional reservations, the use of computers has permeated the composition process. They argued that exchanging papers with other students as well as easily accessing resources such as writing handbooks through external links could enrich students' language proficiency. Reading papers on the computer screen, various drafts of papers, and comments from both the instructor and peers could develop a particular reading-writing environment for students. This environment is in the heart of the process-oriented approach, which is the most widely used approach in writing classes up today. The application of computers would also help students make positive use of collaborative learning. Moreover, it helps students to track their own linguistic capabilities and language proficiency.

Educators believe that a student-centered approach is one of the most effective ways to integrate technology into the curriculum. Swan and Mitrani (1993) found that classrooms become more student centered when computer-based instruction is used, and that students receive more individualized instruction. Likewise, Emerson (1998) reported that computer-based instruction is highly interactive and individualized. Similarly, Mandinach and Cline (1996) report that instruction-involving technology is more interactive and that teachers serve as facilitators rather than content experts.

The same as Swan and Mitriani (1993), Waxman and Huang (1996) found that the use of technology results in less whole class instruction and more independent work. They also found that using technology increases on task behavior. Robin and Harris (1998) indicated that computer-using educators are more learner centered in their instructional approaches than otherwise.

Research has shown that computer-assisted education (CAE) has an advantage over traditional education. Schutte (1996) and Teeter (1997) have conducted two different studies to compare a traditional classroom and web-based instruction learning. The results of Schutte's study indicated that the (CAE) class referred to as the 'virtual' class scored an average of 20% higher than the traditional class in examinations. Teeter's study showed that benefits observed from the computer-assisted (CA) course included higher student motivation, exposure to extended resources, and improved quality of discussion and written assignments.

Carlson (1997) conducted a study to look at the effectiveness of (CA) teaching using a 'virtual' classroom environment. Also examined are techniques that college professors can use to make their students feel involved in the class as a community. An example of a (CA) course offered at a corporation during the summer of 1997 is described. An informal survey of the seventeen student participants revealed that all but one of them enjoyed the (CA) course format. The majority of students cited convenience and flexibility as advantages of the course; major disadvantages were lack of oral communication in class discussions. Also, Guernsey (1998) states that students enrolled in regular college classes are taking (CA) courses for convenience.

Starting the 1990s of the last century, computers have become an accepted tool in writing centers, almost as integral to the setting as chairs and tables. Scharton, M. (1989) wrote an article entitled "*The Third Person: The Role of the Computers in Writing Centers*". He addressed how the computer influenced writing classes. Using four case histories, he depicted what he considered "the four most important areas in which computers affect the process of tutoring other writers: tutor-to-client dialogue, macro structural revision, surface editing, and printing" (p. 37). His central argument is similar to Pamela (1987), who argued that writers could revise texts so easily that students experience writing as a fun and experimental process rather than an unpleasant task. With the computer at their side, tutors also work more comfortably as facilitators; they experience less pressure to help students manufacture their writing. Farrell (1997) claimed that "The computer seems to act as a catalyst to open the dialogue necessary for an effective tutor-writer relationship" (p. 32). Scharton indicated that "the effects of computers are as various as the personalities and intentions of the people who use them" (p. 47). His article ended by encouraging the reader to make use of the tremendous potentials of the technology.

Scharton and Neuleib (1990) wrote an article entitled "Tutors and Computers, an Easy Alliance." They discussed a survey they conducted of writing center tutors in which tutors were asked how the advent of computers had altered their composing and tutoring strategies. They concluded that tutorials have become more flexible and productive since students have been able to visualize changes to their text and alter them immediately using a computer. The most important aspect of this article is that it admits that "the potential for extending center services through electronics is just beginning to be understood" (p. 50).

Balester, V. (1992) published an article entitled "Transforming the Writing Center with Computers". She foresees that instead of relying on traditional one-on-one exchanges, virtual writing centers will sponsor undercover student tutors who participate in (CA) class discussions about writing. Balester proposes that this will keep individual tutors from gaining a voice of authority and will encourage students to develop their voices in a community of writers while unknowingly benefiting from the insights of a knowledgeable, trained moderator besides the instructor.

Harris & Pemberton (1995) co-authored an article about Computer Assisted Writing Labs (CAWLs). They briefly describe the major approaches in synchronous and asynchronous communications that are utilized to extend one-to-one writing assistance into virtual communities. They caution against trying to simply reproduce face-to-face tutorials in a (CA) environment. They discuss the most frequently employed options for providing writing tutorials in a network environment, explaining each of them (e-mail, WWW, newsgroups, and synchronous chat systems) in terms of an original "model of computer interactions". Harris and Pemberton also briefly discuss other topics relevant to constructing a worthwhile Computer-Assisted Writing Center (CAWC), including "user access, network security, computer illiteracy, institutional missions, writing center goals, computing center priorities, and computer programmers' attitudes" (p. 145). An integral part of Harris's philosophy is that writing centers have a duty to assist students as they prepare to enter a technologically advanced information society.

Coogan, D. (1995) published an article entitled "E-Mail Tutoring: a New Way to Do New Work". The article specifically highlights a common form of (CA) Writing: e-mail tutoring. It consists of three main sections: First, he gives a history of the

relationship between writing (centers) and computers. Second, he speaks in theoretical terms about employing e-mail to perform consultations. He believes that the exchange of ideas by electronic means allows writers to engage in productive dialogue about a workable text. He admires the fact that communicating in writing allows writers and tutors to exchange ideas more honestly and frankly, and encourages each of them to take risks. The third section of the article is a case study of his own experience as a tutor and instructor who applies CAW in his classes. Coogan admits that there is a great deal of potential in this medium of writing, particularly in its ability to break down barriers between formal and informal writing, but like Healy (1995), he cautions against embracing it without thinking through the implications.

Palmquist, Kiefer and Zimmerman (1995) published an article developing a computer-assisted writing center. It illustrates the degree to which the concept of the Computer Assisted Labs (CALs) had penetrated contemporary writing center theory. The authors give an insightful account of using a writing center as a base of operations for a writing-across-the-curriculum program. They discuss how their CA writing center with its extensive offerings, ranging from CA tutorials to chat programs to electronic bulletin/discussion boards, contributed to the success of the Writing and Computer (WAC) program. The virtual writing center, with its increased visibility and feasibility, attracted both students and faculty.

Flannery Silc (1998) published an article entitled “Using the World Wide Web with Adult ESL Learners”. The study was primarily developed for the military, and then adopted by universities as a medium for research and a source for authentic language

learning experiences. The article highlights the importance of the Internet as a network that links computers all over the world through listservs, bulletin/discussion boards, and newsgroups in English as a second language (ESL) and foreign language classrooms.

This article presents reasons for using World Wide Web activities in adult ESL instruction. It mentioned some of the language skills with which learners can interact in order to build basic language skills that can be developed through the World Wide Web. For example, a number of websites were created especially for English learners and contain exercises in grammar, vocabulary, writing, or reading (e.g. Lingua Center Grammar Safari <http://deil.lang.uiuc.edu/web/pages/grammarsafari.html>).

The article concludes that The World Wide Web is an immense library of authentic materials for the language-learning classroom. ESL instructors can use the Web in the classroom to help prepare learners for the workforce, to introduce them to different cultures, and to help them improve their English language skills.

Boyd and Davis (1996) conducted a study entitled “The Impact of Selected Computer Resources in High School Spanish and French Classes”. The purpose of this study was to examine the effectiveness of using word processing and Internet resources on the achievement, writing quality, and attitudes of fourth-year language students. A non-randomized two-group pretest-posttest design was used to compare achievement, writing, and attitude differences between foreign language students who use computer resources and those who do not.

The researchers hypothesized that Spanish IV and French IV students who write and edit their written work using foreign language spelling and grammar tools, who

correspond with 'real-world' audiences on the Internet, and who use computer resources from other countries written in the languages being studied would:

- score higher on standardized and teacher-made achievement tests.
- produce higher quality writing samples.
- exhibit more positive attitudes about learning a foreign language than their counterparts who learn foreign languages in the traditional manner without computer resources.

***The results of this study show that:***

1. Teachers found no major difference in quality between hand-written and computer papers except for appearance or readability and improved spelling. Although students could revise their work more easily, many chose to use the time saved for other purposes than rewriting. In addition, some students did not take advantage of the spelling and grammar-checking feature. They did not examine the choices presented, read the explanations, or note that the computer program did not always recognize errors.
2. Although writing did not improve noticeably, students wrote more, and some have started to use mail to correspond with the instructors (in the foreign language). Students also have submitted homework assignments as e-mail attachments rather than printing out a "hard copy." In addition, teachers have started using e-mail to send homework assignments and respond to students.
3. Students had a positive attitude to the use of computers in the foreign language classroom. On a 5-point Likert scale where 1 = very negative and 5 = very positive,

the student mean was 3.92 ( $S = .45$ ) on the attitude toward computer scale. In addition, no significant difference existed between French and Spanish students.

4. Students cited three key advantages to writing with the computer: spell and grammar checker, on-line dictionary, faster writing, and a general belief that use of technology in itself was an advantage.
5. Revising material written by hand was far more difficult than revising material written by computer. Approximately 93% selected writing by computer because one could check homework easier, it was faster, papers were easier to revise, papers looked better, and students believed that technology is the future of society.
6. Foreign language teachers noted five major positive aspects of using computers to improve students' communication skills:
  - Students could concentrate on ideas rather than mechanics of writing.
  - Students could revise and edit.
  - Students learned new computer skills.
  - Students enjoyed the computer.
  - Students saw "real-life" applications of foreign language in context.

### **Methodology:**

This is a qualitative quantitative case study, which focused on the learning experience of eleven undergraduate students registered in a developmental writing class. The study is conducted based on interpretive/constructivist paradigm to trace the progress of the participants in this class. Denzin and Lincoln (1994) defined qualitative research as an interpretive multi-method approach to the study of people in their natural

surroundings. The study describes the instruments, which basically consist of two questionnaires and a survey, the student papers and their multiple drafts. In this case, a case study is an ideal methodology, especially when a holistic, in-depth investigation is needed (Feagin, Orum & Sjoberg, 1991).

### **The Course: Developmental/Basic Writing:**

Developmental and/or Basic writing will be used interchangeably all through this paper. It is basically a web-based course, which is designed for students who plan to move on to higher-level English composition or literacy courses. Students in this course are usually first year undergraduates. The course is a prerequisite for English composition (I). The course provides students with a good background about the rubrics, or the conventions of writing at the college level. This means that toward the end of the course, students have to show proficiency in the following skills: (1) Rhetorical knowledge (2) Critical thinking- reading and writing (3) Processes (4) Knowledge of the conventions of college writing.

Qualitative research is defined by Creswell (1994, pp. 1-2) as “An inquiry process of understanding, a social or human, based on building a complex, holistic picture, formed with words, reporting detailed views of informants, and conducted in a natural setting.” Thus, this case study was designed to analyze three of the students’ required papers and their multiple drafts. It was also designed to bring out more details from the viewpoints of the participants by using multiple sources of data. Moreover, a thorough understanding of the uniqueness of this case study is a major objective as is the case with any other case study.

This study seeks to trace the progress that eleven developmental/basic writing students go through in their (English 099) writing course. The Internet-based Blackboard platform, particularly its 'Discussion Board', E-mail, and 'External Links' were used in the course. Correlations between the level of use, attitude, proficiency, and appropriateness, as well as the students' progress will be determined. Data were collected from that class within the span of an Academic Semester. During this time, students' interaction with computers, their interaction with the instructor and among themselves, as well as their writing progress was monitored. Each student's first, second, and final papers as well as their multiple drafts were collected. The students' language errors were identified, categorized, tabulated, and analyzed. Analysis of, and comparison between their earlier and later writing efforts were made. A Likert scale survey and open-ended questionnaires were administered to assess the students' use, proficiency, and attitudes towards the application of computers in this writing course. The *SPSS* statistical package was used to analyze some of the collected data.

All students were required to write (3) papers; multiple drafts, at least three, were required before the final clean copy. Every written act done by the students was analyzed with the *SPSS* program. The researcher also has an access to the mutual electronic interactions between the professor and the students, and the students themselves that take place on the 'Discussion Board'. Thus, it is realistic to expect that the findings of this study could be applicable to similar ESL learning situations worldwide.

***Procedures for Data Analysis:***

Bogdan and Biklen (1997) indicate that data analysis is a constant process and an integral part of data collection. In this study, the data analysis was truly a constant

process that ultimately guided the direction of the study. The three required papers and their multiple drafts (at least three drafts for each paper) were reviewed and graded initially by the instructor. Thus, the instrument will be designed by categorizing the types of mistakes students commit in this writing course. The papers and their multiple drafts were reviewed once more by the researcher in order to identify the errors, code them, categorize them, quantify them, and analyze them.

*Strategies for Analysis - Content Analysis:*

As an integral part of content analysis, the researcher looked at the content of the students' email messages and Discussion Board postings to determine the nature of interactions that took place during the course. According to Schwandt (1997) content analysis is a generic name for a variety of textual analyses that typically involves comparing, contrasting and categorizing a set of data.

In this study, the basic content analysis was that of students' papers and their multiple drafts. **First**, each language-related errors/problem in a paper or a draft was identified, coded, classified, and categorized. **Second**, the frequencies of the errors/problems in each of the student's papers and drafts were measured. **Third**, a statistical analysis was made. As mentioned earlier, each student was given a chance to write each paper at least three (3) times; this means that each student has written the total of nine (9) drafts. Repeated Measure Multivariate with ANOVA was used to trace the students' writing progress overtime. It was applied to determine whether there were significant differences between the first and the following drafts of each paper.

Moreover, the researcher referred to the ‘course statistics’ provided by the ‘Blackboard’ platform. The overall statistics about students were the following: (1) Total number of accesses per area (2) Number of accesses over time (3) User accesses per hour of the day (4) User accesses per day of the week (5) Total accesses by user. Upon these information, inter and intra-correlations between these statistical findings and the students’ performances were made.

### ***Instructional System:***

Actually this course does not require more than the average computer literacy that is crucial for the progress of any college student. Two instructional systems were applied in this course: synchronous and asynchronous. The web-based Blackboard’s utilities, particularly its ‘Discussion Board’ and the email were the main asynchronous delivery systems that connected the instructor to the students. ‘External Links’ was an invaluable source that connects students with other communities of writers through [www.powa.org](http://www.powa.org).

Students indicated that the application of computers gave them a lot of flexibility to do work for this course at a suitable time. They found that writing with the computer was more convenient than the traditional way of pencil/pen and paper. Some students emphasized that the indispensable ‘equipment’ for writing such as dictionaries and grammar helpers were available on the web. Whenever such ‘equipment’ are needed, students were able to access them simultaneously and limitlessly. Student # (5) once wrote *“I know that dictionaries and grammar helpers are there; all I need is to use them more and more.”*

The syllabus, the prerequisites, parameters and goals of the course were posted on the course web page. It was made clear to the students that the ‘Writing Lab’ would be an excellent place to visit fairly frequently. Students’ comments indicate that the students were motivated for this new experience. The majority of students indicated that the application of the internet-based Blackboard gave them very convenient flexibility to do their writings and review them whenever they please. Students emphasized that all the necessary course materials were accessible through the course web page; so, they had a chance to access them limitlessly. They indicated that this is more or less a 24-hour accessible course no matter when or where the student might be.

Another valuable component of the asynchronous learning system of this course was the email. It actually made the horizontal (students among themselves) and vertical (students and instructor) communication very easy all through the course including weekends. The instructor’s role was basically (1) director (2) facilitator (3) brainstormer, and (4) manager of the course. Anything related to the course was posted on the course web page on one of the following sites on Blackboard: ‘announcements’, ‘course information’, ‘course documents’, or ‘discussion board’. This means that anything students may need was a few clicks away.

Students were required to consult: (1) *The American Heritage Dictionary*, or a “good” college dictionary. (2) *A Writer's Reference*. (4th edition) by Hacker, Diana. They were also required to read a required novel called *Parable of the Sower*, by Octavia E. Butler. Students were required to connect the chapters they read out of the novel with their own real life experiences in their writings. Thus, not a single draft in any of the

papers is void of at least one or two reflections on the novel. So, in this course reading and writing were going hand in hand. This strategy is in line with the common belief that a good writer is most probably and primarily a good reader. Students' readings were by no means restricted to this novel. They were encouraged to be inspired by what they read, and to apply the knowledge they get from their own readings.

Students were encouraged to participate on the individual and group level discussions. In fact, participation in this class was unavoidable, simply because every student had to review, edit, discuss, write and/or post, respond to, or comment on something. The class was more like a workshop, where everybody had no choice but to do his/her share.

### **Grading System:**

Students in this course were not graded on their early drafts simply because the instructor believed that doing so would be grading them based on the knowledge they brought to class rather than on what they learned during the class. At the end of the course, students submitted an accumulation of what they had written during the course. Students' papers were, then, graded. For the sake of space, the researcher will apply the following criteria to evaluate papers that score A & C:

1. A grade of (A) was reserved for papers that were excellent in thought, organization, and style. The (A) papers are the ones that used sound organizational strategies, with clearly developed paragraphs proceeding from a unified thesis. The ideas themselves were engaging and showed illuminating insights into the subject. Assertions were

supported by evidence. There were very few distracting errors in style, diction, or mechanics.

2. A grade of (C) was generally given to a paper that would be called ‘clearly acceptable, but not exceptional.’ A (C) paper showed a competent understanding of the assigned topic, but whose insights did not go beyond the obvious points that most papers make. A (C) could also be assigned to an inconsistent paper that showed some excellent insights but that failed to tie ideas into unified wholes.

### **External Links:**

Students were encouraged to refer to and carefully read extra material through ‘External Links’ or the ‘Web’ to be stimulated by other peoples’ writings that can be good examples and models to imitate. Before writing a paper, it was recommended that students should read chapters of the assigned novel as well as some essays and articles through the External Links. Although most of the students remarked that there were definite advantages of those External Links, however they do not use them as much. Students reported that they generally read some article or essay every now and then, but some of them believe that was time consuming. Student number (3) commented that:

*“ ... It would be much easier to ask someone in the Writing Lab or the tutor about something rather than reading what is on the External Links. However, we sometimes have no other choice”*

Other students, on the other hand, believe that the material on External Links is very significant and helpful. Actually, External Links do not only enrich a subject through additional supporting or related information, but also provide the means for fast and easy navigation between different sources and types of information. External Links

are the windows of the course through which students can view the rest of the world. Thus, in order to further their writing abilities, students were required to develop sound reading habits. Extensive readings would enrich students' writing skills; the students' ideas would intermingle with other peoples' ideas. This enrichment could broaden the horizons of students, acute, and finely tune their writing skills and capabilities. In this course, all students' papers were types of responses to certain chapters from the assigned novel.

### **Computer as a means of cooperative learning:**

Computer-assisted writing provides a good opportunity for collaborative and/or cooperative learning. Cooperative learning was virtually applied in this course. Students exchange screens to edit each other's writing. They peer review, build on, comment on, suggest and add threads of thought to each other's pieces of writing. The 'Discussion Board' was a spirited forum where students share and exchange ideas and thoughts about their papers and writing strategies. According to (Johnson & Johnson, 2001), cooperative learning is arguably the most researched instructional method in education. Cooperative learning can be defined as students working together in small groups. A group of students could be doing their own work while talking to each other, but there is no structure, or positive interdependence (Ibid, 2001). When implemented correctly, students benefit from cooperative learning by achieving high academic success, as well as, developing positive and supportive relationships that boost self esteem (Ibid, 2001). Slavin (1996) identified four theoretical perspectives on cooperative learning and achievement: (1) motivational (2) social cohesion (3) developmental, and (4) cognitive elaboration. Much

research has shown that students who receive help from a peer learn more than students work alone, and that those who tutor learn more than either group.

A variety of cooperative learning activities facilitate the writing process. All these activities such as brainstorming, revision and editing were applied in this course. Students naturally communicated with each other without any sense of anxiety; they actually shared their composing potentials with the rest of the class. Major advantages of peer editing were the good chances that were given to students to read, comment on, and benefit from the multiple sources of new information and knowledge that other students have. This will ultimately help students to achieve and sharpen their own higher-level thinking. They begin to see that writing is a learning process– a notion that coincides neatly with the tenets of the constructivist theory of education, where learners construct their own understanding.

It is the researcher's belief that psychologically, cooperative learning triggers creativity and gives learners a chance to build on each other's ideas, concepts and ways of thinking. Once these ideas and concepts are understood and internalized, they become integral parts of the students' permanent construct of knowledge, which is at the heart of the constructivist theory of learning.

Despite the fact that all students have Internet access from home, many of them prefer to use the Writing Lab, where there is always a writing tutor working in the lab as a consultant to assist them in case help is sought. Students mentioned that the multiple drafts they write for each paper, and the feedback they get from the instructor have

contributed to their learning. All students were comfortable communicating class-related material online. They greatly appreciated the flexible dimension of this learning system.

### **The Nature of Interaction in this Class:**

#### **➤ *Student-Content Interaction:***

In computer assisted courses, instructional interactions include “interactions that take place between learners and the content they are trying to master” (Ozen, 2000, p. 86). Students, then, are expected to construct their own knowledge from the materials provided on the course web page. Except for the optional readings accessed through External Links, the material provided for this writing course was their actual acts of writing. The time they spent on thoughtful, focused and genuine writing was a real engagement in learning. That is because the best learning mood takes place when students participate actively and engage themselves with the actual study material. So, in this course, the student-content interaction was basically the journals, peer reviews, summaries, drafts and papers students wrote in and out of the computer lab. The following chart shows that there was a constant student-content interaction all through the course. It shows how many times each student did an act of writing:

<i>Student number</i>	1	2	3	4	5	6	7	8	9	10	11
<i>Acts of writing</i>	29	21	42	20	22	21	34	35	13	23	18

➤ ***Student – Instructor Interaction:***

Apart from electronic communications, the instructor provided help both face-to-face during class and office hours, and online through the ‘discussion board’ and email. That guarantees prompt responses to their enquiries. The instructor’s messages on the ‘discussion board’ usually include reminders that encourage the students to see or ask him if they have any questions. The students’ sense of security, their self-confidence, and their sense of being motivated have contributed in helping them proceeding well in this course.

***Interaction through the ‘Discussion Board’:***

During this course, constant interaction took place through the ‘discussion board’ between the students and the content material, students and the instructor, and among the students themselves. The ‘discussion board’ activities occurred as a result of in-class and out-of-class writing assignments. It holds the total of (179) messages; all of which are inherently related to the course. Each and every message was nothing but a short act of writing and an addition of a new thread to the content material. If we divide them evenly amongst the students, the average will be (17.2) messages per student. However, during this course the students (11 students) have accessed the course web site (4577) times to read the latest, contribute to the discussions, or get updated about the course.

**Accessing the Course Website:**

Table (1) below illustrates that there was neither significant correlation between the number of visits/accesses to the course web page and the number of actual acts of writing (journals, or initial drafts) nor the students’ grades in this course.

**Table (1)**

*Students' final grades, total number of accesses, and total number of acts of writing as illustrated in the following table:*

<i>Student Number</i>	<i>Grade</i>	<i>Total Accesses</i>	<i>Acts of writing*</i>
<b>1.</b>	<b>C+</b>	273	29
<b>2.</b>	<b>C-</b>	280	21
<b>3.</b>	<b>B-</b>	504	42
<b>4.</b>	<b>C</b>	100	20
<b>5. ESL</b>	<b>IP (Fail)</b>	669	22
<b>6. ESL</b>	<b>C</b>	290	21
<b>7.</b>	<b>C+</b>	556	34
<b>8.</b>	<b>B</b>	212	35
<b>9.</b>	<b>A</b>	432	13
<b>10.</b>	<b>B-</b>	307	23
<b>11.</b>	<b>B</b>	90	18
		<b>Grand Total (3713)</b>	<b>Grand Total (278)</b>

\* Each time a student wrote related to the papers 1, 2, 3.

➤ ***Student – Student Interaction:***

Students were strongly encouraged by the instructor to interact among themselves in the form of study groups, idea instigators, brainstormers, editors, reviewers or proofreaders. Students who participated in such interactions indicated that they received tremendous benefits from such informal and cooperative type of learning. Although this interaction might seem voluntary, however, not a single student could evade active participation. If a student did so, s/he would feel abandoned, isolated, or left behind. Each student was expected to add a new thread, which would in turn encourage a cycle of threads that collectively would provide constant and constructive feedback. Students' comments on the discussion board reflected their belief that they learned a great deal from interacting with other students. As a result, they collaboratively learned invaluable skills of writing that ultimately showed a positive difference in their writing capabilities.

It is true that learning is an individual enterprise, but the quality support that a learner gets informally in a cooperative learning environment can be improving, diverse, fruitful and productive. Cooperative learning environment familiarizes the learner with other learners' writing styles. They learn how to develop a model of their own skills and knowledge. Many educators consider collaborative learning a goal that is worth pursuit; they consider it important in itself and in terms of increasing the learners' efficiency in problem solving and learning. It can help students monitor their own writing style and capabilities; it can also reduce anxiety, possible frustration and lack of confidence.

### ***Students' Motivation and Attitude Towards Computer:***

Students took this course because it is convenient, i.e. the 'equipment' needed by writers such as dictionaries and other resources are at their fingertips. Statistics showed that 61.74% of the participating students 'Strongly Agree' that the pedagogical aspects of this computer-aided writing course were practical, effective, helpful, comfortable and powerful. Student # 7 once remarked that:

*"... if you miss the class discussions you will not miss whatever posted on the discussion board, class announcements or course documents on Blackboard".*

The same as the majority, it is noticeable that this student has accepted society's messages about computer technology and saw it as having positively and permanently marked her life. Students' tendency towards abiding by the commonly held belief that the need for computers is inseparable from quality education is a strong indication that these students are indeed receiving and reproducing society's enthusiastic messages about this helpful technology in our modern world. To them, being computer literate is a mark of literacy, strong character, hard work, sophistication, and perseverance.

### ***Strengths and Weaknesses of the Course:***

Except for few cases, the students' personal experiences with this developmental writing course indicated that the areas of strength and weakness are as follows:

#### ***Strengths:***

- Convenient/Flexible communication – can be done on student's own time.
- Resources are available 24 hours.
- Constantly revise hard copies available to review away from the computer.

- External links connect you to related and helpful resources.
- The instructor is accessible anytime even weekends.
- Helps students' personal growth, independence and sense of responsibility.
- Gives chance for individual talents to outreach knowledge.
- Immediate feedback from the instructor or classmates.
- A good platform for students who benefit from cooperative learning.
- Easier to record, modify, re-modify, and build on earlier drafts.
- Handy and beneficial Microsoft Word features (spell and grammar check, etc.).
- Easier to manipulate the texts.
- Internet has put immense amounts of knowledge under students' disposal, so they are a few clicks away from these immense amounts of knowledge.
- Students have a dual benefit of face-to-face and CA education.
- Students feel themselves on task and at the far end of the pool (of learning) from day one of the course.
- The course can take the student as far as s/he can go.
- Students have had a good extracurricular experience technology-wise.
- Easier to write more in number and bigger in size texts.
- Easier to avoid mechanical errors such as spelling mistakes and fragments.
- Easier to make use of helpful software, and benefit from online communities of writers.

**Weaknesses:** the reported areas of weakness were few due to the fact that the course was a combination of online and lecture type. They could be summarized as follows:

1. Language barrier on the part of one of the ESL students.
2. The adjustment to the system took some students some extra time.

***Writing Strategies Applied in this Course:***

In this course, the ‘discussion board’ was a good platform for brainstorming. Students as well as the instructor posted and exchanged ideas using the ‘discussion board’. These exchanged ideas were a good resource for generating and elaborating on new ideas. The application of computers in this course enabled students to review their ‘old documents’, i.e. their earlier drafts. These ‘old documents’ were good sources for generating new ideas; they also helped as organizational and format templates for new documents. The researcher noticed that students’ papers were frequently built on previous papers. Students were encouraged to make a habit of keeping old documents on their computers, to consult them whenever they start working on a related topic. Browsing the web helped learners see how other writers had treated a certain topic. It also alerted learners to recent developments on that topic. Sometimes, exchanging electronic mail helped bring students’ ideas together. They asked questions like “What do you think?” to gain a different perspective on a topic and to elicit new ideas about it. Reading the messages posted on the ‘Discussion Board’ served purposes similar to browsing old documents or browsing the web. Students were constantly encouraged to respond to the messages they came across if these messages arose their interest. Students in this class wrote the minimum of one journal per week. These journals were basically reflections on

conversations, and explorations of new ideas for their new papers. Some students used to jot down and save ideas or a running list of notes about their new papers as they come to their minds. Besides the recommended web sites provided through ‘External Links’, students were encouraged to create lists of useful web sites such as ‘Online Writing Center Links’.

Writing usually starts with ‘**planning**’. Computers were helpful in planning when students used multiple windows to jot down notes from different resources. The second step was mostly ‘**drafting**’, where students tried to put full-fledged thoughts and ideas into full-fledged sentences and paragraphs. Compared to pencil/pen and paper, computers are proven to be faster, easier, more practical and more accessible. Students in this course found it easy for them to write, erase, cut, paste, modify, add, cut again, rewrite, and save as many files and as many drafts as they want. All the word processing facilities were at their disposal. They were able to reuse or ‘recycle’ old documents or texts. Computers made it a lot easier for students in this course to use different strategies such as different colors, outlines, divided screens, several windows, or fonts to distinguish things. In drafting, computers were excellent arenas for collaborative activities. The instructor used to let students collaborate in a ‘round-robin’ fashion, with every student reviewing and revising chunks of writing drafted by other students. Students used to write a page or so on the screen, then, the instructor asked them to exchange seats and edit each other’s writing. In other occasions, students were asked to publish their pieces of writing on the ‘discussion board’ for editing and revision by other students. In the process, students could pass their drafts back and forth until they were satisfied with them. Word processing programs support comparing, tracking, and annotating documents.

The researcher concluded that the peer review activity let the students recognize that other students could have similar difficulties in composing their ideas. Peer review also helped them to discover whether they themselves were making their points effectively. The third step was **‘organizing’** where students organize their initial writing efforts. Computers allowed students in this course to organize and reorganize documents by making it easy for them to move text from one part of a document to another, and by allowing students to view documents in different ways. Computers were good tools for students in this course to edit their papers. These tools were mainly useful for checking spelling, grammar, and style; editing for consistency, variety, and avoiding errors as illustrated below:

***Editing Spelling:***

Unlike pencil/pen and paper writing, which requires a dictionary next to you all the time to check spelling mistakes, computers do the job for you. “Spelling checkers are particularly valuable because they allow you to focus on your ideas, your audience, and your purpose as you write – rather than on lower level concerns with spelling” (Palmoquist & Zimmerman 1999, p. 44).

***Editing for Grammar and Style:***

Word processing software provides a quick way to review a draft for basic grammar, mechanical, and style problems. These features work pretty much the same as spelling checkers. The same as spelling checkers, they have both strengths and weaknesses. More often than not, computers skip some grammar and style problems. That is basically because of the following: **(1)** there are so many exceptions to the rules,

(2) grammar and style checkers cannot identify all the permutations of language constructions that might arise in any one context, (3) acceptable usage varies widely among the vast areas of specialties, (4) different specialists and people of interest interpret the rules differently, and (5) English develops over time (see Palmoquist & Zimmerman 1999). Students in this course used to review their grammar and style when they saw their texts flagged. They clicked the right button, reviewed the suggested change, clicked ‘change’ to accept, or ‘ignore’ to skip the proposed change. Whenever the writers are unsure, recent software gives them a chance to click on the checker’s ‘help’, ‘explain’, or ‘rules’ button, and it displays the rule, and explanation, or the required help. Some of the students, however, waited until they were done; scrolled up to the top of the document, saved the document first, and started the grammar and style checker by clicking on an icon on the button bar or by using the menu.

The application of computers also gave the students in this course a chance to: overcome lexical problems, speed up their writing, sort out their lists and references, and correct themselves. Students made an excellent use of thesaurus to improve their diction. They frequently used synonyms to add consistency, variety and flavor to their style. Students were able to speed up their writing. They were able to correct themselves within seconds throughout the application of the ‘Find’ and ‘Replace’ commands.

***Format, Layout and Document Design:***

Students in this course made good use of the facilities that the computer provided in this respect. All their assignments followed the well-known assignment guidelines. So, all their assignments were ‘Time New Roman’ typed, double-spaced, 12-point typed, 1.5

inch margined on all sides, page numbered, with names, course title, and assignment subject in the upper left-hand corner of the first page. Other features such as viewing, inserting, cut and paste, font style and size, bulleting, line spacing, indentation, aligning, tables and figures to name a few were also accessible from the screen. The application of all or some of these features on the part of our subjects increased the effectiveness and readability of their documents. The writing and computer skills that the students mastered in this class were really an excellent scaffold for higher and more advanced courses.

This course was just a first step and a basis for what is going to be next. The researcher expected students in advanced courses to be able to do so many more things such as gathering information online, locating online information sources, locating online library catalogs, locating databases such as ERIC (a database on educational issues that includes citations and abstracts of articles, conference presentations, manuscripts, and reports published since 1966), and MLA online. A lot of valuable materials including online books, online writing centers, dictionaries and style guides, glossaries, thesaurus, encyclopedias, grammar guides, style and citation guides, online texts about writing processes and genres, and online writing centers, to name just a few, are available on the World Wide Web. Students of writing could also consult grammar guides online. Students could also join online writing communities via e-mail discussion lists, newsgroups, web sites, weblogs and chat channels. These allow learners to discuss and share ideas, collaborate on projects, and request information about certain topics.

***The Most Recurrent Categories of Mistakes in the Students' Papers:***

Table (2) below was composed by the researcher to show a list of the most recurrent categories of mistakes in the students' papers and their drafts, as well as their frequency; categories are arranged in their order of frequency:

**Table (2)**  
**The frequency of the recurring mistakes in the students' papers and their drafts**

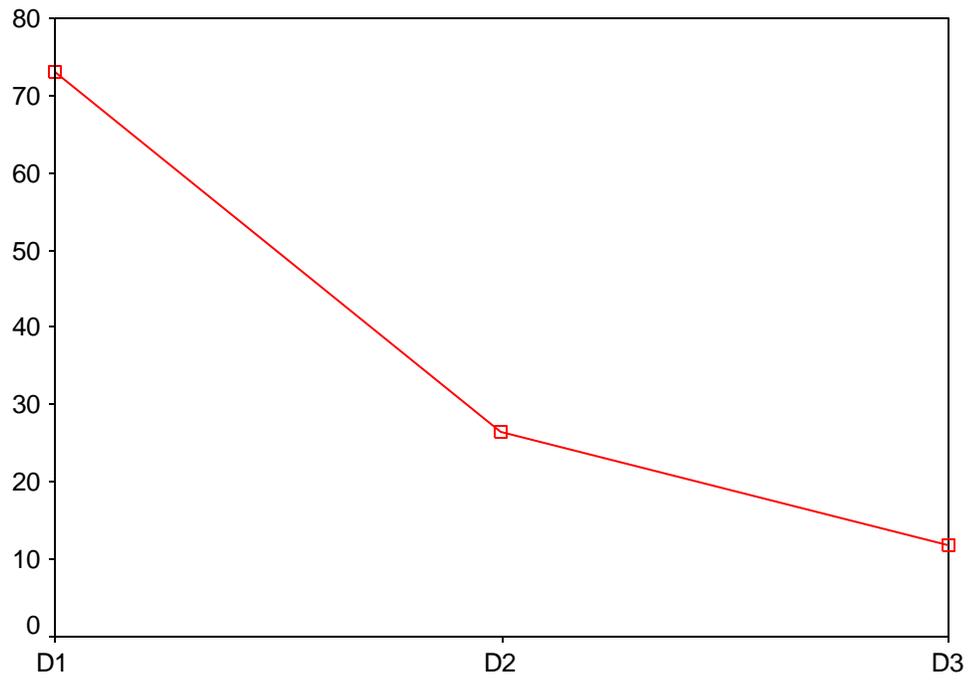
<b>Type of Mistake</b>	<b>Frequency Paper (1)</b>	<b>Frequency Paper (2)</b>	<b>Frequency Paper (3)</b>	<b>Total</b>
1. Grammar & Syntax	325	174	243	742
2. Punctuation mistakes	280	104	138	522
3. Missing word or wrong choice of word/phrase	189	114	128	431
4. Alternative word/expression; rephrasing or addition by the instructor	173	92	119	384
5. Awkward, vague or incomplete structure	148	106	98	352
6. Redundant word/sentence	121	67	78	266
7. Drawing attention due to lack of specifics and details	119	74	68	261
8. Spelling mistake	92	52	54	198
9. Transitions/connections between ideas	78	48	48	174
10. Clarifying question (input that requires more clarity)	66	25	39	130
11. Proofreading (Students should proofread their writing)	48	34	46	128
12. Fragment	49	29	38	116
13. Lack of clarifying example	46	29	26	101
14. Paragraphing (students should consider a new paragraph.	33	48	20	101
15. Lack of topic sentence	23	5	7	35

It is true that the computer was a good helper in certain areas. However, a closer look at the students' papers showed that there were categories of mistakes where the computer was of no help. This means that the application of computer was neutral with some of the categories, i.e. its presence or absence was indifferent.

As mentioned earlier, each student in this study was given a chance to write each paper (3) times. This allows for measuring the students' progress throughout a total of 'Nine' drafts during the course. The statistical results revealed by the Repeated Measure Analysis (RMA) with ANOVA reflect an overall improvement in the students' writing abilities over time, and in all the papers and their multiple drafts. Examining students' writing over time indicates clearly a significant decrease in the number of errors. Figures (1, 2 & 3) below are pictorial images of the estimated marginal means; they trace the students' writing over time. They show a steady and constant drop of the number of errors as shown in the three drafts of the three papers, where:

***D = draft**, and. the figures on the Vertical Axis represent the number of mistakes committed by students.*

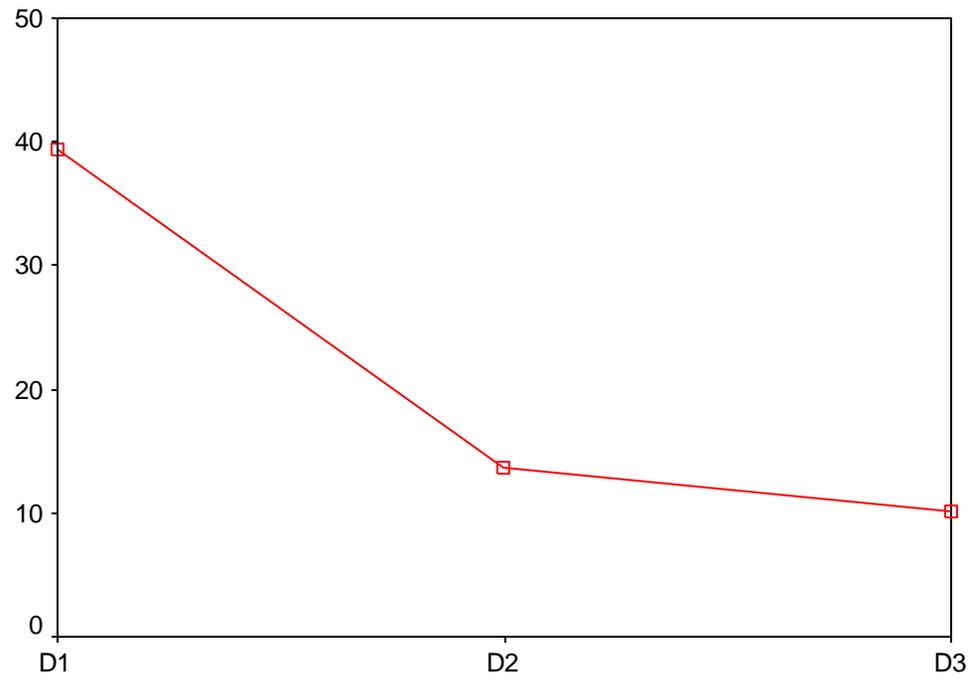
# Estimated Marginal Means of Paper 1



PAPER 1

Figure (1)

## Estimated Marginal Means of Paper 2



PAPER 2

Figure (2)

### Estimated Marginal Means of Paper 3

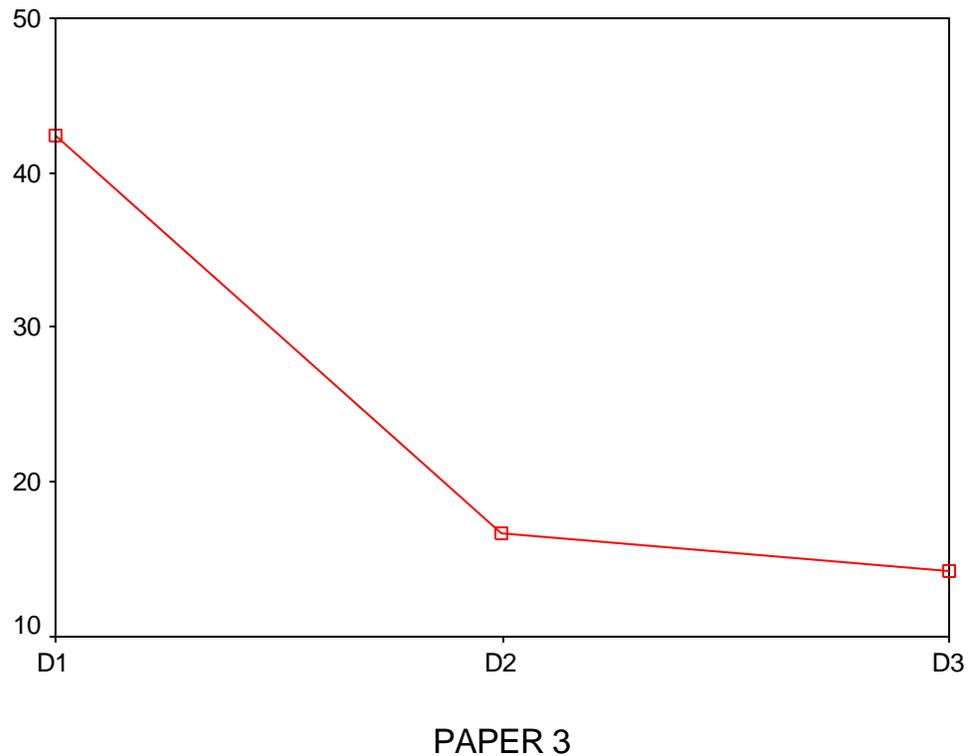


Figure (3)

As shown above in the ‘pictorial trace of students’ writing over time’, the slopes of the repeated measure in the three papers show that there was a constant and steady improvement in the students’ drafts and papers alike.

A good question could be: was that improvement due to the application of the computer or not? As I said earlier, there were areas where the computer was no more than a neutral device; it barely lent any help. There were areas, however, where it could draw the attention of the writer to a potential error. Moreover, computers could connect and provide writers with very rich and vast sources of help and guidance. They were facilitators to the extent that they changed the process of writing from a burden to a joy

and fun on the part of the students. Practically, their usage was in the heart of constructivism, where learners could constantly build on, and add to their previous technical and pedagogical knowledge.

Thus, the computer as a device had never been a magical instrument that could switch people from poor writers to good writers over night. Computers are no more than tools that put the necessary and crucial equipment that instigate writers ready at their disposal. Moreover, the software that is available so far is an excellent tool that plays the role of the editor. Actually, the swift turn of people all over the world to the application of computers is an indicator that nobody gives a second thought about the efficiency of computers at almost all levels. This by no means can be available or accessible to people, who still use pencil/pen and paper in this or that corner of the world.

### **Summary, Conclusions, Discussion, Implications and Recommendations**

#### ***Summary & Conclusions:***

Computers enable writers to easily create, revise, modify, keep, edit and publish texts to name a few. Almost every job requires strong writing and computing skills. Actually such computer skills are no longer optional, they are a requirement; they are a necessity for almost every application.

A computer-assisted writing class (CAWC) will be losing its point if it is meant to merely duplicate the characteristics and effectiveness of the face-to-face classroom. Thus, it should use the powers of the computer to enhance what can normally be done in a face-to-face classroom. As we have seen earlier, the internet-based ‘blackboard’ platform, particularly the ‘discussion board’ provided features for asynchronous discussions and

communication, sophisticated question and response facility, and other group learning tools that a traditional classroom by no means can provide.

Of course, we all know that the computer as a device does not help its users to be better writers in the sense that if you use it, you will be a good writer, and if you do not, you will be a terrible writer. Just as a well-equipped playground makes it comfortable, easy and handy for players to play, exercise and move around easily, the application of computers in writing facilitates and capacitates the process of writing. Among the many benefits is the fact that it provides quick and handy revisions of papers. Students never have to rewrite the whole thing. They can just omit, add, insert, mutate, move around, and cut and paste the bits and pieces of the written papers. In case of a need, they have access to external links, which empower them to consult and make use of other resources, as was the case in this course. The application of computers in writing makes weeding out mistakes easier and faster. Thus, it helps learners to write more effectively and efficiently. It helps them to easily locate and evaluate information, and to better organize data for later use. Writing on the computer can in no way compare with pen/pencil and paper, or typewriters. Computer-assisted classes have the potential to utilize the capabilities of a computer to cater for students' writing needs.

Besides the enormous facilities of the typing process, editing commands that are available to, or ready for writing on a computer, make writing faster, easier, more comfortable and more amusing. Commands such as 'select', 'move', 'delete', 'cut', 'copy', 'paste', 'undo', 'redo' and 'repeat' are the basic commands that help facilitate the writing process. Thus, the application of computers in writing has the advantage of giving the writers a handy editor at their disposal to polish their documents and improve their

writing. These features of computers significantly eased the burden of the learners. The application of computers in writing has the advantage of not worrying about spelling, diction, grammar and to a certain extent style problems and only concentrating on contents and ideas. Multiple drafts are almost inevitable for students of writing; thus computers are efficient tools for saving time through using and reusing (recycling) previous drafts. Computers are very efficient tools for editing documents. Writers make use of spelling checkers, grammar and style checkers, insert, cut, paste and drag texts, formatting and design tools and find and replace commands to fasten the editing processes. The application of computers in writing has fringe benefits as well; it enhances one's typing abilities and computer literacy.

Computers are helpful time savers, or at least are intended to be so. They allow students to save as many copies as they need. Should a student lose a file, retrieving a backup file (normally a copy of a file that is stored in a different place) takes far less time than redoing it from scratch. This can never be the case with pen/pencil and paper writing. Writing on a computer renders the advantage of having valuable helping resources at the students' heels, ready for their disposal. Such resources include: **(1)** style manuals **(2)** grammar & usage guide, dictionaries and books on writing. This paper, of course, does not encompass all the functions and merits of computers, and it never intended to do so. Actually, computer functions are vastly numerous; they cannot be included in a research paper of this size.

Internet-based learning will prepare students for the challenges they might face as educational institutions explore deeper into the information age. By exposing our students to resources such as the World Wide Web, we are providing them with an education that

will prepare them for the kinds of thinking and writing they will be expected to do once they are out in their real life world. Nowadays, synchronous approaches to education are no longer a condition for education, simply because asynchronous education becomes very applicable in the computer age. Thus, computer-assisted education is by itself a paradigm shift in modern education.

The researcher believes that the application of the Internet-based blackboard as a tool in the writing classroom does not presume giving up established teaching and learning tools, which have helped students in the past. Rather, the Internet-based blackboard platform can add to and improve upon what writing instructors have been doing for years, i.e. teaching writing in a student-centered, communicative and collaborative classroom environment. The blackboard platform lent itself in helping students extend their learning beyond what the traditional classroom offers by improving their ability and confidence to write more effectively.

Certainly, the interaction of all the interrelated elements such as the instructor, computer, students and writing environment can create an atmosphere where the multiple writing dimensions can mesh elegantly. This particular Internet-based course provided students with opportunities for:

- Excellent environment like that of a well-equipped playground to players.
- Collaboration with other students.
- Student responsibility, motivation & enjoyment of the learning process.
- Time management.
- Development of computer skills.

- Good environment that helps increase their writing efficiency.
- Development of the writing process through dynamic interaction between instructors, computers and students.

Writing as a craft is not a mathematical formula, or a few lines of poetry that can be learnt by heart over night. Actually, writing is a complex multifaceted craft, where multi-factors are interdependent and in play. Thus, it has never been, and it can never be a business of one course or two; it is actually an accumulative lengthy project. So, all what mattered was the noticeable and steady progress on the part of the subjects.

What this course might be held accountable for was whether or not the subjects showed improvement in quality, and a decrease in the number of mistakes throughout the three papers. As was shown earlier, the slope of mistakes showed that papers number two and three had fewer mistakes and were of better quality than paper number one. The same applied to drafts two and three of every paper. This assumes that the course made a positive difference in the students' writing.

### ***Implications:***

#### **A. For Teaching:**

The computer can create a community of writers within the class. It also creates studentship skills such as exchanging ideas and peer reviewing; moreover, it fosters critical thinking literacy. Thus the computer is the best device as yet that lends itself

generously and constantly catering for the learners' needs. So, as it is the job of the travelers to search the web for issues related to the weather, roads, rates, air flights etc., and as it is the job of the shoppers to search the computer for the best deals, it is now the job of learners to adequately search the computer for whatever significant for their learning progress. After the advent of computers, there is no excuse for anybody not to get sufficient information about any topic in whatsoever field of knowledge within minutes. In the same token, students should do the learning by themselves to cater for their own academic needs and to learn better. What is special about a computer-assisted approach to learning is that it can start with learners from the basics and take them as far as they can go. That is to say that learning depends on the individual's pace, i.e. not slowed down by low-paced learners. The researcher believes that computer-assisted writing (CAW) is among the best methods to date that can help developing writers rather than pieces of writing. CAW provides writers with versatile techniques that help them to grow; meanwhile, it covers for considerable areas of potential weakness. Thus, it is the researcher's conviction that the students themselves play a significant role in making a course like this a success or a failure. The instructor should be no more than a facilitator who is coaching from the peripheries. This by no means indicates that the researcher believes in the common misconception and myth that the "computer will replace instructors".

### **B. Further Implications for Classroom:**

The researcher has found out that interaction among students was a key element for a successful CAW class. Students can work collaboratively to publish their writings,

or create and publish class web pages. This means that the very nature of the Internet-based learning is advantageous to student-centered learning and a subsequent empowerment. Moreover, the practical teacher-student relationship in the computer-assisted classroom is more balanced than the traditional norm in which teachers are all-knowing and students are subjugates, who recurrently turn to them as experts. While current pedagogical theory encourages the student-centered classroom, the computer-aided learning experience necessitates it. Students asked questions, commented on and discussed ideas, peer reviewed, edited other people's efforts and got their own writings edited by others too; they gained writing, reading and critical thinking skills. They realized that they communicate with knowledgeable audience, who would read what they wrote. Responses might go back and forth if there is a need to negotiate a meaning or share a thought. Every addition of a new thread was for the purpose of sharing ideas with the class members. The researcher believes that the most innovative and empowering use of the Web in the writing classroom would be for students' publishing. Writing for publication on the Web provides the opportunity for a communicative, collaborative, student-centered and task-based classroom.

### **C. Implications for Instructors of Similar Courses:**

It was noticeable that students in this class needed more acute experiences in manipulating computers. That was clear from their inefficient use of the Web resources to benefit and expand their knowledge. It is true that all the students can surf the Web, however, so many more computer skills were constantly needed by the students to

manipulate computers efficiently. It is true also that additional and dynamic students' involvement helps them a lot in learning many computer skills. One of the major tenets of constructivist learning environment requires further investigation to gain deeper and sharper understanding of the subject matter to be learned.

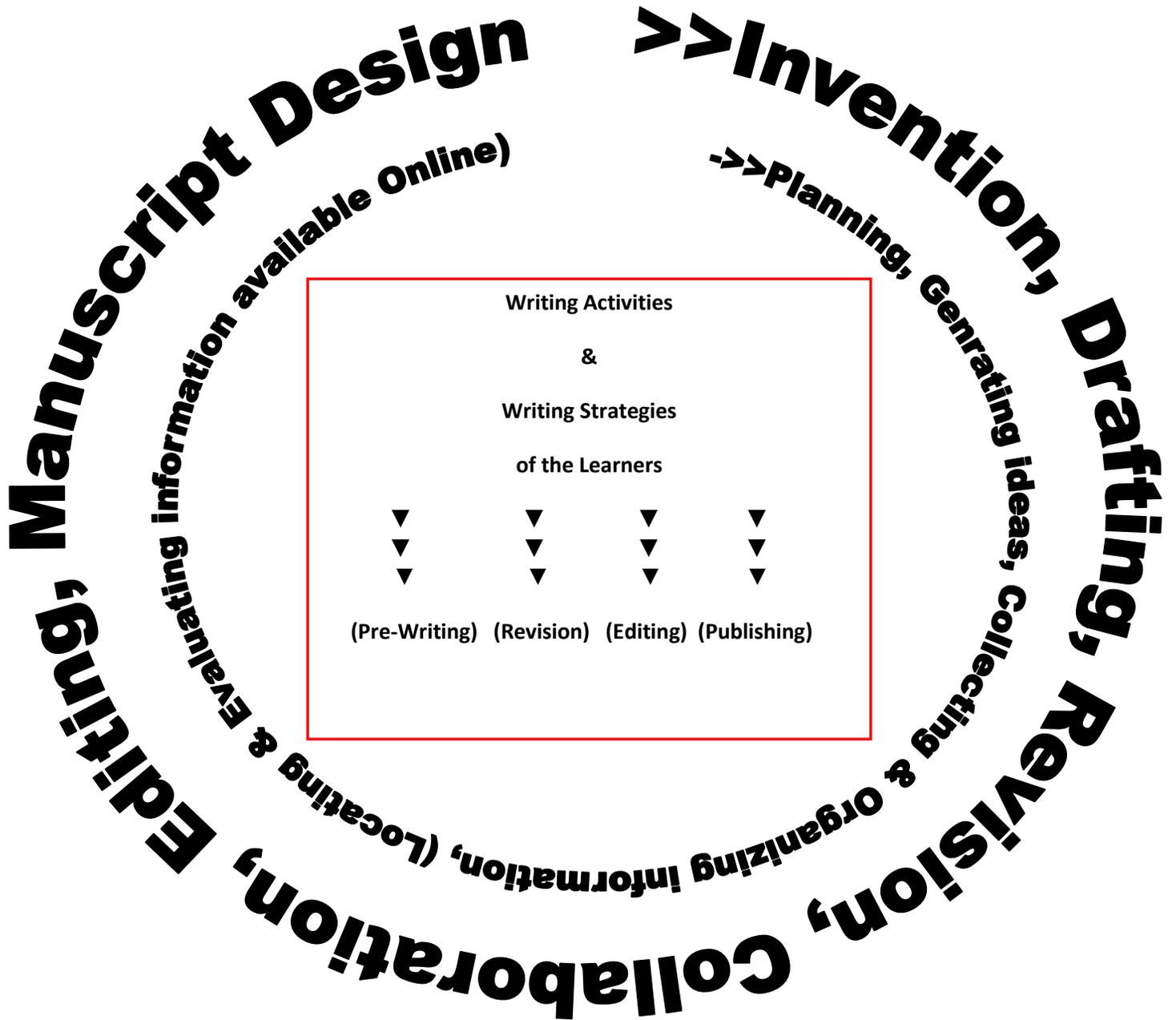
The researcher has noticed that although there was a significant decrease in the number of mistakes in the multiple drafts of the students' papers, still, there was no big difference in the content of the multiple drafts. The content stayed pretty much the same except when the instructor suggested a new idea or asked a clarifying question that triggers thinking of new elaborative ideas. This indicated that the students were contented with just clearing the papers up from the 'current' errors. They did not seriously try to elaborate on, or come up with new ideas that might add new dimensions to the content. So, the computer's ability to keep old copies was a mixed blessing.

Instructors need to know that just as there is no single method for successful teaching in the traditional classroom, there are also diverse techniques and methods that can be successful in a computer-aided environment. Instructors should keep on modifying their methods and strategies that they initially chose on the basis of their observations about the level of, ability and motivation of their students. Moreover, the greatest determinant of the extent to which students feel that the computer-aided class (CAC) is better or worse than traditional modes is the amount and quality of interaction between the instructor and the students, and/or among the students themselves. This is not always easy, but if the instructor managed to persuade the students into this collaborative approach to learning, they will share ideas with each other in a way that can never or seldom be seen in a traditional classroom.

### **The Act of Writing in this Course:**

Most people agree that writing is a product of talent and constant practice, and is nearly as individual as our physical features. Writing is never a linear process; writers kept shifting from one process to another. Sometimes they generate ideas, at other times they revise, draft, organize or trash the whole texts. The major writing processes are normally: generating ideas (brainstorming) or ‘invention’, collecting information, planning, drafting, reviewing and editing. These processes can be done individually or collaboratively.

The following diagram illustrates most of the writing activities and the writing strategies that were applied by students in this course:



***Recommendations:***

Bearing in mind that this research was limited in scope to one computer-aided class, thus, the recommendations should be limited to similar courses. Based on the quantitative and qualitative data collected for this study, and the personal judgment of the researcher, the following recommendations might be useful for future studies:

- Instructors should be pretty sure that their students are computer literates. If students join a computer aided class with a solid computer background in hand, their attitude, motivation and performance will be positively different.
- Writing should be viewed as a recursive process. Thus, instructors should not treat writing as a product rather than a part of a process. By doing so, they teach students the benefits of drafting and revising.
- When evaluating papers, instructors should evaluate writing as part of a process, be aware of student reactions to their comments, and provide clear, helpful comments. Instructors should mark early drafts and papers encouragingly. On the first paper, it may be best to provide feedback without giving grades. Focus on two or three main areas needing improvement. Limiting comments improves the likelihood that students will attempt to improve the paper. Other areas needing improvement can be dealt with in turn. If we agree that writing is a process; in the same token, we should agree that the act of improving writing is a process too (see Zeiser, P. 1999).
- A series of assignments that build one upon the other are particularly effective; they teach students the benefits of revision and seeking and responding to feedback.
- Computer-aided writing excludes the possibility of single-draft assignments, last-minute terms papers, and one-draft efforts. The application of computers in writing requires students to write to learn.

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# **Open Learning As Development: The Challenge of Sustainability in the Experience of The Arab Open University in Kuwait**

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## **Introduction:**

Since its foundation in 2002, the Arab Open University in Kuwait (AOU-KWT) has experienced varying difficulties that at times resulted in grave challenges. Having been through difficulties, however, is not untypical of the ways universities evolve. So, in many ways the AOU-KWT overcame a number the difficulties particularly those related to financial, administrative, as well as infrastructural university components. From an insider's point of view, the AOU-KWT was, to an extent though, successful in the reproducing those components into regenerative resources that can operate in an independent yet harmonic manner. For instance, for 5 years AOU-KWT used a limited space to inhabit quite a large population of students (5000 students in 2012) and to settle in its environment to deliver accredited strong education (Figure 2). With the new buildings of the branch<sup>1</sup>, the study fees remain the lowest amongst private universities in its locality. Nonetheless, AOU-KWT has an actively persistent financial assistance scheme and hardship funds for a wide range of students. In some cases, AOU-KWT financial aids to its students were equal to or exceeded some donors and sponsors' imbursement (Figure 6).

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<sup>1</sup> AOU-KWT moved to new campus in September 2012 with a student population of 8000 at the present, which makes AOU-KWT the largest non-public university in Kuwait.

Notwithstanding, and given the educational context in which the AOU-KWT operates, in addition to a matrix of political, sociocultural, and economic factors, I believe that sustainability is the most overarching challenge for the project of AOU in Kuwait. The reason for such challenge is recognisable: just like any other development venture which introduces novel practices in an encoded or fixed environment, Open Learning (OL) provokes change in educational perspectives. This is because the philosophy and methodology of OL have origins in one of the framing ideas of development: a sustainable improvement in knowledge towards positive economic change, individual and community growth, and equality of opportunity to realize social progress. OL is seen by policy makers and funders as one of the most important education apparatus for national development process. Today, NGOs and intergovernmental organizations adopt OL initiatives because as a learning path it strives for creativity and novelty of practices and reaches wider populations particularly those at the margin of their societies. The paradigms and applications of OL increasingly characterize the plans, goals, and policies of world leading education organizations such as UNESCO, UNDP, and NGOs like the OXFAM, litWorld, and CARE Education. For these institutions, flexible, empowering, and ‘open-to-all’ applications of education are central in the elevation of today’s socioeconomic conditions (see also Loumi 2008: 42).

Openness (open to all people, to all ideas, to all places) are essential features of OL, hence, it strives to reach prompt scientific and sociocultural development without excluding any social segment in the developing nations; an important millennia objective declared by UN organizations. Yet despite such a link between OL and development, and perhaps because of it, most OL project challenges are contextual thus related to the ways in which change is perceived and/or adopted or

rejected. In the vast majority of cases, an open learning project represent incongruity as against the norm and dominant practice in education. This is perhaps more prevalent in the developing countries including the Arab World.

Respectively, in Kuwait, the only initiative in development through higher education as represented in the AOU-KWT seems inconsistent with dominant method of formal teaching and communicating with the students and community at large. Part of this inconsistency stems from misconception of the meaning of OL or its role and attainments in education beyond the spheres of the classroom and certification. In Kuwait, although logistical hindrances obstruct AOU-KWT open learning processes, they may become secondary with experience and institutional expansion. However, this research focuses on *sustainability* as a strategic challenge that faces open education as a tool for knowledge development in the project of the Arab Open University in Kuwait. The main question of this research is how might open learning be sustainable if it has to operate alongside revenue-driven institutions in a dominant learning environment in which there is total emphasis on face-to-face and classroom instructions as the only valid system of education?

I try to answer that question, illustrating the background of the OL project in Kuwait describing throughout the education milieu in Kuwait and how it operates. I outline the nature of local misconceptions about OL real meaning and role in education, I then show how OL is a method for development frameworks in the third millennia. For this, I use experiences from Africa and Asia and the Pacific to show OL contributions to comparable paths of national development and social progress. In the last section, I attempt to sketch a number of suggestions regarding the main question of OL sustainability in Kuwait.

## **Background of the Arab Open University in Kuwait:**

AOU-KWT is an education initiative of the AGFUND (The Arab Gulf Program for Development): a regional organization based in Riyadh, Saudi Arabia. AGFUND was established in 1980 upon the initiative of His Royal Highness, Prince Talal Bin Abdul Aziz Al Saud with the support of leaders of the Arab Gulf Cooperation Council Countries. AGFUND operate in the field of sustainable development (SD) and maintains partnership with the United Nations Organizations, with regional and national development organizations, with public and private sectors, as well as the civil society. AGFUND'S vision revolves around the belief in the sustainability of human development to enable vulnerable groups (women and children, people with special needs, displaced people etc.) to exercise their civil rights in their communities and lead a dignified social and economic existence with improved living conditions. As part of its mission, AGFUND provides support to needy groups to help facilitate their full access to basic and fundamental social requirements, such as education and health care, under the umbrella of fair national and international legislations towards the prevailing of security and peace (AGFUND.com).

AGFUND relevant objectives to education is to enrich the knowledge and enhance the skills of needy social segments and help them meet requirements of the labour market and increasing their access to decent work opportunities. AGFUND provides support to vulnerable groups to facilitate their full access to basic and fundamental social needs, and to initiate pioneering programs that can serve as an example and a model in various areas of human development.

Education figures as an area of priority to AGFUND plans. *AGFUND emphasizes Open education in particular as a way to promote and support human development.* The Open University employs leading and useful techniques to provide equal educational opportunities. One of its goals is to present high-standard education to a maximum number of Arab students and to contribute to offering practical solutions to concerns of Arab societies. Concerns that are related to major social issues like unemployment, the increasing demand for higher education, facilitating the poor's acquisition of their rights, and improvement of women's roles in society, etc. Another merit of AGFUND's initiative is that it created a pattern of education in the Arab world that reduces high costs and big fees needed for advanced learning, and hence it reduced the financial burden that Arab governments bear in the field of higher education (AGFUND.com).

The AOU-KWT stands as the only non-profit university in Kuwait working as educational project to implement the development outlines of AGFUND. It also is consistent with AGFUND's values and mission: provide quality education to individuals in need of it regardless of age or gender (Figure 4 and 5). AOU-KWT graduates gain dual certificates, an Arab Open University degree, and a UK Open University degree. AOU delivers services throughout the education process ranging from most recent learning technologies (e-learning) to CT teaching, life skills and face-to-face tutorials. Discussion groups at AOU-KWT are intended to teach students *independent thinking* and confidence in facing life situations. Technologies include smart tutorial screen STS, smart hall SH, learning management system LMS, e-library, student information system SIS, and electronic complain and appeal system.

Through its flexible and open admission process, AOU-KWT gives equal access to its services to the most vulnerable groups in society. These groups are empowered by the AOU-KWT education and include the limited income, single parents, the stateless (local term *Bidoon*), immigrants and their accompanying members. Through its student support and help system, AOU-KWT provides financial help to these groups and provides study hardship aids to those in need. AOU-KW cooperates with Kuwait charities and private donors who contribute significantly to AOU-KWT students' fund.<sup>2</sup> AOU-KWT student financial assistance is intended to make sure graduates reflect and apply the development and charitable values that helped them be effective elements in their employment and society at large. Another objective that AOU-KWT seeks of these forms of assistance is to enable students to finish their studies and become independent persons in life. There are now more than 4000 graduates of AOU-KWT, many of whom had established their own businesses, while others have pursued their graduate studies abroad (Figure 1).

AOU-KW maintains an important principle in its admission and teaching policies which is that cultural and social diversity is a factor for growth and real development rather than a threat to national identity. Among all universities in Kuwait, AOU-KW has the largest international student population (see Figure 2). With more than 75 nationalities, the AOU-KWT is maintaining such diversity as characteristic of its principles of work and may be seen reflected in the delivery of all of its services to students and employees. This is expressed in the fact that all students have equal access to the university from the beginning of the admission process to standing alike before university bylaws regardless of gender, ethnic, or class, or

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<sup>2</sup> These include but are not limited to: The General Trusteeship for Waqf ([www.awqaf.org.kw](http://www.awqaf.org.kw)), Al-Sayer Group ([www.alsayer.net](http://www.alsayer.net)), Boubyan Bank ([www.bankboubyan.com](http://www.bankboubyan.com)), Kuwait Gulf Oil Company ([www.kgoc.com](http://www.kgoc.com)) Fawz Al-Khayr Charity, Al-Marzouq company, and many other philanthropic entities and individual funds.

national differences. All these elements make AOU-KWT somehow distinct from other institutions in Kuwait - a distinctiveness perceived to be 'problematic' within the education milieu in Kuwait.

### **AOU-KWT in Education Context:**

Education in Kuwait may be seen as characterised by two elements. The first element is related to education as a social institution with its own history and culture which shapes the meaning of teaching and learning. In this context, there is almost an unyielding conviction that the only valid mode of education is the school classroom in a physically confined location where students gather to meet an instructor face-to-face and receive knowledge. Learning is dependent on students' adherence to instructional supervision and subject requirements. In its conventional traditional system of education, there is total emphasis on the role of the instructor as the initiator of the learning process. There is also strong emphasis on the receiving 'knowledge in book' than gaining knowledge through interactive experience and training. Similarly, in the Kuwaiti education system there is a fixed adherence to the entry point requirements to higher education and students' dependence on contact with an instructor. It has been shown by scholars (Olakulehin 2010) that such conventional system of education lacks flexibility in its contents and so is irresponsive to changing social dynamics. The conventional system shapes the mode of education and in its works restricts the possibilities of alternative visions, including the open learning and teaching strategies. This is reflected in the state education plans and policies and their applications in Kuwait, which possibly explains the unpopularity of OL. It also points at difficulties OL project must face when it attempts to cater for the inadequacies of dominant formal methods of delivering knowledge.

The second element that characterises the educational system in Kuwait is informed by the conventional understanding of education discussed earlier but also related to actual governmental policies and practices regarding private institutions. Except for the AOU-KWT, all other private universities in Kuwait adopt and encourage the traditional methods in their works. These private universities posture, arguably though, may not be attributed to a kind of a total conviction in the cogency of traditional modes of education, but in their efforts to comply with the Ministry of Higher Education (MOHE) and the Private Universities Council (PUC) regulations and to fit into the established norms. Moreover, for these universities compliance facilitates access to government scholarship and other licencing requirements.

Notwithstanding the private universities acquiescence, there is strong involvement, at some levels interference, by the government into higher education in all non-public universities. There can be understandable justifications for such involvement in the minds of state planners, which is beyond the scope of this paper. However, it can be argued that these justifications are moulded by the conventional framework, which sees education as a guiding, perhaps naturalising act of individuals, and a top-down process that maintains a spoon-feeding view of delivering, rather than sharing, knowledge with the individuals. It is important to notice that the government oversees most university processes from establishment to screening of private universities' activities to education outcomes. This is carried out by the MOHE and the PUC, government bureaucrats, Kuwaiti and non-Kuwaiti academics, and at certain levels, private universities representatives may operate at these two entities. The most important consequence of the MOHE and PUC auspices is that it insists on and endorses the *traditional mode of learning* as the only legitimate and only valid of *system of education*. This stance has increased the pressure on AOU-KWT work and

has created an unpredictable situation for the prospects of open education in general. This is the case for, as an OL institution, the AOU-KWT is now perceived and approached by formal entities and other private universities as representing an alternative system of education.

As indicated earlier in my discussion of education as social institution, the MOHE and PUC position regarding the merits of formal methods of learning, hence to be adopted as the only valid system, stems from a tenacious misconception about the nature of OL and how it actually functions as merely an alternative mode rather than an education system. For example, there is clear trendy amongst academics at MOHE, PUC and other private institutions in Kuwait to equate open learning with distance and e-learning. It has been an established knowledge that these ways of learning represent different concepts. Open learning refers to policies, practices, and methods of sharing knowledge with students that permit entry to university with limited or no barriers with respect to age, financial ability, time constraints, and social background. In an open learning, there is flexibility with respect to a student's prior learning, though this is not totally ignored as part of AOU-KWT entry requirements. Distance education on the other hand refers to a process of transfer of information to students who are physically separated in time and space from the instructor. E-learning is just one of the applications of OL in which communication technologies are implemented systematically to achieve one of the most significant goals of open learning: to make activities more flexible, to reach as many learners as possible, and finally to create masses of independent thinkers.

It has been shown by experts that OL *“is not education in itself, rather it is only a mode of education with potentialities and possibilities to serve as a more*

*influential agent of social change and development than the extant formal approach to instructional delivery and learning” (Olakulehin 2010, italics original).*

In Kuwait, the misconception about the veracity of OL is also reflected in the confusion of MOHE and PUC academic bylaws and guidelines, specifically those related to certification, authorisation, and attainment of OL degrees. Some examples shall illustrate this. The AOU-KWT has full international accreditation of all its academic programs via the OUVS (Open University Validation Service) through the active partnership with the Open University of the United Kingdom (see Al-Humoud 2008). Such accreditation necessitates, for example, a quality assurance process that is intricate, persistent, and costly in time and effort. Yet the quality check of academic as well as administrative process and standards had always been part of the norm of AOU-KWT to make sure these conform with local and international accreditors’ standards. One of the local accreditation requirements is for the AOU-KWT to hold actual face-to-face classes of no less than 75% of its overall teaching process. Therefore, the AOU-KWT is accredited through the MOHE and the PUC in annual base. AOU-KWT graduates receive dual certificates, OU-UK and AOU both of which are authenticated by the MOHE and the PUC. To the best of my knowledge no 4 years private universities offers dual certificate or has similar degree of active partnership as AOU-KWT or an international accreditation of such standards in Kuwait.

Paradoxically, only AOU-KWT graduates cannot assume their graduate studies at the College of Graduate Studies at Kuwait University (an MOHE institution). Accordingly, only AOU-KWT graduates face similar situations in their

attempts to apply to scholarships through any government entity they work for. Even more, except for the AOU-KWT, the MOHE's so-called system of 'national internal scholarship' contracts with all other private universities to admit high school graduates in their programs and MOHE paid for that to the private schools. Recently, AOU's request to launch Master degree programs had long been pending permissions of the MOHE and PUC. Why such adverse, perhaps inexplicable, bearing by the MOHE and PUC towards AOU-KW? There exists no documented explanation of such posture expect MOHE and PUC instructions to the AOU-KWT that the only education system recognised by local accrediting entities is the one adopted by Kuwait University: a specimen of traditional formal education. The unfortunate result of this has been resonated in the public discourse about OL and AOU-KWT. The following statements I collected from semi-structured interviews I made with employees at the public education sector, from ordinary people, private sector employers, and universities students including the AOU-KWT:

“OL is not education as we know it”

“OL lacks teaching standards embraced by government and society”

“OL is distance learning in which students are not physically or actively involved in a university life”

“AOU-KWT is a regional NGO for development, not serious education”

“AOU-KWT is an easy university”

“OL entry requirements are slack and thus admission is easily granted”

“AOU-KWT is an opportunity for the poor and foreigners to get employment”

“AOU-KWT certificates are not recognised by official entities”

“AOU-KWT is not recognized by universities abroad”.

These statements referred to AOU-KWT and OL interchangeably. It is obvious that such unsubstantiated statements reach wider audience and become part of academic conversations and beyond. To an extent, stereotypical statements like these are attached to the AOU-KWT as part of the university's social character in Kuwait. There are no reliable statistics to be used to measure the degree to which such image had influenced students decision to deselect AOU-KWT as an option for study. Now, of course, there are subjective reasons i.e. related to the AOU-KWT's own presentability and marketization aptitudes that need to be exposed (see below).

However, those unrealistic statements point at a sombre situation for AOU-KWT at the long run that needs to be handled by advocates and planners of the AOU-KWT as the only non-profit project devoted to development through education in Kuwait. The official policy against the development of OL as a new mode of education does not seem to be changing, in fact, it is escalating. This year only, the PUC decided to prohibit the AOU-KWT from accepting high school graduates of less than 60% overall mark regardless of their skills or educational background – something that AOU-KWT had always took into account when accepting this category of students. For the prospective students who has less than 60% in their high school certificates, the PUC decision denies them a chance to resume their studies (see Figure 3). For the AOU-KWT, the decision severely reduces its ability to reach out for those marginal groups in society or lifelong learners who desire to continue their education. The most important implications of the PUC decision is that it curbs essential practices and values of openness in learning. In other words, *the values and practices of development through open education are being battered, and here looms the challenge of sustainability for the AOU-KWT.*

As illustrated earlier, the view of well-informed entities of the MOHE and the PUC regarding OL is shaped by the dominant culture of education in Kuwait. But there are important technical aspects to the typical view surrounding the meaning and objectives of the project of the AOU-KWT as development. Firstly, it appears that the concept of *development through open education* has not been established (perhaps not clear at all) among policy makers at the national level. This is despite the fact that commitment to the principles of development (namely sustainable development) is above all priorities a declared purpose of all government studies and in Kuwait, including those adopted for the education sector (Ministry of Planning: [scpd.gov.kw](http://scpd.gov.kw)). Second, the AOU-KWT has not been very successful in exemplifying the necessary connection between its objectives (inspiring social development) and its actual services in open learning. There are two-folded implications for the above technical aspects. First, the AOU-KWT had been categorised by PUC and other entities as purely private, hence arrayed in competing line with other institutions. Second, at its best, the AOU-KWT is seen by educators as an anomaly in the Kuwaiti educational milieu.

Notwithstanding, the AOU-KWT still attracts huge numbers of students each year and currently hosts the largest student population among non-public universities (PUC 2013). The high admission rates of the AOU-KWT renders it subject to pressure and contentions by different interests and actors. However, such blurred standing of the AOU-KWT will, in my view, create an unhealthy and unproductive situation in the future, where the AOU-KWT teaching and learning processes may be driven slowly and steadily towards popular mode of education, hence losing not only direction but also distinctiveness. To avoid such detrimental potential, the reality of AOU-KWT as an education initiative that is part of a wider social and scientific

development project needs to be clearly exposed and systematically promoted at the national arena and amongst other educational cohorts in its locality. The image and social character of AOU-KWT must be salvaged by stressing its real task as an exemplification of a progressive view which uses open learning as a tool to empower individuals and to inspire national development. In this direction, other experiences in OL as sustainable development shall be guiding points.

### **Open Learning and Development:**

Open learning has contributed to development in societies of comparatively similar cultural and educational trajectories to that of Kuwait. Several African and Asian nations had been actively utilizing OL as alternative to the popular modes of learning, representing outstanding examples for open education as development. Open learning in these nations became an indispensable pillar of the development process. How was that achieved in societies where the tradition of apprenticeship and teacher-student classroom interaction is culturally well entrenched?

Advocates of OL in those nations were successful because they upheld one simple message: Open learning revolves around flexibility, excellent teaching, independent learning, life skills and training, and free and equal access to research and scientific knowledge. As such, the advocates were consistent with the perspective of education as an essential practice of development (i.e. a desired change). It has been shown in international forecasters reports and UN organizations reviews (Faure report of 1972, the Delors report of 1996, and UNESCO's Learning Without Frontiers most recent documents) that there are four or five pillars of education: learning to learn, learn to live together, learning to do, learning to be, and recently added learning to change. The rationale behind these account is that education must bring about

genuine transformations to learners' skills and life conditions. This transformation is just another term for sustainable development in the world today.

Thomas (2000); Seya (2005); Chambers (1985); (Gardner and Lewis 1996); outlined broad and somewhat common delineations of the meaning of development. Development means a vision and social process through which deliberate attempts are made to alter the human condition which requires the formation of and investment in human capital and equal access to resources in order to achieve economic growth and national progress in a sustainable way. McGovern (1999: 132) noted 9 concepts associated with development, from which I select only 5 relevant concepts:

- Education as the social institution through which people are prepared for society and work;
- Equality of opportunity for individuals and nations
- Participation of people in programs to help enhance development process
- Science as the objective creation of knowledge for greater production and productivity
- The application of technology to establish efficient production which increases prosperity

Above all other facets of nations' lives, only education accelerated the course of development in the Asian, the Pacific and the African contexts. For example, Abdul Mannan (2006) demonstrated the role OL played in increasing education opportunities to reach the unreached (geographically dispersed rural populations) and has emerged within the traditional methods of learning yet accelerated the achievement of millennium development goals in Oceania Islands region. In India, Abdul Mannan noticed that 20 percent of students in today's India higher education are in open universities (Abdul Mannan 2006).

Open learning is inherently a progressive and practical tool for development through flexible and accessible education. In an African example, Aderinoye and

Ojokheta (2004) explained how open education became a mechanism for SD in the Nigerian experience. Aderinoye and Ojokheta have strongly argued that without the introduction of open program official education policies and development requirements would have excluded many Nigerians. Hence, after being closed for 16 years the National Open University of Nigeria was reopened in 2001 (Aderinoye and Ojokheta 2004). In other African nations, such as Namibia, Zambia, Zimbabwe, and Botswana, open education was pivotal in reducing unemployment, in increasing skilled labour force through its emphasis on the use of communication and technologies. It played a significant role in improving gender balance and in empowering the marginal segments in those societies (Perraton 2000). Open education was important in communicating policies and raised awareness of HIV and other health issues threatening the poor and rural populations (Nekongo-Nielsen 2006)

It is very important to indicate that in all these national experiences in development through open learning, the UNESCO and other international organizations such as the British Council, the Commonwealth of Learning (COL) and the Literacy Enhancement Assistance Program (LEAP) and many regional NGOs played a major role in encouraging local governments' education policies toward OL and helped in implementing their plans. One of the motives behind the UNESCO's provision for OL is its call for Learning Without Frontiers: OL emancipates individuals and communities' chances for equal access to knowledge and technologies and enables nations to invest in their broad range skills in a swift and systematic way of education (see UNESCO LWF). Moreover, the UNESCO vision of OL communities "is attempting to partner with others from around the world who are

involved in developing different visions of how to change the world of learning (Jain 1997).

With all the penchant in the developing world towards Open Education as a tool for development, why should sustainability pose a challenge for the AOU-KWT development project?

It must be emphasized that AOU-KWT is no distinct from the practices and objectives of OL in Africa and Asia and is very consistent with UNESCO's strive for attaining OL communities as one path towards equality and cultural development. But the noticeable difference is that AOU-KWT had never been partnering with, if any; OL local community and consequently has not been the hub of any such community in Kuwait. Additionally, AOU-KWT had not been involved in systematic affiliation with organizations that may not be engaged in OL or education activities but could have similar development vision and objectives. The reasons behind AOU-KWT disengagement have been elucidated above which related to the dominance of traditional methods of learning, misconceptions about the nature of OL and AOU-KWT, and the bureaucratic obstacles by PUC and MOHE. Yet, it is my argument that AOU-KWT detachment represents a component in sustainability challenge that is also imminent and will need to be scrutinised at the strategic deliberations at AOU in general. Given this rather meticulous juncture of AOU-KWT and its development project in OL, the question remains as to what are the possible projections of a design of solution that would subsist the challenge of sustainability?

In order to draw a sketch of sustainability for AOU-KWT, I believe its organizers needs first to *Acknowledge* that the obstacles to OL are part of an overall problem facing education as whole in this context. Second is to *Assess* the challenge

of sustainability as a constant exposure that any organization has to deal with - not to say one with a development character. In other words, any development project faces obstructions and limitations for it calls for change and 'business unusual', and this in itself is not always welcomed in societies. Third, the AOU-KWT needs to *Adapt* to its environment in a way that introduces its objectives and practices as part of its society's movement towards well-being and positive progress. Finally, AOU-KWT needs to *Capitalise* on its peculiar position within the Kuwaiti environment.

### **Challenge of Sustainability as inspiration:**

In this final section I propose how AAAC (Acknowledge, Assess, Adapt, Capitalise) may be put into practice as a set of general principles and practical suggestions for a visionary framework in the future. While these may be taken as recommendations they also pose more challenging questions to the sustainability of OL at AOU-KWT:

- AOU-KWT must expound its mission and objectives as Education for Sustainable Development (ESD) more clearly by adhering to the rationales of its establishment and the work of AGFUND organization. AOU-KWT must play a leading role in the regional and local efforts for educational reform as called for by UNESCO and the UNDP.
- Flexibility of access and negotiable learning skills are needs for the lifelong learners and new generations of students and shall be at the core of all AOU-KWT works. Flexibility of course selection and entry point and study times that OL provides for learners sets AOU-KWT apart from distance and other formal modes of education. Open learning flexibility means giving more opportunities to the more excluded segments of the society hence AOU-KWT

adherers to the real meaning of Openness as ‘education for all’ rather than a selective distance learning university.

- Because AOU-KWT holds to a plus in its resourceful and systematic use of OL technologies as against conventional methods, it needs to reach out for people of different professions who desire to learn but are unable to attend actual classes. Thus, OL facilitates lifelong learning process for these professionals to adopt practices and philosophies of OL as SD.
- Although training functions at the heart of any OL program, training at the AOU-KWT remains minimal at the moment, but it is here where the community’s and various types of learners and their needs may be assessed and satisfied. Therefore, AOU-KWT shall focus on vocational and life-skills acquisition through its study programs and training schemes thus reaching out occasional learners who seek career promotion and to fulfil job requirements. Similarly, AOU-KWT should develop specific OL courses for community of specialists and the courses shall be designed specifically to meet needs of such community;
- Cooperation with relevant government organizations must not be excluded by finding a common ground allowing for the inclusion of SD contents and OL materials into their educational programs and values. This point becomes even more urgent if in the future the government strategic development plans embraces an international OL project. Here, the government and other organizations shall lean on the expertise of the AOU-KWT to develop such a project. AOU-KWT must therefore assess the government needs in all aspects of education. For example, AOU-KWT may want to focus on increasing Kuwait’s education sector’s workforce by training 1000 teacher a year in

certain skills competencies; even if they will end up teaching in regular classrooms. As such, AOU-KWT will be using its technological as well as interactive approach hence adapting to its environment and capitalizing on its distinctiveness.

- The current number of academic programs (3only) at AOU-KWT is limiting learners' options to pursue different subjects of their interests and inconsistent with the ESD objectives of AGFUND: accelerating social and cultural progress by widening individual options for flexible and open education. So, given the rapid sociopolitical changes the Arab World is going through, the AOU-KWT must react and reflect on its surrounding making the values of SD of equality and civic society change reflected in the design of new programs related to sustainable development, environment, health, and global changes.
- Bureaucratic regulations confine all AOU-KWT education processes into one building campus, which severely injures the basic operations of OL, i.e. spreading learning centers across the country. An important OL concept is to make education available to as many individuals as possible by taking knowledge to their own communities. Negotiating the rationales of open learning centers with the government is going to be a tedious endeavor. But it is not impossible to offer OL resources and to carry AOU-KWT message at one of MOHE's Adult Learning Programs Centers in the municipalities. For the time being, AOU-KWT lacks system of provision for any open learning practice taking place in its locality. Of course, there are no OL projects *per se* in Kuwait, but that does not mean that OL graduates, scholars, and advocates do not exist. AOU-KWT must search, support, and provide services to all

those interested in OL, particularly if they work in similar organizations that adopt or encourage an ESD approach to learning.

- Substantial numbers of young Kuwaitis and foreigners alike enter the job market right after completing their 12<sup>th</sup> grade high school. Flexibility and openness made AOU-KWT a first option for individuals in this category of the population. It was mainly through the flexible and open system of AOU-KWT that these students were able to study while working. Many had graduated and moved up their work ladder as a result. The challenge for AOU-KWT is how to capitalize on this to make OL an important tool for individual and national economic development and therefore included in the official policies for admission and scholarships.
- An objective of any OL is to create collaboration between learners to foster an engaged user community (Dholakia, King, Baraniuk 2006). Interaction amongst users of an OL system and its technologies of communication produces collaboration and enhances students learning experiences and the quality of learning (see Tinto 1998). The engaged community of users will eventually form groups of participants whose interest is the well-being of other members and this in turn will create a sense of belonging to a community. AOU-KWT needs to expedite the creation of such community for it is mainly through such community the university can publicize the value of such user community hence the values of OL as a development tool for other community of learners beyond OL boundaries itself. Respectively, AOU-KWT need to create an Free and Open Space on its site for any user who is in or out the OL education. In such site users can find on-line illustrations including course materials, copies of papers, presentations and workshops, and

assistance on allocating users best learning options based on their needs and expectations. Free and Open Space would be an attraction point that would rectify misconception amongst the public about the reality of OL and AOU-KWT as an SD institution.

- Like any other open education program, an important sustainability challenge for AOU-KWT is how to generate and diversify sources of revenue in order to innovate and expand on OL process (Downes 2006). Presently, the main, if not the only, source of revenue is generated by student fees which, given the growing number of private education options in Kuwait, puts AOU-KWT in a problematic position. While AOU-KWT is dedicated to maintain its non-profitability as part of its SD mission and value, it nonetheless remains an organization which is naturally an integral part of the students selection process amongst other universities. Considering the local factors operating against OL, AOU-KWT awkward position may be limiting on the mid-to-long runs. Therefore, in the near future AOU-KWT planners shall contemplate on locating further sustainable sources of funding.
- The challenge of sustainable revenue is becoming serious at AOU-KWT considering the pressing needs of institutional growth, students' constant demand for quality learning and reputation. Only very recently thinking about communicating the values of its product and services began to shyly surface within the administrative process at the university. It is obvious that AOU-KWT cannot assume a commercial scheme to generate money, but that should not entail eradicating any marketing efforts - as is the case now at AOU. Amongst all other universities, AOU-KWT has no or, at best, a distorted 'public face' and is the only university that employs no systematic

advertisements directed at the society where it operates. A number of Students I conversed with at another university in Kuwait where I had been a guest lecturer informed me that they had only heard about AOU-KWT either by a word of mouth or through a friend studying at AOU-KWT.

- The relationship between revenue and reputation is very complicated and a full account of that is beyond the scope of this paper. However, the positive correlation between reputation and funding is highly significant for any organization well-being, and so is decisive for the sustainability of the AOU-KWT as whole. Kuwaiti society is undergoing swift cultural, socioeconomic, and technological transformations with regional and global dimensions. AOU-KWT development character makes it the mostly international university and definitely affected by those societal changes. So, AOU-KWT must show a clear friendly posture and presents itself as an iconic place for leading positive social change through diversity and change. For that AOU-KWT should integrate publicity and social marketing approaches for the social good of the greater community. This way AOU-KWT would not be violating its own non-profit values while simultaneously sustaining its place as a unique university within education assemblages. The construction of an international character reputation through consistency with institutional values may be seen as a channel for maintaining the process of development hence the financial support needed for that. How exactly shall this be carried out?
- AOU-KWT should establish a local formal channels of seeking funding from Kuwaiti philanthropic institutions, professional societies, individual firms, government and non-governmental agencies, and trade and industry groups. To do so, the AOU-KWT may need to build a framework which congregates

those funding entities into a focus group tied through mutual objectives or projects that directly meet the needs of such organizations and the members they serve. Organizations like the KFAS, KISR, Kuwait Fund for Arab Economic Development, Kuwait Chamber of Commerce and Industry, PAI, Kuwait University, AWQAF, Al-Babtain philanthropy, Al-Sayer Charity, and many others all support or are engaged in development works in education, culture, and employment. When formalized, terms of cooperation with such organizations definitely nourishes the establishment of a strong reputation of SD through open education at AOU-KWT.

- A ‘partnership model’ (Dholakia, King, Baraniuk 2006) would probably be the most effective path for AOU-KWT in the challenge of sustainability: regain reputation through affiliate support. Reputable international as well as regional development organizations stationed in Kuwait such as the UNESCO and the UNDP, Arab Fund, and IOM and international professional groups working in the field of SD needs to be approached not only as similar in objectives to that of the AOU-KWT, but as important supporters for the only project seeking SD through OL in Kuwait. To do this, AOU-KWT needs to be part of a broad pool of expertise and experiences of open education in order to improve quality of its programs and to generate financial support. Since there is no such open education pool in Kuwait, AOU-KWT should adopt the establishment of a Consortium of programs engaged in the area of SD. A consortium joining the AOU, the UNESCO and the UNDP will help in sharing of resources and in strengthening the quality of OL products and help to endure the mission of open learning for SD.

- For the AOU-KWT to succeed in its espousing of such consortium it must reflect the concerns of the joining development organizations on the one hand and embrace interests and concerns of the wider society on the other. Therefore, AOU-KWT general course contents and design should be related to issues like the links between environmental conditions and the lifestyle and occupations of learners. Other important issues that must be included in the OL contents are corporate social responsibility, cultural diversity, disaster alleviation, food security, civil rights, health and hygiene, and economic sustainability and development theories and practices. In order to receive the support it needs, AOU-KWT must allow for the participation of its partners into the design and development of OL for SD courses.

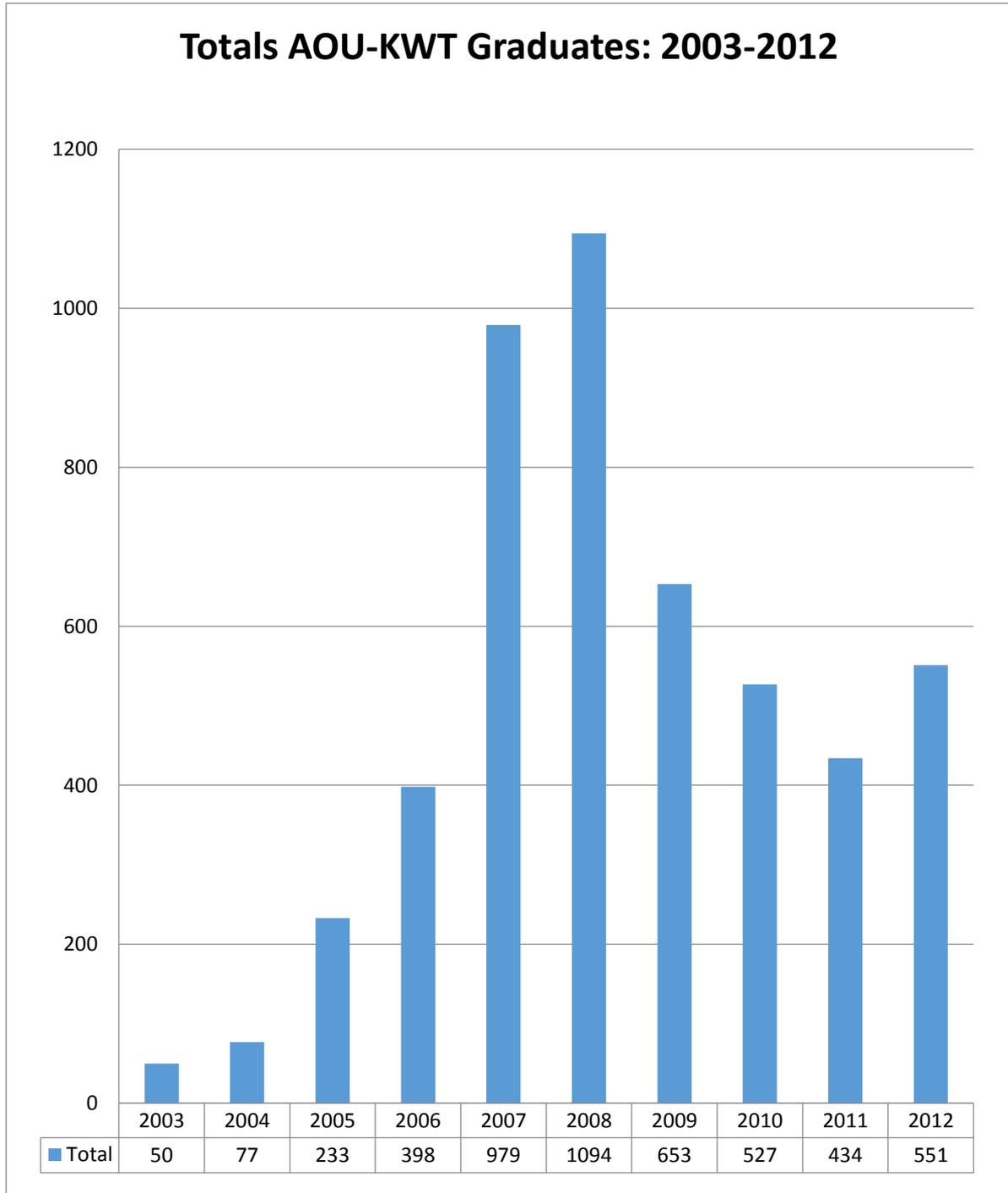
### **Concluding remarks:**

I have shown through the experience of AOU-KWT how for a non-profit development project in education the challenge of sustainability is, though predictable, attributed to internal and external factors. In this regard, the OL process of AOU-KWT and its public presentation in general was not amended to match the needs of prospective learners and/or its own institutional growth. Analysis showed that a structural incompetency may be conquered if AOU-KWT regains direction clearly exposing the *raison d'être* of its existence: SD values and practices incorporated into OL methods and excellent education services. Externally, the dominance of the traditional education system and theories coupled with the discouraging bureaucratic regulations, AOU-KWT path has been obstructed in different ways. To persist, the AOU-KWT needs to acknowledge the dominance of traditional education mode in order to adapt to the official hindrances. Additionally,

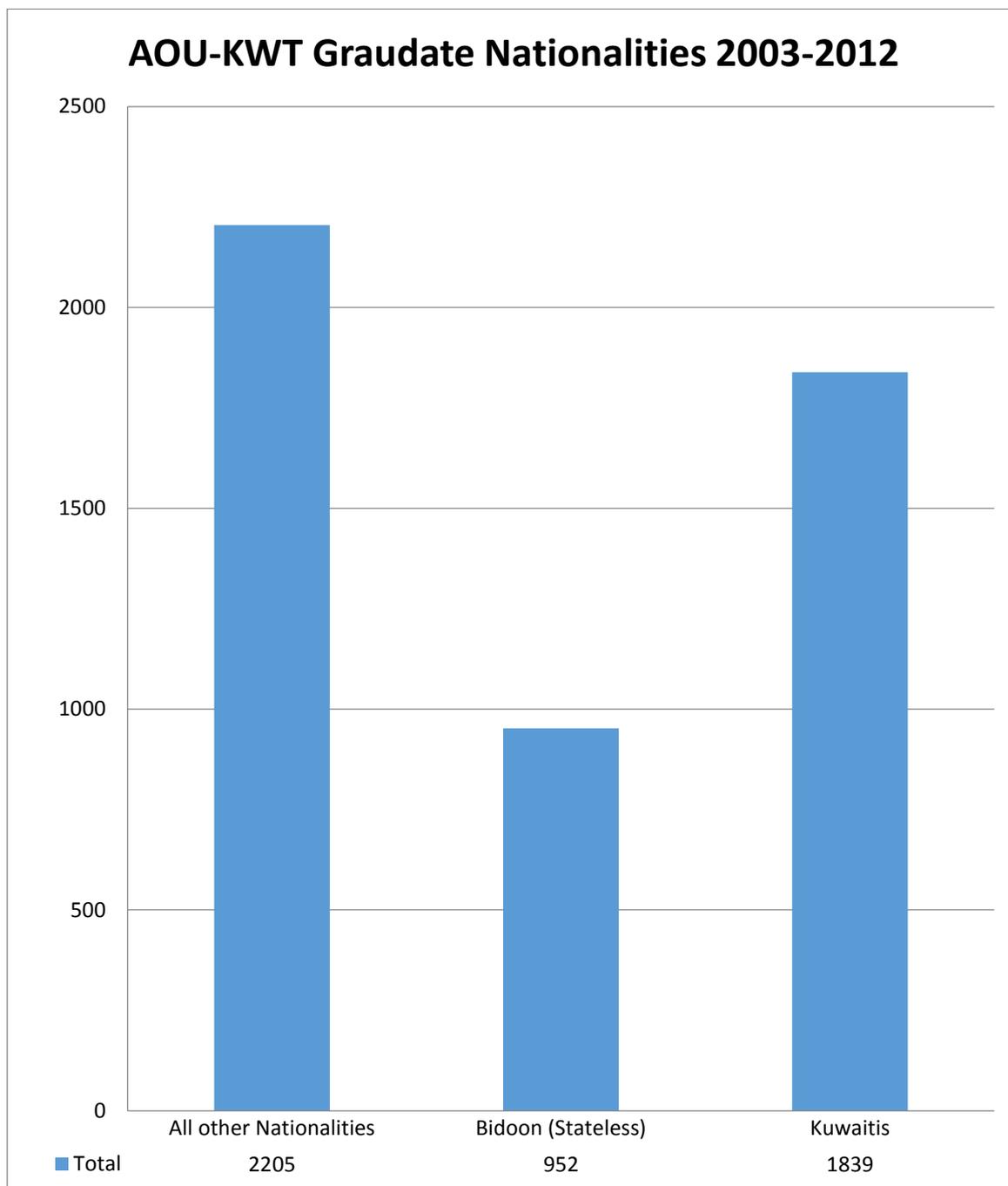
the solitary character of AOU-KWT as the only open learning institution must be capitalized on as the only education project explicitly developmental in its practice and method hence easily affiliated with effective and reputable organizations working in SD. The challenge of sustainability will be unceasing for the AOU-KWT as for any other relevant organization, particularly those representing change and development. Thus, AOU-KWT can only improve the terms of such challenge focusing on developing internal mechanisms of adaptation (institutional structural innovations) and on investing in the distinctiveness of its mission and practice (SD partnership) to survive its surrounding environment. As such the challenge of sustainability can be turned into a catalyst for creativity, resolution, and growth.

## Figures

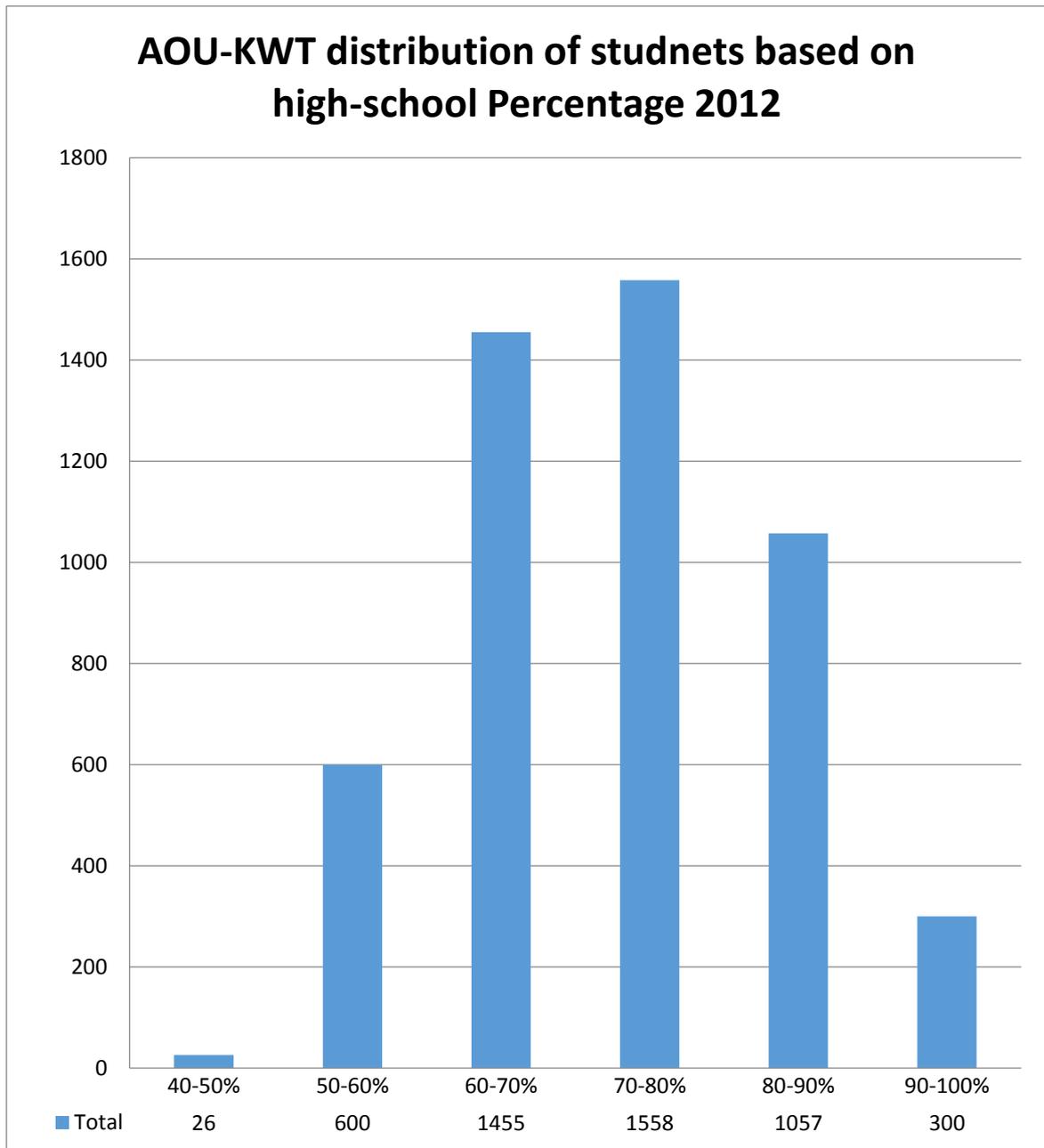
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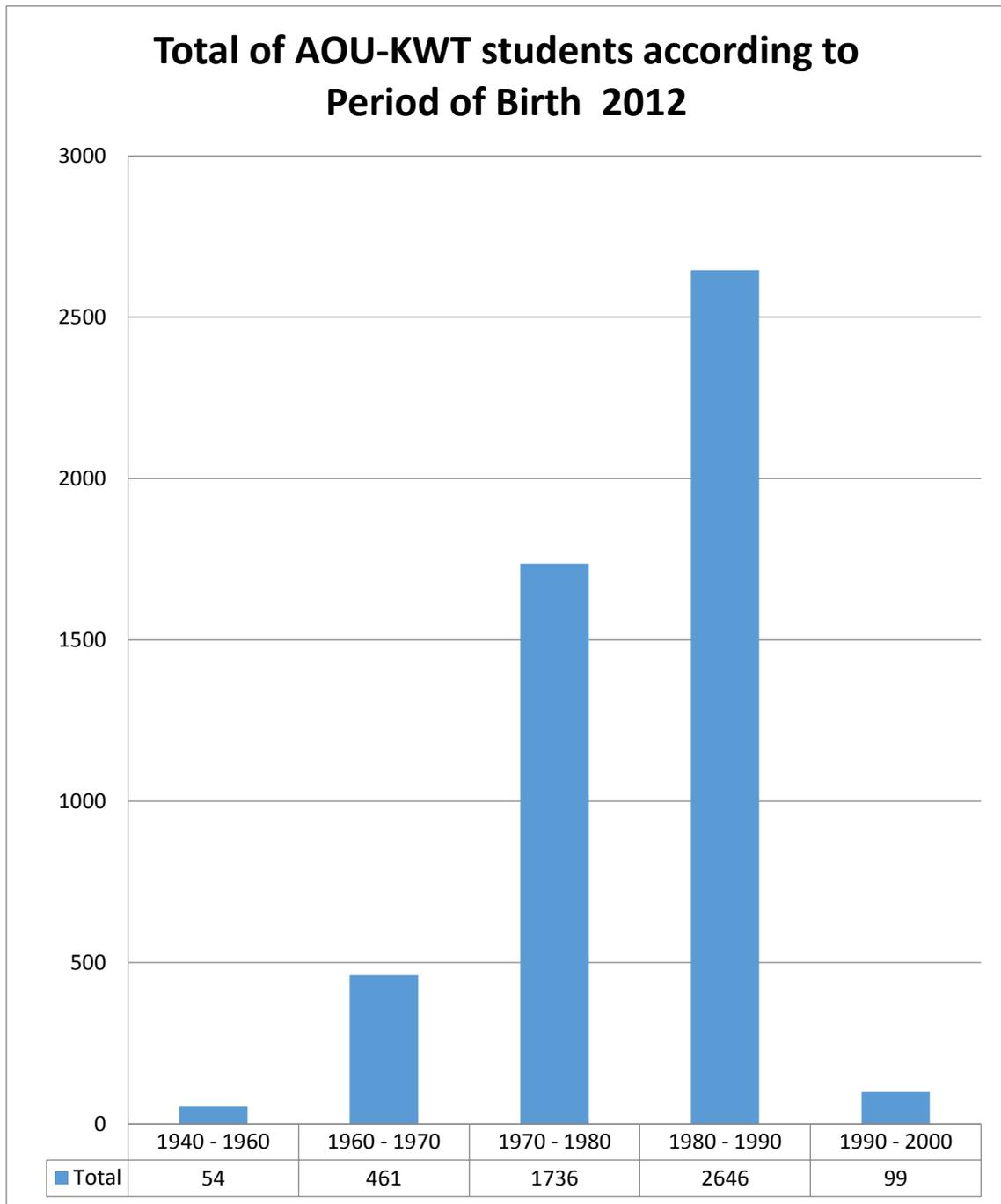
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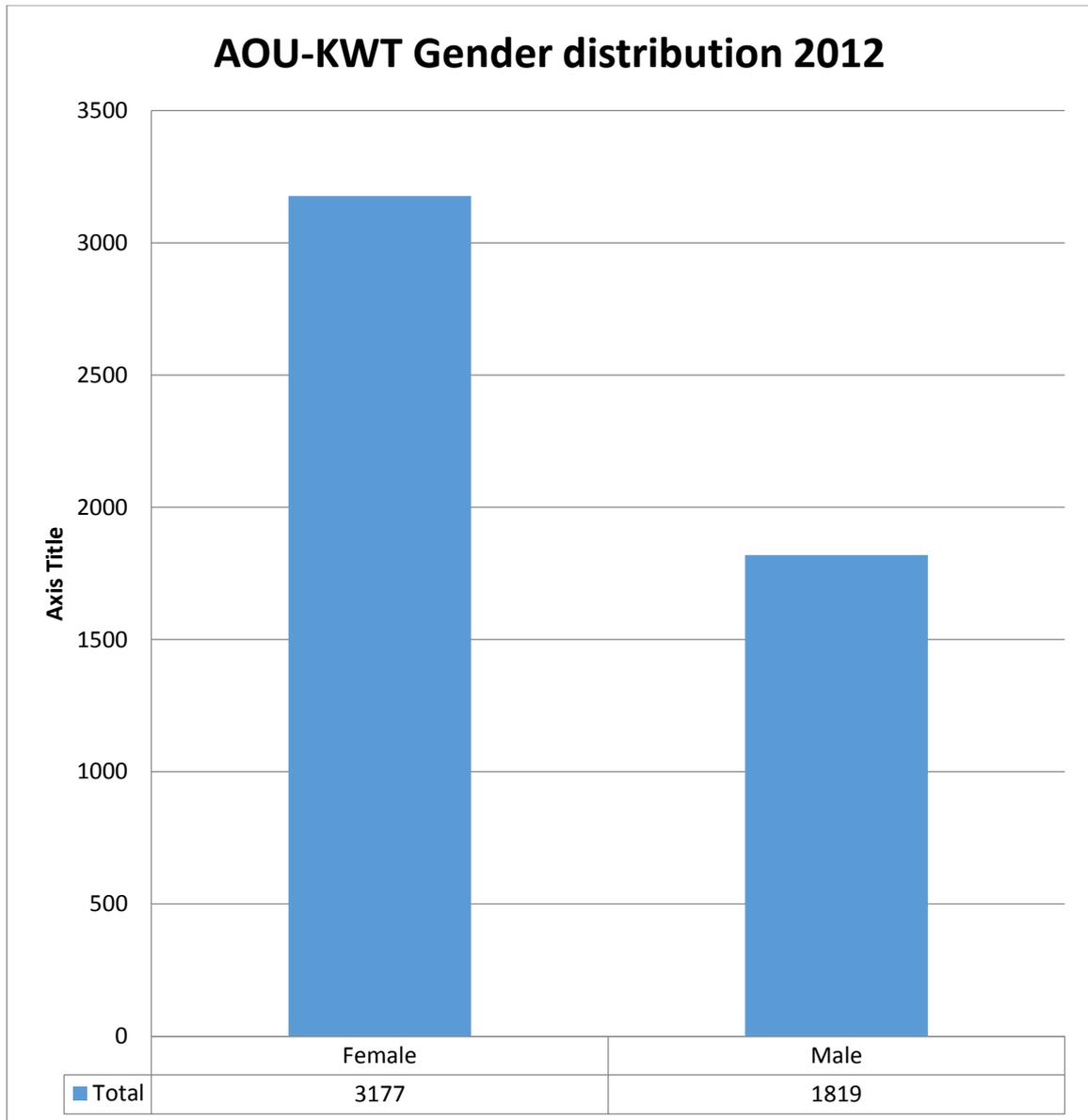
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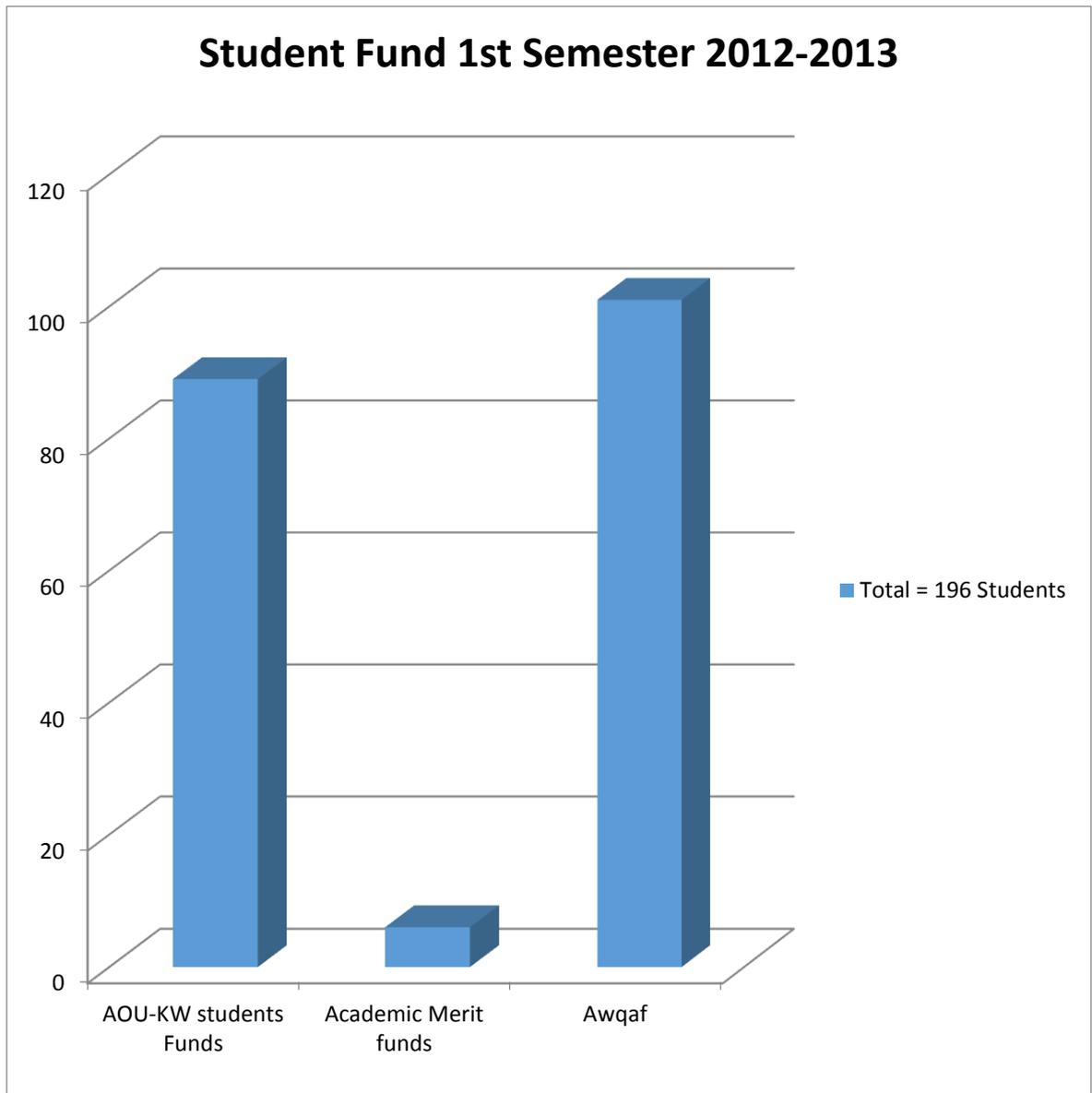
(Figure 3)



(Figure 4)



(Figure 5)



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**Assisting Vietnam Medical Universities through E-learning:  
Cultural Challenges**

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**Theme Five: Social and Cultural Challenges**

**Paper Presentation**

## **Assisting Vietnam Medical Universities through E-learning: Cultural Considerations**

### **Introduction**

Vietnam's medical and health system requires an increased emphasis on primary care, prevention of disease and other health concerns. The Ministry of Health, having traditional influence on health policies and university programs, is reforming gradually due to the increasing process of economic and fiscal decentralization. All medical programs in Vietnam require a national entrance examination. Approximately one in every 30 students who take the entrance examination is accepted. The medical curriculum is a six year program, discipline-based and teacher centered (Hoat, Nguyen & Wright, 2008). After preparatory work including mathematics and physics, basic medical sciences (e.g. anatomy, biochemistry) are initiated in year two and onwards. Clinical theory begins in the third or fourth year, followed by or combined with clinical practice. Vietnam, however, continues to face significant challenges in the provision of medical and health services (Hoat & Wright, 2008; Ministry of Health, 2007). Disparities exist in several key public health indicators reflected by region, income, and ethnicity (World Health Organization, 2010).

In addition, the growing health disparities are compounded by an increased demand for trained medical personnel to meet world-class standards (Hoat et al., 2008). Rural hospitals cannot keep up with patient demand nor provide extended medical services required by the population. Thus, provincial hospitals continue to admit patients to an already overcrowded situation where 2-3 patients occupy each hospital bed. Increase space and services as well increased trained medical personal are needed.

### **Need for intervention**

Vietnam's public health needs continue to be a priority not only for the government but also for universities and health care providers. The advancement of knowledge and information continues to increase, influencing medical strategies, intervention policies, educational opportunities, international linkages, and partnerships for shared services and resources. However, academic and instructional quality, integrity, and access remain keys to effectiveness and sustainability of these relationships (Churton, 2004). As universities consider the use of e-learning, a concern for quality control and support systems to ensure programmatic integrity requires concerted attention (Frohberg, Goth & Schwabe, 2009; Nair & Finucane, 2003). Universities should identify and apply appropriate curriculum design, course development, instructional support, and evaluation measures to ensure that their e-students and their e-instructors experience an effective transition to an e-learning/teaching environment (Churton, 2010). Information and communication technologies (ICT) have enabled higher education institutions to offer a wide range of innovative approaches to personnel preparation and research (Churton, 2004). Vietnam's health care system faces continual challenges, due to economic and development changes, that have resulted in new patterns of how health services are provided (World Health Organization, 2010). Information and communication technology can and perhaps should play an influential role in medicine and health care including medical technology, information sharing, teaching methodologies and research. Internationally, research in medicine and related fields such as sociology and anthropology is producing new information concerning emerging diseases such as HIV, SARS and others. Information science and technology is required to bring this information to health care providers and practitioners in the field as well as to universities (Hoat et al., 2008). Traditional formats for sharing information especially in university programs are still useful, but often these formats cannot maintain currency nor present the most viable information to students.

For medical education, ICT formats create new and innovative opportunities for students, but at the same time create challenges for instructors and universities. Information technology as a means to infuse information and to update university teaching and learning is critical for improving medical and health services. A need continues, to integrate information technologies with existing instructional methods used in Vietnam's medical universities. To be effective, instructors require extended training in order to transition from traditional methodologies and strategies to an e-learning environment and to increase curriculum and content offerings. The theoretical design is critical to ensure that content, assignments, and evaluation exceeds discipline standards (Scagnoli, Buki & Johnson, 2009). As medical universities and their instructors move more towards student-centered learning, students will require an instructional transition as to how they receive information through an e-learning approach. In addition, the application of e-learning addresses the needs not only of urban universities but also the needs of programs serving rural health care providers as well (Wiesenberg & Stacey, 2005).

**Assisting Vietnam Medical Universities through E-learning:  
Cultural Considerations**

**Abstract**

The costs for providing medical school education and services in Vietnam's universities continue to increase. Through a collaborative project between the Government of the Netherlands and Vietnam's Ministry of Health, a five year experimental program to develop in-country capacity and reduce the dependence upon an out of country service delivery model was initiated in 2007. A consortium of eight Vietnamese medical universities participated in the project. The primary purpose was to design and strengthen the capacity of Vietnamese medical programs, personnel, and students in developing technical and pragmatic knowledge in several key medical and scientific categories that are currently directed by international consultants. The project intends to empower Vietnam's medical community to be self-reliant in the delivery of medical training and services to address the significant health needs of the country. To assist in the management and capacity building of the project across the eight medical universities, centers of excellence (COEs) were proposed, encompassing five core constructs including health management, medical education, economic evaluation, medical research, and e-learning. This paper addresses the design, development, and outcomes of two centers of excellence in e-learning identifying cultural and traditional teaching-learning practices which seem to influence program design.

**Keywords: e-learning, Vietnam, Social-Cultural**

## Theoretical construct and relevant literature

The intended outcome, to achieve a systemic transformation of the traditional instructor-centered model, used predominantly in Vietnam's medical universities, to a learner-centered e-learning model, is a formidable task (Clark, 2002; Leung, 2002). Change within Vietnam's medical universities is at best, complicated, when considering the number of universities involved, traditional methodologies, fiscal limitations, as well the educational and philosophical backgrounds of instructors and administrators and the learning styles of students. Traditional instructor-centered teaching is yielding slowly to a more learner-centered approach that places self-learning and instructor-facilitated instruction at the foci. E-learning is the use of information and communications technologies to deliver a broad array of solutions that enhance knowledge and academic performance (Gibbons & Fairweather, 2000; Rosenberg, 2001; Ruiz, Mintzer & Leipzig, 2006). Recent innovations within the information and communication technologies field have assisted in defining the parameters for pedagogical strategies used in e-learning and in other forms of distance learning (Dabbagh & Bannan-Ritland, 2005). However, large class size, entrenched faculty, and ICT limitations across the eight medical universities, challenges the systemic and comprehensive changes that the project envisions.

Although broadly constructivist in its theoretical foundations, the project's conceptualization for e-learning is based in part on empirical research from behaviorism, cognitive, and situational theories. Guided by learning theories advanced by Dewey (1916), Piaget (1972), Vygotsky (1978) and Bruner (1990), constructivism is defined as active construction of new knowledge based on a learner's prior experience. Evolving from this eclectic model of learning is the specification of pedagogical methodologies and strategies that direct responsibility for the instructional sequence to learners and encourages the learner with creating, collaborating, and constructing new knowledge. The application of constructivism to an e-learning theoretical approach has also been supported by research (Egbert & Thomas, 2001; Hung, 2010; Koohang, 2009; Randall, 2001). Constructivist learning theory supports knowledge construction applied to e-learning by encouraging a learner-centered focus as well as collaboration among learners. Koohang and Harman (2005) stated that e-learning is the delivery of instruction through various electronic media where designs include learning theories and principles consistent with a constructivist approach. E-learning instructional design has relied on instructional models including behaviorism, cognitive, humanism, and constructivism (Lee & Lin, 2009).

Koohang (2009) advanced a model based on constructivism learning theory within e-learning environments. The model includes three categories for elements of constructivism represented in the design of learning activities, learning assessment, and instructor's roles. The design of e-learning activities includes collaboration, cooperation, multiple perspectives, real world examples, scaffolding, self-reflection, multiple representations of ideas, and social negotiation which support a learner-centered approach. The learning assessment elements consisted of instructor assessment, curriculum assessment, and self-assessment while the instructor's roles include coaching, guiding, mentoring, acknowledging, providing feedback, and assessing student learning. The application of Koohang's model has direct application to the systemic change envisioned by the project (Lee & Lin, 2009; McCombs, 2004).

The learner-centered approach, consistent with constructivist principles, provides a foundation for transforming education facilitated by the potential impact and influence of technology. Technology can be used to change the role of teachers to that of co-learners and contributors to the social and interpersonal development of students, counterbalancing the potential of ICT to create personal and social isolation and alienation (Cook, 2005; McCombs & Vakili, 2005). E-learning use by medical educators to improve the efficiency and effectiveness of educational interventions also recognizes the social, scientific, and pedagogical challenges (Ally, 2008). Online delivery of education can then provide a means to centralize course development and link multi-campus learners to academic instructors on a national and international scale. Learner-centered e-classroom is not only dependent upon technology but also dependent upon political, organizational, cultural, and philosophical factors (Dede, 2002). As changes to the definition of "schooling" occur, especially within medical education, the possibilities afforded by e-learning will be enhanced or diminished, dependent upon these and other factors (Ruiz et al., 2006).

Instructional strategies that encompass the characteristics of pedagogical models grounded in constructivist as well as learner-centered views include: (a) promoting or supporting authentic learning activities; (b) facilitating problem solving, exploration, and hypothesis generation; (c) promoting collaboration and social negotiation; (d) supporting or facilitating role-playing activities; (e) promoting articulation and reflection; (f) supporting multiple perspectives; (g) supporting modeling and explaining; and (h) providing scaffolding (McLoughlin & Oliver, 1999). Overall, the instructional strategies goal was to create a learning culture where collaboration, learning with self-awareness, multiple perspectives, and self-management are promoted, and where the role of the teacher is reciprocal, supportive, and communicative as it is responsive to learner needs. This premise underscores the intent of the project and the development of a comprehensive e-learning, learner-centered approach to medical education. Given the constructivist foundation of the project as well as its transformation to a more learner-centered approach to the teaching-learning process, the design for

the development of the *Center of Excellence in E-learning* requires support of the basic principles of constructivism and the strategies used in learner centered education. E-learning development at the universities should include methods and instructional strategies that support the construction of knowledge which will enable opportunities for instructors and students to access the wealth of information and knowledge available through appropriate use of ICT and pedagogies ( Koohan, 2009; McLoughlin & Oliver, 1999).

## Purpose of Project

### Centers of excellence in human resource health services

The Vietnam Ministry of Health (MOH) in collaboration with the Royal Netherland Embassy (RNE) in Hanoi designed an innovative and creative model for improving and sustaining the capacity of Vietnam's medical universities to address the significant health issues of the country (Y. Nguyen, personal communication 4December, 2007). As an integral part of a broader MOH and RNE initiative on human resource development for improved health and medical services, the project provided technical and consultative assistance in select medical and scientific components that are currently served by international personnel and other resources. As a result of this project as well as other projects in the country, the preparation of medical personnel was envisioned to become more cooperative and broad-based in addressing medical and health needs of the country. In addition, the project provided the foundation by which continued growth and the sustainability are encouraged.

*Centers of Excellence* (COEs) including health management, medical education, economic evaluation, medical research, and e-learning were identified and viewed as one means to assist in accomplishing the project's objectives. Medical units and universities must collaborate as partners to address increased public health concerns and related issues. Centers of excellence are based on a collaborative model capable of integrating common requirements and addressing infrastructure inefficiencies and ineffectiveness from a holistic, medical perspective. Creating a sustainable, and successful COE requires non-traditional approaches and open thinking (Chang, 2010). Stakeholders must collaborate on cross-disciplinary initiatives. To meet this goal, the COE must be built upon a collaborative, versus traditional command and control, governance structure. The following outlines key COE functions and deliverables:

- Enable collaboration across universities to ensure consistency and integration.
- Provide a governance framework that enables open participation from each stakeholder and/or medical unit.
- Establish modeling designs, related technologies and a methodology to enable collaborative modeling.
- Create a focal point where strategy can be translated into operational reality.

COEs were intended to provide a level of program outcomes to assist Vietnam's tertiary medical personnel preparation programs in developing more self-sufficiency in addressing postgraduate training, research, and national health needs. Centers of excellence are intended to enable inter-university cooperation and collaboration necessary to effect change. COEs provide leadership, expertise, and resources to enable faculty and students to become self directed in their teaching and learning (Churton, 2008). Five medical and scientific constructs were identified for COE development and serve five basic needs:

- Support: For their area of focus. This may be through services needed or providing subject matter experts.
- Guidance: Standards, methodologies, tools and knowledge repositories are typical approaches to filling this need.
- Shared learning: Training and certifications, skill assessments, team building and formalized roles are all ways to encourage shared learning.
- Measurements: COEs should be able to demonstrate they are delivering the valued results that justified their creation through the use of measurable outcomes.
- Governance: Allocating limited resources (money, people, etc.) across all their possible use is an important function of COEs (Kagan, 1994).

Although five centers of excellence were proposed, the purpose of this article is to address the design and development of the *Centers of Excellence in e-Learning* as integral parts of the COEs network and a means to transition the application of ICT and e-learning to the professional preparation of medical doctors and health specialists in Vietnam.

## Methods

### Participants and design

To collaboratively address the pressing higher education concerns of the country, eight medical universities were selected to participate in the project (Y. Nguyen, personal communication, March 2008). The

consortium of universities included Hanoi Medical University, Hue University, Tay Nguyen University, Ho Chi Minh City Medicine and Pharmacy University, Can Tho Medical University, Thai Nguyen University, Hai Phong Medicine University and Thai Binh University of Medicine. Tay Nguyen Medical University also participates to a limited degree for the express purpose of building capacity in core construct areas. In addition, the Learning Resource Center at Hue University was also included. The universities are geographically dispersed across Vietnam including programs in rural and urban settings.

A qualitative design was used to ascertain critical medical and scientific components identifying pressing concerns for university training and research. A series of centralized and outreach meetings were conducted to identify medical and health components most critical for the country and for each respective university program. Consortium representatives, including university administrators, instructors, staff and resource personnel, were organized into five teams representing each of the designated health components. National medical and health concerns identified by the teams included: medical education, research, management, economic evaluation, and e-learning. Within each component area, sub-components were also identified to enable a more concentrated and comprehensive effort to meet intended outcomes. As a result, five centers of excellence were planned, based upon the medical and scientific components derived from the collaborative and qualitative design process.

Centers of excellence were considered for development at participating universities and also the Learning Resource Center (LRC), a support unit at Hue University. The number and categories of COEs at each medical university were determined based upon university capabilities, institutional capacity, and commitment to the proposed COE outcomes. Additional criteria included competence of team members in the selected components, market needs, and the support and commitment of the respective university administration (Y. Nguyen, personal communication, March 2008). Membership of each COE varied depending upon the medical and/or scientific component. Approximately 2-3 members from each university were assigned to the medical education, economic, research, and management COEs. COE membership was determined through application and recommendations from each university administration. COE members received additional compensation as well as traveling expenses as an incentive for their participation. The COEs for e-learning were comprised of 1 or 2 members per university.

### **Centers of Excellence in e-Learning**

The focus of the COEs was to develop expertise and resources in the identified medical and/or scientific component areas. COE sustainability is measured in part by the capacity in which the COE provides the necessary leadership within each respective university as well as providing consultative services to other universities. As originally proposed, COEs were anticipated to develop a cadre of expertise competent to provide consultative services to other universities. Consultative and support services would consist of training, evaluation, and other assistive activities in the areas of medical economics, research, management, and medical education and e-learning. Further, COEs activities were planned throughout the year with a culminating annual progress or status meeting. The annual meeting intended to evaluate the progress of the COEs during the previous year and to plan for the succeeding year.

As a result of the group planning and analysis process conducted, two centers of excellence in e-learning was identified. Hanoi Medical University (COE-HMU) and the Learning Resource Center at Hue University (COE-LRC) were designated for the leadership in e-learning. E-learning for the purpose of the COEs was broadly defined to include electronic teaching-learning, online course management programs, blended or hybrid applications, video conferencing, as well as the use of DVD and other multimedia strategies.

#### **Hanoi Medical University (COE-HMU)**

Hanoi Medical University (HMU) was founded in 1902 and is considered the premier medical university in Vietnam (HMU, n.d.). The university has approximately 2,500 undergraduate students and over 3,000 postgraduate students. Approximately 800 undergraduates and 900 postgraduate students are enrolled each year. Approximately 170 instructors hold terminal degrees. HMU is academically organized across several faculties (colleges) and departments addressing a broad range of medical education and research. The departments of surgery, pediatrics, psychiatry, medical, education and public health was targeted for initial developments in e-learning (Le Ngoc, 2009).

The secretariat for the COEs is based at Hanoi Medical University. The COE in e-learning at Hanoi Medical University (COE-HMU) served as the coordinating and/or administrative unit in e-learning for the other seven universities. Management of the COE-HMU was initially directed by two co-coordinators. One co-coordinator was an information technology expert and also served as the HMU IT manager. She was assisted by a staff comprised of information and communication technology specialists as well as academic content specialists. The other co-coordinator was a faculty member in public health. Her expertise was in the application of content and pedagogical instruction to an e-learning environment. The rationale for the designation of two

coordinators was to integrate information technology with sound pedagogical applications. Churton (2004) suggested that the integration of academic content with ICT is critical since instructors, especially in the medical fields, are often more attentive to a colleague with expertise in similar content areas as well as in instructional technology. Given the newness of e-learning for medical instructors, this relationship with a colleague who can demonstrate the product is important.

The COE-HMU staff performs a multitude of responsibilities, some directly related to the COE and others reflecting a continuation of daily responsibilities associated with university employment. First, the COE was responsible for the infrastructure at HMU including ICT installation and maintenance necessary for the development of the e-learning program. Duties require significant expertise, planning and oversight to ensure that e-learning technologies, including software, hardware, and Internet 2viability, are available and sustained for successful e-learning applications. At HMU, a teaching-demonstration computer laboratory was designed with 30 plus units in addition to a video conferencing codec and LCD projector. All technical assistance including hardware/software installation, training, and maintenance of servers, Internet access and bandwidth, including electronic mail and communications, fall within the purview of the COE-HMU in e-learning.

Second, the COE-HMU was responsible for the training necessary to transition HMU instructors from traditional lecture, teacher-directed methodologies and practices, to an e-learning, student-focused teaching environment. Transition includes understanding the strategies and technical aspects of the course management software, ICT for the classroom, and other multimedia activities supporting e-learning, technically as well as pedagogically. Instructor training consists of formal presentations as well as individual consultations.

Third, COE staff was responsible for meeting the continuing ICT needs of the university. The HMU ICT unit was required to upgrade and complete the Internet services network for the university in order to maintain sufficient capacity for implementing e-learning. Although the COE e-learning system is integrated with the university's ICT infrastructure, the increased responsibilities, time and effort, and management work necessary to maintain a viable ICT system for the entire university placed a significant strain on a new and developing COE. Overlapping ICT responsibilities with limited staff may seem cost and time effective initially, but in reality the opposite is often proven more realistic and long term success is difficult to achieve.

### **COE-Learning Resource Center at Hue University (COE-LRC)**

In addition to the COE-HMU, a second COE for e-learning was identified at Hue University's Learning Resource Center (COE-LRC). Hue University was established in 1957 and is a multi-disciplinary and multi-discipline university including Colleges of Education, Sciences, Medicine and Pharmacy, Agriculture and Forestry, Arts, Economics, Foreign Languages and Faculties of Physical Education, and Hospitality and Tourism (HU, n.d.). Hue University's diversity in its broad academic approach is unique compared to the other seven universities involved in the project. However, for the purpose of the project, the medical college was the only college participating but the opportunity for involvement by the other colleges was enhanced.

The Hue University Learning Resource Center (LRC) is housed in a modern four storey facility providing advanced education resources and online teaching-learning programs, opened in 2004 (LRC, n.d.). The LRC contains over 500 PC workstations, 2 computer laboratories, training-conference centre audiovisual equipment including 2 viewing rooms, 14 printers (network printing), and 9 photocopiers. The LRC also lists over 65,000 monograph copies (9,000 titles), 4,500 reference copies (4,000 titles), 500 periodical titles, 1,500 audiovisual items (900 titles), and several international e-data bases. The LRC staff consists of librarians, computer programmers and technicians, graphics and multimedia personnel.

The rationale for the addition of a second COE in e-learning was due to established expertise and resources at HUE-LRC. There are four centers similar to the Hue-LRC based at Vietnam's universities. The HUE-LRC e-learning unit is directed by a medical faculty instructor and assisted by an instructional and design support unit. The director also manages the LRC. Similar to the COE-HMU, responsibilities for developing e-learning were added to the staff's ongoing duties. Consistent with an e-learning teaching-learning philosophy, the LRC promotes open access to collections, use of electronic resources, student self-directed use of information and data research services, integration of resources with academic programs, and the involvement of academic staff in LRC resource and training activities (LRC, n.d.).

### **E-learning needs assessment**

The eight medical universities were surveyed using a needs assessment which intended to establish a baseline representing the e-learning status of each program. In addition, the selection of the learning management system (LMS) holds significance for instructional transition as well as for identifying specific responsibilities for the COE support teams. A comprehensive needs assessment was designed and administered in the spring of 2008 to ascertain the level of e-learning knowledge and capacity existing at each university. The needs assessment addressed four broad constructs relating to the development and application of e-learning programs including: (1) e-learning system support and development which addressed current e-learning status,

evaluation, instructor support, philosophical position, and funding; (2) e-learning students includes ICT knowledge base of students, technical support, planned orientations, and student training; (3) course design and structure, including type of e-learning class, LMS selection, anticipated document and file types, evaluation of students and instructors; and (4) pedagogical implications for e-learning, including questions addressing instructors' e-learning expertise, instructional strategies and methods, content originators and experts, and management and communication (Churton, 2008). Six out of the eight universities returned the survey and of the surveys returned only two were complete.

Results of the needs assessment and an on-site visitation demonstrated that each university is unique and envisions a broad and at times unclear interpretation of e-learning needs. Due to the initial development of the programs, e-learning needs and current status was based primarily upon existing expertise and resources. It must be noted that the surveys were completed by one person from each university reporting the needs and this, alone, may not have been representative of the general e-learning status or needs. Ho Chi Minh City Medical and Pharmaceutical University offered a unique e-learning structure, reporting that each faculty or college designed and developed their own e-learning system. A university-wide model was not established which could prove to be, over time, too expensive and confusing to sustain (Moore, 2009). The measurable difference between a university's existing ICT e-learning capacity and their long term goals was significant in most cases and perhaps unobtainable given a multitude of philosophic, economic and pragmatic factors.

### **Learning management system (LMS) selection**

The LMS *Moodle* (<http://moodle.org/>; Cole & Foster, 2008) was selected to be used system wide. The primary rationale was attributed directly to licensing costs and that COE-HMU and COE-LRC had already downloaded the software and implemented training. Being an open source product, *Moodle* involves no initial or ongoing fees in the downloading or utilization of the software. In addition, online support and training is available in most cases without additional fees. Third-party manuals and resources are available for a nominal fee in many instances. The COE-HMU supported training for all university e-learning members in the software application and in instructional aspects of *Moodle*. Although limitations are associated with *Moodle*, in hindsight, it seems to have been a practical decision to begin the transitional process of developing e-learning programs.

### **COE e-learning development and enhancement activities**

Given the five years of the project, there occurred a wide-variety of e-learning development within the two COEs as well as at the other six universities. The annual conference dialogs as well as annual progress reports clearly demonstrate the need for continued training and development. It is prudent to report each COE separately due to the baseline from which each unit began its operation. The project initially cited one COE in e-learning. However, due to the level of expertise at HMC-LRC, a second COE was designated.

#### **COE-Hanoi Medical University**

It should be noted that HMU prior to the development of the COE in e-learning offered only limited experiences and/or activities in e-learning. Although the use of multimedia was present in some classes, a university wide initiative did not exist. The COE project enabled Hanoi Medical University to improve the university's information and communication technologies, the library system and the local area network. Further, HMU was equipping departments with computers, averaging 1 or 2 computers per unit, although instructors tended to purchase their own computers. In addition, the university provided limited computer laboratories and Internet access to students in their courses. Few students own personal computers.

The goal of the COE-HMU was to design a unit to serve as an e-learning resource for HMU as well as other medical schools, health institutions and services in the country. Objectives included:

- Administrative procedures, employment of staff, and organizational structure and procedures for program implementation completed within six months.
- Completion and upgrade of the HMU infrastructure and LAN network capacity at Hanoi Medical University to sustain e-learning applications.
- E-learning orientation and awareness sessions at HMU and other medical schools through workshops, seminars, and conferences.
- Short-term training to address specific needs of e-learning with support from local and national experts.
- After two years, a training group of 15-20 instructors in HMU who can plan, develop and use e-learning.
- By the end of the project, a core group of e-learning experts in e-learning who can provide training to other medical schools and health institutions.

From the start of the project, COE-HMU has undergone significant change relative to their e-learning program. The HMU-COE has conducted workshops and training programs designed to increase the e-learning competencies of instructors at HMU. A series of training programs were conducted addressing e-learning course design, pedagogy and course evaluation from a constructivist and learner-centered view including:

- E-learning basics and considerations for online teaching
- Creating an online course shell with *Moodle*
- Planning for e-learning programs
- Transitioning course content to e-learning
- Curriculum development and e-learning course design
- Considering multimedia content
- Learning content online
- Content vs. pedagogy
- *Moodle*: Pedagogical tools/strategies
- *Moodle*: Introduction: Open source learning or course management system
- Course design-management
- Online course evaluation

Although a variety of e-learning training and course development workshops have been conducted, the application of this knowledge to increase the number of e-learning courses have been limited. Of the courses reviewed to date, few if any have surpassed the “development” stage. The process has been one of attempting to transfer traditional face to face teaching strategies to an e-learning environment and/or to a DVD module. Text (lecture notes) with limited graphics seems to be the common approach which diminishes the effectiveness and opportunities associated with e-learning.

Several factors have played a role in the progress to date. First and foremost, as cited previously, the COE-HMU staff carry responsibilities for other ICT aspects of the university. Time and time management certainly affect productivity. The instructors' time commitment was limited, in relation to transitioning from traditional classroom instruction to a design that uses the pedagogical aspects of e-learning, either in total or through a blended approach. Further, offering short-term workshops and seminars to change teaching-learning behavior is inadequate. Extended training under instructor supervision via group participation as well as direct instruction on an individual basis is more productive (Scagnoli et al., 2009)? In addition, the university, if truly dedicated to e-learning and to the objectives of the project, should release the COE-HMU staff from university duties so that the staff can concentrate entirely on the e-learning development at HMU.

### **COE-Learning Resource Center (LRC)**

Unlike the COE-HMU, the Learning Resource Center at Hue University was already established and in operation for several years prior to the start of the project. Library resources and ICT staff were instituted and to some degree already assisting university faculty in the development of multimedia and e-learning applications. *Moodle* had been installed and ICT personnel trained. This foundation provided the COE-LRC with the necessary technological infrastructure, hardware, and expertise necessary to initiate a concerted plan and procedures for enhancing e-learning at Hue University. An initial stage of development was for the COE-LRC to conduct a 30 day training program to introduce, develop, and assist university instructors and LRC staff into e-learning and the transition from traditional, teacher-directed formats to a more student-directed approach using e-learning. The format consisted of an initial three-day open dialogue on the advantages and limitations of using e-learning to deliver university courses. University e-learning culture, pedagogical design, and the differences in teaching online (Allen & Seaman, 2008) as opposed to teaching in a traditional face to face classroom environment were presented and included:

- Dialogue on the transition to an e-learning university model
- E-learning challenges and implications.
- Developing an e-learning university culture
- E-learning and ICT structure
- Course management, instructor management, and student management
- Administrative support and sustaining and expanding a university e-learning model

The remainder of the training program focused on the design, development and application of an e-learning course using *Moodle*. All participants created and designed, to varying degrees, an online course or program. Faculty from the College of Medicine focused on the classes they were teaching while LRC personnel were assigned one of several project areas including student and instructor e-learning

orientations and specific online training using *Moodle*. The four week program addressed the following broad constructs as well as specific aspects of designing e-learning activities using *Moodle: Management and sustainability of e-learning classes*

- Orientation to e-learning courses vs. traditional courses
- Accessing university servers, security issues, and login to the LMS
- Navigation within the LMS
- Creating a new course account shell in the LMS
- Enrollment/ deletion/ modification to online class members
- Creating effective announcements and notices
- Creating faculty and student homepages
- Creating online course/ class materials
- Uploading and modifying e-course content

***Pedagogical implications of online learning***

- Designing course information for LMS applications
- Utilization of communication options such as email, listservs, etc
- Presenting and accessing resources and academic content
- Strategies for providing online forums/ real-time virtual classroom and chat
- Collecting and annotating Internet-based curricular resources
- Creating online assessments, assignment submissions, file management
- Creating teacher informational and student homepages
- Utilizing grade book/statistics with student access
- Creating a self-management system for teaching online

The outcomes of this concentrated training, which did not occur at COE-HMU, training of 10 university instructors with a significant foundation for understanding and designing basic e-learning courses. Although further development would be required, a basic level of understanding of transitional requirements was attained, including management aspects of the LMS as well as pedagogical considerations necessary for an effective e-learning course design. In addition, the LRC staff assigned to the e-learning support unit also developed consultative skills necessary to assist instructors in their e-learning development. Further, the COE-LRC designed and published several manuals on the process and Application of e-learning, based upon the training that was conducted. Manuals were disseminated to instructors at Hue and also to other COE members. Several additional training sessions occurred on an annual and bi-annual basis. Further, the COE-LRC enrolled staff members in an Australian program for designing DVDs and multimedia. Staff was also sent to Singapore for further training in the application of the LMS for specific learning outcomes and delivery strategies.

The COE-LRC also conducted online course development as well as course evaluation at two COE universities. The COE-LRC selected three people to undergo extensive e-learning course evaluation. A matrix was developed based upon *Moodle* applications. The team evaluated courses at Tai Nguyen University to assist in their e-learning development. The unit also conducted student focus groups in researching e-learning needs of students. These sessions included university instructors and provided critical information to be considered in course design and development.

## **Discussion**

Although the Vietnam Ministry of Health in collaboration with the Netherlands Government proposed using centers of excellence to address higher education needs of the country's eight medical universities, the tasks of developing five functional and viable centers of excellence were quite ambitious. The development of centers of excellence was seen as a viable approach to assist in resolving limited expertise and resources in several key medical and scientific areas including medical education, economics, management, medical research and e-learning consistent with a concerted approach to design a more learner-centered approach to medical personnel preparation. Further, the centers of excellence in e-learning at Hanoi Medical University and Hue University Learning Resource Center initiated the process of not only transitioning university instructors and students to e-learning but also of enhancing the ICT infrastructure necessary to sustain a viable e-learning environment. Unlike the other COEs, this dual responsibility as well as the responsibility to enhance the e-learning capabilities of the other COEs, was at best highly ambitious.

COE-HMU and COE-LRC accomplished several objectives in meeting the e-learning needs of their respective programs. However, both programs have struggled with several aspects of implementing the COE. As previously stated, COE-HMU was created from a baseline of limited e-learning activity and facilities. Although the basic ICT infrastructure at HMU was present, the unit's physical location, network servers, and teaching laboratory was not centralized, being dispersed across campus. Although the basic structure of a teaching laboratory was present, it could not be considered a state-of-the art e-learning environment. In addition, considerable time and finances were dedicated to upgrade the ICT network in order to sustain e-learning

applications. The COE-LRC on the other hand, had previously implemented e-learning activities prior to the start of the project, and provided a state of the arts e-learning facility. A primary objective for both programs was to begin the process of learner-centered education supporting a constructivist approach to teaching-learning. Koochang's (2009) model on constructivism learning theory in e-learning environments included three categories: the design of learning activities, learning assessment, and instructor's roles. The two COEs conducted a variety of short-term e-learning activities for instructors and to a lesser extent for university students, assessment and evaluation of course and learning activities, and identification of the roles and functions of a medical university instructor in an e-learning environment.

Both COEs increased their e-learning programs through professional and staff development and e-learning services obtained from external consultations. Although instructors were afforded training and consultation, the implementation of learner-centered e-learning courses was not successful with respect to the use of authentic learning activities, problem solving, collaboration and social interaction, reflection and other strategies as recommended by McLoughlin and Oliver (1999). In evaluating e-learning courses that were developed at both programs, it was clear that the primary instructional philosophy remained focused on traditional, lecture-centered formats. Although some instructors offered evidence that a learner-centered constructivist model was being considered, for the most part e-learning courses in various stages of development were more representatives of instructor's lecture notes posted to the learning management system with a limited utilization of illustrations and graphics. Entrenched instructors using traditional, lecture-based approaches to teaching remained for the most part, adamant in their philosophy and approaches to medical education. The process of instructional and philosophical transformation is difficult process irrespective of university or country. Concentrated and sustained training sessions which consistently reinforced strategies and practices grounded in learner-centered and constructivist principles are required and recommended (Allen & Seaman, 2008).

The use of e-learning was to assist in the transition from a teacher-centered model using traditional-based methods and strategies to an approach that emphasized the development of critical teaching skills (Pham, 2010). In addition, scalability was an intended outcome. Enhancing skill development was considered essential for medical students. The results suggest that though there is evidence of change, traditional teaching methods and the prevalence of passiveness among students are continued. The limitation in critical thinking skills is considered one of the biggest barriers preventing university graduates from making a smooth transition to the workplace. While medical schools pay considerable attention to the analysis of curriculum content and organization of teaching and assessment of students, little attention is given to the impact of these activities on the various ways that students learn. Student learning and instructors teaching styles influenced by culture and traditions, have considerable impact on achievement and intended outcomes.

Culture describes the cumulative influences on a group of people or society—their collective knowledge, characteristics and learned behaviors. Cultural influence applies collectively to students as well as instructors. In Vietnam, the social, cultural and educational characteristics and traditions have been significantly influenced by Confucian ideology (Vo, 2010). Instructors tend to teach in similar styles as they have been taught in primary and secondary programs. Although select Vietnamese medical instructors have been trained overseas, the need to meet the learning needs of their students were reinforced through cultural and traditional practices. The learning environment including traditional and cultural aspects critically impacts students' learning. Vietnam as well as other Asian countries that have been influenced by a Confucian tradition cites the teacher-student relationship as unequal and that students are dependent on and should be respectful of their teachers (Tan & Lim, 2012). Maintenance of face, one's dignity, self-respect and prestige are very important in Vietnamese communities as well as in the classroom. Public displays of disagreement with teachers, parents or the elderly are considered as rude and disrespectful. As a result, the design of classes often reflect a teacher-directed pedagogical approach to the teaching-learning process although in limited instances this may be evolving. Characteristics of a teacher-centered approach may include:

- Lecture with limited multimedia, are the primarily form of knowledge and information transfer.
- Students tend to rely on teachers to provide information. Students rely on teachers to inform them of correct answer.
- The student's responsibility is to accumulate knowledge. Memorizing of information or rote learning without understanding and/or application is often used.
- Students tend to reproduce the information and knowledge that have been passed on to them by their teachers Students work collectively in study groups.
- Students believe that they will be successful if they work hard.
- Exams and tests usually form a major part of the assessment.

Approximately 320 online classes using MOODLE as the LMC were created. Overall, 87% of the classes continued to reflect a teacher-centered approach. Classes assimilated traditional lecture based sessions

through an online format. In some instances, the use of additional multimedia applications was also included. Overall learner responsibilities were to read pages of online type, responded to quiz questions, participate in limited online and face-to-face (FTF) discussions, and complete a final written (FTF) exam at the termination of the semester. The transfer, in most cases, from a teacher-centered to a learner-centered pedagogical approach was not demonstrated in the majority of the online classes reviewed. Instructors were placed in the precarious situation of not only learning a new technology based delivery format but also apply a pedagogical delivery format significantly different from their educational and cultural experiences. Change is a difficult process especially in the medical profession when the outcomes address human life and health needs. The medical system in Vietnam is entrenched and complex involving a hierarchy that is entrenched but shows signs of change. The recognition to address the skill development of medical students is a positive step forwards. The difficulty to integrate an e-learning model into the system requires change at all levels (Ton et al, 2010).

Part of the frustration in meeting the purpose and objectives of the COE was not having a competent support unit whose sole responsibility was dedicated to increasing e-learning. Centers of excellence and/or e-learning support units are perhaps one of the most critical components in designing effective e-learning programs. To be successful, support units or COEs must be designed and developed with an expressed mission to focus on e-learning. Dispersing a unit's resources to other responsibilities hinders the sustaining of initial and/or long term growth. Staff assigned to the COE must be full time with responsibilities dedicated to the e-learning unit. COEs require personnel with e-learning expertise including knowledge in LMS, graphic design, animation, multimedia, and perhaps most importantly, pedagogical skills and strategies. Effectiveness demands more than ICT knowledge or knowledge concerning the LMS. Too often, a support unit in e-learning is directed by ICT personnel. Although proficient in ICT skills, applications, and software functions; and perhaps the general knowledge of the pedagogical strategies used; expertise in teaching and the use of learner-centered strategies may not be evident. HMU-COE public health instructor and co-director left the program after the second year. Leadership should be provided by a veteran pedagogical specialist versed in e-learning instructional practices.

Further, an e-learning culture is a sustainable community of learning consisting of collaborative and shared interests supported and/or mediated through technology and guided by well formulated practices and protocols for designing, developing, teaching and evaluating e-learning programs. Collaborative interests on campus include professors, students, administrators, libraries, and the support personnel and unit. To be successful, the culture of e-learning must be developed holistically (Churton, 2008). Due to considerable costs and time investment, individuals or single faculties will not sustain an effective e-learning program. What has been learned is that considerable time is required to not only initiate an effective e-learning program but to sustain one as well. The culture requires that universities dedicate a support unit or COE that addresses the e-learning needs of instructors, students, and administrators. Effective COEs ensure that:

- Instructors and learners have effective e-learning support systems managed by expertise in e-learning and the dedicated time to design programs.
- E-learning course designs are consistent with outcomes, objectives are measurable, and the delivery systems facilitate learning outcomes.
- Instructors receive extended training in course design, development, pedagogy, and evaluation.
- Faculty are evaluated as to their e-learning teaching effectiveness and provided feedback.
  - Evaluations are used to provide systematic and ongoing data for use in course improvement?
- E-learning missions are consistent with university goals and that needs have been comprehensively determined.
- University administrators are financially committed to quality, professional development and resources in e-learning applications.

What was experienced at both COEs is not unlike transformations occurring at other universities. Systemic change processes are difficult and may be confounded, as in this case, with the added dimension of responsibility for incorporating e-learning design, strategies, and methods in their instructional practices. In addition, students must undergo a transformative change in their learning approach as well. The process of transformation creates transformative learners; those who are increasingly able to modify their frame of reference; examine assumptions, expectations, values, attitudes, and accept varying viewpoints. Transformative learning (Cranton, 2009) is less about how the educator teaches and more about how the educator thinks about teaching and learning. To foster transformative learning, the instructor must support critical reflection and questioning among the learners. This has not been the trend in either COEs.

Quality program design, delivery and support issues from Medical instructors are responsible for effectively communicating content within their area of expertise. It is the responsibility of the COE to assist instructors and learners to teach and learn differently. Dependent learners prefer direct instruction and being

told exactly what to do and when to do it. This has been the traditional practice in the medical schools of Vietnam. In contrast, self-directed learners prefer self-directed project work, discovery learning, and student-directed discourse. Self-directedness transfers to learner responsibilities for their education (Frohberg et al., 2009). The outcome for education is to produce empowered, thinking people who participate in their own learning. This is especially true for medical personnel and one that is difficult to achieve given the historical transformation of traditional teaching-learning methodologies found in Vietnam's medical universities. To assist in accomplishing this end, the COEs should consist of individuals who support and can influence medical personnel and students in this process. For systemic change to occur, COEs must be in the position to minimize the culture and traditional practices which has exerted influence over entrenched instructors, administrators and other individuals who guide the curriculum in order to approach a more learner-centered model.

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# TEACHERS AND STUDENTS` PERCEPTION TOWARDS THE USE OF INFORMATION AND COMMUNICATION TECHNOLOGY FOR TEACHING ENGLISH IN BAHRAIN GOVERNMENTAL SECONDARY SCHOOLS

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## ABSTACT

The success of integrating any information and communication technology in education depends heavily on the perceptions of the teachers and the learners who use such a technology. Throughout the world there is awareness of the fundamental role of the new information and communication technologies in the field of language education and training. The present study attempts to investigate the perceptions of Bahraini Secondary Schools English Language Teachers and their students towards the use of information and communication technology for teaching and learning English. The study was carried out during the second semester of the academic year 2012/2013. A questionnaire and interview questions were used to collect data from 50 English language teachers and 200 ESL learners as well. Descriptive statistical techniques were used to analyze the questionnaire data, while interview questions were thematically analyzed. Results obtained from quantitative and qualitative data related to English teachers' perceptions about integrating technology in their classes, barriers that teachers face in integrating new technologies in teaching English language, and their students' usages of technology were reported. Also, the data about ESL students' perceptions and attitudes towards applying information and instructional technology in their language classes were explored and revealed. This paper concluded with recommendations to facilitate the use of information and communication technology in teaching and learning English language in Bahrain Kingdom schools.

**Keywords:** Information & Communication Technology (ICTS), ELS English, Attitude towards Learning & Studying English Language, Perception towards the use of Information & Communication Technology for Teaching English.

## مدرکات المعلمين والطلاب حول استخدام تكنولوجيا المعلومات والاتصالات لتدريس اللغة الانجليزية في المدارس الثانوية الحكومية بمملكة البحرين

**المستخلص:** إن نجاح دمج أي نوع من تكنولوجيا المعلومات والاتصالات في التعليم يعتمد بشكل كبير على مدرکات المعلمين والمتعلمين الذين يستخدمون تلك المستحدثات التكنولوجية. ونجد أن هنالك اهتماماً متعظماً في جميع أنحاء العالم بالوعي التقني المرتبط بالدور الأساسي لتكنولوجيا المعلومات والاتصالات الجديدة في مجال تعليم اللغة والتدريب على مهاراتها. تحاول الدراسة الحالية استقصاء مدرکات معلمي اللغة الإنجليزية بالمدارس الثانوية الحكومية بمملكة البحرين وإتجاهات طلابهم نحو استخدام تكنولوجيا المعلومات والاتصالات لتعليم وتعلم اللغة الإنجليزية. أجريت الدراسة خلال الفصل الدراسي الثاني من العام الدراسي 2013/2012م. وقد تم استخدام الاستبيان وأسئلة المقابلة لجمع البيانات الخاصة بالدراسة من عينة قوامها

خمسون (50) معلماً من معلمي اللغة الإنجليزية ومائتي (200) من المتعلمين الذين يدرسون اللغة الإنجليزية كلغة أجنبية بمدارس مملكة البحرين الثانوية الحكومية. واستخدمت الأساليب الإحصائية الوصفية المناسبة لتحليل بيانات الاستبيان، في حين تم تحليل أسئلة المقابلة موضوعياً. أظهرت النتائج التي تم الحصول عليها من البيانات الكمية والنوعية المتعلقة بمدركات أفراد العينة من المدرسين حول دمج التكنولوجيا في فصولهم الدراسية، والمشكلات التي تواجه المعلمين في إدماج التكنولوجيات الجديدة في تدريس اللغة الإنجليزية، وطلابهم في استخدامات التكنولوجيا لتعلم اللغة الإنجليزية أيضاً، كما كشفت النتائج حول اتجاهات إيجابية للطلاب نحو استخدام تكنولوجيا المعلومات والاتصالات في تعلم اللغة الإنجليزية كلغة أجنبية. وخلصت الورقة لمجموعة من التوصيات يمكن أن تسهم بدورها في تيسير عملية استخدام تكنولوجيا المعلومات والاتصالات في تدريس وتعلم اللغة الإنجليزية بمدارس المملكة البحرين .

**كلمات البحث:** تكنولوجيا المعلومات والاتصالات (Information & Communication Technology)، اللغة الإنجليزية كلغة ثانية (ELS)، المدركات حول استخدام تكنولوجيا المعلومات والاتصالات لتعليم وتعلم اللغة الإنجليزية .

## 1. INTRODUCTION

English Language is common, it is the language of science & technology; it has become the main media throughout the world as it is spoken in many countries. English is considered as a universal language. Hence, we are forced to meet global standards. Besides, education in twenty-first century faces a revolution that accommodates change in the teachers' style of teaching. Based on this point, the need of obtaining teachers and learners' perceptions towards using technology in English classrooms arises especially at the secondary level which is considered as the basic stage for students' academic future and vocational preparation. The purpose of this paper is to spot teachers' perceptions towards using technology in their classes, to look objectively at students' perspectives towards using technology in learning English language, and to examine the effectiveness of applying information technology in second language teaching and learning.

There is no doubt that the Bahrain Ministry of Education puts a tremendous effort towards improving the quality of teaching and learning programs. Bahrain has trained English teachers to use of technology, and has exposed teachers and students to telecommunication tools. This is all done through the King Hamad Future Schools Program; the Bahrain Ministry of Education currently works to reach the program's goals. Training students to use technology facilitates learning. Consequently, teaching English cannot be divorced from information technology and telecommunication methods. As a strong believer in the importance of utilizing information technology in teaching and learning English Language, the authors are interested in secondary students' perception of information technology and second language acquisition, as this might lead researchers and teachers to understand the effects of utilizing information technology in teaching secondary students English language, enhance awareness of students' learning needs, and perhaps help to employ such technologies in the classroom. The researchers also hope that this modest attempt to explore this subject will inspire new directions for research.

English language and information technology are two major focuses of educational reform all over the world. Bahrain ministry of education in general and teachers of English as a foreign language have to cope with the challenge of technological and pedagogical shifts occurring in the teaching profession. Chen (2008) [1], investigated how and why teachers implemented the information and communications technology into their language instruction and to explore the issues and barriers that teachers

encountered when trying to incorporate modern technology into their instructional practice in Taiwanese higher education. The findings imply that continuous professional development involving technology integration, specifically for language teachers, should be thoroughly planned. New policies regarding the vision and goals of implementation should be made clear to teachers.

The growth and global impact of information and communication technology has been unprecedented over the last ten years. The diffuse information technology into education seems a must for any country in keeping up with the needs of the new world economy which, according to Castells (1996) [2], is becoming informational, global, and networked. Research in global economy indicates that many countries want to create and develop an information society and an information economy that reflects its culture and needs, while being able to choose its optimal role in the global community. Technology diffusion and education reform become an indispensable part of this creation and development process, particularly for a Gulf country, such as the Kingdom of Bahrain.

### **1.1 Why using information technology in teaching and learning process?**

Information and communication technology (ICT) can enable, support, and reinforce the introduction of new pedagogical practices that comply with the educational demands of the twenty-first-century knowledge society. However, despite this potential and despite the delivering of skills-based professional development and the increase in the level of ICT infrastructure, teachers are more often reluctantly rather than willing to use ICT. Kreijns, et. al. (2013) [3], reviewed the existing literature to (1) select a theoretical model that is suited to explain this, and (2) uncover important variables at various levels, including the individual and school organization that should be included in the model. As a result, it adopts Fishbein's Integrative Model of Behavior Prediction (IMBP). The model forces the explicit consideration of dispositional variables including attitude, self-efficacy and subjective norm that are the direct and indirect antecedents of intentional ICT usage and real ICT use. Rather than concentrating on general ICT usage, IMBP is concerned with the use of specific ICT tools, such as digital learning materials. The authors believed that IMBP as a diagnostic tool will shed more light upon the issues surrounding teachers' ICT usage.

Readiness & Zarbazoia (2012) [4], explored why Georgia is inserted in integrating into the world community and the problem of learning English for the purpose of communication is especially urgent today. They stated that information technology benefits both traditional education institutions and online educational models in fundamental ways. For example, multimedia presentations, knowledge-management software, video conferencing, cloud computing and collaborative document editing are notable information technology services benefiting education. Now information technology has made it easy to study as well as teach in groups or in clusters. There are different programs, games and they help learn English language. Efficient postal systems, the telephone (fixed and mobile), and various recording and playback systems based on computer technology all have a part to play in educational broadcasting in the new millennium. The Internet and its Web sites are now familiar to many students in developed countries and among educational elites elsewhere, but it remains of little significance to very many more, who lack the most basic means of subsistence.

Researchers have called for renewed efforts in exploring both what knowledge should be taught in pre-service teacher education programs with regard to technology, and how to better prepare teachers to effectively use that knowledge to support teaching and learning. Ottenbreit-Leftwich .et. al. (2012) [5] compared the importance of technology topics from teacher educators and teachers' perspectives. To collect data from both teacher educators and practicing teachers, a two-phase mixed-methods research design utilized surveys and multiple case studies (interviews, documents) were used. Findings indicated that teachers and teacher educators demonstrated similarities in their views regarding the use of

technology for personal productivity, information presentation, and the access and use of electronic resources to support teaching and learning. Teacher educators and teachers differed with regard to their use of technology for communication, analysis of student data, documenting professional growth, and facilitating higher-order thinking skills.

In New Zealand and internationally claims are being made about the potential for information and communication technologies (ICTs) to transform teaching and learning. However, the theoretical underpinnings explaining the complex interplay between the content, pedagogy and technology a teacher needs to consider must be expanded. Otriel-Cass, Khoo & Cowie (2012) [6], explicated theoretical and practical ideas related to teachers' application of their ICT technology, pedagogy, and content knowledge (TPACK) in science. They unpack the social and technological dimensions of teachers' use of TPACK when they use digital videos to scaffold learning. It showcases the intricate interplay between teachers' knowledge about content, digital video technology, and students' learning needs based on a qualitative study of two science teachers and their students in a New Zealand primary school.

Esterhuizen, Ellis & Els (2012) [7], from South Africa reported on disadvantaged practicing teachers' perceptions on computer literacy competencies while studying to improve their teaching qualifications. During the process of developing a learning technology integration framework for the School of Continuing Teacher Education at North-West University, South Africa, an initial exploratory survey identified issues and themes for systemic inquiry, in order to provide substance to the integration framework. The purposive sample related to a criterion-based selection of N=338 teacher-students attending supplementary computer literacy training sessions. Queues from the Technology Acceptance Model supplemented the questions intended to investigate enablers and barriers to learning technology adoption. The pragmatic approach was towards discovering which possible interventions could be introduced to enable adoption of technology in interaction and learning. Descriptive statistics and structural equation modeling produce a suggested parsimonious model relating to self-confidence, trust and perseverance in acquiring computer literacy.

Information technologies have affected every aspect of human activity and have a potential role to play in the field of education and training, specially, in distance education to transform it into an innovative form of experience. In their discussion of the role of information technology in teaching learning process, Hussain & Safdar (2008)[8], from Pakistan ; told us that students use information technologies so as to: (1) participate in a media revolution, profoundly affecting the way as they think about and use information technologies, (2) improve the ways of learning in new learning fashions, (3) extend the ability and skills of applying their learning in real situation, (4) working in groups for cooperative and collaborative learning, (5) developing self-learning habits at their own pace and time, (6) learn with the teacher rather by the teacher, (7) develop inquiry-learning habits, (8)use right information at right time to achieve right objective, (9) review and explore qualitative data, and (10) exchange learning experiences and information with others students and teachers living anywhere in the world.

In general teachers can use Information technologies to facilitate their students' learning process and create more chances for active participation. In details teachers can use information technologies so as to: (1) present the material in more interesting and attractive way, (2) guide and help students in searching the qualitative material, (3) make best use of time, (4) coach the students, (5)provide individualized instruction, (6) direct the students toward cooperative as well as collaborative learning activities, (7) prepare learning material for students, rather teaching in conventional situations, (8) diagnose the learning problem of students and help them to overcome, and (9) solve the study problems of students.

To meet the increasing growth in population and learning cost; many African higher education institutions try to adapt solution –based on information technology to create innovative teaching and learning methods for enhancing teaching and learning by doing joint efferent. Regarding this respect, Obuobi, Richards & Watts (2006) [9], described collaboration between the University of Cape Coast in Ghana and the University of Massachusetts Amherst to apply innovations in education and educational technology to the challenges facing Cape Coast as they attempt to meet the demands of the 21st century. Ghanaian Universities face increasing population growth and enrolment, inadequate infrastructure, poor connectivity, inadequate funding, inadequate educational resources and staffing, and a persistent "brain drain" of qualified instructors. With a multitude of students waiting for higher education, external factors such as globalization, information technology growth, and international markets have left almost all African Universities stranded. Despite these problems, a critical mass of highly qualified professionals and teachers are needed to accelerate economic and academic development on the continent as a whole. Using information technologies can facilitate the adoption of innovative teaching and learning methods and positively contribute in enhancing the teaching and learning outcomes.

To help the teachers of English language on how to use information & communication technology in their daily teaching practices many training and enrichment resources were available. For example; Smith& Baber (2005) [10], published a workbook entitled: teaching English with information technology. The source is a practical book which explains how to use the internet and IT when teaching English. The source is mainly focused on English teachers who have little or no experience of using information (IT) in their teaching). Moreover, the book is eminently practical, reader-friendly and well-intentioned. The authors' approach is to give practical ideas on how to use technology rather than telling the reader all about the technology. It begins at the very beginning with a brief introduction to some IT basics and ends with a number of useful appendices (website addresses, language learning CD-ROMs, books and keyboard shortcuts) and an extensive glossary of IT terms.

## **1.2 Teachers' and students' perceptions and attitudes towards the use of information technologies in teaching & learning**

Perceptions vary from person to person. Different people perceive different things about the same situation. But more than that, we assign different meanings to what we perceive. And the meanings might change for a certain person. One might change one's perspective or simply make things mean something else. Teachers' and students' beliefs and attitudes are key perceptions guiding to information technology usage in education. These perceptions, however, may change with time as users gain first-hand experience with IT usage, which, in turn, may change their subsequent IT usage behaviour. Many researchers emphasize the significant role of teachers' and students' perceptions of using technology to develop their teaching and their students' learning.

When integrating technology into language education, special attention needs to be paid to languages for specific purposes (LSP), drawing on developments in computer-assisted language learning and applied linguistics, on the one hand, and on the pervasive use of technology in academic and professional communication, on the other. From a definition of LSP centred on learner needs, specificity of activities and materials, and teacher and learner profiles, this study examines how technology has transformed LSP teaching and learning. Through technology, LSP teachers and researchers can access discipline-specific materials and situations and compile corpora of specialized texts. Computer-mediated communication provides learning tools and a gateway to the discourse community. Technology also provides opportunities for collaborating, creating virtual environments and online courses, and fostering learner autonomy. These applications are examined within the current LSP scenario, paying attention to the conditions and challenges for implementation, as well as to the roles of teachers and learners. This

study also points to areas that merit further analysis from an LSP perspective, such as the use of different technologies and modes for effective learning, the analysis of specialized texts, and the integration into LSP of emerging technologies that have made their way into social uses

Bhattacharjee and Premkumar (2004) [11], elaborates how users' beliefs and attitudes change during the course of their IT usage, defines emergent constructs driving such change, and proposes a temporal model of belief and attitude change by drawing on expectation-disconfirmation theory and the extant IT usage literature. Student data from two longitudinal studies in end-user computing (computer-based training system usage) and system development (rapid application development software usage) contexts provided empirical support for the hypothesized model, demonstrated its generalizability across technologies and usage contexts, and allowed us to probe context-specific differences. Content analysis of qualitative data validated some of our quantitative results. Emergent factors such as disconfirmation and satisfaction were reported as critical factors affecting understanding changes in IT users' beliefs and attitudes and recommend that they be included in future process models of IT usage.

In the USA, Hutchison Reinking (2011) [12], conducted a national survey of 1,441 literacy teachers in the United States to explore literacy teachers' perceptions of integrating information communication technologies (ICTs) into literacy instruction. The survey provided data concerning the types and levels of reported availability and use of ICTs, beliefs about the importance of integrating ICTs into literacy instruction, and perceived obstacles to doing so. Results revealed relatively low levels of curricular integration, consistent perceptions about obstacles to integration, and technological rather than curricular definitions of ICTs and of integration. The path analysis suggested several characteristics and influences associated with higher levels of integration and use. The findings advance understanding of the extent to which ICTs are being integrated into literacy instruction and what factors should be considered toward profitably increasing integration consistent with expanding definitions of literacy.

Wah Kong & Kwok (2005) [13], explored teachers' perception of using information technology (IT) in education by examining four major domains, namely, teacher perception of their computer training, computer facilities and assistance available, their confidence and comfortability in using computer in daily lessons, and their perception of their roles in using IT in classrooms. On one hand, a semi-structured survey revealed that there were positive impacts of teacher perception on the usage of computer in classrooms and highlighted the teachers' preferences of adopting teacher-centered approach to teaching with IT. On the other hand, a semi-structured interview reflected that the teaching staff members worked harmoniously and school administration was supportive. However, cross-subject or cross-curricular collaborative projects among teachers were rare. Some recommendations are made to promote the use of IT in teaching concerning school-based collaborative culture, conceptual and strategic issues in e-leadership and inter-regional / intra-regional resource bank for teaching and learning.

There are a number of factors that may affect teachers' use of information technology as well as their perception towards the usages of these technologies. Grainger & Tolhurst (2005) [14], explored organizational factors that affected the teachers' use and perception of ICTs, and the use of a new learning management system. The study used a survey method in which teaching staff across all learning areas at a secondary school in New South Wales participated. A subset of teachers and school system personnel also participated in interviews. The investigators focused on three factors affecting the use and perception of ICTs: the characteristics and perceptions of leadership; the nature, relevance and usefulness of the training; and, management approaches to instruction and information technology systems implementation. Outcomes of the study are in the form of recommendations to assist the ongoing implementation of a learning management system and the integration of technology in learning environments. The findings of this study have implications for many learning environments that involve the implementation of technological systems.

The increased availability of information and communication technologies, including the internet, mobile phones, social networks, and other related devices allow teachers of today to develop learning activities and outside-class activities and to deliver content to learners who would not otherwise have the opportunity to attend the live class activities or need more learning practices and support.

According to Labbo and Reinking (1999) [15], integrating ICTs in literacy research and instruction involves multiple realities. They identified five progression steps including: (1) acquiring digital technology, (2) employing it to teach conventional instructional goals, (3) allowing it to transform instruction, (4) adopting new instructional goals consistent with new forms of reading and writing, and (5) empowering students

The present study is mainly intended to investigate the perceptions of teachers of English at the Bahrain secondary governmental school towards the use of information and communication technologies in their classroom practices. It is also intended to investigate the students' attitudes towards using these technologies in teaching and learning English. Furthermore, it explores how teachers of English language assess their students' use of technology for learning. And finally, determine barriers facing technology integration for teaching English at the secondary schools in Bahrain.

### **1.3 Purpose of the study**

The development of Information Technology, English language teaching provides many favourable conditions. Basically in the current situations, schools are beginning to use computers, projectors, networking and other modern means of English Language teaching. Teachers use Computer software and hardware equipment, network resources, such as production of coursework. The course has become a common phenomenon, and has produced very good teaching results.

The purpose of this study is to describe Bahraini governmental secondary school teachers' and their students' perception towards using information and communication technology for teaching and learning English language. This was accomplished by identifying teachers and students' perceptions and concerns related to the use of information and communication technologies in teaching English language and identifying the level of familiarity with technology use in the classroom. This information can be used to formulate a training plan by the Bahrain Ministry of Education that can be employed to assess teachers in the utilization of ICT for teaching English in the classroom.

### **1.4 Study Questions**

This investigation is guided by the following main question: What are the perceptions of the teachers and students of English at Bahrain Governmental Secondary Schools towards the use of information and communication technologies for teaching and learning English? The following sub-questions are driven from the main question:

- 1- What are the overall perceptions of the teachers of English at Bahrain Governmental Secondary Schools towards the use of the information and communication technology in teaching and learning English?
  - a. Do their perceptions vary according to their gender and experience?
- 2- What are the perceptions of the teachers of English at Bahrain Governmental Secondary Schools towards the use of information and communication technology in teaching English?
  - a. Do their perceptions vary according to their gender and experience?
- 3- What are the perceptions of the teachers of English at Bahrain Governmental Secondary Schools towards their students' use of information and communication technologies in learning English?

- a. Do their perceptions vary according to their gender and experience?
- 4- How do English language teachers perceive the barriers facing information & communication technology integration for teaching in Bahrain Secondary School?
  - a. Do their perceptions vary according to their gender and experience?
- 5- What are the attitudes of Bahrain Governmental Secondary School students towards information & communication technology use in learning?
  - a. Do their attitudes vary according to their gender?

## 1.5 Limitations of the study

Only English language teachers who teach at Bahrain Governmental Schools in northern and southern governorates (Hamad Town & Riffa) as well as the students studying at these schools have participated in this investigation. The study activities focused on teachers' and students' perception towards the use of information technology for teaching and learning English as well as assessing the shortcomings and benefits of using such a technology from the teachers' point of view. Generalization of results on learning communities with similar characteristics and learning context is possible.

## 1.6 Definition of terms

- 1.6.1 *Information & communication technology (ICT): Information technology refers to the term that encompasses all forms of technology used to create; store and use information in its various forms such educational data, voice conversations, still images, motion pictures. Multimedia presentations and others form (Sheremetov& Guzman, 2002) [16]. In the present study, information and communication technology ICT refers to a range of technologies and tools. Which includes computers, computer workstation, display facilities, hardware, software, recording and processing systems for sound, still and moving pictures, graphic calculators and a wide range of communication facilities, internet resources, and any educational & learning management systems used by the Bahrain Ministry of Education like EDU wave used to facilitate learning and teaching processes.*
- 1.6.2 *ESL English: An abbreviation for English as a Second Language: the teaching of English to speakers of other languages who live in a country where English is an official or important language as in the Kingdom of Bahrain.*
- 1.6.3 *Attitude toward Learning & Studying English Language: Eagly and Chaiken (1993, in Al Noursi, 2013) [17]; defined attitude as: "A psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor", it is important to state that for this research attitude is operationally defined as the students' perceptions, understandings, beliefs or experiences of learning English as a foreign language as assessed by a specially designed questionnaire.*
- 1.6.4 *Perception towards the use of Information & Communication Technology for Teaching English: perception refers to the organization, identification, and interpretation of sensory information in order to represent and understand the environment. All perception involves signals in the nervous system, which in turn result from physical stimulation of the sense organs. In this study perception towards the use of ICT for teaching and learning English refers to the mean scores of a participant in the perception towards ICT use for teaching English yardstick.*

## 2. METHODS AND PROCEDURES

The study utilized a quantitative descriptive research approach on a sample composed of two groups; group one: English language teachers at the Bahrain Governmental Secondary School and the second group was composed of the students who is studying at the same governmental schools affiliated to the Bahrain ministry of education. The activities of this survey took place in Hammed Town and Riffa – Northern and Southern provinces of Bahrain governmental schools. The teacher group was composed of 48 secondary school English language teachers. Around 45.8 % (22) were male and 26 female (54.2%) teachers. The majority of the teachers graduated with university degree in education 93.8 % (45). Concerning their qualification, 31 (64.6%) hold a BA degree, 7 (14.6%) hold a graduate diploma and 10 (20.8%) were Masters degree holders. Their experience in teaching English ranged from fresh experience (1-5 years) to very long (more than 16years) i.e. (12 (25%) from 1-5 years, 15 (31.3%) from 6-10 years, 6 (12.5%) from 11-15 years and 15 (31.3%) had experienced more than 16 years. The teachers ranked their experience in the utilization of information and communication technology in teaching English as follows; 6 (12.5%) as beginners, 9 (60.4 %) possessed intimidate experience and 13 (27.1%) categorized themselves as advanced uses of information & communication technology for teaching English. Table (1) shows teachers demographic and experiential information.

The respondents of the second group were 208 secondary school students. There were 82 males (39.4%) and 126 (60.6%) female students. Their age varied from 14 to 21 years old and the reported mean value was 16.38 (S.D. = 1.493). Concerning their nationality, around 88.7% of them (181) were Bahraini and 11.3 % (23) were non-Bahraini. Table (1) shows the students demographic and experiential information (characteristics).

Mason & Bramble (1997) [18], said that surveys are studies designed to reveal characteristics (attitudes, opinions, values, needs, traits, and others) of populations or group. According to Wiseman (1999) [19], there are three basic methods than can be used in the server research: (1) interview, (2) questionnaire, and (3) observation. Each method can be used separately or in combination.

Table 1: Characteristics of the teachers' group

Variable	Frequency	%
Gender		
Male	22	45.8
Female	26	54.2
Qualification		
BA	31	64.6
Graduate diploma	7	14.6
Master	10	20.8
Qualification type		
Educational	45	93.8
Non-educational	3	06.3

Experience in teaching English		
1-5 years	12	25.0
6-10 years	15	31.3
11-15 years	6	12.5
More than 16 years	15	31.3
Years of utilization of ICT in teaching		
1-5 years	33	68.8
6-10 years	10	20.8
11-15 years	2	4.2
More than 16 years	3	6.3
Computer Skill Experience level		
Beginner	6	12.5
Intermediate	29	60.4
Advance	13	27.1

Table 2: Characteristics of the students` group

Variable	Frequency	%
Gender		
Male	82	39.4
Female	126	60.6
Age		
Mean		16.38
Std. Deviation		01.15
Maximum		21.00
Minimum		14.00
Nationality		
Bahraini	181	87.1
Non-Bahraini	23	11.3

## 2.1 Instrumentation and validity of instruments

To accomplish the purpose, the study administrated two instruments (questionnaires) one for assessing teachers` perceptions towards the use of information & communication technology for teaching and learning, and the second for assessing the students` attitudes towards the use of information and communication technology for learning .

The instrument used for assessing teachers` perception of using information and communication technology for teaching English consisted of four major components. These are:[1]demographic information seeking to collect data related to subjects` gender, qualifications, experience in teaching English, experience in using information technology for teaching and level of experience in computer and information technology [2] the perception towards the use of information and communication technology for teaching and learning English scale, [3] barriers facing technology integration for teaching English and [4] open –ended questions to deal with subjects opinions on the concept of technology, any training experience in the use of technology for teaching, personal soughs on integrating technology into teaching, the shortcoming and benefits of using technology for teaching and learning, their students in class use of technology and their instructional policy for integrating technology in teaching and learning.

The perception towards the use of information and communication technology was composed of 38 statements distributed among three dimensions build up the perception scale: teachers use of information and communication technology for teaching (19 statements), students` use of information and communication technology for learning (8 statements) and barriers facing information and communication technology integration for teaching (11 segments). The computed value of Cronbach's Alpha for the whole scale found to be (. 869), see table 3.

Table 3: Perceptions towards the use of ICT for teaching & learning English Reliability Statistics

ICT Scale dimension	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Teachers use of ICT for teaching English	.921	.922	19
Students use of ICT for learning English	.787	.793	8
Barriers facing ICT integration for teaching English	.848	.851	11
The scale	.869	.889	38

Inter-items correction coefficient was computed and found to be of significance at 0.01 levels. Table (4) shows the inter-item correlation matrix for the whole scale and its-sub-dimensions.

Table (4) inter-item correlation matrix for the ICT Scale and its-sub-dimensions

		Total Scale	Perception towards ICT dimension	Teachers use of ICT for teaching English	Barriers facing ICT integration for teaching English
Total Scale	Pearson Correlation	1	.773**	.706**	.501**
	Sig. (2-tailed)		.000	.000	.000
	N	48	48	48	48
Perception towards ICT dimension	Pearson Correlation	.773**	1	.550**	-.087
	Sig. (2-tailed)	.000		.000	.557
	N	48	48	48	48
Teachers use of ICT for teaching English	Pearson Correlation	.706**	.550**	1	.040
	Sig. (2-tailed)	.000	.000		.786
	N	48	48	48	48
Barriers facing ICT integration for teaching English	Pearson Correlation	.501**	-.087	.040	1
	Sig. (2-tailed)	.000	.557	.786	
	N	48	48	48	48

\*\* Correlation is significant at the 0.01 level (2-tailed).

The second instrument was adapted for assessing the students' attitudes towards using information and communication technology for learning English. The students towards ICT scale were composed of (12) items. Computed value of Cronbach's Alpha for students attitudes towards ICT scale found to be (.880).

## 2.4 DATA ANALYSIS

The teachers and the students' responses on the study yardstick items were numeracy coded and entered into SPSS database. Descriptive analysis (frequency, percentage, means and standard deviations) were used to describe the sample characteristics while t- test was used to test the significant of subjects' perceptions towards using information and communication technology towards teaching English language.

## 3. RESULTS AND DISCUSSION

### 3.1 RESULTS

This study focuses on the determinants of the perceptions of teachers and students of English at Bahrain Governmental Secondary Schools towards using the information and communication technologies in teaching and learning English and its relationship to gender, age, teaching experience, experience in using information & communication technologies for teaching English and computer and information technology level of experience. The descriptive and analytical statistics was employed to analyze the quantitative data of this research using SPSS Version 19. Results of data analysis will be presented according to the addressed question.

#### 3.1.3 What are the overall perceptions of the teachers of English at Bahrain Governmental Secondary Schools towards the use of the information and communication technology in teaching and learning English?

##### a. Do their perceptions vary according to their gender and experience?

The results of the teachers of English perceptions towards using information and communication technology for teaching and learning English is presented in table 3.

Table 5: Means, Std. deviations and one-sample (t-test) results for the teachers perception towards the use of ICT

Perception towards ICT dimension	N	Mean	Std. Deviation	t	Sig.
Teachers use of ICT for teaching English	48	4.1031	.49181	15.539	.000
Students use of ICT for learning English	48	3.6250	.61292	7.065	.000
Barriers facing ICT integration for teaching English	48	3.5417	.72387	5.184	.000
The scale	48	3.8399	.38622	15.067	.000

- Based on the results presented in table 5 and table 6, teachers' perception towards the use of ICT for teaching and learning English ranged from above average to high i.e.(From Mean=3.542, Std. Deviation = .723 [barriers facing ICT integration for teaching English] to [Mean= 4.103, Std. Deviation= .491] ,use of ICT for teaching English.
- Participants' overall mean of perception towards the use of ICT for teaching English was above average, (Mean=3.839, Std. Deviation = .386).
- The sub dimension (teachers use of ICT for teaching English scored the highest mean; Mean= 4.103, Std. Deviation= .491), then came the students use of ICT for learning English [Mean= 3.625, Std. Deviation=.612].
- Teachers perception of their students use of ICT for learning English scored the lowest mean (Mean= 3.542. Std. Deviation=.723).

Table 6, shows, teachers Means, Std. Deviations and independent t-test results related to gender on perceptions toward the use of ICT for teaching and learning English scale.

Table 6: (Male. Female) teachers` Means, Std. Deviations and Independent Samples t-test results

Perception dimension	Gender	N	Mean	Std. Deviation	t	Sig.
Use of ICT for teaching English Students use of ICT for learning English	Male	22	4.1818	.46191	1.030	.303
	Female	26	4.0364	.51520		
Students use of ICT for learning English	Male	22	3.6477	.50095	.241	.881
	Female	26	3.6058	.70329		
Barriers facing ICT	Male	22	3.4628	.69456	.695	.490

integration for teaching English	Female	26	3.6084	.75483		
Perception towards ICT in teaching& learning English	Male	22	3.8612	.33888	.356	.727
	Female	26	3.8219	.42805		

- Data analysis results shows that all means of the ICT perceptions scale and its related dimensions scored above average means for males and females teachers, and ranged between (m =3.462, SD=.6946 and m=4.182, SD=.46191).
- Independent t-test results, also, shows that there are no statistical differences at (0.05 level) between the mean scores of male and female s on the perception towards the use of ICT for teaching and learning English.

### 3.2.2 What are the perceptions of the teachers of English at Bahrain Governmental Secondary Schools towards the use the of information and communication technology in teaching English?

#### a. Do their precisions vary according to their gender and experience?

As shown in table 3, the perception towards the use of ICT for teaching English is composed of 19 statements, and the computed value of Cronbach's Alpha was = .921. The overall mean of teachers' perception towards the use of ICT for teaching English was found to be (Mean= 4.1031, Std. Deviation=.49181), see table 5.

Table 7 shows that the mean scores of the male teacher (4.1818) and the mean scores of the female teachers (4.0364). It is also shows that there are no statistically significant differences ( $\alpha=0.05$ ) between mean scores of males and females teachers perception towards students use of ICT in learning English.

Table 7: (Male. Female) teachers` Means, Std. Deviations and Independent Samples t-test results on students' use of ICT for learning English Group Statistics

	Gender	N	Mean	Std. Deviation	t	Sig
Use of ICT for teaching English Students use of ICT for learning English	Male	22	4.1818	.46191	1.030	.308
	Female	26	4.0364	.51520		

To test if there were any statically significance differences in teachers' perception towards the use of ICT for teaching English related to their experience in teaching English, their experience in using ICT for teaching and their level of experience in computer and ICT, one way analysis of variance (one- Way ANOVA) was used.

Table 8 shows the results of the One –Way Analysis of Variance (ANOVA) test of the teachers perceptions towards the use of ICT in teaching English based on years of experience in teaching, years of experience in using ICT for teaching & level of experience in computer and internet.

Table 8: Teachers perception towards the use of ICT for teaching (ANOVA) test results

Source of variance		Sum of Squares	df	Mean Square	F	Sig.
Years of experience in teaching English	Between Groups	.153	3	.051	.327	.806
	Within Groups	6.858	44	.156		
	Total	7.011	47			
Years of experience in using ICT for teaching	Between Groups	.307	3	.102	.671	.574
	Within Groups	6.704	44	.152		
	Total	7.011	47			
Level of experience in computer & interment	Between Groups	.120	2	.060	.393	.677
	Within Groups	6.891	45	.153		

Source of variance		Sum of Squares	df	Mean Square	F	Sig.
Years of experience in teaching English	Between Groups	.153	3	.051	.327	.806
	Within Groups	6.858	44	.156		
	Total	7.011	47			

Data analysis results shown in table 8 revealed no statistical differences in teacher perception towards the uses of ICT in teaching English related to their years of experience in teaching English, or years of experience of using ICT for teaching English, and the teacher level of experience in computer and internet.

### 3.2.3 What are the perceptions of the teachers of English at Bahrain Governmental Secondary Schools towards their students' use of information and communication technologies in learning English?

#### a. Do their perceptions vary according to their gender and experience?

As shown in table 3, the perception towards the students use of ICT for learning English is composed of 8 statements, and the computed value of Cronbach's Alpha was =.787. The overall mean of teachers' perception towards the students use of ICT in learning English was found to be (Mean= 3.6250, Std. Deviation=.61292), see table 5.

Table 9: (Male. Female) teachers' Means, Std. Deviations and Independent Samples t-test results on students' use of ICT for learning English Group Statistics

	Gender	N	Mean	Std. Deviation	t	Sig.
Students use of ICT for learning English	Male	22	3.6477	.50095	.241	.881
	Female	26	3.6058	.70329		
	Female	26	3.8219	.42805		

Table 8 shows that the mean scores of the males' teachers (3.6477) and the mean scores of the females' teachers (3.6058). It is also shows that there are no statistically significant differences ( $\alpha=0.05$ ) between mean scores of males and females teachers perception towards the students use of ICT in learning English.

To test if there were any statically significance differences in teachers' perception towards the students use of ICT for learning English related to their experience in teaching English, their experience in using ICT for teaching and their level of experience in computer and ICT, one way analysis of variance (one-Way ANOVA) was used.

Table 10 shows the results of the One –Way Analysis of Variance (ANOVA) test of the teachers perceptions towards the students use of ICT in learning English based on years of experience in teaching, years of experience in using ICT for teaching & level of experience in computer and internet.

Table 10: Teachers perception towards the students' use of ICT for learning (ANOVA) test results

Source of variance		Sum of Squares	df	Mean Square	F	Sig.
Years of experience in teaching English	Between Groups	28.333	14	2.024	1.773	.087
	Within Groups	37.667	33	1.141		
	Total	66.000	47			
Years of experience in using ICT for teaching	Between Groups	6.563	14	.469	.564	.873
	Within Groups	27.417	33	.831		

	Total	33.979	47			
Level of experience in computer & internet	Between Groups	7.379	14	.527	1.641	.119
	Within Groups	10.600	33	.321		
	Total	17.979	47			

Data analysis results shown in table 10 revealed no statistical differences in teacher perception towards the students use of ICT in learning English related to their years of experience in teaching English, years of experience of using ICT for teaching English, and the level of experience in computer and internet.

### 3.2.4 How do English language teachers perceive the barriers facing information & communication technology integration for teaching in Bahrain Secondary School?

#### a. Do their perceptions vary according to their gender and experience?

As shown in table 3, the perception towards the barriers facing technology integration for teaching English in Bahrain Secondary School dimension is composed of 11 statements, and the computed value of Cronbach's Alpha was =.848. The overall mean of teachers' perception towards the barriers facing technology integration for teaching English was found to be (Mean= 3.5417, Std. Deviation=.72387), see table 5.

Table 11: (Male. Female) teachers' Means, Std. Deviations & Independent Samples t-test results on the barriers facing ICT integration for teaching English Group Statistics

	Gender	N	Mean	Std. Deviation	t	Sig.
Barriers facing ICT integration for teaching English	Male	22	3.4628	.69456	.695	.490
	Female	26	3.6084	.75483		

Table 11 shows that the mean scores of the males' teachers (3.4628) and the mean scores of the females' teachers (3.6084). It is also shows that there are no statistically significant differences ( $\alpha=0.05$ ) between mean scores of males and females teachers perception towards the students use of ICT in learning English.

To test if there were any statically significance differences in teachers' perception towards the barriers facing ICT integration for teaching English related to their experience in teaching English, their experience in using ICT for teaching and their level of experience in computer and ICT, one way analysis of variance (one- Way ANOVA) was used.

Table 12 shows the results of the One -Way Analysis of Variance (ANOVA) test of the teachers perceptions towards the barriers facing ICT integration for teaching English based on the years of experience in teaching, years of experience in using ICT for teaching & level of experience in computer and internet.

Table 12: Teachers perception towards the students' use of ICT for learning (ANOVA) test results

Source of variance		Sum of Squares	df	Mean Square	F	Sig.
Years of experience in teaching English	Between Groups	29.133	21	1.387	.978	.515
	Within Groups	36.867	26	1.418		
	Total	66.000	47			
Years of experience in using ICT for teaching	Between Groups	18.929	21	.901	1.557	.141
	Within Groups	15.050	26	.579		

	Total	33.979	47			
Level of experience in computer & internet	Between Groups	7.946	21	.378	.981	.513
	Within Groups	10.033	26	.386		
	Total	17.979	47			

Data analysis results shown in table 12, revealed no statistical differences in teacher perception towards the barriers facing ICT integration for teaching English related to their years of experience in teaching English, years of experience of using ICT for teaching English, and the level of experience in computer and internet.

### 3.2.5 What are the attitudes of Bahrain Governmental Secondary School students towards information & communication technology use in learning?

#### a. Do their attitudes vary according to their gender

The students' attitudes towards the use of information and communication technology for teaching English represents the second study instrument and composed of 12 statement used for data collection. Computed value of Cronbach's Alpha for students' attitudes towards ICT scale was (.880). Table 11 shows the students attitudes towards ICT use in teaching English means scores and standard deviations for each statement.

The overall average of the attitudes towards ICT use in learning English is above average (mean- 3.6461, Std. deviations= .52317. All the scale items (components) scored mean scores above 3 and considered as above average. The items mean scores ranged from the highest mean of (4.3689) for the statement: **(technology breaks-down too often to be of very much use)**, to a lowest mean of (3.6731) for the statement: **(I think using technology in class takes up too much time.** Table 13: shows the students' attitudes towards ICT use in teaching English descriptive statistics results.

Table 13: Students attitudes towards ICT use in teaching English descriptive Statistics

Statement	N	Mean	SD	Judge
1. I enjoy using technology.	208	4.2019	1.22675	High
2. I avoid using technology when I can.	207	4.1594	1.16531	High
3. I think using technology in class takes up too much time.	208	3.6731	1.23900	Above average
4. I know that technology can help me to learn many new things.	208	4.2885	1.12222	High
5. Technology intimidates and threatens me.	208	4.2067	1.25515	high
6. Students should know how to use technology properly.	208	4.3317	1.16741	High
7. I would be a better learner if I knew how to use technology properly	208	4.2981	1.08907	High
8. I'm very confident when it comes to working with technology at school and home	208	3.9423	1.27652	Ave average
9. I want to learn more about using technology at school and home.	208	4.0913	1.19027	High
10. I believe that I can improve my English language skills using the benefits of the internet.	208	4.1442	1.21916	High
11. Using technology in learning English language is necessary.	207	4.1159	1.10870	High
12. Technology breaks-down too often to be of very much use.	206	4.3689	1.08642	High
Attitudes to technology	203	3.6461	.52317	Above average

The three highest means scored by the statements:

- Technology breaks-down too often to be of very much use (mean=4.3689).

- Students should know how to use technology properly (mean=4.3317), and
- I would be a better learner if I knew how to use technology properly (mean=4.2981).

The lowest three means scored by the statements:

- I think using technology in class takes up too much time (mean=3.6731)
- I'm very confident when it comes to working with technology at school and home (mean=3.9423) and
- I want to learn more about using technology at school and home (mean=4.0913).

In relation to subject gender (male, female), table 14 shows that the number of males students is (77) their mean scores is (3.7175) and the number of the females students is 126, their mean scores is (3.6025). It is also shows that there are no statistically significant differences ( $\alpha=0.05$ ) between mean scores of males and females students attitudes towards use of ICT in learning English, i.e. independent t-test results revealed no statically significance differences in subjects mean scored.

Table 14: Differences in attitudes towards ICT: according to Gender Independent Samples t-test results

	Gender	N	Mean	Std. Deviation	t	Sig.	df
Attitudes towards ICT use for learning English	Male	77	3.7175	.53482	1.525	.129	201
	Female	126	3.6025	.51318			

### 3.2 DISCUSSIONS & CONCLUSIONS

Information and Communication Technology (ICT) is now an integral part of national policy in Kingdom of Bahrain. It is an enabler for growth, development, reform and competitiveness. In the age of rapid growth of communications and the overall importance of ICT. The purpose of this study was to assess Bahrain secondary school teachers of English and their students' perception and attitudes towards the use of communication and Information technology in teaching and learning English in the governmental secondary schools. It was found that perceived usefulness acted as a significant determinant of attitude towards ICT use for teaching and learning English. Dealing with English language teachers and their students' perceptions towards the use of ICT for teaching and learning English will influence attitudes towards ICT utilization for better learning outcomes. The present study suggests that a high level of perception towards ICT used in teaching and learning can help to predict a successful utilization of ICT in Bahrain Educational System in general, and language education in specific.

The findings revealed that teachers' perceptions towards the use of information and communication technology for teaching and learning English is above average in overall (M= 3.8399, SD=.38622). Teachers perceptions towards the use of ICT for teaching English scored the highest mean i.e.(M= 4.1031, SD= .49181) then came perceptions towards ICT in learning (M= 3.6250, SD=.61292) and barriers faction ICT interaction in education (m=3.5417, SD=.72387) respectively.

The results also revealed that there are no statistically significant difference ( $\alpha=0.05$ ) between males' teachers and females' teachers mean scored related to gender of the teacher, teacher experience in teaching English, teacher experience in using ICT for teaching and the level of experience computer and internet.

Students' data results show that Bahrain secondary school students are technologically, economically and competently prepared for the use of ICT in learning. This gives the English language teachers the opportunity to blend the utilization of ICT within their daily class practices. It does not only helps teachers to create an interactive learning environment for learning English, but also promotes the positive attitudes towards ICT as a mean of continues and lifelong learning. Attitudes data analysis results revealed that the Bahrain secondary school students have positive attitudes towards the use of ICT in learning i.e. (all attitudes scale statements scored an above average level of judgment), results also indicated no statically significance differences in males and females students mean scores of attitudes towards ICT.

This is supported by Ottenbreit-Leftwich .et. al. (2012)[5] who found that teachers and teacher educators demonstrated similarities in their views regarding the use of technology for personal productivity, information presentation, and the access and use of electronic resources to support teaching and learning, and Chen (2008)[1], who found that continuous professional development involving technology integration, specifically for language teachers, should be thoroughly planned. New policies regarding the vision and goals of implementation should be made clear to teachers.

This suggested that Bahrain English language teachers and their students were more likely to have a high level of perception and positive attitude towards the use of ICT in teaching and learning English. Even though the simplicity of the laptops help them to incorporate the laptops into the teaching and learning process, perceived usefulness outweighs perceived ease of use in influencing the teachers' attitude to use the laptops for lesson delivery.

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# Design and Implementation of Feedback System over WLAN

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**Abstract-** generally, the nowadays-younger generation is comfortable with utilizing computer technology then ever before! Especially, the using of personal computer (PC) and Wireless network Communications (WNC) by Sulamani's University teachers and students are rapid upward. The entire PCs in the Quality Assurance laboratory (QA-LAB) and the QA manager private PC are connect directly to Server. Undoubtedly, The Wireless Computer Communication System (WCCS) created an effective role in to society and made it very fast growing in to educational sector (universities) as well as to the industrial sectors. For instance, in educational sector (universities) the WCCS modify the traditional (paper-and-pencil classroom feedback of lecturer evaluation by students) toward to WLFS (wireless Labrotory Feedback System). Furthermore, most of the students were complaining about the uneconomic and long delay of short message service-Classroom Feedback System (SMS-CFS), because of the AsiaCell users in the University campus are approximately 8000 from 9AM to 3PM. it is obvious, that amount of users creates an overload on AsiaCell public mobile network and affect SMS receive-time. WLFS is uncompliat, non-traffic network and economical solution for replacing SMS-CFS and TF. Apart from that, our proposed system becomes an excellent guide for monitoring of high quality of teaching from teacher and level of students understanding in a class. Technically, thirty-five computers (clients) in a QA-LAB and QA Manager are connecting to (server) via pravite WLAN. The suitable Architecture for our proposed system is thin client Model-Two-tier Architecture. This paper describes the development and implementation of a WLFS-based between the students and the QA manager of the Faculty of Science regarding of the lecturers ability evaluation of teaching via the proposed application feedback system. The human reactivity of the developed application compared with that of TF and SMS-Classroom Feedback System, the WLFS only allowed participant to send dictionary words as a comment and steet word are prohibite.

**Index Terms-** *Students Feedback System, WLAN Students Feedback, LAB Feedback,*

## 1. Introduction

*WLFS stands for "Wireless Laboratory Feedback System" and uses computers to transmit Data via the medium of private-WLAN (PWLAN) technology. Data-message to and from computer has grown into an extremely popular technique of communication among university of Sulamani students and lectures. Due to the QA-PWLAN is not busy traffic and costs neither students nor teachers. The proposed system namely WLFS designed for feedback teacher's abilities by students to improve the student's enthusiasm and produces enhanced interactivity in QA-Lab between teachers, students and QA manager.*

*WLFS solve the lack of students' careless due to large numbers of the students in classes; rationalize the delay between both assessment delivery and feedback. Otherwise, it activates the environment of learning [1]. However, WLAN has deployed almost everywhere today, mainly because of their enourmuse flexibility [2]. WLFS will systematize the feedback activity for QA manager at Computer Department. Additionally it will create an excellent Academic bridge between students, lecturer and QA manager. Thus, students can easily notify the lecturer about subject matter during an Acadimic year, meaning that it is an excellent idea for QA manager to evaluate the teaching quality and monitoring of students progress during the course. The successful Feedback progress only permitted for those students in the course that have abseness rate less than 10%. Inappropriate absence rate will forbid to participate feedback activity. The teachers and students found out the WLFS are a new educational scenarios and it is mediation between technology and physical classroom or TF. Nevertheless, emphasise the role of feedback in each of their learning theories to improve teaching and learning [3]. The role of any new educational scenarios is to initiate and maintain an interactive process of presenting educational concept and their possible realization with technological tools to the teachers. Thus, its act as a 'bridge' between the world of teaching and the world of software design [5]. The WLFS is enhances and build up teaching professional at Computer Department by wireless technology. The focus on technology should be working and not only must the technology is easy to use; it must also be useful and working properly, otherwise technology that is not working properly can create frustrations and disrupt the learning process [4]. The equipments simplicity and privacy of the proposed system create higher level of fault-free, if camporaied to other technology such as Bluetooth, short message service (SMS) etc. The paper starts with the background used for this research. Then, a brief description of the system as well as the operation enviroment specification with trial that took place, subsequently a discussion of the survey results is present. Finally, the paper finished with a summary and conclusions.*

## 2. Background

Before Information Technology (IT) revolution, the TF activities were in the physical style in classes; therefore, the performances, availability, and quality of services (QoS) of TF were in a very low stage because the communication facilities were very primitive.

At that time, the only way for students to feedback his/her teachers is by words of mouth, it was asking questions like "How far you understand this parts" were unclear results and not useful outcomes for both students and lecturer[1]. The main problem with this very primitive TF is time; it is very difficult to approximate the necessitate time for acheiving feedback. Furthermore, time-consuming in the primitive feedback generation relies on the activity of the students and feedback-organaser. The active students and feedback organizer needs less time to work out result than the passive students and feedback-organizer for that reason the computer department at Sulamani University concerned by the lack of traditional feedback (TF) with inappropriate; results, speed, space, cost, time and unreliability and all modification occurred from past until now is create new generation. There are several types of modification in students' feedback system, which are:

a) *Traditional Classroom Feedback:* In this type of feedback generation, Head of Department interview group of students in the class and ask students about teacher ability, teacher attitude and level of understanding from the model. All information from the interviewed students regarding the teacher model weakness and strength collect as notes by Head of Department subsequently let the teacher know everything about his/her progress in class. This activity occurred occasionally, for example in the Sulamani University until 2008, the feedback activity only for those teachers that the total students' pass-rate is not above to sixty percent, those teachers that students were complaining about him/her or Head of Department not going well with the teacher. Herewith the outcome of the feedback is faulty and unfair. The feedback system is in a very traditional way is make waste of time, space, place etc and performance is in the low stage and very changeable because the activity of human is different from person to other.

b) *Mobile feedback system (MFS):* Using of mobile phone technology or facilities such as Bluetooth, Short Message Service (SMS) for the reason of feedback teacher by students, It is much better and faster then the physical Feedback or TF. However, the main problems with MFS are costly and the level of message delay is higher due to the traffic or overload on AsiaCell public-network Communication in the Sulamani University. Nonetheless, SMS facility for feedback system is more suitable then Bluetooth because the Bluetooth is very limited and not as powerful as SMS.

c) *Feedback over Wire-LAN or Wireless-LAN:* implementing and replacing of WLFS rather than the SMS or Bluetooth Feedback system is an excellent solution of delay and cost. The public Asiacellular network (mobile communication company) is very popular and busy network in Sulamani City especially in the University camps. There are approximately eight thousands students and staffs are available at the University campus from the 9 AM to 3 PM in weekdays and all of them owning and using AsiaCell Mobile. The over crowded in the AsiaCell public network at the University campus is one of the factors of SMS delay. The idea of WLFS or Wire-LFS over the private QA wireless network to solves the SMS delay and students not spend any penny for feedback activity and contolling the results of feedback because of the limited time of feedback activity Fig. 1 shows the WLFS Infrastructure.



Fig. 1 the WLFS Infrastructure

### 3. WIRELESS LABORATORY FEEDBACK SYSTEM

The proposed system designed and implemented on the QA manager Computer in the client/server base. The installed copy of the feedback software system on a single QA computer namely server side via wireless networked computers technology connected to thirty-five PCs (clients) in the LAB. WLFS is much popular because it is tidier than Wire-LFS and cheaper to install and maintenance.

Generally, there are two feedback features in proposed system that directly related to each other. The first feedback feature is system feedback (software) and the other is feedback of wireless (hardware). The first feedback feature (Software) is programming part and designed by Visual Basic for the reason of develop Quality of learning. However, the wireless feedback reply-rate between Antennas is measured by bit per seconds [6]. In order to Increase Feedback reply rate and keep away from system delay or error between a server and clients, the extra Antennas should be employed to improve QoS and create a powerful, reliable communication. The better feedback reply communication between Antennas will help to run an excellent WLFS. WLFS is more reasonable and becomes very popular, if compared to other technologies (Bluetooth, SMS) because all the other technologies create faults in the communication and very limited in distance and capacity, etc. The QA-LAB will be open twice a year for duration of three days from 9 AM to 3 PM at the end of each semester. The back-end is a backbone of any new technology systems especially for three-tier and two-tier Architecture. The step that has highest priority in the proposed system establishment schedule is the design of back-end module, because most of the errors in the systems return to the inaccuracy of back-end module. Ms-Excel is a very simple and an outstanding tool to store all data. The technology used in this proposed system to link to Ms-Excel is Visual Basic with window 7. Fig.2 shows the basic pictorial representation of the used tools to establish the proposed system architecture. The Ms-Excel used as an Application to create interfaces that the students interact with, Visual Basic programming language is powerful and easy to use software, and handle the link tasks, calculating, archiving and report- printing. Fig.3 shows the suitable and more reliable is Two Tier Architecture-Thin Client Model

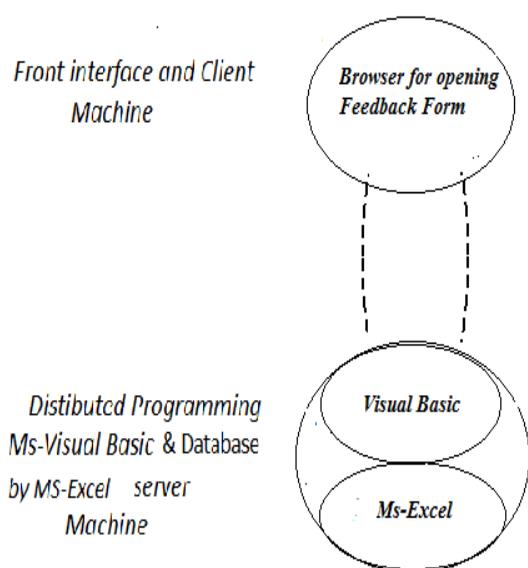


Fig 2 the used Software development tools

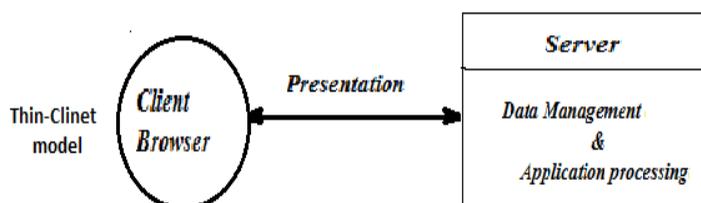


Fig.3 Thin Client Model –Two Tier Architecture

Almost all of the work of WLFS takes place on the server. All the used tools should be supported by the operating System (OS); the File Transfer Protocol (FTP) Server, programming languages and Backend server must be familiar for the selected OS. The main component of the interface home page category includes twelve questions about the teacher. The participated students must read carefully and respond all questions regarding to the particular teaching model. The numeric evaluation in the system endow with the ability to answer a range of twelve presented questions on (client). Participated students must use <ftp://wlfs.com> to view the interface and answer each twelve question with simple numbers start from numbers [1 or 2 or 3 or 4 or 5]. Before feedback activity, the QA manager should give explanation regarding the numbers [1 to 5] levels. The twelve combo box in eform must be answered by selecting one number [1 to 5] in each box by the participated students. Apart from numeric responses, if any student very keen to send a comment they have to note down all comments on a specific column next to numeric column. The numeric response of twelve questions by students only take into account for evaluation the level of teacher capability, but the comment responses by students only for concerning the weakness and strengths of the teacher in the class. The pretty of this proposed system is blocking all bad language and filter all words in the comments column. Fig.7 shows the electronic form with twelve selective combo boxes number [1 to 5] in Kurdish language. Category interface at the home page has the following major inputs, functionality, and outputs:

**Inputs:**

1. The participated students should get username and password at the QA-LAB entrance in the specific basket and select only one piece of paper randomly before setting in front of a computer
2. The correct username and password by any student can enter to the system.
3. Students double click on any available browser in the Desktop and type the URL namely <ftp://wlfs.com> at the address bar.
4. The opened file, the student must fill up all preselected cells. One column for numerical answer, but the column next to it is for comments.
5. After answer, all preselected column by student, or very keen to write a comment regarding his/her teacher, subsequently students must save and exit excel file and leave the LAB.
5. All the excel files will save in the server side automatically.

**Functionality**

1. Numeric Answer: the system will calculate and find out the final average of the all twelve questions into the Ms-excel which answered by each student. Furthermore, the system finds out average results of all students form. All calculation achieved in the very short time (several seconds)
2. Proposed system filters the bad language (words) and only shows the Dictionary words.
3. Comments Answer: The system will send the numerical result, also filtered and send all comments to Ms-word and save or printed.
4. Limited numbers: from numbers one to five will accept by system and above of number five will be cancel (real numbers from one to five).
5. The use of 2-tier Architecture in thin client model is more than enough to organize the workflow of the system. Thus, the number of students is only (35 students) and 2-tier model is suitable for the proposed system load balancing fig.3 shows the suitable Architecture.

**Outputs:**

1. Result: All results include (Feedback average and comments) printed by the QA manager and give to the teacher directly. Alternatively, the easier way is to email to the teacher.

**Specifications and Aspects**

1. Allowable students for participate feedback activity must have a username and password to login to the system fig4 shows the flow chart of students participate.
2. Students can enter answer to the frontend (Ms-Excel) through the correct username and password to login to the form.
3. QA manager must have a special username and password and must be different than students username/password (strong password).
4. QA manager can enter his/her special and correct username and password to get through to the proposed system.
5. QA manager can easily click on the calculate button to find result of teachers.
6. System administrator is a QA manager can login via special user's name and password fig.5 shows the flow chart of QA manager as administrator.

Finally the fig.6 shows the general function of the proposed system.

**3. Operation Environment Specification****3.1 Hardware Environment:**

- One Computer Server (FTP Server)
- Thirty-five Client Computers (Laptop)
- One Wireless Access Point

**3.2 Software Environment:**

- Any Browser (Frontend)
- File Transfer Protocol (FTP) Service
- Microsoft Excel (Backend)
- Visual Basic {For design the Proposed Feedback System (Backend)}

Fig.1 illustrates a basic diagram system: Namely, Wireless Laboratory Feedback System. The backbone hardware of the environment wireless technology is (Wireless Access Point) tool; it is create an active bridge to connect hardware and software. Apart from Wireless Acces point, all others components mentioned above in sections (3.1 and 3.2) should place in to two different computer machines. All software must download on server side except web browser placed in client side. Visual basic (middle ware) and Ms-excel (database) must be at server side. Thus, the two-tier architecture is suitable Architecture for our proposed system because the number of participated students for feedback activity is less than fifty students. The aboved hardware and software over the thin model-two tier architecture solved the problem of teacher's feedback by students. In fact, our proposed system is not pure E-learning but it is in between (traditional and Electronic) learning or blended learning, the pretty of our proposed system dosent cost that much of money but it solved a big problem of students as well as a teacher also very simple tp use.

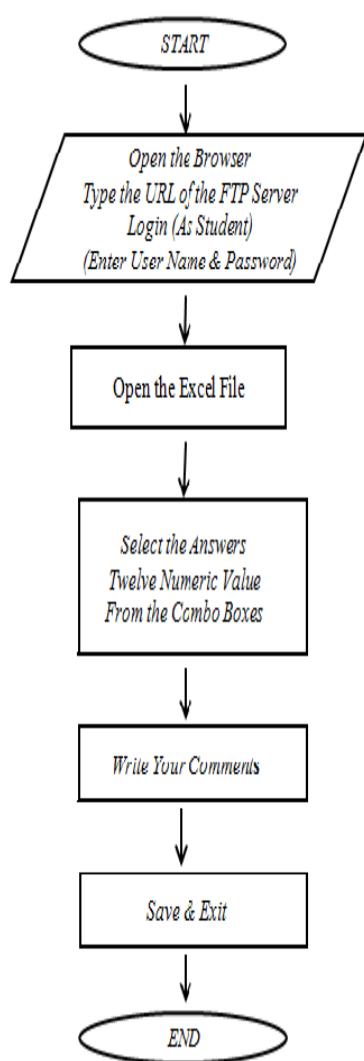


Fig 4 the flow chart of students login

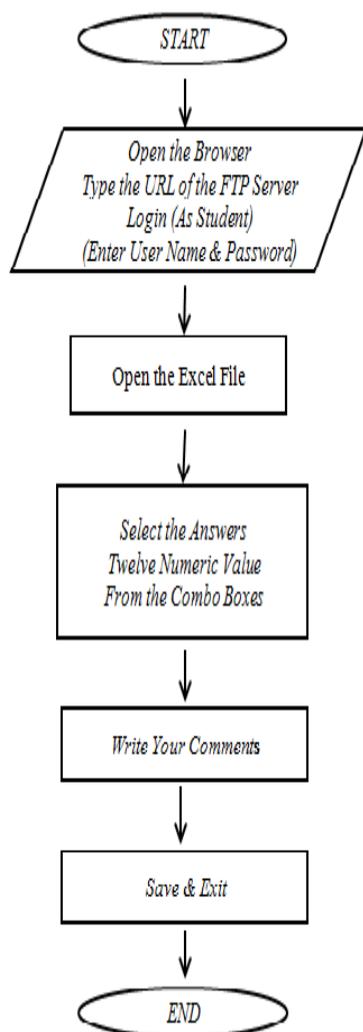


Fig.5 shows the flow chart of QA manager As adminstater

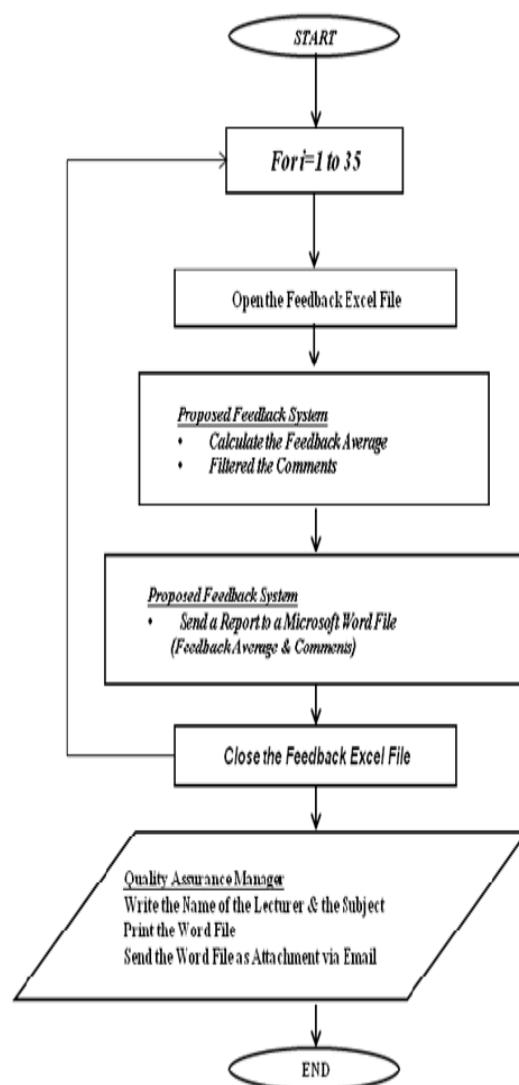


Fig.6 general function of pro posed feedback system



TABLE.1 TF, SMS-CFS and WLFS Comparability results test

	Numbers of Students	Feedback from return time	Numbers of Staff required	Calculation Time Needs	Error Expectation	Cost
TF	35	15 minutes	At least 4 staffs	Roughly two hours or more	Yes	Very costly and untidly
SMS-CFS	35	At least 15 minutes	At least 2	Less than 2 seconds	NO Courrect and accurate	Cost students that is unfair
WLFS	35	Less than 15 minutes	1 person should be QA manager	Less than 2 seconds	NO Courrect and accurate	Free of charge

The entire results from the system provide an outstanding idea to become conscious that Collaboration between three parts, namely QA manager, students and teachers makes feedback Approach to improve because of the proposed system is a faultless middleware between three parts : Namely QA Manager. Students and Teachers, Fig 9 shows elucidate the improvement of learning strategy.

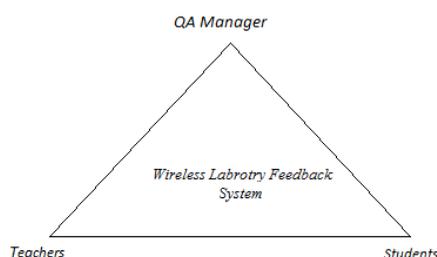


Fig.7 Enhanced Triangle learning of three parts

## 6. Conclusions

Behind schedule of receiving text from students mobile to the QA manager mobile is create a lack of electronic feedback activity. The public AsiaCell signal network is poor esepecily at rush hour in the University Campus. The WLFS solve the TF and SMS-CFS also create an active academic bridge between students, teachers and QA manager for the reason of enhance the level of learning and encourage learners to participate toward WLFS. Although the face-to-face (traditional) feedback SMS-CFS and WLFS tests; the system tested a seminarevaluations and the results of WLFS were better results. The use of Ms-Excel instead of Database returned of user friendly of Ms-Excel. The thin model of two-tier architecture is best architecture and responded time is very low. The technology has a great role in feedback activity. Our future work is to test three and N-tier Architecture.

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# The Effect of a Blended Course on Developing AOU Students' Reading and Writing Research Skills

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## Abstract

The present study aimed at developing Arab Open University (AOU) students' reading and writing research skills of some identified sub-skills. This was achieved through applying the proposed blended course which employed Web-Quests (WQs) and the Blended Reading and Writing Research Model (BRWRM) developed for the sake of this study. The study adopted one group design with pre-test, treatment and post-test. The study answered the raised questions through its instruments giving the following results: *Computer Skill Analysis Questionnaire (CSAQ)* identified the targeted students' background of some technological skills, *Reading Research Skills Inventory (RRSI)* listed the reading research sub-skills that need to be developed for the AOU students, *Writing Research Skills Inventory (WRSI)* listed the writing research sub-skills that need to be developed for these students, *Pre/Post Test (PPT)* assessed the target students' performance in the identified reading and writing research skills before and after receiving the treatment, *Blended Course employing WQs* (its aims, objectives, content, methods, media, activities, and evaluation using three rubrics) developed the identified reading and writing research skills and the three rubrics helped both the instructor and the students to assess their performance, identify and adjust their weakness, *Blended Course Assessment Questionnaire (BCAQ)* identified the students' assessment, satisfaction and reflection on learning English Language in a blended environment using WQs. When testing the hypotheses, results indicated that there were statistically significant differences at 0.001 level between the mean scores of the experimental group on the pre/post administrations of the pre/post test in favour of the post one. In addition, statistical analysis indicated that there was a significant improvement in the students' reading and writing research skills as a whole and their variety of strategies, such as those included in the stages of the reading and writing process in order to approach them systematically. Consequently, the proposed blended course proved to be effective in developing the AOU students' identified skills.

## Introduction

The daily environment has become more computerized than ever before. It is clear that we need to think of this computerized environment not only as a tool to perform tasks, but also as a tool to help increase its users' learning skills. Since the constructivist approach is dominant and learning by doing is perceived as a key element for most programs in higher education, the potential of reaping the benefits of enriching reading and writing research skills in English in such computerized environments is great. This can be done through blended courses guided by facilitators. The opportunity for instructors/facilitators to influence on such learner-centred environments is something that should be highly considered.

In this prospect, electronic learning or, shortly said, e-learning, represents a wide area of knowledge acquisition in the educational process by means of modern information and telecommunication technologies. E-learning has a great role in solving some specific problems, closely related to adult education. Seeing that, in today's bustling age which is full of endless changes, time plays an important role. Unfortunately, the lack of this phenomenon touches every one and thus many problems of adult education are directly related to it. In this case, e-learning can be applied as a very useful and powerful tool for increasing knowledge, skills and qualifications of individuals. However, it will probably never substitute classical forms of education; at least in some specific areas demanding personal contact between students and instructors. (Govindasamy, 2002; Reynard, 2003; Tesone, et al, 2003; Hassan, 2005)

## Background of the Problem

Learning in the 21st century challenges learner to develop different learning skills and abilities to keep in pace with this age of intense information revolution. This requires developing learners' certain academic skills that may influence the improvement of their learning processes and becoming independent learners. The labour market, as an important domain that needs to be considered in the teaching/learning process, demands that learners' knowledge and skill levels be constantly updated. In today's labour market, learners are increasingly facing new challenges such as high competition in a global market, shrinking corporate resources, rapid shifts in technology, and the recruitment and retention of talented, skilful and trained workers. Thus, a growing number of universities are developing a new learning culture to equip their graduates with the necessary skills based on labour market demands.

Swail (2002: 16) states that "the rules are changing and there is an increased pressure on institutions of higher education to evolve, adapt, and desist". Later, Newman, Couturier & Scurry (2004) confirm that the transformation of teaching and learning in higher education is inevitable with the use of Web-based communications technology. Therefore, learning better and faster than others represents one of the most important competitive advantages that many learners seek to attain. Nowadays, the Internet technology represents an exceptional opportunity for learners to add value to their potentials and skills. E-learning combines education, information, communication, training and knowledge management. It represents an applicable and cost effective way of learning. It can be delivered on a global basis by tailoring content to suit the needs of the individuals. It also allows any individual to regularly assess his/her skills gaps.

The term electronic learning has been widely used nowadays especially in higher education. Similarly, blended learning is the most recent catchphrase in higher education. International trends in open/distance learning state that the use of blended learning is essential for any open/distance education institution that aspires to survive in an increasingly competitive market. Online education has been characterized as a disruptive technology that will likely transform how, what, when, and where learning occurs in the knowledge age (Barone & Luker, 2000; Govindasamy, 2002; Reynard, 2007). By the same token, it can be characterized as a disruptive technology in education which has the potential to radically change how education is delivered and perceived. Thus, implementing online education within traditional universities presents a unique set of challenges. Foremost among these challenges is the interface between current institutional practice (based on decades of traditional education) and future institutional practice (based on convergent models developed for the knowledge age learner) (Tesone, et al, 2003).

Garrison & Vaughan (2008) clarify that blended learning in higher education clearly demonstrates how the blended learning approach possesses the traditional values of face-to-face teaching and integrates the best practices of online learning. This approach has proven to both enhance and expand the effectiveness and the efficiency of teaching/learning in higher education across disciplines. They state that "blended learning opens the possibility of creating and sustaining a community of inquiry beyond classroom" (Garrison & Vaughan 2008: 8).

Blended learning means a combination of online and face-to-face tutoring. As Graham (2005) points out, this can mean using the best of the best online learning to enable classroom activities to be active and engaging learning experiences. The aim is to encourage learners to be active participants in their learning processes rather than passive recipients by using online technologies to enable or support learning activities that continue outside the lecture hall, classroom or lab (extra-curricular) and encourage them to arrive in class well prepared.

Laird illustrates, "In contrast to face-to-face learning environments, e-courses are characterized by learner to instructor distance, spatial distance, temporal distance and relational distance" (Laird, 2003, p.17). Consequently, learning opportunities in the online environment should emphasize deep processing of information, multi-model learning elements, problem-solving experiences, and learning through personal experimentation and exploration. In addition, teaching in such environment should be repetitive, hierarchically organized, and constructive in nature; built upon prior learning (Laird, 2003, p. 22; Reynard, 2007).

Consequently, if technological advances are used promptly and tutors are less restricted by the need to provide learners with access to knowledge, their skills in pedagogy can be directed towards higher level thinking

abilities, and developing a climate of positive, enthusiastic learning contexts in which rigorous intellectual work can flourish (Arnold & Ryan, 2003). This in turn will enhance learners' self-image as effective active learners and from such confidence the ability to be self-directed autonomous learners can be developed.

Generally, e-learning courses consist of multimedia presentations, simulations, combinations of animations, video and audio sequences, text commentaries and last but not least, learners' knowledge checking tests. In this respect, blended courses were developed to provide feedback whether face-to-face or online between student and instructor/facilitator, to administer, organize and evaluate the learning process. Besides, blended courses provide many online study features such as presentations, discussion boards, video conferences, sharing of applications, virtual classrooms, etc.

## **Definitions of Blended Learning**

Blended learning is the combination of multiple approaches to pedagogy or teaching as in blending virtual and physical resources. It refers to the use of a variety of technologies, pedagogies, contexts and delivery modes (such as online learning) to create a strategic mix that will increase student success. It is also known as a combination of technology-based materials and traditional print materials.

Garrison & Vaughan (2008: 5) define blended learning as "the thoughtful fusion of face-to-face and online learning experiences" emphasising the need for reflection on traditional approaches and for reshaping learning and teaching in this new environment . They promote a blended faculty Community of Inquiry which combines face-to face workshops, where personal relationships can be established, with a sustainable online community for critical reflection and discussion of practice through forums and chat rooms.

Littlejohn and Pegler (2006) recommend a different approach which they term 'blended e-learning'. This is a unique approach that centres on a learning design by considering the design issues of introducing e-learning and the process of blending rather than by simply considering the face-to-face and online environments. The term blended e-learning is evident in Stacey and Gerbic's study (2007) where they document the use of different blends of technology and pedagogy in both campus-based and distance programmes. The introduction of new learning technologies such as podcasting, internet based audio and video communication, e-portfolios, and social networking tools including blogs, twitter, Facebook and wikis create new blending potentials indeed .

Heinze (2008: 14) considers this term in his definition by stating that "blended e-learning refers to the learning which takes place through a combination of face-to-face facilitated learning, e-learning and self-study". He asserts that this fine structure of the blended e-learning concept comprises learning and learning context through incorporating "three nodes associated with learning: face-to-face facilitated learning, e-facilitated learning and self-study; and three nodes associated with the learning context: learner, pedagogic beliefs and the programme related issues" (Heinze, 2008: 16).

The term blended learning can also be used to describe merging conventional offline, non-electronic based instruction with online tutoring or mentoring services. Although this combination of e-tutoring and conventional learning seems to be a perfect example of blended learning, it is the opposite way round to most current blended learning settings; in that the learning happens by conventional learning techniques, not by the electronic techniques. (Tesone, et al, 2003)

## **Benefits of Blended Learning**

One of the most important benefits of blended learning is in the area of learner accessibility. According to Govindasamy (2002), the ability to use the Web for the classroom has the potential to serve any learner, at any time, in any place. Likewise, a blended course using WQs could possibly maximize the accessibility concerns for the learners who cannot meet in the traditional classroom, in addition to offering a wide range of information required for their research.

In addition to accessibility issues, blended learning is featured by containing collected and organized digital content materials that may diminish the use of physical textbooks in the classroom. Thus, electronic content and

resources can substitute the information found in textbooks, or the electronic copies of textbooks can be downloaded onto computers and laptops, which may diminish the high cost of purchasing textbooks and/or the physical and problematic concerns of learners carrying heavy textbooks. The delivery of textbook information in an electronic format seems ideal for blended learning classrooms. According to many researchers, allowing teachers to use digital media instead of prescribed textbooks can generate all kinds of creativity and empowering tools of instruction. (Dodge, 1995; Schrock, 2002; Tesone, et al, 2003; Stacey and Gerbic, 2007; Vaughan, 2007)

Moreover, blended learning courses are considered an easy way for instructors to begin to incorporate the Internet into the language classroom, on both a short-term and long-term basis since no special technical knowledge is needed either to produce or use it (just Internet basics). They help instructors provide courses through computers and the Internet. As a result, both the instructors and the learners can work at any time and in any place. These courses facilitate instructors work on assignments by turning them in by e-mail any time of day or night which adds the excitement of immediacy and the dynamics of global interaction (Govindasamy, 2002; Graham, 2005; Masie, 2005). Web-based instruction in such courses really increases learning for people who are shy, lack interpersonal skills or are uncomfortable in large groups.

In addition, blended courses help learners gain better understanding of the use of the computer as a communicative as well as a learning tool. They usually contain group activities; as a result learners tend to be autonomous learners and to communicate and share knowledge with others. They also include both motivating and authentic tasks that encourage learners to view the activities they are doing as something 'real' or 'useful' (Garrison & Vaughan, 2008). This certainly leads to more effort, greater concentration and a real interest in task achievement .

Finally, blended course, coupled with real-life material and input, can be a greater motivator than outdated course books and other teaching materials. They can be interdisciplinary/cross-curricular, allowing for cross-over into other departments and subject areas, where applicable (Govindasamy, 2002). This can often give them a more 'real-world' look and feel, and provide greater motivation for the learner. Blended courses also encourage critical/higher level thinking skills including: comparing, classifying, inducing, deducing, analysing errors, constructing support, abstraction, analysing perspectives, etc. Learners are not able to simply restate information they find, but are guided towards a transformation of that information in order to achieve a given task (Garrison & Kanuka, 2004). In fact, these courses help learners look at and assess their work and the work of others from different perspectives.

## **Developing Blended Courses**

Wilcox & Wojnar (2000) clarify that integrating computer and reading literacy to increase learning and improve teaching can be achieved by employing six components that should be included in designing a blended course. These six components are: *'integrative units'* which integrate all aspects of knowledge acquisition, *'small group activities'* that actively involve all learners, *'presenting to learn'* which supports the approach of learning something through demonstrating it, *'classroom workshop'* that employ the approach of learning by doing, *'authentic experiences'* which are based on real life situations not designed for pedagogical practices, and *'reflective assessment'* that involve formative assessment tools to improve learners' achievement level and performance.

They also add that transferring part of the content to an *online* environment requires technological expertise, and facilitating growth in a learner's knowledge requires mindfulness. They state that the three most basic considerations when developing a blended course are content knowledge, pedagogical skill, and higher-order thinking (Wilcox & Wojnar, 2000).

Blended courses refer to "an instructional design that is learner-centred which require students to meet for face-to-face classes while providing much of the course content and interaction online via course delivery software and instructional tools" (Reynard, 2007). Thus, effective blended course instructional design blends traditional, face-to-face classroom and online methodology that usually takes place using the Internet e.g. WQs, e-portfolios and power point presentations. The blended course is generally based on learner-centred instruction, effective and timely instructor's intervention and feedback, peer to peer/group interaction, and multiple input sources in a highly interactive learning context. The blended model depends on full students and instructor's participation and on an

instructional design that intentionally supports both specific learning outcomes and flexible delivery (Dudeney, 2001; Laird, 2003; Sharp, 2005).

The cultural diversity of the current learners' population and their technology rich experiences present further issues for blended learning design. Complexity is clearly evident in the extent to which ICT has been incorporated or embedded within courses. Some writers such as Vaughan (2007) argue that basic supplementation of a face-to-face course with online learning is not blended learning whereas others like Littlejohn and Pegler (2006: 29) prefer to talk about 'strong' and 'weak' blends to indicate "a range across significant to very small amounts of e-learning".

For the purpose of this study, developing some reading and writing research skills using a blended course with WQs would enable AOU students to read and write research papers needed for their academic careers. The learners would be able to gather relevant data, critically analyse these data, and reflect/build on their prior knowledge and experiences to come up with new innovative ideas and/or solutions for a chosen topic of interest.

*To summarize, the above review and background led to the problem of this study. That can be stated as the need to investigate the effect of a blended course employing Web-Quests (WQs) in developing some reading and writing research skills in English for Arab Open University (AOU) students.*

## **Context of the Problem**

Data were collected from AOU students registered in the Requirement Programme to investigate if there was actually a need for developing their reading and writing research skills. The aim was to identify their performance in reading and writing research papers then apply a blended course using WQs to measure their performance level improvement, if any, from the following resources:

### **A. Previous Studies**

Studies in the field of blended learning were conducted in several settings to develop the learners' English language skills. These studies identified some problems and tried to develop and improve some skills to overcome these problems. Some previous studies highlighted the benefits of using the online part of blended courses.

Sahakian, Amin and Hanafy (2003) in their workshop "Content-Based Instruction in ESP: From Theory to Practice" argued that content-based pedagogy promotes English for Specific Purposes (ESP)/English for Occupational Purposes (EOP) learning and that internet-based instruction helps create opportunities for interacting with the target language and content. The workshop showed the attendees how to use online resources in teaching ESP/EOP and how to utilize internet content-based activities such as web-quests in teaching their courses. They stated that web-quests fit well in a learner-centred curriculum that seeks to help students develop autonomous learning. This results in a learning environment in which students take more control of their learning and consequently the teachers' role changes from just transmitting knowledge to providing resources, helping students develop learning strategies, guiding the learning process, and offering support throughout the process.

Similarly, Kotb (2003) in his workshop "Using web Quests Effectively in ESP" introduced Web-Quests as one of the resources available for ESP teachers in the Learner-centred curriculum. He showed the attendees the six features developed by Dodge (1995) to create and use web-Quests in real teaching situations (introduction, task, information resources, process, guidance, and conclusion). He argued that Web-Quests are not much different from creating any kind of lesson. He concluded by stating that Web-Quests can promote reflection, collaboration, cooperation, open minded thinking, multiculturalism, critical thinking, problem solving and an interdisciplinary approach.

Afterwards, Abdel-Wahab (2008) in his case study "Modeling Students' Intention to Adopt E-Learning a Case from Egypt" examined some factors that predict learners' intention to adopt e-learning at Mansoura University. He believed that understanding the nature of these factors may assist Egyptian universities in promoting the use of information and communication technology in teaching and learning. The main focus of this study was on the university students whose feedback was to support effective implementation of e-learning. Data was collected

through a survey of 258 first year business students at Faculty of Commerce, Mansoura University. The technology adoption model put forward by Davis (1985) was utilized in this study. Two more independent variables were added to the original model, namely, the pressure to act and resources availability. The results show that there are five factors that can be used in modelling students' intentions to adopt e-learning. These factors are attitudes toward e-learning, perceived usefulness of e-learning, perceived ease of e-learning use, pressure to use e-learning, and the availability of resources needed to use e-learning.

### B. Computer Skill Analysis Questionnaire (CSAQ)

A computer skill analysis questionnaire was designed and used to identify the target students' background on some technological skills. It was conducted on 56 students registered in the Requirement Program, AOU. After analyzing the data statistically, it was found that the target students have very good skill level (89%) in using computer in particular some of its programs such as 'Word' and 'Power Point' in addition to navigating the Internet using different search engines.

**Table (1): Statistical Analysis of Students' Responses to CSAQ**

No. of Questions	No. of Students	Students Responses%			Total Percentage
		Always	To some extent	Never	
21	56	84%	11%	5%	89%

Furthermore, most of the students showed great interest in using the Internet. They stated that they communicate via Internet through chatting and sending e-mails to one another. They also expressed that they actually navigate the Internet using different search engines such as Google and Yahoo to collect data and seek any piece of information they wish to learn about. They also reported that they usually visit some educational sites to collect data and gain more information such as the AOU e-library.

### C. The Pilot Study

The pilot study was conducted by administering a reading and writing research skills test on 36 students registered in Requirement Program, AOU during the second semester of the academic year 2010/2011. It was carried out to check the students' performance level in reading for researching and writing a research paper. The students were asked to answer some wh-questions, mark true or false, draw a comparison, give synonyms and antonyms, identify referent pronouns and write a research paper. This test was corrected by the researcher according to the pre-set criteria for Reading Research Skills (RRS) and Writing Research Skills (WRS). It was marked out of fifty. The students' scores are presented as follows:

**Table (2): Students' Scores in Reading and Writing Research Skills Piloting Test**

#### Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
<b>VAR00001</b>	36	2.00	30.00	11.4722	1.24816	7.48899	56.085
<b>Valid N (leastwise)</b>	36						

The above table shows that the target students in Requirement Program, AOU have scored low grades where the mean is (11.47) with standard error (1.2) and variance (56.08) in reading for researching and writing a research paper which indicates their poor performance level.

### D. The Researcher's Experience

The researcher felt the need for and the possibility of implementing a blended course using web-quests to check its effect in developing AOU students' reading and writing research skills. This is due to the fact that part of the study plan in the AOU is done online through using Learning Management system (LMS). In addition, most of

the delivered subjects in AOU expect the students to read and write research papers. Therefore, the researcher believed that implementing blended face-to-face and online course may be the key to diminish the disadvantages of fully implementing an online distance course and reap the benefit of combining these two approaches of learning for the following reasons:

- Need for more extensive education than it is possible to obtain at the two hours lecture per week plus one hour as office hours.
- Need for faster and superior information acquisition.
- Necessity of increasing the amount of information necessary to familiarize the learners with their content area.
- Necessity of preparing the learners to participate in the language learning process not acting as passive recipients.
- Necessity of considering individual learning styles and timetable.
- Necessity of exploring new forms of communication among learners as well as between learners and their instructor.
- Need for providing unlimited repeating of already learned subject matters by learners themselves.
- Need for easy updating of already existing learning materials according to the learners' feedback.
- Need for accurate and selective evaluation of language learning process.

## **Statement of the Problem**

Based on the literature, the computer skill analysis questionnaire (CSAQ), the results of the pilot study, and the researcher's observation, the problem of the study is stated as follows:

There was a need for developing and improving some identified reading and writing research skills in English for Arab Open University (AOU) students to serve their academic life through a blended course employing Web-Quests (WQs).

## **Questions of the Study**

*The present study answered the following main question:*

To what extent is blended course employing WQs effective in developing AOU students' reading and writing research skills in English?

*This main question led to the following sub-questions:*

1. What are the required reading research skills in English for AOU students in the Requirement Program?
2. What are the required writing research skills in English for AOU students in the Requirement Program?
3. To what extent do these students master the identified reading and writing research skills?
4. What are the bases of the suggested blended course employing WQs for developing the identified reading and writing research skills in English?
5. To what extend will the suggested blended course employing WQs be effective in developing the identified reading and writing research skills in English?

## **Purpose of the Study**

*The present study aimed at:*

1. Identifying the required reading research skills for AOU students in the Requirement Program.
2. Identifying the required writing research skills for AOU students in the Requirement Program.

3. Assessing the target students' performance level in the identified reading and writing research skills.
4. Developing the proposed blended course employing WQs that would develop the identified reading and writing research skills in English for the target students.
5. Investigating the effect of the blended course employing WQs in developing the identified reading and writing research skills in English for the target students.

## **Significance of the Study**

*It is hoped that the present study will contribute to:*

1. Presenting to language instructors and curriculum designers a way of planning, designing and implementing blended courses.
2. Incorporating WQs effectively in teaching and learning processes.
3. Adding to literature concerning the effect of blended courses employing WQ activities in enhancing language skills and language learning through developing reading and writing research skills.
4. Helping the students in different universities develop some of their reading and writing research skills in English through blended courses employing WQs.
5. Paving the way for other studies in different universities to enhance and improve their students' performance in reading and writing research skills in English through blended courses using WQs.
6. Paving the way for other studies in different universities to enhance and improve their students' performance in listening and speaking skills in English through blended courses using WQs.

## **Delimitations of the Study**

*The present study was limited to:*

*Subject and place:* The subjects were 56 students registered in the Requirement Program, AOU.

*Topic:* The identified reading and writing research skills in English needed for the target students in the Requirement Program, AOU.

*Time:* The duration of the blended course was 15 weeks of the second semester of the academic year 2011/2012.

## **Hypotheses of the Study**

*The study tested the following hypotheses:*

There is a statistically significant difference in the students' mean scores on the pre-post research reading comprehension test in favour of the post-test as a result of the application of the blended course employing WQs.

There is a statistically significant difference in the students' mean scores on the pre-post writing a research paper test in favour of the post-test as a result of the application of the blended course employing WQs.

## **Variables of the Study**

*The study had two variables:*

Independent variable: represented in the proposed blended course employing WQs.

Dependant variable: represented in the identified reading and writing research skills.

## **Methodology of the Study**

### **Design:**

This study adopted the descriptive design to review and survey previous literature and studies related to the variables of this research study. In addition, it adopted quasi-experimental/empirical design to identify the effect of the suggested blended course employing WQs in enhancing AOU students' reading and writing research skills in English. The following principles of best practice learning were implemented such as: learner-centred; experiential; holistic; authentic; expressive; reflective; social; collaborative; democratic; cognitive; developmental and constructive learning.

An Internet based communication platform was also implemented to allow interaction between the students themselves and between the students and their instructor. At the end of each session, students received varied assignments in the form of open questions, true or false, for and against essay questions and/or oral presentations that suite their multiple intelligences. They were given the choice to do the assignment in groups, in pairs or individually according to their preferred learning styles. In addition, a pre-post comparison of the students' scores in the pre-post achievement test was carried out. Furthermore, a statistical analysis of the students' assessment and reflection on learning through a blended English language course was conducted.

### **Subjects:**

The subjects of the present study were 56 students registered in the Requirement Program, AOU. The blended course employing WQ was implemented on these students during English language sessions to develop their reading and writing research skills.

### **Instruments:**

*The following instruments were developed by the researcher and validated by the jurors:*

1. Computer Skill Analysis Questionnaire (CSAQ) to identify the targeted students' background of some technological skills.
2. Reading Research Skills Inventory (RRSI) to list the reading research skills that need to be developed for the AOU students.
3. Writing Research Skills Inventory (WRSI) to list the writing research skills that need to be developed for the AOU students.
4. Pre/Post Test (PPT) to measure the development and/or improvement of students' identified reading and writing research skills, if any.
5. Blended Course employing WQs (its aims, objectives, content, methods, media, activities, and evaluation using 3 rubrics) to develop the identified reading and writing research skills.
6. Blended Course Assessment Questionnaire (BCAQ) to identify the students' assessment, satisfaction and reflection on learning English Language in a blended environment using WQs.

### **Procedures of the Study**

*First: The Theoretical Framework:*

1. Reviewing and surveying previous literature to specify the required reading and writing research skills needed for the AOU students.
2. Identifying the reading and writing research skills needed for the AOU students.
3. Developing a Blended Reading and Writing Research Model (BRWRM) as a framework of the blended course.
4. Designing WQs for developing the identified reading and writing research skills for the AOU students.

### *Second: the Practical Framework:*

For answering the first and the second questions: "What are the required writing research skills in English for AOU students in the Requirement Program?" and "What are the required reading research skills in English for AOU students in the Requirement Program?" the following steps were carried out:

1. Reviewing literature to identify some reading research skills that need to be developed for the AOU student.
2. Developing a preliminary list to identify some reading research skills required for the AOU students.
3. Presenting the preliminary list to a group of jurors for validation.
4. Modifying the preliminary list according to the jurors' responses and suggestions.
5. Preparing the final version of the list for implementation.

For answering the third question "To what extent do these students master the identified reading and writing research skills?" the following steps were carried out:

1. Constructing a test (pre-test) that is designed to measure the students' current performance level in some reading and writing research skills before the implementation of the proposed blended course employing WQs.
2. Presenting the test to a group of jurors for validation.
3. Piloting the test to make sure that it is reliable.
4. Administering the test to measure the students' performance in the identified reading and writing research skills.
5. Analyzing the data statistically to identify the reading and writing research skills available to the AOU students to be eliminated from the preliminary lists of some needed reading and writing research skills.

For answering the fourth questions "What are the bases of the suggested blended course employing WQs for developing the identified reading and writing research skills in English?" the following steps were carried out:

1. Developing a Reading and Writing Research Model to be followed as a framework when developing the identified reading and writing research skills for the AOU students.
2. Designing the blended course employing WQs (its aims, objectives, content, methods, media, activities, and evaluation using 3 rubrics) based on the identified reading and writing research skills.
3. Presenting the proposed blended course employing WQs to a group of jurors for validation.
4. Modifying the proposed blended course employing WQs according to the jurors' responses and suggestions.
5. Preparing the final version of the proposed blended course employing WQs for implementation.

For answering the fifth questions "To what extent will the suggested blended course employing WQ be effective in developing the AOU students' identified reading and writing research skills in English?" the following steps were carried out:

1. Implementing the proposed blended course employing WQ on the AOU students.
2. Administering the achievement test (post test), the same form of the pre-test, to measure the students' performance in relation to the identified reading and writing research skills, and the objectives of the proposed blended course employing WQs.
3. Analyzing the data statistically to measure the students' improvement, if any.
4. Reaching conclusions and providing recommendations.

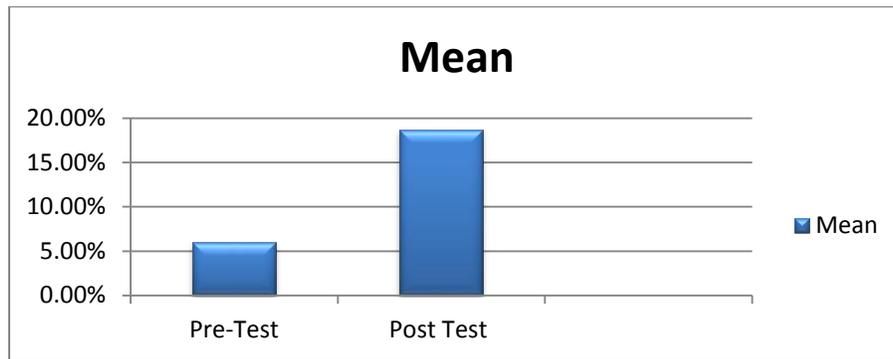
## **Results of the Study**

To investigate the change fostered by the implementation of the blended course employing WQs on the target students' performance in the reading and writing research skills test and to compare their pre-post level of skill performance developed by the proposed blended course (research reading and writing research papers), a *t*-test for

paired sample was used to determine any statistical differences between the students' mean scores on the pre-post diagnostic test. These findings are presented in table (3).

**Table (3): Descriptive Statistics of the Pre/Post Test Comparing the Students' Performance in the Reading and Writing Research Skills Test**

		Paired Samples Statistics			
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post_test	18.7083	48	9.70185	1.40034
	Pre_test	5.9583	48	3.91374	.56490



**Figure (1): Comparison of Pre-Post Test Mean Scores of the Students in the Reading and Writing Research Skills Test**

The statistical results presented in the table above show that the mean scores of the students on the post test (18.7) is higher than their mean scores on the pre-test (5.9). This result indicates that the students' reading and writing research skills have improved due to the implementation of the proposed blended course employing WQs.

A *t*-test was conducted to test the significance of the differences between the mean scores of the experimental group on the pre-post test. The results are shown in table (4).

**Table (4): *t*-test Results of the Pre/Post Test Comparing the Students' Performance in the Reading and Writing Research Skills Test**

		Paired Samples Test					
		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	<i>t</i>	df	Sig. (2-tailed)
Pair	Pre-Post test	12.75000	6.27219	.90531	14.084	47	.001

Findings in the previous table indicate that there is a statistically significant difference at 0.001 level between the mean scores of the experimental group on the pre-post administration of the reading and writing research skills test in favour of the post one. This proves that the proposed blended course was effective in developing and improving the identified reading and writing research skills.

## **Interpretation of the Results**

In the light of the previously presented statistical analysis, it can be concluded that the proposed blended course had a large effect on developing the target students' reading and writing research skills. Large Effect size values were obtained through comparing the experimental group students' mean scores in the pre-and post-administrations of the reading and writing research skills test. Therefore, the students' tangible progress in reading and writing research skills as well as its sub-skills can be mainly attributed to the proposed blended course employing WQs.

On one hand, the students demonstrated distinguished level of performance in the acquired reading research skills. They applied the three stages of active research reading strategy (pre –during – post). They raised some pre-questions that would clarify the output of reading a certain text. Then, they skimmed/surveyed the text to identify the main idea of a text and drew mind maps based on the gained and previous knowledge to draw connection between main ideas .

After that they read the text intensively and looked at how the text is organised. They also scanned the text to obtain specific details and deduced lexical/semantic items through understanding word formation and contextual clues. This helped them in building vocabulary through context and recognizing syntactic and morphological relationship at the sentence level. Thus, they could identify relationships between parts of a given text through grammatical cohesion and discourse markers in the introduction, development, transition and conclusion distinguishing main ideas (high level) from supporting details (low level). Furthermore, they could understand communicative functions of sentences such as definition and exemplification and conceptual meaning in the text such as implied/inferred statement, example, fact, opinion, and persuasion, argument, etc .

Finally, they took notes by eliciting outstanding key concepts, extracting relevant points, and reducing text by discarding redundant or irrelevant items. They actually succeeded in transferring information or knowledge from one context to another and from non-linear to linear. The tangible product of their performance was their reflection on the information mentioned in the text through writing a summary presenting their own opinions, comments, suggestions, recommendations, etc.

On the other hand, the students demonstrated notable level of performance in the acquired writing research skills. They could identify their objectives, audience and purposes to adopt appropriate style of writing each research paper. They could plan and organize their written research papers in expository contexts specifying the scope and formulating the most logical sequence of the discussed topic and the controlling ideas. All of the students developed detailed outlines for presenting their papers using effective aids in organization such as: brainstorming, clustering, concept maps, issue trees, and graphic organizers .

Some of the students could sustain the readers' attention and interest throughout their paper by providing accommodating comments, creative ideas, valuable recommendation and practical solutions. Most of them kept formal professional tone all through their writing that suits the nature of academic research papers.

After finishing their research papers, the students started editing and checking the accuracy and clarity of every sentence by editing for content, format, organization, vocabulary, grammar, and mechanics. They proofread their papers keeping relevant ideas that clearly support the purpose of the paper and deleting irrelevant ideas to achieve unity throughout the paper. Moreover, most of them tried to maintain the scope and sequence of the ideas using transition to achieve coherence.

## Conclusion

This study was established on both pedagogical and practical grounds to investigate the effect of a proposed blended course employing WQs on developing the identified reading and writing research skills for Arab Open University (AOU) students. It was evident that the four language skills were practiced throughout the blended course. That can be attributed to the use of varied written and oral activities in class and online. Some techniques required students to read and/or write whereas others required them to listen and/or speak. Thus, it can be assumed that students benefited from the support of listening, speaking, reading and writing practiced during the blended course implementation which enhanced their problem solving and critical thinking skills and thus developed their reading and writing research skills.

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# **Students and tutors' attitudes towards mobile learning in the field of open learning**

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**Abstract:**

Despite improvements in open learning indicators, significant challenges remain with regard to the delivery of quality open learning in Arab countries. In the attempt to find viable solutions to these challenges, much hope has been placed in new information and communication technologies (ICTs), mobile phones being one example. This article aimed to measure the components of students and tutors attitudes towards using mobile phone to improve the quality of open learning in the Arab countries, a study applied to the sample (176) participants (tutors – students) at open learning center- Fayoum University south Cairo. the main results of Friedman test showed that tutors and students have not consistent attitudes towards mobile learning, it was found that the cognitive components is the first at mean rank (3.00), the second rank is behavioral or skills components at (1.59) degree, and the third is affective components at (1.41) degree, in the other hand the result of the study enables us to understand that there is no m learning application at the center by mean (1.3 from 3). The final results of Mann-Whitney U and Kruskal-Wallis test showed that there was no significance difference in the attitudes towards m learning components (ABC) Cognitive, affective, behavioral components according to the personal and organizational variables of participants.

**Keywords:**

Open learning – distance education - M-Learning attitudes, affective component, Cognitive component, Behavioral component, Mobile devices.

## **1.1 Introduction:**

Open learning is an important system that enables students to receive the educational content in any time anywhere; in the other hand e learning specifically m learning is a modern learning technique that has a feature to enable tutors and teachers to provide educational service for students in any time any place, by other words there is a significant association between the quality of open education and using mobile learning.

The final report of the International Telecommunication Union expected that about Five billion mobile cellular subscriptions globally in 2010. (UIT, 2010) According to American Ambient Insight Report 2011, (39%) of organizations were already making use of mobile learning. Additionally they reported a growth rate of (29.3%) among US corporations buying mobile learning, including the large ones (Karla, 2013), in the other hand Growing Mobile Workforce estimated that (75%) of the workforce in the US is already mobile and IDC predicts that by 2015 the numbers, worldwide, will reach 1.3 billion or a staggering 37.2% of global workforce, (Karla, 2013) .

Thus the personal using of M-learning is growing in visibility and significance. M-L has emerged as an educational application from advances in mobile computing and many fields like (WI-FI, Bluetooth, GPS, GSM, GPRS, and 3G) (Sharples, 2000). The mobility, ubiquity and pervasiveness factors inherent to mobile technologies allow learning at any time and in any place (Wood, 2013) . In the developing countries most conventional educational activities are time and space dependent thus the educational process need to save the time, cost and space by depend on the wireless technologies, With the emergence of the mobile education, a new era of education started that was not entirely dependent on time and space requirements. (Kukulka A. a., 2005, p. 1). many

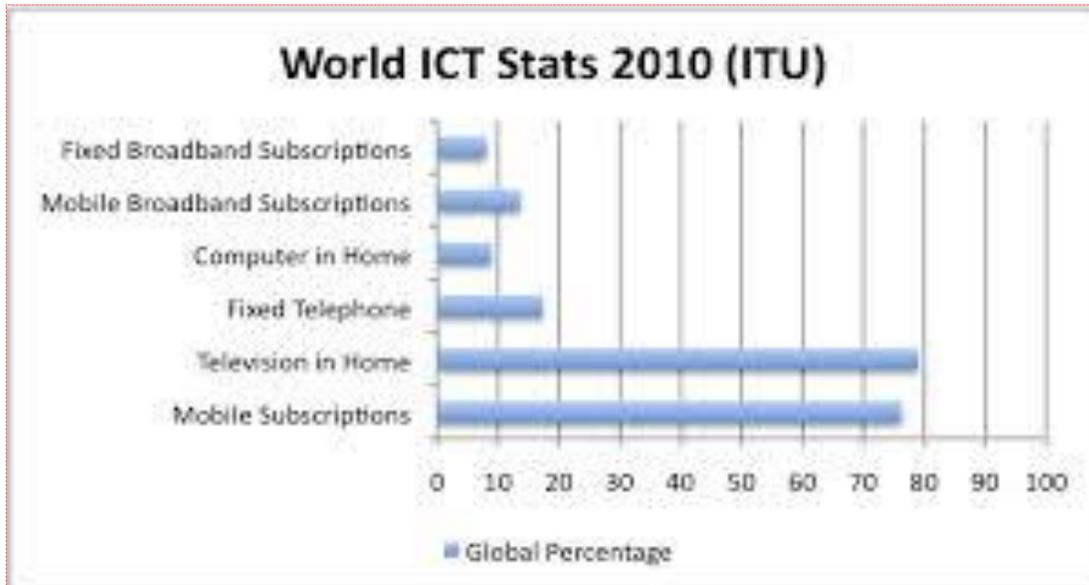
studies have reported achievements in the investigation of learning interests, the effectiveness of mobile learning and the role of mobile devices in all educational and training fields. (Rieger, 1997) (Tatar, 2003) (Cortez, 2004) (Yang, 2010) In the other hand there is many studies emphasized on the role of m-learning to developing the human resources through enable students and tutors to performance. (T, 2002); (Wentzel, 2005) (Farouk A. , 2013) (Farouk A. , 2009) (Farouk A. , 2013) this study focus on the attitudes of tutors and students towards m-leaning by divide the attitudes to three components according the (ABC) Model. This model identified the attitudes as affective, behavior and cognitive components. We tries to identify the weaknesses and the strength to describe the nature of using the mobile in leaning fields, and identify the effectiveness recommendations to improve the quality of educational and training process in the third world.

## **1.2 Literature review:**

Mobile learning in the field of open education is the ability to obtain or provide the educational content on personal pocket devices such as PDAs, smartphones and mobile phones any time anywhere. Educational content in the open learning fields refer to digital learning assets which includes any form of content or media made available on a personal device. (BASICS, 2010)

Worldwide ICT statistics (Acharya, 2010) provided a compelling argument for investigating the potential of wireless mobile devices (WMDs), and in particular mobile phones and smartphones, as these devices have by far the highest ownership of any computing or connected devices, Figure 1 provides approximated worldwide averages for

access to a range of ICT technologies garnered from the International Technology Union 2010 report. (Cochrane, 2011)



**Figure 1: Average World ICT statistics taken from the 2010 ITU report (Acharya & Teltcher, 2010). ). (ICT, 2012)**

By other words we can explore that The growing use of wireless technology and mobile devices in the developing countries institutions suggests that training and education cannot ignore the use of mobile devices in the open learning field, the economical, social and culture privacy in the third world led to increasing the number of students in the entire world are working beside the universities and they will require just-in-time training or learning wherever they are located.

(Tirri, 2003) Study indicated that the mobile technology is an important technique to modern learning process, specifically in the field of distance education. In any case, educators and practitioners in the open learning system must investigate to understand student attitudes, new learners, and the different study patterns of all learners if we are to achieve successful outcomes with mobile learning. (Kukulka A. , 2006) .

Actually in the M-L fields there are Many studies identified the demographic and organizational variables as potential barriers that influence in the students and tutors attitudes towards m-learning ( (Nysveen, 2005) (Leung, 2000) in the other hand there are some studies emphasized on the influence of material factors like infrastructure, computing device, wireless communication capability and the technology system in the levels of m-learning attitudes. (Soloway, 2001) This study has focused on the gap between all the studies in the m- learning applications at open education fields and concentrated on personal and material variables, according to the (abc) model, finally our paper identified three components that influence in the attitudes towards m-learning at open learning system. Affective, behavior, and cognitive are the main components that forms the students and tutors attitudes towards mobile learning in the fields of distance education, and this study cannot ignore the influence of the material and personal factors in the attitudes.

### **1.3 Study Objective:**

The main objective of the study is:

Estimate the current components of students and tutors' attitudes towards m-learning in the open learning system.

### **1.4 Study question:**

What are the levels of components towards M-learning in the open learning system?

## **1.5 study concepts:**

### **1.5.1 Mobile learning:**

Mobile learning term has different meanings for different communities, that refer to a subset of e-learning, educational technology and distance education, that focuses on learning across contexts and learning with mobile devices. One definition of mobile learning is, "any sort of learning that happens when the learner is not at a fixed, predetermined location, or learning that happens when the learner takes advantage of the learning opportunities offered by mobile technologies. (Malley, UoB, & Taylor, 2013) In other words, with the use of mobile devices, learners can learn anywhere and at any time (Wikimedia, 2013)

### **1.5.2 Open learning:**

Open learning is an innovative movement in education that emerged in the 1970s and evolved into fields of practice and study. The term refers generally to activities that either enhance learning opportunities within formal education systems or broaden learning opportunities beyond formal education systems (Wikimedia, 2013) Open learning is an approach which combines the principles of learner centredness, lifelong learning, flexibility of learning provision (Mackenzie, 2011)

## **1.6 Research Methodology:**

### **1.6.1 Study Population:**

The current study population consists of all the tutors and students in the open learning system at Fayoum University.

## **1.6.2 Sample:**

The study was applied on (88) tutors and students, the highest percentage was (77.5%) of tutors and (12.5%) of students.

## **1.6.3 Delimitations of the study**

1.6.2.1 Local Delimitation: The current study was applied in open learning at Fayoum University.

1.6.2.2 Human Delimitation: They had been applied on a sample that represented by (88) individual of the tutors and students.

1.6.2.5 Scale validity and Reliabilities.

The reliability of the questionnaire was tested according to Cronbach Alpha measurements. The reliability coefficient (Alpha) of each components of m-learning attitude was as follows: affective components (0.76); behavior components (0.84); cognitive components (0.79), the reliability coefficients of all the components of m-learning were above (0.8).

## **1.7. Results of the study:**

### **1.7.1 The rank of attitudes:**

By using, the Friedman test, a rank from (1) to (3) has established the m-learning attitudes, Table 1-1 shows the rank of the questionnaire statements - by the sample members' response - that is related to the tutors and students attitudes towards m-learning, the significance level of 0.001 shows that there is a significant statistical difference between the responses of sample. See the table details for an overall view of the situation, the first rank is cognitive component at (3.00) followed by the behavioral

component at (1.59) degree and finally the mean rank of the affective component at the third rank by (1.41) degree.



## **Conclusion:**

The main purpose of this paper was to measure the nature of students and tutors attitudes towards mobile learning applications in the open learning system in Arab countries specifically Egypt, and to determine the influence of the personal and demographic variables on the M-L attitudes. This study was applied to the sample of (88) tutors and students in open learning center at the University of Fayoum south Cairo- Egypt. the results showed that tutors and students have not consistent attitudes towards mobile learning in the field of open learning, it was found that the cognitive component towards M-L has been Ranked as the first by (3.00) degree, the second rank is behavioral component at (1.59), and the third rank is affective component at (1.41) degree.



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# The Effect of a Blended Course on Developing AOU Students' Reading and Writing Research Skills

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## Abstract

The present study aimed at developing Arab Open University (AOU) students' reading and writing research skills of some identified sub-skills. This was achieved through applying the proposed blended course which employed Web-Quests (WQs) and the Blended Reading and Writing Research Model (BRWRM) developed for the sake of this study. The study adopted one group design with pre-test, treatment and post-test. The study answered the raised questions through its instruments giving the following results: *Computer Skill Analysis Questionnaire (CSAQ)* identified the targeted students' background of some technological skills, *Reading Research Skills Inventory (RRSI)* listed the reading research sub-skills that need to be developed for the AOU students, *Writing Research Skills Inventory (WRSI)* listed the writing research sub-skills that need to be developed for these students, *Pre/Post Test (PPT)* assessed the target students' performance in the identified reading and writing research skills before and after receiving the treatment, *Blended Course employing WQs* (its aims, objectives, content, methods, media, activities, and evaluation using three rubrics) developed the identified reading and writing research skills and the three rubrics helped both the instructor and the students to assess their performance, identify and adjust their weakness, *Blended Course Assessment Questionnaire (BCAQ)* identified the students' assessment, satisfaction and reflection on learning English Language in a blended environment using WQs. When testing the hypotheses, results indicated that there were statistically significant differences at 0.001 level between the mean scores of the experimental group on the pre/post administrations of the pre/post test in favour of the post one. In addition, statistical analysis indicated that there was a significant improvement in the students' reading and writing research skills as a whole and their variety of strategies, such as those included in the stages of the reading and writing process in order to approach them systematically. Consequently, the proposed blended course proved to be effective in developing the AOU students' identified skills.

## Introduction

The daily environment has become more computerized than ever before. It is clear that we need to think of this computerized environment not only as a tool to perform tasks, but also as a tool to help increase its users' learning skills. Since the constructivist approach is dominant and learning by doing is perceived as a key element for most programs in higher education, the potential of reaping the benefits of enriching reading and writing research skills in English in such computerized environments is great. This can be done through blended courses guided by facilitators. The opportunity for instructors/facilitators to influence on such learner-centred environments is something that should be highly considered.

In this prospect, electronic learning or, shortly said, e-learning, represents a wide area of knowledge acquisition in the educational process by means of modern information and telecommunication technologies. E-learning has a great role in solving some specific problems, closely related to adult education. Seeing that, in today's bustling age which is full of endless changes, time plays an important role. Unfortunately, the lack of this phenomenon touches every one and thus many problems of adult education are directly related to it. In this case, e-learning can be applied as a very useful and powerful tool for increasing knowledge, skills and qualifications of individuals. However, it will probably never substitute classical forms of education; at least in some specific areas demanding personal contact between students and instructors. (Govindasamy, 2002; Reynard, 2003; Tesone, et al, 2003; Hassan, 2005)

## Background of the Problem

Learning in the 21st century challenges learner to develop different learning skills and abilities to keep in pace with this age of intense information revolution. This requires developing learners' certain academic skills that may influence the improvement of their learning processes and becoming independent learners. The labour market, as an important domain that needs to be considered in the teaching/learning process, demands that learners' knowledge and skill levels be constantly updated. In today's labour market, learners are increasingly facing new challenges such as high competition in a global market, shrinking corporate resources, rapid shifts in technology, and the recruitment and retention of talented, skilful and trained workers. Thus, a growing number of universities are developing a new learning culture to equip their graduates with the necessary skills based on labour market demands.

Swail (2002: 16) states that "the rules are changing and there is an increased pressure on institutions of higher education to evolve, adapt, and desist". Later, Newman, Couturier & Scurry (2004) confirm that the transformation of teaching and learning in higher education is inevitable with the use of Web-based communications technology. Therefore, learning better and faster than others represents one of the most important competitive advantages that many learners seek to attain. Nowadays, the Internet technology represents an exceptional opportunity for learners to add value to their potentials and skills. E-learning combines education, information, communication, training and knowledge management. It represents an applicable and cost effective way of learning. It can be delivered on a global basis by tailoring content to suit the needs of the individuals. It also allows any individual to regularly assess his/her skills gaps.

The term electronic learning has been widely used nowadays especially in higher education. Similarly, blended learning is the most recent catchphrase in higher education. International trends in open/distance learning state that the use of blended learning is essential for any open/distance education institution that aspires to survive in an increasingly competitive market. Online education has been characterized as a disruptive technology that will likely transform how, what, when, and where learning occurs in the knowledge age (Barone & Luker, 2000; Govindasamy, 2002; Reynard, 2007). By the same token, it can be characterized as a disruptive technology in education which has the potential to radically change how education is delivered and perceived. Thus, implementing online education within traditional universities presents a unique set of challenges. Foremost among these challenges is the interface between current institutional practice (based on decades of traditional education) and future institutional practice (based on convergent models developed for the knowledge age learner) (Tesone, et al, 2003).

Garrison & Vaughan (2008) clarify that blended learning in higher education clearly demonstrates how the blended learning approach possesses the traditional values of face-to-face teaching and integrates the best practices of online learning. This approach has proven to both enhance and expand the effectiveness and the efficiency of teaching/learning in higher education across disciplines. They state that "blended learning opens the possibility of creating and sustaining a community of inquiry beyond classroom" (Garrison & Vaughan 2008: 8).

Blended learning means a combination of online and face-to-face tutoring. As Graham (2005) points out, this can mean using the best of the best online learning to enable classroom activities to be active and engaging learning experiences. The aim is to encourage learners to be active participants in their learning processes rather than passive recipients by using online technologies to enable or support learning activities that continue outside the lecture hall, classroom or lab (extra-curricular) and encourage them to arrive in class well prepared.

Laird illustrates, "In contrast to face-to-face learning environments, e-courses are characterized by learner to instructor distance, spatial distance, temporal distance and relational distance" (Laird, 2003, p.17). Consequently, learning opportunities in the online environment should emphasize deep processing of information, multi-model learning elements, problem-solving experiences, and learning through personal experimentation and exploration. In addition, teaching in such environment should be repetitive, hierarchically organized, and constructive in nature; built upon prior learning (Laird, 2003, p. 22; Reynard, 2007).

Consequently, if technological advances are used promptly and tutors are less restricted by the need to provide learners with access to knowledge, their skills in pedagogy can be directed towards higher level thinking

abilities, and developing a climate of positive, enthusiastic learning contexts in which rigorous intellectual work can flourish (Arnold & Ryan, 2003). This in turn will enhance learners' self-image as effective active learners and from such confidence the ability to be self-directed autonomous learners can be developed.

Generally, e-learning courses consist of multimedia presentations, simulations, combinations of animations, video and audio sequences, text commentaries and last but not least, learners' knowledge checking tests. In this respect, blended courses were developed to provide feedback whether face-to-face or online between student and instructor/facilitator, to administer, organize and evaluate the learning process. Besides, blended courses provide many online study features such as presentations, discussion boards, video conferences, sharing of applications, virtual classrooms, etc.

## **Definitions of Blended Learning**

Blended learning is the combination of multiple approaches to pedagogy or teaching as in blending virtual and physical resources. It refers to the use of a variety of technologies, pedagogies, contexts and delivery modes (such as online learning) to create a strategic mix that will increase student success. It is also known as a combination of technology-based materials and traditional print materials.

Garrison & Vaughan (2008: 5) define blended learning as "the thoughtful fusion of face-to-face and online learning experiences" emphasising the need for reflection on traditional approaches and for reshaping learning and teaching in this new environment . They promote a blended faculty Community of Inquiry which combines face-to face workshops, where personal relationships can be established, with a sustainable online community for critical reflection and discussion of practice through forums and chat rooms.

Littlejohn and Pegler (2006) recommend a different approach which they term 'blended e-learning'. This is a unique approach that centres on a learning design by considering the design issues of introducing e-learning and the process of blending rather than by simply considering the face-to-face and online environments. The term blended e-learning is evident in Stacey and Gerbic's study (2007) where they document the use of different blends of technology and pedagogy in both campus-based and distance programmes. The introduction of new learning technologies such as podcasting, internet based audio and video communication, e-portfolios, and social networking tools including blogs, twitter, Facebook and wikis create new blending potentials indeed .

Heinze (2008: 14) considers this term in his definition by stating that "blended e-learning refers to the learning which takes place through a combination of face-to-face facilitated learning, e-learning and self-study". He asserts that this fine structure of the blended e-learning concept comprises learning and learning context through incorporating "three nodes associated with learning: face-to-face facilitated learning, e-facilitated learning and self-study; and three nodes associated with the learning context: learner, pedagogic beliefs and the programme related issues" (Heinze, 2008: 16).

The term blended learning can also be used to describe merging conventional offline, non-electronic based instruction with online tutoring or mentoring services. Although this combination of e-tutoring and conventional learning seems to be a perfect example of blended learning, it is the opposite way round to most current blended learning settings; in that the learning happens by conventional learning techniques, not by the electronic techniques. (Tesone, et al, 2003)

## **Benefits of Blended Learning**

One of the most important benefits of blended learning is in the area of learner accessibility. According to Govindasamy (2002), the ability to use the Web for the classroom has the potential to serve any learner, at any time, in any place. Likewise, a blended course using WQs could possibly maximize the accessibility concerns for the learners who cannot meet in the traditional classroom, in addition to offering a wide range of information required for their research.

In addition to accessibility issues, blended learning is featured by containing collected and organized digital content materials that may diminish the use of physical textbooks in the classroom. Thus, electronic content and

resources can substitute the information found in textbooks, or the electronic copies of textbooks can be downloaded onto computers and laptops, which may diminish the high cost of purchasing textbooks and/or the physical and problematic concerns of learners carrying heavy textbooks. The delivery of textbook information in an electronic format seems ideal for blended learning classrooms. According to many researchers, allowing teachers to use digital media instead of prescribed textbooks can generate all kinds of creativity and empowering tools of instruction. (Dodge, 1995; Schrock, 2002; Tesone, et al, 2003; Stacey and Gerbic, 2007; Vaughan, 2007)

Moreover, blended learning courses are considered an easy way for instructors to begin to incorporate the Internet into the language classroom, on both a short-term and long-term basis since no special technical knowledge is needed either to produce or use it (just Internet basics). They help instructors provide courses through computers and the Internet. As a result, both the instructors and the learners can work at any time and in any place. These courses facilitate instructors work on assignments by turning them in by e-mail any time of day or night which adds the excitement of immediacy and the dynamics of global interaction (Govindasamy, 2002; Graham, 2005; Masie, 2005). Web-based instruction in such courses really increases learning for people who are shy, lack interpersonal skills or are uncomfortable in large groups.

In addition, blended courses help learners gain better understanding of the use of the computer as a communicative as well as a learning tool. They usually contain group activities; as a result learners tend to be autonomous learners and to communicate and share knowledge with others. They also include both motivating and authentic tasks that encourage learners to view the activities they are doing as something 'real' or 'useful' (Garrison & Vaughan, 2008). This certainly leads to more effort, greater concentration and a real interest in task achievement .

Finally, blended course, coupled with real-life material and input, can be a greater motivator than outdated course books and other teaching materials. They can be interdisciplinary/cross-curricular, allowing for cross-over into other departments and subject areas, where applicable (Govindasamy, 2002). This can often give them a more 'real-world' look and feel, and provide greater motivation for the learner. Blended courses also encourage critical/higher level thinking skills including: comparing, classifying, inducing, deducing, analysing errors, constructing support, abstraction, analysing perspectives, etc. Learners are not able to simply restate information they find, but are guided towards a transformation of that information in order to achieve a given task (Garrison & Kanuka, 2004). In fact, these courses help learners look at and assess their work and the work of others from different perspectives.

## Developing Blended Courses

Wilcox & Wojnar (2000) clarify that integrating computer and reading literacy to increase learning and improve teaching can be achieved by employing six components that should be included in designing a blended course. These six components are: *'integrative units'* which integrate all aspects of knowledge acquisition, *'small group activities'* that actively involve all learners, *'presenting to learn'* which supports the approach of learning something through demonstrating it, *'classroom workshop'* that employ the approach of learning by doing, *'authentic experiences'* which are based on real life situations not designed for pedagogical practices, and *'reflective assessment'* that involve formative assessment tools to improve learners' achievement level and performance.

They also add that transferring part of the content to an *online* environment requires technological expertise, and facilitating growth in a learner's knowledge requires mindfulness. They state that the three most basic considerations when developing a blended course are content knowledge, pedagogical skill, and higher-order thinking (Wilcox & Wojnar, 2000).

Blended courses refer to "an instructional design that is learner-centred which require students to meet for face-to-face classes while providing much of the course content and interaction online via course delivery software and instructional tools" (Reynard, 2007). Thus, effective blended course instructional design blends traditional, face-to-face classroom and online methodology that usually takes place using the Internet e.g. WQs, e-portfolios and power point presentations. The blended course is generally based on learner-centred instruction, effective and timely instructor's intervention and feedback, peer to peer/group interaction, and multiple input sources in a highly interactive learning context. The blended model depends on full students and instructor's participation and on an

instructional design that intentionally supports both specific learning outcomes and flexible delivery (Dudeney, 2001; Laird, 2003; Sharp, 2005).

The cultural diversity of the current learners' population and their technology rich experiences present further issues for blended learning design. Complexity is clearly evident in the extent to which ICT has been incorporated or embedded within courses. Some writers such as Vaughan (2007) argue that basic supplementation of a face-to-face course with online learning is not blended learning whereas others like Littlejohn and Pegler (2006: 29) prefer to talk about 'strong' and 'weak' blends to indicate "a range across significant to very small amounts of e-learning".

For the purpose of this study, developing some reading and writing research skills using a blended course with WQs would enable AOU students to read and write research papers needed for their academic careers. The learners would be able to gather relevant data, critically analyse these data, and reflect/build on their prior knowledge and experiences to come up with new innovative ideas and/or solutions for a chosen topic of interest.

*To summarize, the above review and background led to the problem of this study. That can be stated as the need to investigate the effect of a blended course employing Web-Quests (WQs) in developing some reading and writing research skills in English for Arab Open University (AOU) students.*

## **Context of the Problem**

Data were collected from AOU students registered in the Requirement Programme to investigate if there was actually a need for developing their reading and writing research skills. The aim was to identify their performance in reading and writing research papers then apply a blended course using WQs to measure their performance level improvement, if any, from the following resources:

### **A. Previous Studies**

Studies in the field of blended learning were conducted in several settings to develop the learners' English language skills. These studies identified some problems and tried to develop and improve some skills to overcome these problems. Some previous studies highlighted the benefits of using the online part of blended courses.

Sahakian, Amin and Hanafy (2003) in their workshop "Content-Based Instruction in ESP: From Theory to Practice" argued that content-based pedagogy promotes English for Specific Purposes (ESP)/English for Occupational Purposes (EOP) learning and that internet-based instruction helps create opportunities for interacting with the target language and content. The workshop showed the attendees how to use online resources in teaching ESP/EOP and how to utilize internet content-based activities such as web-quests in teaching their courses. They stated that web-quests fit well in a learner-centred curriculum that seeks to help students develop autonomous learning. This results in a learning environment in which students take more control of their learning and consequently the teachers' role changes from just transmitting knowledge to providing resources, helping students develop learning strategies, guiding the learning process, and offering support throughout the process.

Similarly, Kotb (2003) in his workshop "Using web Quests Effectively in ESP" introduced Web-Quests as one of the resources available for ESP teachers in the Learner-centred curriculum. He showed the attendees the six features developed by Dodge (1995) to create and use web-Quests in real teaching situations (introduction, task, information resources, process, guidance, and conclusion). He argued that Web-Quests are not much different from creating any kind of lesson. He concluded by stating that Web-Quests can promote reflection, collaboration, cooperation, open minded thinking, multiculturalism, critical thinking, problem solving and an interdisciplinary approach.

Afterwards, Abdel-Wahab (2008) in his case study "Modeling Students' Intention to Adopt E-Learning a Case from Egypt" examined some factors that predict learners' intention to adopt e-learning at Mansoura University. He believed that understanding the nature of these factors may assist Egyptian universities in promoting the use of information and communication technology in teaching and learning. The main focus of this study was on the university students whose feedback was to support effective implementation of e-learning. Data was collected

through a survey of 258 first year business students at Faculty of Commerce, Mansoura University. The technology adoption model put forward by Davis (1985) was utilized in this study. Two more independent variables were added to the original model, namely, the pressure to act and resources availability. The results show that there are five factors that can be used in modelling students' intentions to adopt e-learning. These factors are attitudes toward e-learning, perceived usefulness of e-learning, perceived ease of e-learning use, pressure to use e-learning, and the availability of resources needed to use e-learning.

### B. Computer Skill Analysis Questionnaire (CSAQ)

A computer skill analysis questionnaire was designed and used to identify the target students' background on some technological skills. It was conducted on 56 students registered in the Requirement Program, AOU. After analyzing the data statistically, it was found that the target students have very good skill level (89%) in using computer in particular some of its programs such as 'Word' and 'Power Point' in addition to navigating the Internet using different search engines.

**Table (1): Statistical Analysis of Students' Responses to CSAQ**

No. of Questions	No. of Students	Students Responses%			Total Percentage
		Always	To some extent	Never	
21	56	84%	11%	5%	89%

Furthermore, most of the students showed great interest in using the Internet. They stated that they communicate via Internet through chatting and sending e-mails to one another. They also expressed that they actually navigate the Internet using different search engines such as Google and Yahoo to collect data and seek any piece of information they wish to learn about. They also reported that they usually visit some educational sites to collect data and gain more information such as the AOU e-library.

### C. The Pilot Study

The pilot study was conducted by administering a reading and writing research skills test on 36 students registered in Requirement Program, AOU during the second semester of the academic year 2010/2011. It was carried out to check the students' performance level in reading for researching and writing a research paper. The students were asked to answer some wh-questions, mark true or false, draw a comparison, give synonyms and antonyms, identify referent pronouns and write a research paper. This test was corrected by the researcher according to the pre-set criteria for Reading Research Skills (RRS) and Writing Research Skills (WRS). It was marked out of fifty. The students' scores are presented as follows:

**Table (2): Students' Scores in Reading and Writing Research Skills Piloting Test**

#### Descriptive Statistics

	N	Minimum	Maximum	Mean		Std. Deviation	Variance
	Statistic	Statistic	Statistic	Statistic	Std. Error	Statistic	Statistic
<b>VAR00001</b>	36	2.00	30.00	11.4722	1.24816	7.48899	56.085
<b>Valid N (leastwise)</b>	36						

The above table shows that the target students in Requirement Program, AOU have scored low grades where the mean is (11.47) with standard error (1.2) and variance (56.08) in reading for researching and writing a research paper which indicates their poor performance level.

### D. The Researcher's Experience

The researcher felt the need for and the possibility of implementing a blended course using web-quests to check its effect in developing AOU students' reading and writing research skills. This is due to the fact that part of the study plan in the AOU is done online through using Learning Management system (LMS). In addition, most of

the delivered subjects in AOU expect the students to read and write research papers. Therefore, the researcher believed that implementing blended face-to-face and online course may be the key to diminish the disadvantages of fully implementing an online distance course and reap the benefit of combining these two approaches of learning for the following reasons:

- Need for more extensive education than it is possible to obtain at the two hours lecture per week plus one hour as office hours.
- Need for faster and superior information acquisition.
- Necessity of increasing the amount of information necessary to familiarize the learners with their content area.
- Necessity of preparing the learners to participate in the language learning process not acting as passive recipients.
- Necessity of considering individual learning styles and timetable.
- Necessity of exploring new forms of communication among learners as well as between learners and their instructor.
- Need for providing unlimited repeating of already learned subject matters by learners themselves.
- Need for easy updating of already existing learning materials according to the learners' feedback.
- Need for accurate and selective evaluation of language learning process.

## **Statement of the Problem**

Based on the literature, the computer skill analysis questionnaire (CSAQ), the results of the pilot study, and the researcher's observation, the problem of the study is stated as follows:

There was a need for developing and improving some identified reading and writing research skills in English for Arab Open University (AOU) students to serve their academic life through a blended course employing Web-Quests (WQs).

## **Questions of the Study**

*The present study answered the following main question:*

To what extent is blended course employing WQs effective in developing AOU students' reading and writing research skills in English?

*This main question led to the following sub-questions:*

1. What are the required reading research skills in English for AOU students in the Requirement Program?
2. What are the required writing research skills in English for AOU students in the Requirement Program?
3. To what extent do these students master the identified reading and writing research skills?
4. What are the bases of the suggested blended course employing WQs for developing the identified reading and writing research skills in English?
5. To what extend will the suggested blended course employing WQs be effective in developing the identified reading and writing research skills in English?

## **Purpose of the Study**

*The present study aimed at:*

1. Identifying the required reading research skills for AOU students in the Requirement Program.
2. Identifying the required writing research skills for AOU students in the Requirement Program.

3. Assessing the target students' performance level in the identified reading and writing research skills.
4. Developing the proposed blended course employing WQs that would develop the identified reading and writing research skills in English for the target students.
5. Investigating the effect of the blended course employing WQs in developing the identified reading and writing research skills in English for the target students.

## **Significance of the Study**

*It is hoped that the present study will contribute to:*

1. Presenting to language instructors and curriculum designers a way of planning, designing and implementing blended courses.
2. Incorporating WQs effectively in teaching and learning processes.
3. Adding to literature concerning the effect of blended courses employing WQ activities in enhancing language skills and language learning through developing reading and writing research skills.
4. Helping the students in different universities develop some of their reading and writing research skills in English through blended courses employing WQs.
5. Paving the way for other studies in different universities to enhance and improve their students' performance in reading and writing research skills in English through blended courses using WQs.
6. Paving the way for other studies in different universities to enhance and improve their students' performance in listening and speaking skills in English through blended courses using WQs.

## **Delimitations of the Study**

*The present study was limited to:*

*Subject and place:* The subjects were 56 students registered in the Requirement Program, AOU.

*Topic:* The identified reading and writing research skills in English needed for the target students in the Requirement Program, AOU.

*Time:* The duration of the blended course was 15 weeks of the second semester of the academic year 2011/2012.

## **Hypotheses of the Study**

*The study tested the following hypotheses:*

There is a statistically significant difference in the students' mean scores on the pre-post research reading comprehension test in favour of the post-test as a result of the application of the blended course employing WQs.

There is a statistically significant difference in the students' mean scores on the pre-post writing a research paper test in favour of the post-test as a result of the application of the blended course employing WQs.

## **Variables of the Study**

*The study had two variables:*

Independent variable: represented in the proposed blended course employing WQs.

Dependant variable: represented in the identified reading and writing research skills.

## **Methodology of the Study**

### **Design:**

This study adopted the descriptive design to review and survey previous literature and studies related to the variables of this research study. In addition, it adopted quasi-experimental/empirical design to identify the effect of the suggested blended course employing WQs in enhancing AOU students' reading and writing research skills in English. The following principles of best practice learning were implemented such as: learner-centred; experiential; holistic; authentic; expressive; reflective; social; collaborative; democratic; cognitive; developmental and constructive learning.

An Internet based communication platform was also implemented to allow interaction between the students themselves and between the students and their instructor. At the end of each session, students received varied assignments in the form of open questions, true or false, for and against essay questions and/or oral presentations that suite their multiple intelligences. They were given the choice to do the assignment in groups, in pairs or individually according to their preferred learning styles. In addition, a pre-post comparison of the students' scores in the pre-post achievement test was carried out. Furthermore, a statistical analysis of the students' assessment and reflection on learning through a blended English language course was conducted.

### **Subjects:**

The subjects of the present study were 56 students registered in the Requirement Program, AOU. The blended course employing WQ was implemented on these students during English language sessions to develop their reading and writing research skills.

### **Instruments:**

*The following instruments were developed by the researcher and validated by the jurors:*

1. Computer Skill Analysis Questionnaire (CSAQ) to identify the targeted students' background of some technological skills.
2. Reading Research Skills Inventory (RRSI) to list the reading research skills that need to be developed for the AOU students.
3. Writing Research Skills Inventory (WRSI) to list the writing research skills that need to be developed for the AOU students.
4. Pre/Post Test (PPT) to measure the development and/or improvement of students' identified reading and writing research skills, if any.
5. Blended Course employing WQs (its aims, objectives, content, methods, media, activities, and evaluation using 3 rubrics) to develop the identified reading and writing research skills.
6. Blended Course Assessment Questionnaire (BCAQ) to identify the students' assessment, satisfaction and reflection on learning English Language in a blended environment using WQs.

### **Procedures of the Study**

*First: The Theoretical Framework:*

1. Reviewing and surveying previous literature to specify the required reading and writing research skills needed for the AOU students.
2. Identifying the reading and writing research skills needed for the AOU students.
3. Developing a Blended Reading and Writing Research Model (BRWRM) as a framework of the blended course.
4. Designing WQs for developing the identified reading and writing research skills for the AOU students.

### *Second: the Practical Framework:*

For answering the first and the second questions: "What are the required writing research skills in English for AOU students in the Requirement Program?" and "What are the required reading research skills in English for AOU students in the Requirement Program?" the following steps were carried out:

1. Reviewing literature to identify some reading research skills that need to be developed for the AOU student.
2. Developing a preliminary list to identify some reading research skills required for the AOU students.
3. Presenting the preliminary list to a group of jurors for validation.
4. Modifying the preliminary list according to the jurors' responses and suggestions.
5. Preparing the final version of the list for implementation.

For answering the third question "To what extent do these students master the identified reading and writing research skills?" the following steps were carried out:

1. Constructing a test (pre-test) that is designed to measure the students' current performance level in some reading and writing research skills before the implementation of the proposed blended course employing WQs.
2. Presenting the test to a group of jurors for validation.
3. Piloting the test to make sure that it is reliable.
4. Administering the test to measure the students' performance in the identified reading and writing research skills.
5. Analyzing the data statistically to identify the reading and writing research skills available to the AOU students to be eliminated from the preliminary lists of some needed reading and writing research skills.

For answering the fourth questions "What are the bases of the suggested blended course employing WQs for developing the identified reading and writing research skills in English?" the following steps were carried out:

1. Developing a Reading and Writing Research Model to be followed as a framework when developing the identified reading and writing research skills for the AOU students.
2. Designing the blended course employing WQs (its aims, objectives, content, methods, media, activities, and evaluation using 3 rubrics) based on the identified reading and writing research skills.
3. Presenting the proposed blended course employing WQs to a group of jurors for validation.
4. Modifying the proposed blended course employing WQs according to the jurors' responses and suggestions.
5. Preparing the final version of the proposed blended course employing WQs for implementation.

For answering the fifth questions "To what extent will the suggested blended course employing WQ be effective in developing the AOU students' identified reading and writing research skills in English?" the following steps were carried out:

1. Implementing the proposed blended course employing WQ on the AOU students.
2. Administering the achievement test (post test), the same form of the pre-test, to measure the students' performance in relation to the identified reading and writing research skills, and the objectives of the proposed blended course employing WQs.
3. Analyzing the data statistically to measure the students' improvement, if any.
4. Reaching conclusions and providing recommendations.

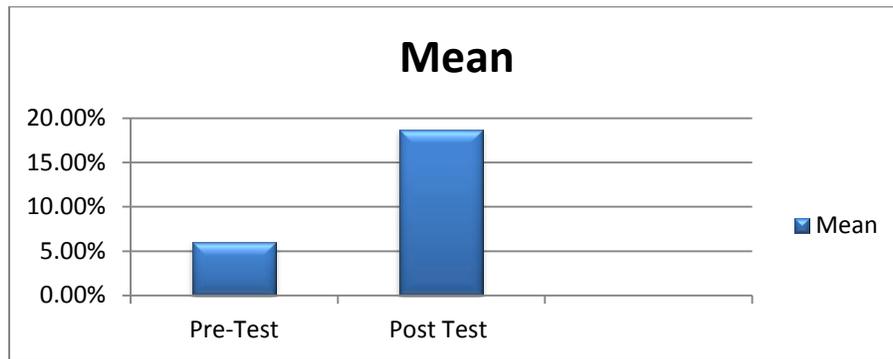
## **Results of the Study**

To investigate the change fostered by the implementation of the blended course employing WQs on the target students' performance in the reading and writing research skills test and to compare their pre-post level of skill performance developed by the proposed blended course (research reading and writing research papers), a *t*-test for

paired sample was used to determine any statistical differences between the students' mean scores on the pre-post diagnostic test. These findings are presented in table (3).

**Table (3): Descriptive Statistics of the Pre/Post Test Comparing the Students' Performance in the Reading and Writing Research Skills Test**

Paired Samples Statistics					
		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Post_test	18.7083	48	9.70185	1.40034
	Pre_test	5.9583	48	3.91374	.56490



**Figure (1): Comparison of Pre-Post Test Mean Scores of the Students in the Reading and Writing Research Skills Test**

The statistical results presented in the table above show that the mean scores of the students on the post test (18.7) is higher than their mean scores on the pre-test (5.9). This result indicates that the students' reading and writing research skills have improved due to the implementation of the proposed blended course employing WQs.

A *t*-test was conducted to test the significance of the differences between the mean scores of the experimental group on the pre-post test. The results are shown in table (4).

**Table (4): *t*-test Results of the Pre/Post Test Comparing the Students' Performance in the Reading and Writing Research Skills Test**

Paired Samples Test							
		Paired Differences					
		Mean	Std. Deviation	Std. Error Mean	<i>t</i>	df	Sig. (2-tailed)
Pair	Pre-Post test	12.75000	6.27219	.90531	14.084	47	.001

Findings in the previous table indicate that there is a statistically significant difference at 0.001 level between the mean scores of the experimental group on the pre-post administration of the reading and writing research skills test in favour of the post one. This proves that the proposed blended course was effective in developing and improving the identified reading and writing research skills.

## **Interpretation of the Results**

In the light of the previously presented statistical analysis, it can be concluded that the proposed blended course had a large effect on developing the target students' reading and writing research skills. Large Effect size values were obtained through comparing the experimental group students' mean scores in the pre-and post-administrations of the reading and writing research skills test. Therefore, the students' tangible progress in reading and writing research skills as well as its sub-skills can be mainly attributed to the proposed blended course employing WQs.

On one hand, the students demonstrated distinguished level of performance in the acquired reading research skills. They applied the three stages of active research reading strategy (pre –during – post). They raised some pre-questions that would clarify the output of reading a certain text. Then, they skimmed/surveyed the text to identify the main idea of a text and drew mind maps based on the gained and previous knowledge to draw connection between main ideas .

After that they read the text intensively and looked at how the text is organised. They also scanned the text to obtain specific details and deduced lexical/semantic items through understanding word formation and contextual clues. This helped them in building vocabulary through context and recognizing syntactic and morphological relationship at the sentence level. Thus, they could identify relationships between parts of a given text through grammatical cohesion and discourse markers in the introduction, development, transition and conclusion distinguishing main ideas (high level) from supporting details (low level). Furthermore, they could understand communicative functions of sentences such as definition and exemplification and conceptual meaning in the text such as implied/inferred statement, example, fact, opinion, and persuasion, argument, etc .

Finally, they took notes by eliciting outstanding key concepts, extracting relevant points, and reducing text by discarding redundant or irrelevant items. They actually succeeded in transferring information or knowledge from one context to another and from non-linear to linear. The tangible product of their performance was their reflection on the information mentioned in the text through writing a summary presenting their own opinions, comments, suggestions, recommendations, etc.

On the other hand, the students demonstrated notable level of performance in the acquired writing research skills. They could identify their objectives, audience and purposes to adopt appropriate style of writing each research paper. They could plan and organize their written research papers in expository contexts specifying the scope and formulating the most logical sequence of the discussed topic and the controlling ideas. All of the students developed detailed outlines for presenting their papers using effective aids in organization such as: brainstorming, clustering, concept maps, issue trees, and graphic organizers .

Some of the students could sustain the readers' attention and interest throughout their paper by providing accommodating comments, creative ideas, valuable recommendation and practical solutions. Most of them kept formal professional tone all through their writing that suits the nature of academic research papers.

After finishing their research papers, the students started editing and checking the accuracy and clarity of every sentence by editing for content, format, organization, vocabulary, grammar, and mechanics. They proofread their papers keeping relevant ideas that clearly support the purpose of the paper and deleting irrelevant ideas to achieve unity throughout the paper. Moreover, most of them tried to maintain the scope and sequence of the ideas using transition to achieve coherence.

## Conclusion

This study was established on both pedagogical and practical grounds to investigate the effect of a proposed blended course employing WQs on developing the identified reading and writing research skills for Arab Open University (AOU) students. It was evident that the four language skills were practiced throughout the blended course. That can be attributed to the use of varied written and oral activities in class and online. Some techniques required students to read and/or write whereas others required them to listen and/or speak. Thus, it can be assumed that students benefited from the support of listening, speaking, reading and writing practiced during the blended course implementation which enhanced their problem solving and critical thinking skills and thus developed their reading and writing research skills.

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# **MOTIVATION FOR FACULTY'S SUCCESS IN DISTANCE LEARNING: THE EXPERIENCE OF UNIVERSITY OF IBADAN, NIGERIA**

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## **Abstract**

Faculty plays an important role in the university and this role changes in distance learning unlike the traditional on campus full time learning. In recent times, Nigerian universities have been unable to admit less than 20% of candidates seeking admission to university for the traditional learning system. This has increased the number of candidates seeking admission for distance learning and subsequently led to more challenges for faculty involved in distance learning. These emerging new roles which have its own challenges for faculty, requires some support from university administration. Some studies have shown that universities provide some motivating factors for faculty to adapt to these new roles. The support needs of the faculty and motivation provided by the university management is the focus of this paper.

**Keywords: Faculty, Faculty Motivation, Distance Learning, University of Ibadan, Nigeria**

## **Introduction**

Distance learning is that form of learning that students receive while they are outside the university campus with minimal physical contact between faculty and students, but communication is dependent on electronic media. Distance learning usually refers to open learning applied to situations in which there is a geographical expiration between the learner and the learning institution (Adetimirin & Omogbhe, 2011). The focus is on the needs of the individual students and is more learner-centered as the learner chooses the place of study, time and pace of learning. Students benefit from distance learning because they could learn from their chosen locations which could be thousands of miles away.

Distance education is growing much faster than the overall higher education growth rate with public institutions witnessing the highest impacts (Allen & Seaman, 2009). This was also buttressed by Adetimirin & Omogbhe (2011) who averred that distance learning has become more popular in recent times because it is cost-saving for universities to reduce the number of residential and full-time students. This may be attributed to the increase in unemployment rate and those who are employed will not want to resign from their jobs, even when there is the need to improve academically. Nigeria is affected by not having adequate number of universities to cater for intending candidates for admission into universities. Nigerian universities admit less than 20% of candidates seeking admission into universities for traditional learning, and these results in an increase in the number of applicants seeking admission into distance learning programmes in universities offering such programmes. Chapman (2011) concluded that distance education is and will continue to be an increasingly important part of higher education.

Universities offering distance learning must provide the appropriate resources to ensure the quality and success of such programmes. These include material, financial and human resources. The human resources include faculty who teach these distance learning courses to students. Faculty in universities offering distance learning are also involved in teaching the traditional on campus courses and this implies that their workload will be heavy. Due to the peculiarity of distance learning, faculty must be equipped with the appropriate skills (ICT literacy, Information literacy) to teach and this may involve extra time and effort for them to acquire the necessary skills.

Studies have reported that faculty teaching distance learning courses felt they were undertrained, under-supported and had a heavier workload than those teaching face-to-face courses (Conceição, & Baldor, 2009; Academic Leader, 2006; Wilson, 2001).

Universities offering distance learning courses must maintain quality in terms of course content with the regular, traditional and face to face mode of teaching. Faculty plays an important in ensuring quality since they teach for the two modes. Therefore, to ensure parity and quality of both modes, faculty may need to be motivated to ensure the success of distance learning programme. The type of motivation provided by universities will vary from one university to another. The motivating factors could include monetary, improved reward system, good infrastructural and ICT facilities. Studies have been carried out on motivating factors for faculty to teach distance learning courses and several findings have affirmed that intrinsic, extrinsic and institutional factors affected their teaching on distance learning (Marguire, 2005; Parker, 2003 & Wilson, 2001). Maguire (2005) concluded that three categories of factors: intrinsic (those internal to the faculty member), extrinsic (those external to the faculty member), and institutional which are described as extrinsic motivators which “the institution or the administration are perceived to have the ability or power to alter distance education policies or procedure”. However, intrinsic factors were the strongest motivating factors for faculty engaged in online teaching.

Parker (2003) reported from a review of over 100 articles that faculty was motivated to teach distance learning courses for intrinsic rewards such as self-satisfaction, flexible scheduling and accessibility to a wider audience. The need for the motivation to the faculty might have been as a result studies carried out to investigate what the universities could do for the faculty to reduce their workload for teaching face to face and thereby encourage them to teach under the distance learning programme. However, Wilson (2001) surveyed all full-time faculty in nine Kentucky state-supported institutions of higher learning in United States of American and found that instructors “tended to be intrinsically motivated to participate in distance learning, especially to facilitate student learning” but financial rewards was ranked the lowest.

The type of incentives given to faculty will determine their participation and continual participation on distance learning teaching. The relevant and appropriate incentive provided for the faculty will ensure continuity and also quality of the programme which may ultimately lead to increase in the enrolment of students for the programme and subsequently improved image and monetary benefits for the university. Green et. al. (2009) reported that many faculty are motivated to teach distance education courses because of the various incentives that they receive for doing so. They concluded that continuous training provided by the university, fair financial compensation in comparison to workload, increased institutional support, opportunity to assist with course/program development and mentoring from veteran distance education instructors would encourage faculty continue teaching distance learning courses.

According to Moore and Anderson (2003), “incentives that have been identified with respect to distance education appear to be of three major types: (1) situational aspects or characteristics of the work environment that facilitate participation, (2) inducements offered by the institution expressly to entice faculty to participate, and (3) intrinsic rewards returned for participation”. Situational aspects or characteristics may include availability of technology training and assistance, departmental commitment to distance education, and/or a well-developed support system. Inducements offered by the institution may include increase in staff salary, promotion credit, and/or release time. Intrinsic rewards may include personal/professional growth, career advancement, personal challenge, and/or personal satisfaction for a job well done.

The university also has its role to ensure the quality and success of distance learning. This involves providing the necessary infrastructure, policies and environment to support distance learning. According to Keeton et. al. (2002), distance education administrators should convince faculty that the technology is reliable and the quality is at least equal to the traditional methods, provide time to develop and maintain distance education courses, examine and evaluate distance education, establish peer models within departments, and establish a clear vision of distance education.

Faculty is engaged to teach distance learning courses as well as their traditional courses in University of Ibadan, Nigeria. This increases their workload since they are expected to teach, conduct research and carry out community service. The distance learning programme involves both face to face and interaction with students electronically. However, due to poor infrastructural facilities in Nigeria, such as irregular power supply, poor and unstable internet connectivity, faculty may face some challenges teaching distance learning courses. Why is faculty involved in distance learning courses? what motivates them? and the motivating factors provided by the University are what the study sought out to investigate.

## **Research Questions**

The following questions were used to guide this study:

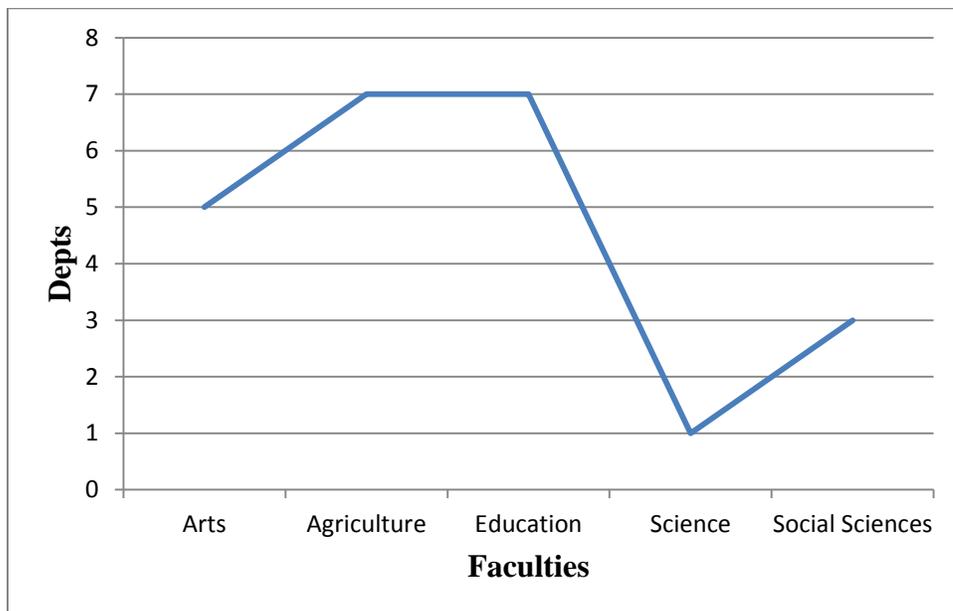
1. What are the support needs of faculty to teach distance learning courses?
2. What motivates faculty to teach distance learning courses?
3. What motivation does faculty receive from the university administrators?

**Methodology**

Data was collected by conducting interview with the eight faculty who are deputy coordinators that supervises the Distance Learning Degree Programme in their departments in the Faculty of Education, University of Ibadan, Nigeria. Secondary data on types of incentives for motivation given to faculty was collected from the Database Officer of the Distance Learning Centre (DLC), University of Ibadan.

**Results and Discussion**

The findings from the interview revealed that all the faculty had doctorate degrees with over five years teaching experience at the undergraduate and postgraduate levels. They comprised of six male and two female with the academic rank of Lecturer I and were all tenured faculty. The Distance Learning Programme of the university has five faculties and eighteen departments (Fig 1) and has 375 faculty and 47 academic advisors for the degree programme.



**Fig. 1 Distribution of Faculties and Departments involved in Distance Learning Programme**

*Support Needs of Faculty to teach Distance Learning Courses*

The findings from the interview with the faculty revealed that their support needs were: improved remuneration, improved infrastructural facilities, improved involvement in the decisions for the distance learning programme and financial support for professional development in that order. All the faculty reported that remuneration should be improved upon to encourage further participation in the programme as they are engaged in it throughout the year, which involves a lot of time. This confirms the findings of Cook et al. (2009) in their study on how rewards systems, extrinsic and intrinsic factors influence faculty to teach distance learning courses. They found that the faculty wanted their needs to be met by the university administration through extrinsic factors such as salary increases and course releases.

The infrastructural facilities presently available does not encourage distance learning as uploading materials for the students is a serious challenge due to irregular internet connectivity and epileptic power supply on the University of Ibadan campus. This is consistent with those of Adetimirin (2012) who surveyed ICT literacy skills of undergraduates in Nigerian universities and reported that irregular power supply and frequent computer breakdown were some of the major factors affecting their ICT use in Nigerian universities. For the success of the programme, the appropriate internet bandwidth that will take into consideration the number of students and faculty

available to use internet facilities must be provided by the university. The use of the internet to search download and upload documents must be considered so that faculty and students will not be affected by slow internet speed which can frustrate their efforts. This is supported by Zhen et. al. (2008) who reported that the faculty in a university in USA suggested that the university should consider greater bandwidth and more storage space for faculty members' favor system.

#### *Factors that motivates faculty to teach distance learning courses*

Result from the interview with the faculty revealed that the major factors that motivated them to teach distance learning courses were to ensure quality of the programme, pressure from heads of departments and to give back to the community. The faculty averred that they had to teach distance learning courses because they were still young in the academic cadre and were mandated to teach by their heads of department. The courses they teach are the same with those taught at the regular and traditional programme. This is not in agreement with the result of the Chapman (2011) who reported that flexible schedule, self-satisfaction and opportunities to use new technologies were the motivating factors for faculty teaching online courses.

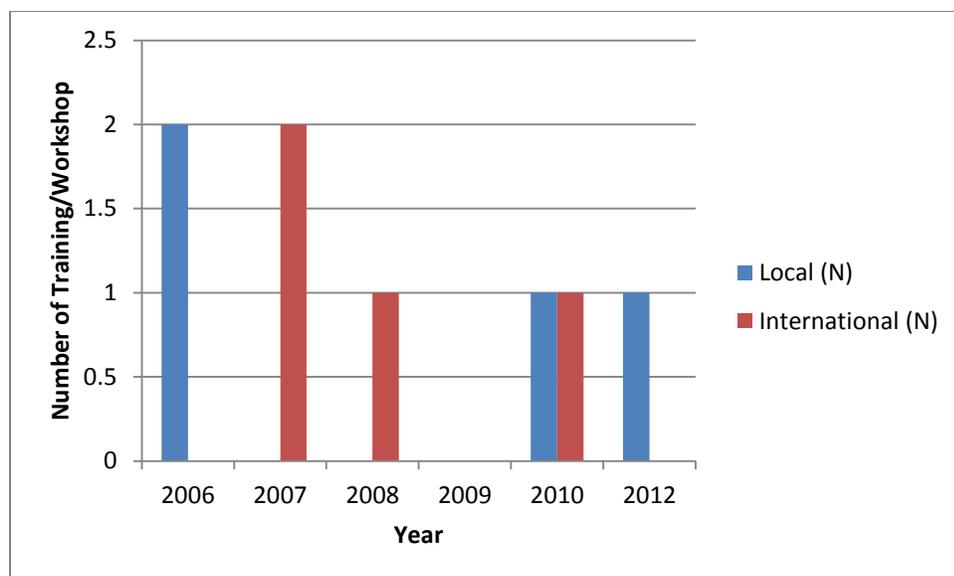
#### *Motivation for Faculty from the University*

To reduce the workload of the faculty, DLC employed academic advisors to bridge the Information and Communication Technology (ICT) function between the faculty and the distant learners. The academic advisors are expected to have regular online interactions between the students and the faculty. Result of the interview with the faculty revealed that the employment of the academic advisors has helped them in reducing their workload as they act as the intermediary between the DLC and the students. This has improved the communication between the centre and the faculty. Assignments are given to the distant learners through the academic advisors who send them online to the students and on the other-hand inform the faculty about time table for examinations, lectures, continuous assessment and other requirements.

The result revealed that all faculty were given dedicated email accounts to facilitate communication with one another and the centre. The faculty reported that meetings with the management of the centre was regular at least once monthly where issues about the progress of the program are discussed and decisions jointly taken. This agrees with the result of Howell et al. (2004) that colleges and departments must, build a stronger distance learning faculty community and encourage more distance learning scholarship and research.

Result from the interview indicated that the centre ensures that payment for courses taught are not delayed and are paid quickly to the faculty after they have submitted results for courses taught and claim forms. This encourages the faculty as they are assured that their remuneration for courses taught and marked will not be delayed. From the interview with the deputy coordinators, it was affirmed that money is allocated to write new course materials and also review course materials. The amount paid by the administration has been reviewed upwards to encourage faculty to write course materials for their courses. Faculty also reported that money was also being paid for attending board meetings which is called sitting allowance. This is to encourage faculty to attend these meetings where critical issues are discussed and decisions taken to improve the quality of the program. This confirms the study of Cook, et.al. (2009) on motivating factors that influence university faculty to teach on distance learning who found that extrinsic factors such as salary increases was the motivating factor.

Data collected from Distance Learning Centre (DLC), University of Ibadan showed that the centre sponsored faculty to attend both local and international trainings, workshops or conferences. Faculty was found to attend the same number of local workshops in 2006 as well as international workshops in 2007 (Fig. 2). In 2009 and 2011, faculty was found not to attend any workshop or conference sponsored by DLC (Fig. 2). In 2010, the result showed that the number of local conferences attended were the same as those for international conferences (Fig. 2



**Fig. 2 Training and Workshop Programmes for Faculty**

The centre organised a two day training programme for all faculty in 2012 to equip them with the skills and competencies in writing course materials that are open distance learning (ODL) compliant. The faculty was trained by nine resource persons who had undergone previous training at National Open University, Nigeria. This training exposed faculty to the use of different technology for their courses. The faculty showed interest in the training and they commended the effort of the centre in providing such as opportunity to them to have hands-on practice of the educational technologies. Result from the interview with some deputy coordinators revealed that they have been using some of the technology they were introduced to during the 2012 training. This is consistent with the result of Zhen et. al. (2008) that the university should provide technological professional help and monetary support and appropriately scheduled faculty-centered workshops and training programs and those of Howell et al. (2004) that colleges and departments must improve training and instructional support for faculty to continually equip them with necessary skills to teach distance learning courses effectively.

### **Conclusion and Recommendations**

Faculty is an important resource for distance learning and universities must motivate them to continually teach for the success of the programme. Faculty were involved in teaching to ensure quality and were motivated by the University of Ibadan with reward system, better communication with administrators and training programmes. However for sustainability of faculty on the programme, University of Ibadan should provide appropriate institutional support such as appropriate infrastructure and regular training programmes such as courseware development for online instruction. Improved reward system and communication between university and faculty must also be improved upon. To ensure quality and continuity of the distance learning programme of the University of Ibadan, faculty must be more committed and see the distance learning programme as a university assignment that must be properly executed.

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# **The effectiveness of video lecture in the context of blended learning environment**

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## **Abstract:**

This paper describes the viewing time of video lectures in a blended learning environment which can be considered as one of the most important factors in helping to predict the mark that a student will obtain in the final exam of a course. We have used two regression techniques, the first uses a statistical methods and the second uses a neural network method. The results of the two methods are compared with the real final grade. Finally as future scope we have proposed an effective video lecture viewing protocol, to enhance the weight of this factor to be used in predicting systems.

## **Key words:**

Video, regression, blended learning, predicting.

## **I. Introduction:**

E-learning is being largely used in many institutions and numbers of researchers in the learning field assert that this system will be adopted as the principal learning system. There are different definitions of E-learning, we adopt the following definition to emphasise the new and different aspects of E-Learning as compared with traditional learning; E-Learning regroups all forms of electronic supported learning and teaching, which aim to effect the construction of knowledge with reference to individual experience, practice and knowledge of the learner. Information and communication systems, whether networked or not, serve as specific media (specific in the sense elaborated previously) to implement the learning process (Djamshid Tavangarian, Markus E. Leypold, Kristin Nölting, Marc Röser, Denny Voig ,2004).

Blended-learning system is roughly considered as the middle way between the machines based learning and the classic learning systems, as stated by Brian Tomlinson and Claire Whittaker (2013). It has been defined as a combination of technology and classroom instruction in a flexible approach to learning that recognises the benefits of delivering some training and assessment online but also uses other modes to make up a complete training programme which can improve learning outcomes and/or save costs.

Yuanjian Qin and Qing Zhang (2008) confirmed that the most important merit of blended-learning system is to mix the classical face to face classes with on line classes; one of the tools that are frequently used in blended learning is using video lectures.

Predicting students' marks is a very important issue, which helps educational professionals to better manage the learning process and be able to have a good perception of the overall outcome of a course as stated by Cristobal Romero, Pedro g. Espejo, Amelia Zafra, Jose Raul Romero, Sebastian Ventura (2010) and Sotiris B. Kotsiantis & Panayiotis E. Pintelas (2005).

Many researches like Farn-Shing Chen, Chin-Wen Liao, Tsai-Hsiu Chen (2009) and Yuanjian Qin, Qing Zhang (2008) proved that there are a number of factors that affect the success of students in distance learning system.

Some studies have applied data mining approaches on the data extracted from Learning Management System (LMS), and have defined many predicting attributes, those have been used to suggest a number of predicting models as shown by Cristobal Romero, Pedro g. Espejo, Amelia Zafra, Jose Raul Romero, Sebastian Ventura (2010) .

Classification is one of the problems most frequently studied by machine learning researches. It consists of predicting the value of a categorical attribute based on the values of other attributes. We will explain in the following a brief description of the classification algorithms used in the prediction field, (by Cristobal Romero, Pedro g. Espejo, Amelia Zafra, Jose Raul Romero, Sebastian Ventura (2010)).

- Statistical classification :  
This approach is generally characterized by the existence of an explicit underlying probability model, which provides the probability of being in each class rather than simply a classification.  
Some examples are: linear discriminant analysis, least mean square quadratic, kernel methods,  $K$  nearest neighbours.
- An artificial neural network (ANN):  
It is a computational model inspired by biological neural networks. It consists of an interconnected group of artificial neurons, and processes information using a connectionist approach to computation. Different types of neural networks have been applied to engineering, medicine, agronomy, etc.

The three following algorithms are not in the scope of this paper, so we will omit the details about them.

- Decision tree.
- Rule induction.
- Fuzzy rule.

In this work we are comparing two regression tools, based on student usage data from LMS and from YouTube (where the video lectures are hosted), and give the correlation value between these data and the student final exam grade.

The rest of this article is organized as follows: Section II reviews other related studies conducted elsewhere; Section III describes the hypothesis, and briefly the practice established for the production of videos viewing data and shows the data found ; Chapter 4 uses the statistical approach to analyze the correlation between students grades and course participation on the basis of the amount of video use;Chapter5 will validate the statistical model using a neural network approach and, with the help of this, examines what the effects of the use of lecture videos on learning outcomes are, this will be the Chapter 6 contents. Finally, there are some conclusions.

## **II. Related work**

When evaluating the impact of videos, it is important to observe the effects of video use on participation in education and on learning outcomes. However, research on lecture videos, for the most part, focuses on the ways videos are used or on the activeness in their use.

The impact of videos on participation in education has been examined especially from the viewpoint of participation in face-to-face education. Less attention has been paid to participation in education with the help of videos. Also in case of participation in face-to-face education the research results are conflicting. Some of the studies have found that videoing lectures has a negative effect on participation in face-to-face education (e.g., M. Gosper, D. Green, M. McNeil, R. Phillips, G. Preston and K.Woo, (2008) and T. Traphagan, J. V. Kucsera and K. Kishi,( 2009)), but according to other studies there is hardly any effect (e.g.,S. M. Walls, J. V. Kucsera, J. D. Walker, T. W. Acee, N. K. McVaugh and D. H. Robinson, (2010)).

Neither have the learning outcomes in connection with the use of lecture videos been examined, to any great extent, in earlier studies. The results are contradictory and usually results cannot be directly projected from the topic of the investigation to other education programmes. According to the research by Gosper et al (2008), students believed that lecture recordings had helped them in obtaining better learning outcomes. Dziuban et al (2004) found that the learning outcomes in courses based on blended learning were somewhat better and cases of dropping out less frequent than in the corresponding online

courses. When compared to face-to-face education, the blended model was found to be at least as good, in some cases even better. According to a study by Dean et.al, (2001), students got better grades when online sessions were added to traditional teaching. Also according to Traphagan et al (2001), students who use video lectures a lot obtain higher grades in exams.

On the other hand von Kinsky et. al. (2009.), noticed in their research that the use of lecture recordings influenced completion of courses but had no influence on grades obtained. Wieling and Hofman (2010) noticed that the amount of participation in face-to-face education and with the help of videos positively correlated with course performance. They found out that the greater the share of participation as face-to-face education the smaller was the positive effect of participation with the help of videos. Ross and Bell (2007) investigated students who are able to participate in face-to-face education and view on-demand videos. They noticed that the more these students participate with the help of videos, the worse the grades they get. By contrast, they also investigated students who have only videos at their disposal and found out that the more they view the videos, the better the grades they obtain. Chiu et al (2006), did not find any difference in course grades between those who took advantage of videos in their participation and those who did not.

### **III. Video lectures impact**

Video lectures are considered of a high importance factor in the context of blended learning. To study the impact of this factor, we should find a measure of the correlation between the total duration of video lecturing and the final exam grade, thus an introductory course at Arab Open University was video streamed, and put available on YouTube private channel. Students were informed and directed to these videos through the Learning Management System (LMS).

At the end of the semester two sets of data were collected, the first set concerns the video viewing cumulated time, these data were extracted from both YouTube report system and LMS activity report, and the second set concerns the final exam grade in the course which weighs fifty percent of the total student grade.

The study focused only on students who passed successfully the course and viewed the videos, it gives a sample space of forty five students.

Many researches interested in video lectures impact on learner achievement use mainly surveys to gather data, and then try to build their model as done by Andrew Williams, Elisa Birch and Phil Hancock (2012). This latter study admitted that surveys are not completely safe, and clearly stated, the data delivered could hide number of misleading entities deliberately introduced, by students.

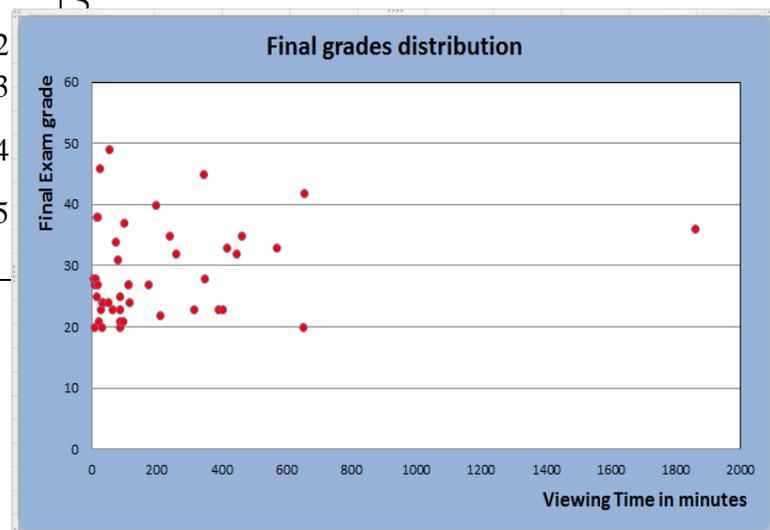
To overcome this problem, the data were indirectly gathered, taking into account that student contribution in this process was reduced to its minimal value. Students 'activities

logs on the LMS were combined with activity report from YouTube channel, where the video were hosted, an estimation of duration of video lecturing. The table I shows the distribution of final grade achieved by students relatively to the estimated time spent in the video lecturing. These are raw data; we will be using them to define both the statistical model and the neural network one.

**Table 1: distribution of students' grades relatively to video lecture viewing time**

Case	Viewing time	Final grade	Case	Viewing time	Final grade
1	4	28	24	94	21
2	6	27	25	97	37
3	8	20	26	112	27
4	10	28	27	112	27
5	12	38	28	114.5	24
6	12.5	25	29	172	27
7	17	27	30	198	40
8	17	38	31	210	22
9	20	21	32	240	35
10	23	46	33	258	32
11	26	23	34	315	23
12	30	20	35	343	45
13	30	24	36	346	28
14	32	24	37	390	23
15	50	24	38	401	23
16	52	49	39	416	33
17	62	23	40	446	32
18	73	34	41	461.5	35
19	80	31	42		
20	85	25	43		
21	86	20	44		
22	86	21	45		
23	86	23			

The data distribution displayed by the figure below, shows that there is some



**Figure 1: Scatterplot of video lecturing duration and student's final grade.**

relation between these two variables, despite of some anomalies, like the outliers on the two sides of the graph. An important aspect of modeling is to analyze data, before establishing the model and implement it. The main concern of this study is to understand and try to quantify the contribution of video lecturing to the learner outcomes.

A student who watched significantly more than nine folds the average viewing time for all the samples, and scored in the final a modest grade, could be with legitimacy considered as an outlier. Students who scored very high grade in their final, with a very limited viewing time, are also considered outliers, because their result does not reflect the impact of video lecturing. The duration of the all the videos is roughly more than eight hours, so students who watched less than one hour, could also be classified as outliers.

#### IV- Statistical Model:

Data analysing for classification and features extraction could be performed using many statistical tools, like SPSS, Matlab or even simple worksheets software. Our interest is to do a regression analysis, to find a model that gives an adequate interpretation of the distribution shown in figure 1.

Regression analysis is a technique for modelling the relationships between two (or more) variables; it aims to find the least squares estimate of the linear relation that might exist between these two variables, as stated by Jeremy Miles & Mark Shevlin (2001).

The regression line that the better fit the data distribution in the studied case is shown in the figure 2. It is modelled by the formula:

$Y = 0.052 X + 27.894$ , where Y represents the final exam grade and X is the total viewing time for each student.

The corresponding correlation is also calculated using the same Statistical tool, and is found to be **0.2110553**.

#### V- Neural Network tool:

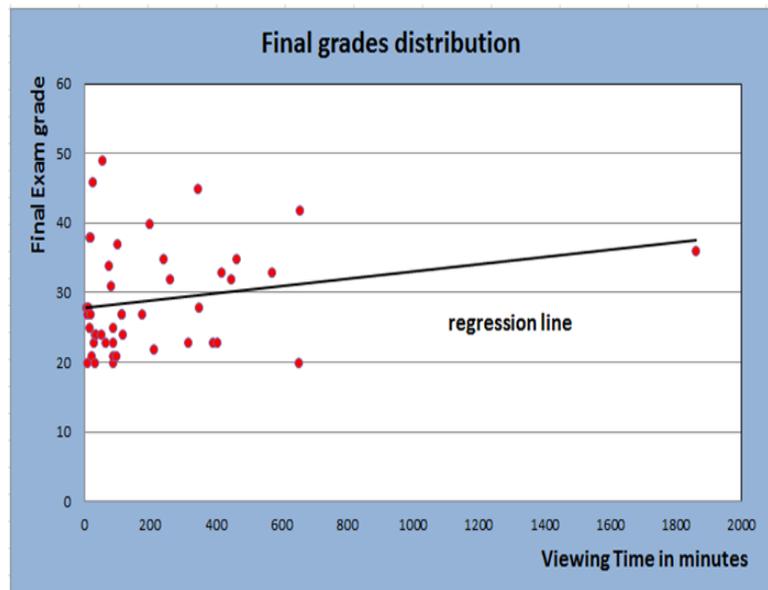


Figure 3: Regression line

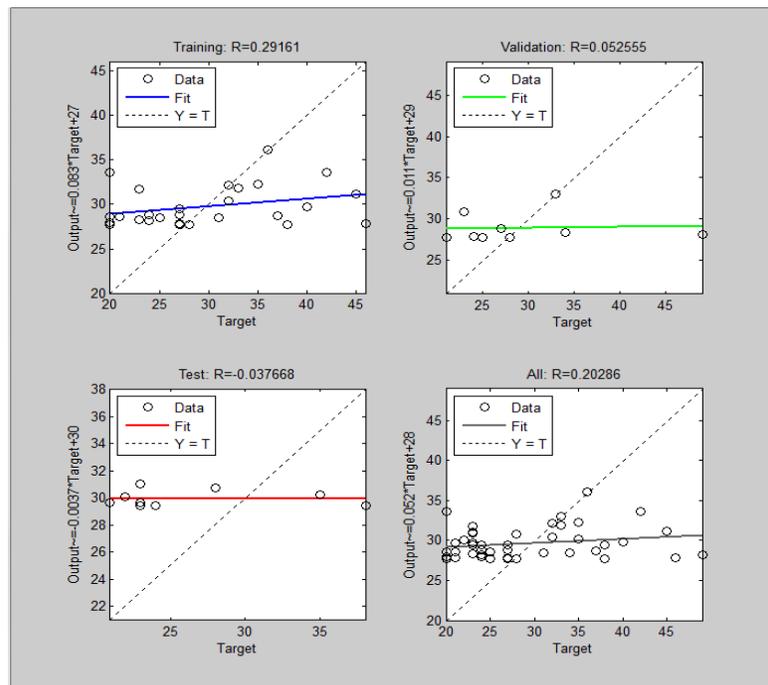


Figure 3: Neural Network GUI simulation result.

Another way to modeling relationships between different variables is by using Neural Network tools.

Matlab proposes a Neural Network toolbox, it offers a big potential to deal with Neural Network capabilities, in particular the functions that model linear relations between different variables.

The results of the simulation confirmed the hypothesis made earlier in this paper, and a linear relationship between the final grade obtained by learners and their total video lecturing duration. The figure 3, shows a snapshot of result screen of simulation using neural Network GUI, it is clearly shown that the regression model can be written as:

$Y = 0.052 X + 28$ , where Y represents the final exam grade and X is the total viewing time for each student.

## **VI- Discussion and conclusion:**

This study suggested that a regression model could really explain the relation between learners achievement in final exam relatively to time consumed in video lecturing. The model was validated using a statistical tool and a neural network based tool, in both cases the mathematical expression was identical. This is to say that video lecturing has a positive impact in the achievement of learners, in a blended context.

Meanwhile nothing confirm that the amount of time spent in viewing video lectures, could be considered as an important parameter in a student's achievement predicting system, for a number of reasons. The first of these reasons is the small value of the correlation despite that it is positive, does not reflect a strong relationship, and the second reason is due to the numerous outliers described in section III. This fact underlines strongly the need of a process of data analyzing and validation before being used in modeling.

The example presented in this study has a limited number of samples, removing the suspected outliers, would endanger considerably the model validity, and reduces the chance of building an acceptable model.

For further research it will be interesting to determine whether scaffolding our modelling by getting direct data from students in using video lecturing and estimating the impact on successful learning. Another research focus can be the investigation of the relevance of self-assessment possibilities after an e-lecture presentation. This will be the scope of another study, by proposing a video lecturing protocol combining these two concepts mentioned earlier. E-lectures offer a lot of flexible learning possibilities, but there is little research about the design and adequate usage for effective learning.

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# Using Electronic communication tools in Online Group Activities to Develop Collaborative Learning skills

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**Abstract:** The purpose of this study is to investigate the effect of using synchronous and asynchronous communication tools in online group activities to develop collaborative learning skills . An experimental study was implemented on a sample of faculty of education students in Mansoura University. The sample was divided into two groups, a group studied using synchronous communication tools, and the other group studied using asynchronous communication tools. The findings highlighted the fact that electronic communication tools have an effect to develop collaborative skills. However, the researchers concluded that the asynchronous communication tools are more useful than synchronous communication tools for developing collaborative learning skills in online group activities. The implications of the findings offer support for using asynchronous communication tools in online group activities to develop collaborative skills.

**Keywords:** Electronic communication tools, online group activities, collaborative learning

## Introduction

Though each student is assessed individually, group activities in the classroom support the success of the individual as well as the group. More often students' success relies on collaborative learning when sharing ideas in online discussions and simulations (Mandernach, 2010). From an online class perspective designing methods for social interaction and collaboration provides their basic foundation. The key to a successful online class is to evaluate and to select the types of communication tools that fit the instructor's pedagogy, the needs of the learner, and the objectives of the course. Electronic communication tools have the potential to be used for communication purposes and to provide instructional resources in educational environments (Farmer, Yue and Brooks, 2008; Tekinarslan, 2008). It is claimed that the access and use of these tools is a useful practice for the development of higher order thinking skills, learner centered pedagogy, active and authentic learning, associative thinking, and for supporting online learning communities (O'Donnell,

2006; Farmer, Yue and Brooks, 2008). Electronic communication tools have considerable promise for supporting collaborative learning. When designing course activities, categorizing Electronic communication tools in separate categories by asynchronous (e.g. anytime communication) and synchronous (e.g. live communication) will help to identify the composition of the activity. Asynchronous communication and collaboration tools include e.g. E-mails, discussion forums, Wikis, Blogs, , while synchronous tools include e.g. chats, videoconferencing or Etherpad (Schaffert & Ebner, 2010). These tools are relatively easy to use and help build a sense of community in the online classroom. Porter (2004) indicated that both types of communication tools are providing group learners with different preferences, and allow the flexibility of matching the students preferred learning style.

Wang (2008) pointed out that using synchronous communication tools in online group activities offer real-time collaboration, immediate response and feedback, useful for 1 to 1 communication, and allow limited body language and tone of voice. In contrast Ellis, & Romano. (2008) suggested the effectiveness of asynchronous communication tools as they are available anytime and anyplace, can incorporated by a variety of different information systems, documentate the whole collaboration process and can be used for one to one communication as well as one to many communication. However, there is a lack on studies who suggested which type of communication tools is effective in online group activities to develop collaborative skills. Therefore our research work will exactly address this issue. As a consequence an experimental study on the faculty of education was implemented to investigate the effect of using synchronous, and asynchronous collaboration tools in online group activities to develop collaborative learning skills.

## **Theoretical Background**

Distance learning is a pedagogy implemented remotely and therefore benefits students who may not be able to study in the traditional way (Gulati, 2008). It offers learners the opportunity to study flexibly and it provides an opportunity to enroll on courses not available in their country (Westbrook,2012). Distance learning can be a lonely experience for students who may feel isolated and unsupported. However it is possible to use technology to motivate students to interact with each other or their tutors and work together towards common goals. It provides distance learners specifically with a sense of learning collaboratively within a community rather than on their own and therefore enables them to learn more effectively (Jeffries, 2006).

## **Collaborative learning**

Collaborative learning is defined as a pedagogy in which people come together in groups and learn from each other through cooperation (Westbrook,2012). Each student takes responsibility for the learning of other students in their group as well as their own and they help each other to be successful (Gokhale, 1995). In online collaborative learning, two or more learners are working together in a learning environment. Anuratha (2009) has defined collaborative learning as the interdependence of the individuals as they share ideas and reach a conclusion or product. Collaboration among learners is seen as an important crux to learning where participants interact with each other and exchange ideas and share information with each other. Collaborative learning views knowledge as a social construct that

stimulates active social interaction that could stimulate learning as learners work together independently and bring together their results into the final output.

Generally, learners will perform activities like asking questions, providing explanation and navigating the interaction that triggers learning. This will eventually generate both cognitive learning outcomes and social competency. Finally, collaborative learning found its way in the virtual world and created a new field in educational scenario that merges the notion of group-based learning and the potential of communication technology. Collaborative learning correlates to positive affective outcomes (e.g. Slavin, 1995; Springer, Stanne, & Donovan, 1999) such as higher motivation, higher self-esteem, more favorable attitude towards learning, and increased persistence. To be collaborative, learning groups must be carefully structured to include the five basic elements identified by Johnson, Johnson, & Smith (1998): (1) positive interdependence to ensure that students believe they “sink or swim together,” (2) promotive interaction to ensure that students help and assist each other, (3) individual accountability to ensure that everyone does their fair share of the work, (4) social skills to work effectively with others, and (5) group processing to reflect on and improve the quality of group work.

Studies confirm that learners need to be trained to work collaboratively for their future careers (Assiter, 1995; McGrath, 2000). In addition, collaboration is the key to a successful online learning. It develops a strong sense of community among learners. Collaboration is linked to learners' greater satisfaction with their academic program and to reduced feelings of isolation (Rovai, 2002). According to Matthews & Part (2003) in order to promote collaborative learning in distance programs, instructors have to structure online group activities to encourage the kind of student interactions and active learning that foster deep learning. Online group activities should be planned and executed much like face-to-face activities – probably even more so for the asynchronous online classroom.

### **Online group activities**

*Group activities provide several important benefits in online teaching and learning environment as follows: (Kadriye O.Lewis ,Ed.D (2006) :*

- Help participants discuss concepts that promote deeper understanding of the material.
- Engage participants in the learning process and increase participation.
- Allow participants to tackle more complex problems.
- Give each participant experience in handling interpersonal professional relations, which is critical in "real- world" settings.
- Provide or improve practice evaluation skills as working professionals.
- Help create a sense of learning community, which is important for online students.
- Allow group members to assess other members of the team as well as self-evaluation.
- Assist participants to develop skills in independent judgments and encourage sense of involvement and responsibility on the part of students
- Provide data that might be used in assigning individuals grades for team assignments.

- Improve learning and produce higher quality results.
- Reduce instructors workload involved in assessing and grading.

## **Electronic Communication tools**

Electronic communication tools pervade our life and change our way of working with the Internet (O'Reilly, 2005). According to (Achterman, 2006; Godwin-Jones, 2003; Ray, 2006; Weshah, 2012), Web 2.0 tools have the potential to be used by communication means, and instructional resources in educational environments (Farmer, Yue and Brooks, 2008; Tekinarslan, 2008). It is claimed that the access and use of these tools is a useful practice for the development of higher order thinking skills, learner centered pedagogy, active and authentic learning, associative thinking, and interactive learning communities (O'Donnell, 2006; Farmer, Yue and Brooks, 2008). With electronic communication tools, there are some things changing. Users are creating their content and learn in other forms than traditional planned courses (Ebner, 2008). Moreover, communication tools have considerable promise for supporting collaborative learning.

### *Synchronous and asynchronous communication tools*

Asynchronous communication take place outside of real time. For example, a learner sends an instructor an e-mail message and instructor later reads and responds to the message. There is a time lag between the time the learner sends the message and instructor replies, even if the lag time is short. Asynchronous communication take place whenever learners have the time to complete them. For example, viewing videos linked to the course site, reading a textbook, and writing a paper are all asynchronous activities. In contrast, synchronous, or real-time, communication takes place like a conversation. If learners uses only writing-based tools to communicate, the synchronous communication is a chat session. Everyone gets online in the same chat room and types questions, comments, and responses in real time. Synchronous activities may include chat sessions, whiteboard drawings, and other group interactive work.

Ellis & Romano (2008) suggested that synchronous tools enable real-time communication and collaboration in a "same time-different place" mode. They reported that these tools allow people to connect at a single point in time, at the same time. Schwier & Balbar (2002) pointed out that synchronous tools possess the advantage of being able to engage people instantly and at the same point in time. On the other hand Ellis & Romano (2008) suggested that asynchronous tools enable communication and collaboration over a period of time through a "different time-different place" mode. These tools allow people to connect together at each person's own convenience and own schedule.

Asynchronous communication and collaboration tools include e.g. E-mails, discussion forums, Wikis, Blogs, these tools offer the opportunity for a single conversation to occur over days, weeks or even an entire term. Where as, synchronous tools include e.g. chats, videoconferencing or Etherpad .These tools have become inexpensive to the point of nearly free to those with access to the required hardware (computer or mobile device with speakers, microphone and an optional video camera. Internet telephone offerings, such as Skype and Google Voice, offer free calls between different accounts. Both also offer chat features that allow attendees to communicate without the microphone to have a (written) voice in the conversation.

Both types of communication have their disadvantages. Disadvantages of synchronous communication include: getting students online at the same time, difficulty in moderating large-scale conversations, lack of reflection time for students, and intimidation of poor typists. Educators also cited the limitations of asynchronous communication: lack of immediate feedback, length of time necessary for discussion to mature, and students feeling a sense of social disconnection. On the other hand, disadvantages of asynchronous communication include: No real time discussions, live collaboration, Immediate feedback, or real time activities to increase motivation & engagement.

However, there is a lack on studies who suggested which type of communication tools is effective in online group activities to develop collaborative skills. Therefore our research will focus on this point. As a consequence an experimental study on the faculty of education students in Mansoura University was implemented to address the following research question:

What is the difference between the effect of using synchronous and asynchronous communication tools in online group activities to develop collaborative learning skills?

## **Research Methodology**

In this section descriptions of the research design, the participants of the study, the learning environment and data collection as well as analysis is provided.

**Research design:** As DiPetta (1998) mentioned, “Experiences in virtual environments are like snowflakes—no two are alike” (p. 62). In this regard, the research purpose is to describe the effect of using synchronous and asynchronous communication tools in online group activities to develop collaborative skills. Thus, the design of two experimental groups was used, a group used synchronous communication tool, and another group used asynchronous communication tool.

**Participants:** Participants belonged to one of two groups of learners. The learners had enrolled in a Instructional Design course in an instructional-technology professional diploma department at Mansoura University in Egypt. The courses was available on Moodle .Students were selected according to the purposive-sampling method. Group 1 consisted of 18 learners who were using synchronous communication tool (video call) in their online group activitis of the course, and Group 2 consisted of 16 learners who were using asynchronous communication tool (wiki) in their online group activities of the course. The learners of two groups were of similar backgrounds, skills, capabilities , all of them were of the same age , and had acquired little or no multimedia authoring knowledge before taking this class.

**Learning Environment:** In this study, synchronous communication tool (Skype) functioned as a supplemental tool for the first experimental group, it was the onliest tool that enables real-time and two-way oral and video communication among multiple participants. Participants in the chat room could communicate via text and oral conversation. Ten participants were already using skype so we instructed the rest of the participants to register a skype account. We did not adopt the chat tool that is available on Moodle because it does not offer oral or video communication function.

The group chat sessions constituted a forum where learners could discuss online group activities, and could respond to one another's questions. The other group supplemented with an asynchronous communication tool (wiki). It was the onliest tool available for participants to discuss their online group activities, and communicate with each other. We instructed all participants of the second group to register a wikipedia account because none of them had an account there. At each group's first session, the instructors would introduce learners to the concept of Instructional Design and would explain the process by which the learners would complete the required instructional design projects. Learners started the course by identifying the stages of designing any learning objects which are (Analysis , Design, Development, Implement, and Evaluation ). They needed to learn the steps of each stage, how to implement each steps for example: how to design a storyboard , how to design user interface, and how to evaluate the learning objects they implemented. Then, we uploaded the streaming video to Moodle so that the two groups of learners could observe the demonstration repeatedly at their own pace to facilitate learning hands-on skills in online group activities . Each group of learners received the same instruction as did the other group. The only difference was that one group participated in online group activities using synchronoys tool (skype) and the other online group participated in online group activities using asynchronos communication tool (wiki). In both synchronous group and asynchronous group, each group was assigned to collaborate with each other to design a learning object . The learners of each group used the communication tool that was available to collaborate and monitor each other's learning progress and could provide each other with suggestions . Learners were required to interact with their design objects at least once a week by providing feedback and suggestions to their projects, including needs analysis, topic selection, flowchart, interface design, and pilot programs. The abovementioned activities were mediated through Moodle. As the present study reflects our effort to develop collaborative learning skills. A checklist of collaborative learning skills was used for this purpose (Appendix A). It was designed by Nuankhieo (2010). The checklist consists of 44 items. It was applied on the learners of the two groups after using the communication tools (synchronous and asynchronous) at the end of the course. We expected that the two groups of learners would demonstrate similar developing of collaborative learning skills.

**Data Collection and Analysis:** The checklist of collaborative learning skills scale, is the instrument that helps assess both groups of learners' development of collaborative learning. The checklist contains 44 statements, and was applied on participants of the two groups, after using the communication tools (synchronous and asynchronous) to do their online group activities at the end of the course. The items ranking was from 1 to 7. (1) for strongly disagree and (7) for strongly agree. The total score ranged from 0 to 308. We conducted an independent-sample t-test to determine whether or not a significant difference between collaborative learning skills of the two groups.

## **Results**

In this section our research question will be answered: **What is the difference between the effect of using synchronous and asynchronous communication tools in online group activities to develop collaborative learning skills?**

After The checklist of collaborative learning skills that contains 44 statements was applied on participants of the two groups (synchronous and asynchronous) , we

conducted an independent sample t-test to compare the degrees of collaborative learning skills of the first group that used asynchronous communication tools with the degrees of collaborative learning skills of the second group that used synchronous communications tools. Table 1 summarizes general descriptive statistics .The data in Table 1 indicate a significant difference between the first group that used asynchronous communication tools and second group that used synchronous communication tools score. The group that use synchronous communication tools and the group that use asynchronous communication tool score  $t = 3.166$ . A significant difference was found between asynchronous group grades and synchronous grades for the group that used asynchronous communication tools. The results suggest that developing collaborative learning skills was better in the group that used asynchronous communication tools than the group that used synchronous communication tools in online group activities .

Table 1: Descriptive statistics for the independent samples t-test analysis

	Mean	N	Std. Deviation	df	T	sig
Group (1) Asynchronous group	2.2178	18	43.51816	32	3.166	.004
Group (2) Synchronous group	2.6069	16	25.90680			

## Discussion

The primary aim of this study was to investigate the difference between the effect of using synchronous and asynchronous communication tools in online group activities to develop collaborative learning skills. The literature-review section suggests that, using electronic communication tools (synchronous and asynchronous) develop collaborative learning skills. However, there is a lack of studies that suggested which type of communication tools is effective in online group activities to develop collaborative skills. Therefore our research work addressed this point . This study's collection and analysis of the data yield answers the research question. "What is the difference between the effect of using synchronous and asynchronous communication tools in online group activities to develop collaborative learning skills?" The independent samples t-test in table 1 indicates that using electronic communication tools develop collaborative skills . However, asynchronous communication tools had a stronger effect on developing collaborative learning skills than synchronous communication tool. The use of asynchronous communication tool (wiki) in online group activities did not develop collaborative learning skills similar to that of synchronous communication tool (skype). Using synchronous communication tool (skype) enabled the learners to accomplish tasks and participate in online group activities almost immediately: for example, to ask questions, to articulate problems, to receive feedback, and to receive instructions. This immediacy gave learners the impression, also, that they were attending a class similar to a regular class. In a domain focusing on procedural knowledge, learners benefit ,in general, from constant practice and from quick and accurate feedback, whether from the instructor or peers. However, during the first few sessions of the course when learners participated in their online group activities to discuss with each other the importance of multimedia-

program production, the instructional design process, and evaluation of one another production of learning objects, there was a big chaos during their chatting with each other although not all students could participate in the same time. Moreover there is less time to think about what they want to say or their response to another, time may be a limiting factor. In addition, communication was so difficult because of the speed of data transaction with slower connections.

On the other hand, using asynchronous communication tool (wiki) in their online group activity was more appropriate to develop their collaborative learning skills. Participants could work with each other in more organized way. Participants of the group activities could add, modify and post. They could see and make changes to the document of the activity in real-time in a web browser, and they had the ability to comment either on the document as a whole or on specific passages. Discussions and comments could be marked “resolved” to indicate group consensus. Asynchronous tool (wiki) possessed the advantage of being able to involve people from multiple time zones. In contrast of synchronous tool (skype), more time was allowed for responses which often-times results in enriched critical thinking and quality responses. Content can be accessed at any time within the context that comfortably suits them. In addition, asynchronous communication was helpful in capturing the history of the interactions of a group, allowing for collective knowledge to be more easily shared and distributed. In Conclusion, asynchronous tool was ideal for most collaborative writing and editing group activities ( Machielse,2011). It promoted group work, peer editing skills and multiple revisions.

## **Conclusion**

Because collaborative learning skills is seen as an important crux to learning where participants interact, exchange ideas and share information with each other, it is important to develop these skills. Using communication tools is a useful practice for the development of higher order thinking skills, learner centered pedagogy, active and authentic learning, associative thinking, and collaborative learning skills. As result, two types of electronic communication tools (synchronous and asynchronous) were used in this study to facilitate communication among students and develop collaborative learning skills. This study found out the using asynchronous communication tools are more appropriate to develop collaborative learning skills than synchronous communication tools. Asynchronous communication tools were ideal for participants to work and cooperate with each other. Finally, the study support using asynchronous communication tools in online group activities to develop collaborative skills .

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## Appendix A

### Collaborative learning Skills checklist

**Instruction:** In this survey, you will find a number of statements asking you about your learning experience during online group activity. Read each statement and indicate how you think or feel about the group activity. There are no right or wrong answers. Please give the answer that best describes how you think or feel. Your answers are completely confidential. It should take approximately 10-15 minutes to complete this survey.

#### 1. Please check the tool your team use to communicate and interacted during the group project.

- Video call (Skype)
- Wiki

**To what extent do you agree with the following statements:**

1	2	3	4	5	6	7
Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree

No	Statment	1	2	3	4	5	6	7
	I felt connected to my group members in this group activity.							
	My interactions with my group members were sociable and friendly.							
	My online interactions with my group members seemed personal.							
	In my interactions with my group members I was able to be myself and showed what kind of teammate I really was.							
	I felt like I was a member of a group in the group activity.							
	I felt comfortable expressing my feelings to my group members.							
	I help others to find compromises between different point of view.							
	I introduce new ideas to groups in which I work.							
	When I logged on I was usually interested in seeing what my group members were doing or had done.							
	I build on the ideas of others.							
	I suggest new ways of looking at problems.							
	I suggest new ways of doing things.							
	I trusted my group members in this group activity to help me if I needed.							
	I support and praise other team members.							
	The actions of my group members in the group							

activity were easily visible in our online system.							
I elaborate on what others have said.							
I am willing to compromise my own view to obtain a group consensus.							
When I saw that my group members were confused I offered help							
I use humour to remove stresses in groups in which I work.							
I clarify other peoples contributions.							
I try hard to keep up the group's energy level.							
I try to keep relations between group members harmonious.							
I ask others to take responsibility for particular tasks.							
I usually lead and co-ordinate the team effort.							
I listen carefully to what the other team members have to say and try to get quiet group members to contribute.							
My interactions with the instructor were sociable and friendly.							
I felt comfortable expressing my feelings to the instructor.							
My online interactions with the instructor seemed personal ly.							
The actions of the instructor in the group activity were easily visible in our online system.							
In my interactions with the instructor I was able to be myself and showed what kind of student I really was.							
I trusted the instructor in the group activity to help me if I needed it.							
When I logged on I was usually interested in seeing what the instructor was doing or had done.							
I felt connected to the instructor during the group activity.							
Knowing what my group members in the group activity had done helped me to know what to do.							
Knowing that my group members in the group activity were aware of my work usually influenced how hard I worked and the quality of my work.							
The actions of my group members in the group activity influenced the quality of my work (such as trying to write better messages or working more carefully).							
Interacting with the instructor helped me accomplish group assignments with higher quality than if I were working alone.							
Interacting with my group members helped me accomplish assignments with higher quality than if I							

	were working alone.							
	I don't feel responsible for the results of our group discussion.							
	The conclusions of our group discussion reflected my input .							
	I feel committed to our group discussion							
	I feel confident that conclusions of our group discussion were reasonable.							
	I don't feel personally responsible for the quality of our group discussion.							
	Our group discussion was efficient.							

# **Compilation of REAL LIFE case-lets on the usage of Social network in Business Management teaching in the Sultanate of Oman**

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## **ABSTRACT**

Technological revolution has taken the world by storm. All the spheres of human life are impacted by the presence of technology and it has become the major source of all round metamorphosis being witnessed globally. The biggest revolution to have happened in the last two and a half decades has been the digital changes courtesy internet and allied technologies. Social networking through social media platforms have squeezed the geographical constraints of the yesteryears and tools like Face-book, Twitter, My space, blogs, Wikis hitherto having mostly peripheral roles are taking center stage in the new era. Education is one such domain which has realized the latent abilities of these tools to usher in new horizons in the teaching-learning area. The proposed paper intends to present the personal experiences of the authors in using their own social media tools in the education of pupils, society and professionals with a multiplier effect. The author's experiences in dealing with face-book, twitter, blogs, wikis, apart from in-house e-learning platforms like MOODLE are being presented in the form of small case-lets thereby providing a bird's eye view of the same.

## **Keywords**

Social Media, Teaching and Learning, Society

## **INTRODUCTION**

Technological revolution has redefined literally everything and higher education is no exception. The biggest discovery of the last century has to be the internet especially when it has transformed human life from what it was in the days before its existence. Tertiary education or higher education is also being impacted with all these developments happening all around the globe.

## **LITERATURE REVIEW**

Web 2.0 happens to be the new wave of innovation in teaching and learning as it leverages a whole range of applications in devising novel tools for teaching and learning, thereby making it user-friendly and also widening the scope and reach (Alexander, 2006). The need for internet in general and social media in particular has started to move northwards, albeit gradually owing to a whole range of issues starting from internet penetration along with the bandwidth (speed) to the ability to blend it as a tool for learning and teaching commensurate with the stakeholders needs. Faculties in higher education are using social media not only in their personal lives, but have also extended its usage to the professional world. Face-book and You-tube are the mostly used social media tools by faculties apart from their routine use in the personal spheres. Studies cited that nearly two-thirds of all faculties have used social media in the classroom and 30% have posted contents for students to view and read outside the classroom. Over 40% of the faculties have asked students to read or view social media as part of a course assignment, and 20% have assigned students to comment or post on social media sites. All these were reported in a study which points towards the growing importance of social media in teaching and learning (Moran, Mike; Seaman, Jeff; Tinti-Kane, Hester, 2011). The emergence of Web 2.0 tools including social media and other in house e-learning tools makes it mandatory for the applicator and user to diffuse technology in the right form and manifestations. Everett M. Rogers in the year 1962 presented a model on how innovations are diffused and are adopted by the members of a specific social system over a period of time. He considered innovation, communication, time and social system as the four elements of the social system which also holds true even for the application of social media in the teaching and learning domain (Yang, Yuen, 2009).

## **CASELETS**

The case-lets below are presented in the form of snapshots pertaining to the usage of various tools of social media in the teaching and learning domain both in general and in particular to their personal experiences of the authors at Ibra College of Technology.

### **(1) E-Learning tools**

The most common e-learning tools used in the Ibra College of Technology are MOODLE. The authors who have been part of the sojourn in the Business Studies used the tool mostly as a passive teaching-learning tool with some intermittent active usages. The passive usage refers to the uploading of reading materials, hand-outs, presentations, model question papers, model assignments, delivery plan to name a few. The students mostly in different levels starting from the Foundation, Certificate, Diploma, Advanced Diploma and Bachelors level are using the tool more for passive usage outside the class hours rather than for active reasons by blending it with the routine day to day delivery and submissions. The rare instances of active usage of MOODLE were observed when some course tutors used it for conducting quizzes and submission of assignments on a real time basis. It is also observed that the usage of MOODLE as a teaching-learning tool is more as one move higher up the level from foundation to bachelors. The MOODLE is embedded as an LMS in the college website. The tool has a wide range of usage right from sharing of information to assessments, monitoring of performances, analysis etc.

## (2) Face-book

It is one of the most common tools in the world of social media for both the teachers and the learner. Most of the stakeholder involved in the teaching-learning process is aware about the usage, benefits and disadvantages of this tool. Although active usage of the same is yet to gain momentum mainly due to the regulatory issues and developing a social media tool oriented teaching-learning culture, some faculties have started to leverage the same in their own way not only with the objective of educating the students of the institution but as a community teaching-learning tool. One of the authors of this paper has two pages in Face book which is being used as community centered teaching tool and institution focused one respectively. The URL's are as follows-

- (a) <https://www.facebook.com/pages/manishankarthetrainerblogspotcom/200629686674250?ref=hl> (Face book page for community learning)
- (b) <https://www.facebook.com/DrManisPageForHisLearnerAndTrainees?ref=hl> (Face book page for institution focused learning)

The community learning platform is comparatively more developed than the one meant for institution as the former is old, is in use for a longer period of time, more active used, being marked actively owing to the independence of the teacher being his own personal hobby and pastime outside the professional working hours. The other reasons for the second one to catch up are the absence of a concerted effort and culture whereby leveraging social media can be a routine tool, rather than being a first timer. It is worth mentioning that the author gathered the experience of using Face-book as learning and teaching tool purely through personal interests, apart from his community work through

Knowledge Oman, where he is one of the social media contributors for their Face book page and micro blog.

### (3) BLOG

Blogs are very strong means of reaching out to a wider section of the audience especially at the national, regional or even the global level. Blogs are even a part of the MOODLE however; their usage is almost negligent owing to wide range of issues. One of the author manages two of his personal blogs which is used as a tool for learning and teaching, apart from knowledge dissemination and symbiotic learning, the underlying reason for their existence. The blogs are-

- (a) [www.manishankarthetrainer.blogspot.com](http://www.manishankarthetrainer.blogspot.com)
- (b) [www.manishankarscribbles.wordpress.com](http://www.manishankarscribbles.wordpress.com)

Both the blogs are managed and controlled by one of the authors of this paper and they are meant for sharing his literary works, accomplishments, general announcements pertaining to different teaching-learning related stakeholders. The author started the first blog in the year 2007 with an objective to share learning pertaining to business and management, but later on realized the need for another which can position as a platform to circulate cross functional learning cutting across domains and interests as management as a subject ought to bring different perspectives from diverse set of subjects. The aggressive marketing of these blogs ensured a good readership along with some subscribers culminating in active knowledge sharing. Active converging of the presence of the blogs through a common interface ensured their presence in Face book, twitter, linkedin, and other social media related tools for teaching and learning.

### (4) MICRO-BLOG/TWITTER

One of the authors is having an active presence in the micro-blog or twitter and uses it as a global teaching-learning tool, apart from a knowledge sharing platform. Although there is no specific usage pertaining to the institution, however, it has it users spread all across the world, given the power of this medium. The blogger has managed to gather 390 followers with active participation from many of them. The micro blog apart from serving as an extended tool for distributing the contents in Face book, Linkedin and Blogs also presents some individual independent contents pertaining to business and management learning and some allied areas. The major challenge of a micro-blog as compared to a blog is the word limit of 140 words, so one needs to be crisp and clear while presenting the content.

The twitter details are as follows-

(a) <https://twitter.com/manitwitts>

(5) YOUTUBE

You-tube is one of the most potent tools in learning and teaching. The audio-visual effect has a better impact on the retention of knowledge on the part of the learner. Moreover, it makes the teaching-learning process a lot more interesting, easier and user-friendly. Apart from using the same as a means to reinforce management learning through videos of movies and documentary, one of the authors recorded certain topics in a customized manner so as to reach out to his audience in a better manner.

The details are as follows-

(a) <http://www.youtube.com/watch?v=5OeSk90yDlk&feature=youtu.be>

(b) <http://www.youtube.com/watch?v=OObF-JRAQ1E>

(c) [http://www.youtube.com/watch?v=EpWgx6y\\_kgs](http://www.youtube.com/watch?v=EpWgx6y_kgs)

(6) LINKEDIN

The professional networking platform is an ideal platform for teaching and learning. Apart from developing a professional network between the professionals, practitioners, and students, the platform also happens to be a ideal place for discussing about new developments in different fields. Most importantly, it can act as the ideal bridge to close the yawning gap between existing between the industry and the academia. The presence of different groups and ability to follow the renowned experts in ones chosen field acts as the perfect topping.

The details are as follows-

(a) <http://om.linkedin.com/in/manishankarthetrainer>

(7) SLIDESHARE

Slide-share provides a platform to exchange knowledge with the help of power point presentations. Teaching-learning is enhanced as the platform provides the learner to source for various power point presentations of the teacher, as well upload the assignments of the learner in the form of power points for the evaluator to evaluate. Knowledge dissemination is faster and quicker through this mode. The authors use this tool and the details are presented in the link below-

- (a) <http://www.slideshare.net/search/slideshow?searchfrom=header&q=dr+manishankar+chakraborty>

## **CONCLUSION**

The role of social media in teaching and learning has definitely put the onus on all the stakeholders to take the necessary initiative so as to cultivate a culture where it can be used by one and all. Initial resistance as is evident while incorporating a new mechanism by bringing out the teacher-learner duo should be considered as routine and can very easily be overcome if the benefits are clearly experienced by the users. Simplifying and making the learning process more interesting should be the sole objective, for which social media play a vital role across disciplines of teaching and learning. The time is ripe for all to join in chorus for leveraging this excellent tool in the larger interest of the human kind.

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- (7) <https://www.facebook.com/pages/manishankarthetrainerblogspotcom/200629686674250?ref=hl> and <https://www.facebook.com/DrManisPageForHisLearnerAndTrainees?ref=hl> accessed on 29<sup>th</sup> September 2013

- (8) <http://www.slideshare.net/search/slideshow?searchfrom=header&q=dr+manishankar+chakraborty> accessed on 29<sup>th</sup> September 2013
- (9) <http://om.linkedin.com/in/manishankarthetrainer> accessed on 29<sup>th</sup> September 2013
- (10) <http://www.youtube.com/watch?v=5OeSk90yDlk&feature=youtu.be> accessed on 29<sup>th</sup> September 2013
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- (12) [http://www.youtube.com/watch?v=EpWgx6y\\_kgs](http://www.youtube.com/watch?v=EpWgx6y_kgs) accessed on 29<sup>th</sup> September 2013

# Issues and Challenges within the Open learning Environment

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## *Abstract*

To fulfill a graduation requirement, all students in the faculty of computer studies are requested to pass the final year project course. Learning about how projects develop and being able to explain why the project has developed in the way it has are key skills that are central to this course and its learning outcomes.

The emphasis in the Senior Project Course is on becoming a reflective practitioner. That is, someone who is technically proficient but who is also able to step back from the details to think about how their project is progressing, what they have learned, and how their knowledge and skills might be further improved. This course is a chance for the student to demonstrate his/her individual abilities by putting into practice the theory that has been learned by applying and extending the knowledge gained in relevant third level courses, emphasising process rather than product, emphasising reflection and communication skills rather than technical skills and emphasising the importance of evidence based practice with keeping logs throughout process. However, there are a number of obstacles that might prevent from achieving the intended learning outcomes for the course.

This paper will highlight the main challenges encountered in achieving the learning intended outcomes of the project in the Open Learning Environment. Then, it will propose a set of recommendations that will assist the students to achieve the main objectives of the project. Finally, the paper will conclude by revealing the importance of the project in encouraging and creating a research platform through which the project will be considered as basic milestones that we can build upon and give a chance to extend the excellent project topics to be research subject areas for the faculties as well as to introduce the academic research culture to the community through involving the students and the industry in this process.

*Project management, cross-branch evaluation, multi- disciplinary projects*

## **Introduction**

Senior project is a graduation requirement that gives graduate students an opportunity to demonstrate the knowledge and the maturity they have achieved during their study. Students are expected to define the project, state its objectives, complete a literature survey, set project specifications and select a design method.

The main objectives of the course include allowing students to demonstrate a wide range of the skills learned during the course of study, encouraging multidisciplinary research the integration of material learned in a number of courses, allowing students to develop problem solving analysis synthesis and evaluation skills, encouraging teamwork, making students aware of the significance of project constraint with teaching them how to apply them to real-world problems and improving students' communication skills.

On successful completion of this course, students will be able to undertake practical projects to solve problems in the area of computing and IT, form effective teams, delegate tasks empower, motivate team members, perform literature search on a selected topic of interest, produce project plans for successful undertaking of practical projects, write a detailed project report with communicating their ideas clearly and present their ideas and work before an audience.

### **Senior projects at AOU**

The faculty of computer studies at AOU had started offering senior project as course T471 on fall 2005. There were few topic subject ideas focusing on implementing some database applications for a set of services offered to the user. There were three components to the assessment of the project: four compulsory tutor-marked assignment (TMAs), project report, project implementation and presentation. The initial mark distribution for the assessment components for the course was as follows:

Table 1: Initial assessment grade distribution

<b>No.</b>	<b>Assessment type</b>	<b>Grade percentage</b>
1	TMA01	10%
2	TMA02	10%
3	TMA03	10%
4	TMA04	10%
5	Project report	10%
6	Implementation	25%
7	presentation	25%
	Total	100%

The duration for the project was one complete academic year through which there were regular meetings between the students and their supervisors. In these meetings, students demonstrated to the supervisor their progression in doing the project. At the end of the project period, the students were doing presentations that reveal their work including a live demo in front of their supervisor.

### **Improvements on senior project offerings at AOU**

The senior project was under full monitoring through its offering period. Feedbacks from tutors as well as from students were collected at the end of the semester. The assessment process has been revised thoroughly with the external examiner staff. Taking this into consideration, there

was a set of improvements that has been imposed on the project offering. The adjustments were implemented gradually one at a time with the course offerings in order to study its impact on student's performance. The adjusted assessment components are as follows:

Table 2: Updated assessment grade distribution

No.	Assessment type	nature	Grade percentage
1	Draft project proposal	Team work	0 %
2	TMA01	Team work	10%
3	TMA02	Team work	10%
4	Project report	Team work	20%
5	Implementation	Individual contribution	30%
6	presentation	Individual contribution	30%
	Total		100%

A main improvement was in the process of the project topic selection. The student was asked to present one page draft project proposal stating briefly the problem he is intending to tackle accompanied with the proposed solution at the beginning of the first semester. The tutor needs to approve the project proposal before the student can carry further in the project.

Other improvement was on conducting of the presentation and implementation in front of an academic committee which is composed of three faculties including the supervisor.

Another improvement was modifying the tutor marked assignments (TMAs) by including alternative questions that enable students who are taking non-DATABASE projects to have valid answers as well as including questions whose answers reflect the individual contribution of the students in doing the projects. This is very important in order to achieve fairness among the students.

### **Challenges of senior Projects in Open Learning Environment**

In spite of the many improvements that have been introduced gradually to the delivery of the final year project in AOU, however, there is still a set of obstacles that prevent from achieving the attended learning outcomes of the project. This is due to the Open Learning Environment in AOU that impose some restrictions on the final year project as well as other effecting factors.

One of the consequences of the Open Learning Environment is the reduction of the meeting contacts between the supervisor and the students. This could have a bad impact on some weak students who need more support from the supervisor.

Moreover, offering the senior project in such an Open Learning Environment with 12 different branches and sub-branches could lead to improper control on the quality of the projects as well as on the accuracy and fairness of the assessment's evaluation. Although, there is a clear set of

marking templates that include specified set of criterion for assessment evaluation, however, having 1500 students taking the projects in different branches every year under supervision of many academic committees including full time and part time tutors might have bad impact on the delivery of the course.

As an Open learning Environment, there is a lack of hardware labs like communication, electronics and other hardware in AOU. This has a very large impact on the project topics that students can select for their projects. This factor had restricted the scope of the project topics that was available to the students due to the lack of technical support available in the university. This has led to have majority of the projects to be within the area of software and *DATABASE* projects. This is considered to be as a major drawback in achieving one of the important learning outcomes of the project which is to allow the students to demonstrate a wide range of the skills learned during their course of study in AOU including software, hardware and network.

Another impact of Open Learning Environment is the increased risk of plagiarism for the projects that could take place among the different branches.

One major challenge for the senior projects at AOU is to overcome the missing link between the projects performed at AOU and the industry.

Another main obstacle facing the students in achieving good quality projects is the lack of English proficiency especially in writing reports. This has played a major role in preventing the students from writing professional reports demonstrating their findings, summarizing their main technical work with showing the results assessments and deductions.

Lack of project management knowledge for many students was an additional challenge that students of senior project course at AOU had to face and overcome. A number of students were not having the ability and skill to plan and organize their project work appropriately and keep systematic records of plans, progress and outcomes. As a consequence of this, some students were facing problems with completing their work and meeting the deadline for submitting a running system.

### **Data analysis for the project in AOU**

Based on collected data from the registration department in AOU, the number of students registered in the final year project for the previous five years in different branches is shown in the table below:

Table 3: Distribution of number of students in project from different branches for last five years

Year Branch	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Bahrain	80	117	66	43	52
Egypt	78	95	104	68	39
Jordan	59	40	36	50	45
KSA	428	892	494	595	684
Kuwait	234	179	152	151	199
Lebanon	141	133	161	212	192
Oman	0	0	0	26	49
<b>Total</b>	<b>1020</b>	<b>1456</b>	<b>1013</b>	<b>1145</b>	<b>1260</b>

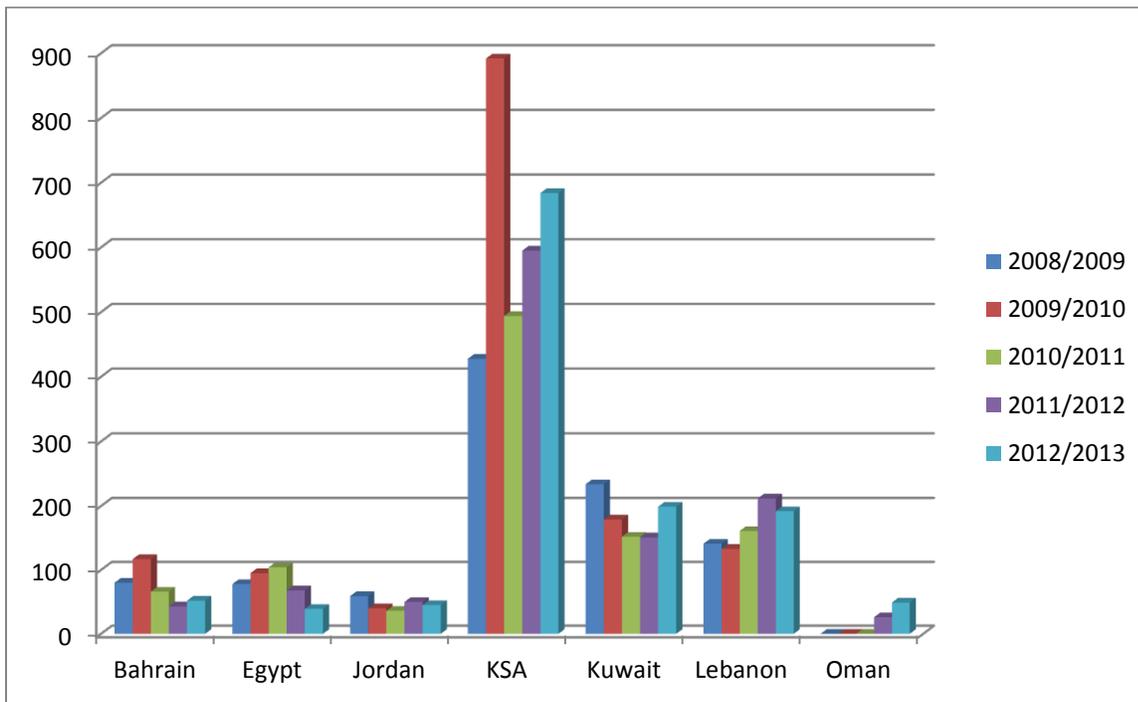


Figure 1: Distribution of number of students in the project for last five years from different branches

Table 4: The average students' performance among the different branches in the final year project for the previous five years

Year					
<b>performance</b>	2008/2009	2009/2010	2010/2011	2011/2012	2012/2013
Mean	80.27	76.5	79.8	81.41	80.87
Standard deviation	9.33	11.06	10.72	10.63	10.87
Pass rate (%)	97.91	90.68	91	89.8	97

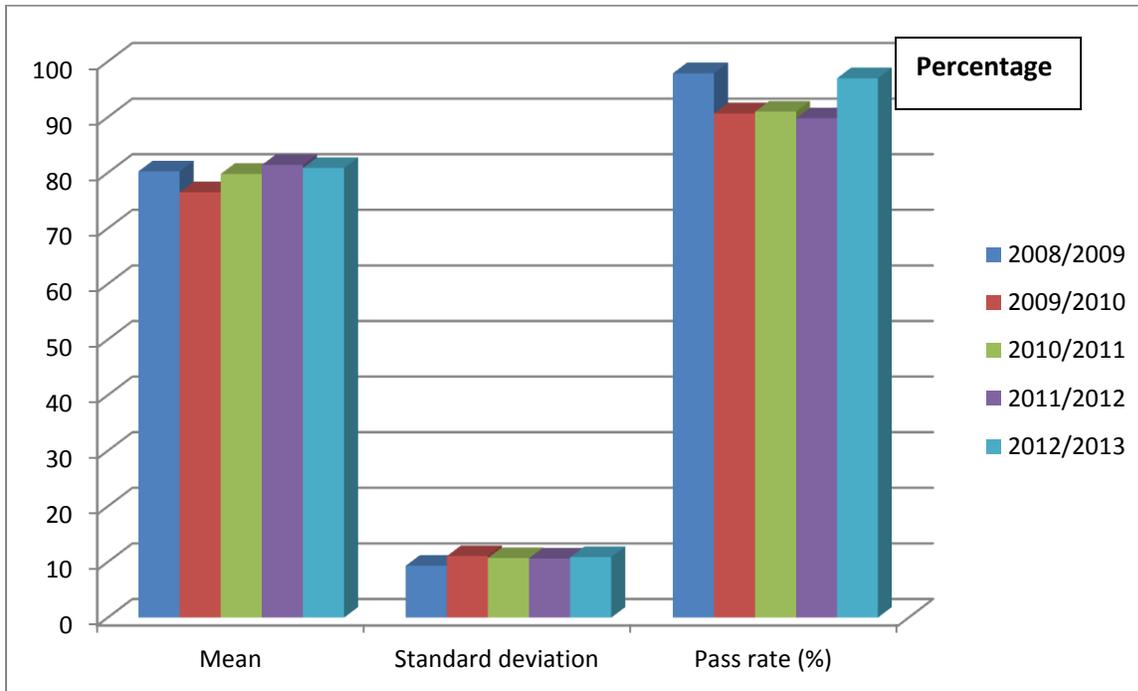


Figure 2: students' performance in the project for last five years

### Suggestions and recommendations

Based on results obtained from questionnaires conducted on project students in different branches as well as feedbacks collected from tutors teaching the project with taking into consideration remarks collected from IT professionals who were participating in the project academic committee evaluation, hereby is a set of recommendations that could assist in improving the delivery of the senior project course at AOU.

*First*, final year project groups are expected to conduct weekly meetings with their supervisor to assess the accomplished work and plan future developments. These meetings are compulsory and need to be documented. Every project group will elect a team leader from his members who will be responsible to document the minutes of the meetings in form of logs attached in the final project report. This will be very helpful to the students as it will assist them to be within the proper guidelines of the scope of the project and will allow the supervisor to rectify any deviations and keep a close look to the progress achieved at different stages. They will allow for an active efficient monitoring by the supervisor on the group. These meetings could be conducted in face-to-face mode or through video conferencing.

*Second*, experiment a cross branch project evaluation through which faculty members from different branches will participate in the evaluation process of the projects. This will allow sharing the experience among different faculties as well as assuring the fairness of evaluation for student projects. This has been implemented as a pilot project for the academic year 2012/2013. Comments and feedbacks from branches will be taken into consideration for practicing this scheme next semester in a better way.

*Third*, emphasize the idea of conducting workshops at the beginning of the project period for the students that explain to them the objective of the course and its intended learning outcomes. This has been already started in Kuwait branch from two years whereby workshops have been conducted at the end of the second semester. In these workshops, faculties demonstrated list of project topics for interested students. The students can utilize the summer vacation period in start working with these ideas if interested. Other branches would be strongly encouraged to do the same practice for their students.

*Fourth*, encouraging faculties from other disciplines to participate in offering project ideas like conducting joint projects between business and computing schools. This will help a lot to extend the scope of the project ideas to include real life problems and trying to propose solutions for them which will have a very positive impact in the recognition of AOU students in the society.

*Fifth*, construct hardware communication technical lab in the university. This will assist the students to start working on different project ideas than software and DATABASE. This will enrich the scope of the project and will have a very positive impact on student's experience gained from the project.

*Sixth*, investigate the means for introducing the student's work in the projects to the industry. This could be done through inviting professionals from industry to participate in the project evaluation committees. Also, IT companies from public and private sectors could be invited to participate in project exhibition held by the university to introduce the distinguished projects done by students to the society.

*Seventh*, construct a databank of project topics that have been covered in the previous years and make it available to the branches. This will assist in avoiding repeated topics to be selected by students as well as reducing the plagiarism through allowing tutors to compare student's work against previously done projects.

*Eighth*, arrange for an English course that enhances the communication skills for students especially in writing reports which was the main drawback that many IT students were suffering in the senior project course. This course could be offered under the category of the faculty requirement.

## **Conclusion**

The final year project is a very important module. It will assist the students to enhance a lot of key skills like working efficiently in a team environment, demonstrating presentation skills in the form of oral presentation, communicating writing skills through the production of project reports,

developing their abilities to assess and analyze information, methods and results, managing workflow and task scheduling within the constraints of resources and time given specific design goals and deadlines.

In spite of the many challenges encountered in achieving the intended learning outcome for the project, a set of recommendations has been proposed in this paper that could enhance the delivery of the project.

Another important perspective for the project is that it could be utilized as a tool to activate and encourage the research process among faculties as well as students at graduate level. This will have a vital impact on introducing the academic research culture to the community through involving the students and the industry in this process.

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# Teaching English at AOU Via LMS: An Assessment Study

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## **Abstract**

Learning Management Systems (LMS) are web-based systems that allow instructors and/or students to share materials, submit and return assignments, and communicate online. The study explores the uses of LMS in enriching classroom intended teaching from the instructors' perspectives. The researchers' main focus is to assess the presupposed benefits of implementing LMS at AOU and the actual benefits that both instructors and students have gained from real practices. The study's major finding is that although using LMS has resulted in effective communication as well as interactive teaching between students and their instructors, there is still a lot to be done to maximize the benefits of using LMS in enhancing open blended learning at AOU with respect to teaching English specifically. The study suggests new dimensions of maximization and future research recommendations.

## **Keywords**

Learning Management System, Open-Blended Learning, Distance Learning

## **Introduction**

The literature review attributes much of the success of e-learning and distance learning in different institutions worldwide to Learning Management Systems (Paulsen , 2003); an application that has been introduced in the Arab Open University in 2004 in Bahrain Branch for the first time and later in 2006 in Kuwait Branch (Al-Fadhli, 2009). LMS is defined as a web-based software application that is designed specifically to help instructors meet their "pedagogical goals of delivering learning content to students" (Machado and Tao, 2007). The LMS that AOU adopts is based on "the state-of-the art internet and WWW technologies in order to provide education and training following the open and distance learning paradigm" (Avgeriou et al. 2003). The LMS at AOU, being available for the students around the clock to access the learning content, facilitates the instructors to provide their students with distance learning opportunities that support what they teach through the face to face interaction that takes place once a week or once every other week in formal sessions. The study's main focus is to assess and analyze the current potential of implementing such a software in enriching the intended classroom teaching of English from the researchers' perspective; thus, to present a solution to maximize the value of LMS so that pedagogical needs for both students and tutors are met in the future.

## **Current Uses of LMS in Enriching English Language Courses at AOU**

Originally, LMS has been implemented as a supplementary and educational tool used mainly for communicating with students in the Arab Open University (AOU). Other than efficient communication, LMS offers a wide range of features which are found crucial in facilitating interactive teaching and learning practices (Lonn and Teasley, 2009). The following are the eleven main features LMS offers to enhance our students' learning of English.

### **1. Instant Messaging and E-mailing**

One of the most important and convenient features LMS offers, is the chance of "asynchronous and synchronous communication" (Coates et al. 2005). LMS allows both students and instructors to send and receive messages to and from each other at any given time. Messages can be sent instantly to individuals or to multiple users, and students have the option to forward their LMS messages directly to their personal email addresses as well. Messaging obviously has numerous benefits. First, students can be in constant contact with their classmates or tutors wherever they are and whenever they want. Second, messages are quick, reliable and time savers.

### **2. Uploading Material**

Another helpful feature of LMS involves uploading material onto the system. Instructors can upload documents, assignments, files, folders, images, embed videos and share links as well. The system supports all major file formats available and is a very convenient way of sharing material with students and other instructors. The material online can supplement their leaning and can help students become more independent learners.

### **3. Virtual Classes**

A number of selected lectures are digitally recorded at AOU to give those who cannot physically attend a chance. The video recordings are streamed live and are only accessible through LMS; therefore, providing the students with a virtual synchronous learning environment. All enrolled AOU students have access to these virtual classes via LMS making it possibly easier for students to obtain the knowledge and giving them the flexibility and freedom of choosing the medium they prefer.

### **4. E-Library**

Instructors and students have access to thousands of online journals and e-books through the e-library portal on LMS. Aggregators such as EBSCO, EduSearch and JSTOR provide online content material in fields related to the English Language. No physical space is required and

finding material is quick, easy and can be accessed at any time. Specific material can also be requested through the e-library making it very convenient for all students and teachers in AOU to retrieve material.

## **5. Grades and Feedback**

The ability to post the students' grades and give them feedback is also another useful feature of LMS. This enables students to track their progress throughout the semester and possibly help them to do better at assignments when the feedback is given to them in writing.

## **6. Calendar**

The calendar on LMS serves as a reminder for important events, meetings and deadlines. It enables instructors to publish events, reminders or announce events. The calendar can even be customized according to the instructors' needs and preferences (Avgeriou,2003). Students are able to see whatever the instructor marks on the calendar and can therefore prepare in advance for any upcoming assignments, events or deadlines.

## **7. Private File Storage**

Files can easily be uploaded and stored on the LMS and retrieved when needed anywhere and at any time. Since all users have a unique LMS account, the files uploaded are safe and can only be viewed by the person who uploaded them. This feature can help users back-up their important files and retrieve them when needed. This "lock box" allow students to have 5-10 mega storage capacity to upload class materials in a safe place; such as presentations or class assignments to be submitted later (Carliner, 2007).

## **8. Group Chat**

LMS gives instructors and students the chance to create group chats where up to thirty users can interact simultaneously. The group chat allows participants to have real-time synchronous discussions and has numerous benefits:

- (a) Gives the students a chance to experiment and actually use (type) the language
- (b) Creates a friendly virtual class where students can learn from the comforts of their homes.
- (c) Gives the shy and reserved students a voice.
- (d) Encourages students to discuss matters and ask questions.
- (e) Gives the teacher a chance to discuss and clarify confusing matters and dive deeper into issues.
- (f) It is instant, stimulating, interactive and fun.

## **9. Discussion Forums**

Forums on LMS allow users to exchange ideas simply by posting comments and replying to each other. Forums help create an online learning environment which could help develop social skills and improve communication skills.

## **10. Plagiarism Checker**

When students upload their assignments on LMS, they have the ability to check their work for plagiarism (through Turnitin). Instructors (through Turnitin's document viewer) are also able to assess and comment on students' assignments.

## **11. Glossary**

LMS enables users to build a list of vocabulary words with their definitions if they wish to do so using the 'glossary module' available. The glossary helps students maintain a list of important words that can be kept with them and viewed via web whenever they want. This function could possibly aid the students when reviewing and studying for tests and quizzes.

### **Are These Features Enough?**

Watson and Watson (2007) suggests that regardless of all the potential features of the LMS, still many limitations do exist which "hinder the full realization of LMS' potential." One of the most important limitations of the current LMS is the issue of adaptation. Boticario and Santos (2007) view adaptation as "creating a learner experience that purposely adjust to various conditions (personal characteristics, pedagogical knowledge, the learner interactions, the outcome of the actual learning process) with the intention to increase a pre-defined success criteria" which is mainly reflected in the effectiveness of e-learning and the students' satisfaction. Among the adaptation problems is that LMS lacks integration with other online educational and social systems (Paulsen, 2003) that the students need and are already attracted to. The researchers suggest merging LMS with other social networking systems such as Facebook, Twitter and Instagram. The generation today is developing quickly and exactly in the same pace of technological development. Such an integration of social networking would attract students more to be involved in the learning process. It is even suggested that students are capable of accessing the learning content available on LMS through their mobile phones and AOU has to design content that is acceptable on small screens. LMS is also expected to allow import from as well as export of content to and from other online educational systems.

Another limitation of the LMS is that it does not support the social constructivist approach; an approach which considers a learning process as a social and active process where problem solving is part and parcel of such a learning process (Watson and Watson 2007; Dalsgaard, 2006). It is essential that students try to solve their problems by themselves instead of mainly depending on their instructors and asking others for help, otherwise they would not learn, or their learning process would be incomplete. Self-governed activities can be empowered through LMS by providing students with certain tools that they can rely on to solve their problems either individually or in collaboration with other students. One of the tools suggested by the researchers is to provide enough online support for students; a kind of support which is not limited to changing their password on their own, one flexible enough to open venues to students to widen their learning experience and satisfy their individual needs and their defined goals.

### **A Final Concern**

After exploring all the above mentioned features of LMS, its limitations and ways to maximize its benefits; there is a major concern that researchers, educators, and institutions should really think of. We need to think of the effectiveness of LMS on AOU students' engagement. There is an urgent need to know about students' interactions with LMS, as most of the discussion in the Literature review overlooks considering students' attitudes towards the system. Such effectiveness can either be measured through an online survey that encompass all the students learning English at AOU or as suggested by Graf et al. (2008) and Graf and Kinshuk (2002) to detect learning styles in LMS by indications gathered from students' behaviors. Such identification is recommended in further future research.

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# **Study on Learners' Preparedness for Digital Learning Materials as Supplement of Self-Learning Materials of the Open School of the Bangladesh Open University**

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## **ABSTRACT**

Despite the imperatives of policy and rhetoric about integration of Information and Communication Technologies, the Open School of Bangladesh Open University often uses digital learning materials as an 'add-on' in few courses of programs. Current government's agenda of implementing 'Digital Bangladesh' provides a key to harnessing the educational potential of digital resources, Internet communications, virtual interactive classroom and interactive multimedia to engage the interest, interaction, and knowledge construction of disadvantaged learners of the Open School at Bangladesh Open University. To the extent that such approaches go beyond and transform traditional open schooling model. This paper investigates the changing requirements and new possibilities represented by the challenges of integrating Information and Communication Technologies in open school programs in a way which at the same time connects more effectively with both the specific contents of the curriculum and the various stages and elements of the learning process. Case studies from Open School of Bangladesh Open University courses provide an exemplary focus of inquiry in order to better link relevant new theories or models of learning with digital materials, to see learner's preparedness related learner-centered strategies for integrating Information and Communication Technologies resources and tools, and to incorporate interdependent functions of learning as information access, communication, and applied interactions. This study suggests that designers should provide "Information and Communication Technologies supported learning activity" keeping the preparedness of the learners so that it becomes effective.

**Keywords:** Technology, Digital, Virtual, Curriculum etc.

## **1.0 INTRODUCTION**

### **1.1 Background**

Self-Learning Materials (SLMs) refer to teaching materials that can be used by the learners without the assistance of teacher. These materials keep the learners active and help to improve their cognitive skills. Programmed learning materials and learning modules are such materials that follow self-study approach. Ding (2002) states that the advent of technology provides opportunities for more interactive and flexible distance learning programme. Traditional print-based distance learning programmes have experienced face lifts and adaptations to the web. The Open School of Bangladesh Open University (BOU-OS) often uses digital learning materials (DLMs) as an 'add-on' in English course of Higher Secondary Certificate (HSC) programme. Open School plans to introduce more digital learning materials as the current government's agenda of implementing 'Digital Bangladesh' provides a key to harnessing the educational potential of digital resources, Internet communications, virtual interactive classroom (VIC) and interactive multimedia to engage the interest, interaction, and knowledge construction of disadvantaged learners of the BOU-OS. This extension activity transforms traditional open schooling model. This paper investigates the changing requirements and new possibilities represented by the challenge of integrating Information and Communication Technologies (ICTs) in open school programmes in a way which at the same time connects more effectively with both the specific contents of the curriculum and the various stages and elements of the learning process. This study suggests that designers should provide 'ICT-supported learning activity' keeping the preparedness of the learners so that it becomes effective.

### **1.2 Problem Statement**

The problem that the School confronts with is how the learners could enhance this learning activity with digital learning materials. The major handicap lies with no access of the learners in the computers of the Tutorial Centres (TCs). So it is not feasible to introduce teaching through digital means. The investigator therefore attempted to test the effectiveness of this approach using personal computer. Thus this has eventually become a major concern of scientific inquiry.

### **1.3 Objective**

The overall objective of this paper is to explore the feasibility of the implementation of digital learning materials for the Open School programmes. However, the specific objectives are as follows:

- To examine the key concepts, values and principles of digital learning materials;
- To investigate the scope of promoting awareness of the different dimensions of digital learning materials that need to be considered when establishing and maintaining a digital system in the BOU-OS; and
- To find out the solution of the problem.

## 2.0 LITERATURE REVIEW

Access to computer, mobile and electronic devices has increased drastically in Bangladesh; but it has poor access to broadband Internet connectivity particularly in the rural area (Karim, 2008). Rahman & Panda (2008) states that BOU Open School successfully prepared the virtual interactive classroom through TV program coupled with the mobile technology and its prospect is tremendous in the operation of the open schooling. John et al (2002) had found distance learning to be effective in increasing personnel's readiness and also marked it as complementary to the conventional learning process. Phil (1989) advocated for more of audio visual tools for distance learning but did not negate the requirement of the printed materials. Joan (1989) emphasized on the use of micro computers for the same purpose. On the other hand, contemporary researchers (Edward 1996, Yun and JCurtis 2007) put more reliance on web based synchronous distance learning environment through video conferencing and other interactive ICT means.

## 3.0 METHODS AND PROCEDURES

The material serving as a basis for this research is drawn from a comprehensive survey carried out during field work between July and September 2013 in Bangladesh. This is basically a cross-sectional study using both qualitative and quantitative techniques. Sample size and sampling technique were sought out using conventional formula and method; and empirical data were collected from the targeted respondents. Structured questionnaires were used to have the opinion of the learners and interviews were made through mobile phones and face to face (f2f) contact. Besides the mobile phone access, the researcher was also able to communicate with the faculty members of the different courses within the School. Learners' mobile number was gathered from the Students Support Services (SSS) of BOU. The combination of qualitative and quantitative data served as a triangulation of data and enabled to use multiple methods. The qualitative approaches enabled the researcher to examine more closely people's interpretations and experiences of open learning. On the other hand, quantitative data helped to verify and supplement the findings obtained through the qualitative approaches. This study used mainly primary data, but some secondary data also served to support the empirical findings.

## 4.0 RESULTS AND DISCUSSION

### 4.1 General

The BOU-OS is legally of equal status to the five other Schools (Faculties) of the University (Ministry of Law, 1992) namely School of Education (SoE), School of Business (SoB), School of Agriculture & Rural Development (SARD), School of Science & Technology (SST) and School of Social Sciences, Humanities & Languages (SSHL). It offers three programmes entitled Junior School Certificate (JSC) for Grade: 6-8, Secondary School Certificate (SSC) for Grade: 9-10 and Higher Secondary Certificate (HSC) for Grade: 11-12. Established in 1992, the BOU has been the only Open and Distance Learning (ODL) provider in the country; and with the main campus in Gazipur, some 30 km north of the capital, Dhaka. The University enrolls each year nearly 100,000 learners in its 23 programmes of study and almost 90 percent of them are the learners of the Open School programmes. As such, Open School's programmes cover every remote corners of the country, and provide the highest revenue to the university exchequer.

Open School extensively uses print, radio-TV broadcasts at the national chunk and tutorial supports services near to the learners place. The program curriculum is at par to the conventional curriculum; not only that, this is the policy of BOU and that's why the Open School changes the syllabus of the courses when there is a change in the National Textbook and Curriculum Board (NCTB). SSC and HSC curriculum do not have vocational courses; but only the JSC Programme curriculum is coupled with the vocational courses and ICT learning materials, in a limited range, are used at the ODL centres.

### 4.2 ICT-enabled Learning Support

The government is implementing the *Digital-Bangladesh* agenda and its impact on the BOU system is tremendous. Therefore, Open School plans for digital content development so that it can be used for the learners

as ICT-enabled learners' supports. In this survey, mean value of the learners responses on study materials reflect the ICT aspects is 3.95; this provides that learners of the Open School are prepared to have the ICT enabled leaning supports.

#### 4.3 Radio and TV Broadcasts

BOU obtained allocation of airtime on national radio and television. The programme direct costs are quite modest because the University does not pay any broadcasting fee. This chunk is allocated to each School each week regardless of how many students or how many programmes each school has. The Open School broadcasts TV programme to courses that would most benefit from access to this facilities. The TV programme is very popular to the learners as the mean value is 3.53. In addition, learners like TV programme with compare to attend the tutorial classes (mean value is 4.54).

#### 4.4 Virtual Interactive Classroom

The BOU-OS runs Virtual Interactive Classroom (VIC) programme to make a video interactive for the English course of the HSC program of the School. This approach is new at the Open School although it runs TV broadcast on the national television named Bangladesh Television (BTV) since its inception in 1993. The method uses mobile technology as the interactivity tool and BOU enters into the m-learning through this methodology. At the moment, about 99 percent area of the country is under mobile network. About 30 percent households use TV and 50 percent use mobile phone. Given the situation, BOU has tremendous opportunity for making interactive videos for its different programmes which may change the learning activity of the open school learners. Open School has a plan for increase this interactivity video for other courses particularly urban based learners who, sometimes, live in highly remote area. Open School learners have the mobile phones and they contact with tutors (mean value is 3.51). This means there is a tremendous prospect of VIC within the School and learners are prepared to have this opportunity of learning resources.

**Table 1: Learners' Responses on ICT Materials**

Criteria Statement		Percentages of learners' opinion					Mean Responses
		Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree	
n94	Textbooks encouraged learning	3.2	4.3	13.8	46.8	31.9	4.00
n88	Too much content in the texts	21.6	29.5	21.6	13.6	13.6	2.68
n94	Use of learning CDs in addition to BOU text	20.2	42.6	16.0	12.8	8.5	2.47
n90	ICT is useful for difficult content	28.9	38.9	16.7	7.8	7.8	2.27
n94	Use of mobile to communicate with tutors	5.3	25.5	9.6	31.9	27.7	3.51
n93	Use of TV program	7.5	20.4	10.8	34.4	26.9	3.53
n94	Desire for texts are supported with video clips	20.2	37.2	16.0	21.3	5.3	2.54
n94	Desire interactive video as learning materials	14.9	40.4	10.6	22.3	11.7	2.76
n96	Internet connection at home	15.6	51.6	15.6	12.5	1	2.60
n92	Regular use of cyber café	7.6	23.9	12.0	35.9	20.7	3.38
n90	Friend's Internet connectivity group study	5.6	21.1	7.8	43.3	22.2	3.56
n95	Needed ICT materials to understand the content	1.1	14.7	9.5	53.7	21.1	3.79
n90	TV-programs more	0	24.4	7.8	53.3	12.2	4.54

	interesting than real life classroom at the tutorial centre						
n88	Believe that I would if my study materials reflect the ICT aspects	1.1	8.0	6.8	62.5	21.6	3.95

Source: Fieldwork, 2013

#### 4.5 Process for Digital Lesson Notes

The Open School aims to develop e-content by the Course Lecturer in the form of the lesson notes and to publish in the BOU website after a review by the Assessor, who is authorized by the relevant academic unit and appointed by the BOU Authority. A reviewer is responsible for making an assessment of the overall structure, balance), and teaching points; and reporting formally in writing to the Dean of the Open School.

#### 4.6 Usefulness of Digital Lesson Notes

Past experience says that Open School always delayed in delivery of the texts to the learners and tutors were experienced in conducting tutorials because of non-availability of the books. It is expected that these online lesson notes will eliminate this problem because most of the TCs already been equipped with the computer due to the implementation of the *Digital Bangladesh* agenda. Ministry of Education directed BOU to communicate with Ministry via email only and this order has established availability of the Internet in the TCs. Therefore, all the learners of the Open School have the Internet access and they can get print of the lesson notes. In addition, 99 percent area of Bangladesh is now under mobile network; and Internet is available all over the country. So the learners can get the tutorial notes either in the centre or in the cyber café, which are available in any business centre near to the TCs. The learners' mean response on use of cyber café is 3.38. This means digital content plan by Open School may be successful as the learners are going to cyber café as they don't have their own Internet connection (mean value is 2.60); but they can have this facility from the friends (mean value is 3.56). Therefore, Open School plans for digital content development so that it can be useful for the learners as ICT-enabled learners' support.

### 5.0 CONCLUSION

Going digital is very dynamic step of the BOU-OS and it is also a big challenge for the University as a whole. This attempt will advance the School activities and will generate a digital learning environment for the learner's confidence to compete in the digital world. Digital vision has turned Bangladesh education system into introducing the e-education. Therefore, the Open School has been the one of the contributors in achieving this goal. Learners are also prepared to cope with the digital decision of the School. The SLMs prepared for the learners are very handsome to them as well they demands for the DLMs to complete their learning.

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# Towards Effective Integration of Virtual Learning Environments and Blended Learning

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## Abstract

The constantly changing nature of the educational and learning process has passed through several stages along decades aided and guided by technological evolution. This paper attempts to highlight the three different educational technological innovations. It will comparatively explore the appealing advantages and limitations that may greatly affect both learners and tutors and hence the educational process. As human beings' engagement and interaction are considered to be the tradeoff factors in learning, the evolution of technological education will be explored intensively based on the role of human factor. Three keywords are being considered; that of e-learning, secondlife and blended learning. The scope of this paper is not to chronologically trace the evolution of each educational solution of the three aforementioned ones; instead its primary focus is to emphasize the best educational solution from a practitioner's point of view. That is to say from a tutor's point of view who is directly involved in classroom and online interaction with learners.

## Keywords

Classical e-learning environment, Virtual learning environment, Blended learning environment

## 1. Introduction

Why did Socrates chose to take Plato as a learner? Or the question should be posed differently; was it Plato's choice to become Socrates' faithful learner? Have we ever contemplated this fact? Either answer leads us to the one obvious fact: human beings are social entities and the educational process is one that necessitates human interaction. When you teach, you give what you are. When a learner attentively listens to you, you educate him/her in what you know and in what he/she should know. The educational process has always been hand in hand with another discipline and practice to the extent that recently they have become inseparable. If a nagging question comes to your minds in order to identify this other discipline, we would gladly be answering you; the practice is technology. With the recent technological advances, the educational process has been breathlessly coping with these newly offered solutions [1]. To mention some of the educational solutions that played a catalyst role in facilitating education and making it accessible to all, one would definitely mention e-learning, secondlife and blended learning. Each in its own respect has contributed to the advancement of education, however each with specific limitations. The rest of this paper is organized as follows:

- Section 2 will explore the concept of the classical e-learning environments that have been applied many years ago. It emphasizes the advantages and limitations of these classical e-learning environments on the educational process.
- Section 3 is comes to explore the proposed virtual learning environments that have been invented to overcome the problem of absence the human being factor in the classical e-learning environment. It introduces the concept of "Secondlife" as it most successful virtual learning environment. Participation, engagement, tools and successful examples will be mentioned as well in this section.

- Section 4 is introducing the importance of the blended learning environments as the virtual solution was eventually out of interest for both students as well as tutors. This section will explain 'blend' of both e-learning as well as face-to-face tutoring that emerged as the ideal learning solution. An applied example of the Arab Open University will be introduced as a successful educational blended environment.
- Section 5 will come to summarize the above discussed ideas and practices of the technological alignment to the classical educational process.

## **2. Classical e-learning environments**

E-learning has become a recent buzzing word in the educational field. It is not exclusive to adults, nowadays high school learners and their parents in some countries opt for this educational solution. Why so? We have to give it a thought. E-learning is an educational electronic-based system that lies on delivering knowledge and information through the entire possible medium of the World Wide Web. E-learning is broadly inclusive of all forms of educational technology in learning and teaching. It can be described as flexible means of teaching through technology. The idea behind the involvement of E-learning in education process is to engage all possible technological media to transfer educational knowledge over the internet in order to reach the ultimate educational audience [2].

### **a. Advantages of classical e-learning environments**

As e-learning is the technological educational means, it incorporate efficiently and effectively the learners` self-motivation and communication. It has appealing advantages, to name some; it is affordable and tailored compatibility education means to different types of learners with various learning styles. E-learning has a wide variety of measurable materials, activities and assessments tools to both tutors and learners. It is a cost effective educational environment that goes beyond all the geographical and timing limitations as it isn't important at all where you are or even when you learn. This flexibility of being part of the system anywhere and anytime accommodates different types of learning styles. It increases the engagement of learners and tutors to the internet as well as the education process itself. E-learning systems enhance learners` self-pacing which in turn eliminates their stress and increases satisfaction. The availability of all the materials, activities and assessments on E-learning reduces burden of responsibility of mastery and increase the On-demand availability [2]. The independent learning process itself encourages self-knowledge and confidence to the learners as long as they are completely responsible for their learning. The ease of e-learning facilitates the use of information all over the world using the internet. Based on the level of gained knowledge, learners can select and use materials that match their needs. The organized and well-structured paradigm of e-learning gives the learners the ability to implement the activities and assessments that effectively improve their performance and hence upgrade their educational levels. Customization in e-learning focuses mainly on learners to deliver what they want to know in the way they like to perceive. E-learning greatly provides education for all. The switch of the educational process through flexible technology opened up a whole new realm of opportunities for learners of all ages and backgrounds, from all over the world [3]. The opportunity for learners from disadvantaged backgrounds to self-educate has increased exponentially. Finally we have to admit that the expansion of the E-learning is vastly increased by the engagement of the young learners through the booming social media such as Facebook, MySpace, Twitter, and so on.

### **b. Limitations of classical e-learning environment**

E-learning has always propagated the idea of self-motivated learner who actively takes the responsibility to pace and regulate his/her studies under the absence of course mastery and attendance. This has proved a somehow misleading notion. Learners; specially freshmen ones, needed to be integrated into a disciplined system where the study map is quite clear and mastered by tutors. Though the study calendars and assessment notifications are always posted online for

the periodical access of each learner, yet learners tend to ignore these and fail towards the end of their courses to pace their study load effectively to lead to course passing and success [2]. The chance for each tutor to accurately diagnose the points of weakness and strengths of each learner at the beginning of the semester is somehow limited as forums cannot entirely eliminate face-to-face conferencing. Though diagnostic assessments are posted online prior to the start of the semester, yet learners' answers don't accurately reflect their real shortcomings. Further, learners miss on a vital educational opportunity; that of classroom discussion and on-time interaction. Each learner is quite involved pacing his study load before the assessment, the human part of interaction and ideas exchange is not only marginalized but is in reality eliminated. Moreover, the idea of 'tailoring' and 'customizing' course materials, activities and assessments to cater to different learning styles remains limited and time-consuming. Even if educational materials can be content-tailored, yet they cannot be culturally-tailored [3]. The fact that a tutor doesn't see his/her learner remains actually an obstacle and sometimes a culture barrier. Computer literacy is another vital issue for learners. Hence the educational process loses on some learners' segmentation who are not technologically aware.

### **3. Virtual learning environments**

However, booming as it has started, the e-learning model started to lose its usual attraction as its benefits did not outweigh the drawbacks. With all advantages of e-learning, the 'social being' still remained prevalent within any learner. The lack of face-to-face communication and having a machine and a screen to interact with instead, didn't yield itself as an attractive alternative to replace the human being tutor. The educational process has been deprived from its "personal element" to be replaced with impersonal teaching. The usually identified flexibility of the e-learning has rendered itself a complete lack of commitment at the learner's side [4]. The learner lost a great deal of 'knowledge' as classroom discussion and the exchange of knowledge not only among the learner and the tutor but also among all learners is being marginalized to zero. If one would say how about online forums, the quick answer will be no one bothers to use them except at exam times when learners exchange course material and information. The previously highlighted drawbacks have pressed the same e-learning mentality to invent something that would increase the engagement of both learners and tutors during the learning process. Technology has always had the answer; e-learning will continue to become more thoroughly integrated into the 'avatar-tutoring' [4]. Avatar-tutoring has the one human aspect that proved needed all through hundreds of years; the constant fact that people need to interact lively with another 'social being'. Virtual learning environments (VLE) have been developed to simulate our real environments electronically. The most well-known and successful environment is Secondlife. Secondlife is the word that truly describes the fact of having another chance to live your life in another complete technological experience. It is virtual environments that mimic and virtualize our real life with all its perspectives and challenges. It is controversial, emerging, exciting platform for multi-user visual simulation and decision support. The secret beyond the power of Secondlife is the real feeling of "presence". Secondlife is a 3D virtual world filled with user-created content and immersive experiences. It enables users to interact with each other through animated 3D representations called avatars and provides an excellent platform for flexible delivery and online education. Using Secondlife as an educational environment greatly evolved the educational process in effective and efficient ways. It is considered as an ideal educational environment for distance learning due to its ability to provide very popular and equitable method of interaction between learner and tutors. Learners and tutors can lively interact via slides, audio and video, engaging in discussions, presentations, group projects and explorations and hence this magnifies the learning beyond all capabilities of tutors and learners [5]. What makes Secondlife different in concept from E-learning is the real engagement of the virtualized human being factor. Learners not only exchange electronic messages but also see and interact with animated images of each other as well as their tutors. They are digitally represented in virtual creatures called "avatars" that closely resemble their own real life appearances. Educational environments in Secondlife are virtualized and simulated to support learners who are geographically distant. It is a virtual interactive environment that

encourages tutor exploration, manipulation, and problem solving techniques to master the course content. It is a totally dynamic environment that allows learners and tutors to interact together. Key elements in Secondlife educational environments are efficiently inviting critical thinking, problem solving, reflection and long term content retention. The difference about the learner's engagement in Secondlife is that it mainly depends on the kind of interaction with the learning materials provided or developed. So far, five kinds of learner engagement exist. The first type is the demonstration type where learners engage by observation and demonstration of the learning objects. This engagement can take place through ways of videos, presentations, displays, or model, each with their own unique qualities and content supplementing the 3D educational environment [6]. The second type is the experiential; where learners mainly engage and work with the learning materials using some auditory and visual tools. The third type is the diagnostic where learner interacts with a virtualized and simulated environment that is created and designed to promote inquiry, analysis, and identification. The fourth type is the role play; where learners mainly depend on the avatars that act based on their background, conditions, and the environmental circumstances surrounding to their avatars. They behave in a way that is authentic to their assumed roles. The constructive type is the last learner engagement type that accesses information through hands-on experimentation and step by step discovery tool. Tools of learning and education in Secondlife have a great variety and wide range that allows tutors and learners to interact and communicate effectively. They share presentations, papers, simulations within the virtual world as well as an efficient social interaction. Learners collaborate and interact effectively in order to accomplish the team work projects and assignments [7]. Tutors use a virtualized class rooms that that enriched with training and learning tools. Tools and learning materials on Secondlife are limitless, as the art of virtual reality allows us to create all what we dream with such as bookshelves that literary link to the text materials. It contains presentation tools in the form of presentation screens, whiteboards, television screens and other objects that all the written materials that captured as an image. These presentations are supported with pointer tool that allows placing the prime over the slideshow. There is also a chalkboard that allows us to write on the chat area. Information sharing via Secondlife also supported with virtualized tools such as the "thick book" that allows to add textures to the book in order to turn the page when it clicked. The "thick book copier" is the tool that defiantly allows us to make copies as much as we want from the book. "Photo display board" and "brain board" are simulated tools that allow us to easily display our photos and second one is mainly used for brain storming and note making in Secondlife environment. The "Nametag" tool is used by avatars to display their names. Inside the virtual class room there are some tools like simple virtual seating; cameras, microphones, and visitors counter [7]. Secondlife as a virtual educational environment have been adopted and established as successful institutional experience. A number of prestigious universities show that Secondlife platform is effectively adapted to support the educational and learning process in a wide range of fields and with diverse groups of learners and tutors. The sciences and arts are both well represented, demonstrating the breadth of content and interest to be found in the Secondlife educational environments. Universities including Harvard, Columbia and Duke, among hundreds of other American schools, quickly signed up to conduct their classes online. The United Kingdom is also part of the growing virtual community that uses Second Life for distance education. Its growth in less than half a decade raises the issue of whether 3D online education will one day replace normal classroom settings. The Open University in UK (OU) was the first educational institution in the UK that implements two educational virtual environments in Secondlife. They are the Open University Island and the OUtopia village. They are formed and implemented by the by Linden Lab, the company which owns Second Life [8]. The amazing advantage of second life lies in the idea of all these avatars. Second life turns to be a virtual environment with a large, dedicated user base. It encourages active and virtual participation and experiential learning. The educational process there is enjoyable and memorable as both tutors and learners can create their customized avatars and interact for 7days, 24 hours per each. This greatly speeds up activities and changes the perceptions of time of users. Although learners perceive a high level of learning and satisfaction in Secondlife, it is still limited and has some drawbacks especially in cognitive outcomes development. All studies and performance measurements

proved that the learners' declarative knowledge in Secondlife is actually much lower than classical, non-virtual educational environment. Drawbacks of Secondlife should be weighed to optimize its efficiency. Tutors and learners in Secondlife may face some complications if they are not technologically savvy. Sometimes they feel discomfort because of their misunderstanding of the avatars nature. They also may find difficulties in interaction and working with their peers. This automatically leads to misleading communication and exchange of resources in Secondlife as it mainly focuses on personal rather than group goals. As well as it ignores the workloads problems that learners may face in building their own avatars. Complications related to the tutors vary somehow based on their level of enthusiasm about using new virtual learning environments such Secondlife. It requires a high level of technology and awareness in order to be able to act as a part and role in such a virtualized environment. Sometimes they have to be ready to fix and solve some of the technical problems they may face while tutoring or interacting with the avatar learners.

#### **4. Blended learning solutions**

Having in mind the aforementioned shortcomings of both e-learning and secondlife, the human mind had to come to the risqué of these educational solutions as huge capital investments are at stake. The solution was not very farfetched to find; it was in offering a mix of technology and the traditionally used to human interaction resulting in what we recently term blended learning. That 'blend' came as the long-awaited for hybrid. Learners are no longer deprived from face-to-face interaction with their respective tutors or with their peers [9]. They are not also deprived of the flexibility of on-line access to their course materials. The hybrid recommends the combination of both with specified percentages. In that model, it would be unrealistic if we imagined that learners will meet in traditional classroom setting with the same frequency as usual education, nor would we imagine that the time spent accessing online material would be the same.

##### **a. Advantages of proposed solutions**

The advantages of blended learning as an educational solution are many, enough to say that it overcomes the shortcoming of the classical pure e-learning model where students are deprived of human interaction. It came out to meet the basic challenge; How can education contribute to the wellbeing of an individual? How can education stand as a social milieu of interaction? And how can learners develop the needed self-confidence to face others with their views and develop characters? Assessments at the beginning of each course are somehow accurate as each tutor gets the chance to meet in person with his/her learners. Rapport results from such initial meetings that later on facilitates the rest of the educational process, even though the tutor and learners are not to meet quite often [9]. Real course challenges and learners' individual weaknesses and strengths are highlighted early so that both the tutor and the learners have a clear road map for the rest of the semester. Further, team, pair work and group activities could be formed according to this realistic assessments. The blended learning model assessment also combines between physically setting for exams and submitting tutor-graded paper online, thus learners make use of the advantages of both educational systems [10].

##### **b. Assessments and discussion?**

One major limitation of blended learning is to get the tutors' buy-in into that hybrid system. Tutors should be able to help learners and facilitate their educational experience, but not by exercising full mastery on the course or by having the attendance as the penalty stick; thus shifting and changing the real value of the system. Further, tutors have to agree early with their learners on a clear agenda of the fact that it lies beyond the scope of the system that learners should expect 100% delivery of course portion during the face-to-face classes. This would be a great blow to the independency of learning that should be attained by having the e-learning system integrated in that blend.

##### **c. Proposal for solutions in particular environment**

Tracing the evolution of the educational and learning processes and evaluating the impact of technology on these processes have left us with the one simple fact that a 'blend' of both; e-

learning and face-to-face tutoring is highly needed. Coming to that realization, Arab Open University (AOU) epitomizes that blend to cater for different learning styles and to serve a wider range of audience who might be geographically distant or busy professionals, yet they need to be guided through a percentage of traditional classroom tutoring and conferencing. Students can access course-related materials and assessments on the Learning Management System LMS without being totally deprived of classroom discussion and interaction.

## 5. Conclusion

All through the phases of educational evolution, technology has been an indispensable tool of learning. With the one simple human fact that education is a socialization process, the pure classical model of on-line learning has proved to be an insufficient educational method of learning. Technology attempted to work around a solution by providing virtual life solution. Avatar tutors that mimics actual tutors and provides virtual chances for interaction emerged as a solution. This solution was eventually out of interest for both students as well as tutors. With this realization in mind, a 'blend' of both e-learning as well as face-to-face tutoring emerged as the ideal learning solution. This came out with the name Blended Learning. Students in that system enjoy the advantages of the e-learning independence as well as a percentage of attendance in a traditional classroom.

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# Quality of Blended Learning as Perceived by Arab Open University Students

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## **Abstract**

The primary objective of this study was to investigate Arab Open University (AOU) students' perceptions of the quality of e-learning experience through the learning management system (LMS) in supporting their face-to-face tutorials. A 32-item questionnaire was administered to a randomly selected sample (205) of Elementary Education students at the AOU Jordan Branch. On one hand, the results showed that the goals and standards of the courses were very clear to students, e-materials on the LMS were interesting and supported to face-to-face situations, students preferred online quizzes, the e-materials supported key assessment tasks and tutors provided continuous access to relevant information about assessment. On the other hand, the findings revealed that the e-materials and e-activities were too loaded for the students to understand thoroughly, and much of the feedback they received from the tutor was not helpful. The results also indicated that there were no statistically significant differences among the student perceptions of the blended learning (BL) their overall satisfaction of the online experience that could be attributed to gender or academic achievement level. Results suggest some pedagogical implications for tutors and Programme Coordinators.

**Keywords:** BL, AOU, Quality.

## **Introduction**

Traditional institutions encounter some challenges to cope with the innovations and demands of students' daily life pressures. Life long learning and the use of Information and Communications Technology (ICT) are primary reasons for that. Adults are increasingly returning to institutions of higher education to pursue their study whilst in full-time employment.

To address this increasing demand, the AOU was opened in October 2002 to offer students in the Arab world opportunities of higher education by adopting open BL and utilizing state-of-the-art information and communication technologies at reasonable costs. After 11 years of its establishment, the AOU has witnessed some developments with regard to learning and teaching environments. The delivery of instruction through a learning management system in combination with traditional face-to-face tutorials is what distinguishes the AOU from other universities in the Arab region.

There is little research about the relationship of students' learning experiences and the online part of their courses (Ginns & Ellis, 2007). It is believed that students' perceptions of learning play an important role in the quality of their learning.

Ginns and Ellis (2007) conducted a study in which they investigated veterinary science students' perceptions of the teaching-learning environment and approaches to learning and

studying. In the first part of their study, they examined students' perceptions about the quality of teaching in an e-learning context. They found that students' response to the 32 items of the Course Experience Questionnaire (CEQ) were not overly positive. However, their study found that students' interactions were correlated with a deep approach to learning. Moreover, Lizzio, Wilson and Simons (2002) found that positive perceptions of the learning environment correlated with positive learning outcomes.

Therefore, this study seeks to examine students' perceptions of the quality of on-line resources in supporting their face-to-face learning.

### **Objectives and Questions of the Study**

The central objective of this study was to investigate the AOU students' perceptions of their experience on how on-line learning might support their face-to-face tutorials. The tool for collecting data in this survey study was the questionnaire. The main question of this study was:

How do AOU students perceive the quality of on-line learning in supporting their face-to-face tutorials? More specifically, this study addressed the following questions:

1. How did AOU students perceive the quality of teaching in a BL context in supporting their face-to-face tutorials?
2. How did AOU students perceive their interaction and engagement in on-line learning in supporting their face-to-face tutorials?
3. How did AOU students perceive the clarity of goals and standards of the on-line component in supporting their face-to-face tutorials?
4. How did AOU students perceive the quality of on-line resources in supporting their face-to-face tutorials?
5. How did AOU students perceive the appropriateness of assessment in an on-line context in supporting their face-to-face tutorials?
6. How did AOU students perceive the appropriateness of the workload related to on-line context in supporting their face-to-face tutorials?
7. How did AOU students perceive issues related to students management in supporting their face-to-face tutorials?
8. How did AOU students perceive BL and overall satisfaction with e-learning experience through the LMS in supporting their face-to-face tutorials?
9. Was there any statistically significant gender difference ( $\alpha = 0.05$ ) among AOU students in the perceptions of BL and overall satisfaction with e-learning experience through the LMS in supporting their face-to-face tutorials?
10. Were there any statistically significant differences ( $\alpha = 0.05$ ) due to academic achievement level among AOU students in the perceptions of BL and overall satisfaction with e-learning experience through the LMS in supporting their face-to-face tutorials?

### **Instrument**

A 32-item questionnaire was adopted in this study, which was originally developed by Ginns and Ellis (2007). The questionnaire is called "Course Experience Questionnaire" (CEQ). The CEQ was based on the scales developed by (Crawford, Gordon, Nicholas, & Prosser, 1998; Lawless, & Richardson, 2002; Lizzio, Wilson, & Simon, 2002; Ramsden, 1991; Richardson, 1994; Wilson, Lizzio, & Ramsden, 1997). The questionnaire consisted of two parts. The first part included demographic information. The second part included eight sections. The first section (seven items) dealt with the quality of instruction in a BL context. The second section incorporated four items about students' interaction and engagement. The third section

included three items on the clarity of goals and standards of the online component of the course. The fourth section included four items about the quality of on-line resources. The fifth section included three items about the appropriateness of assessment. The sixth section included three items about the appropriateness of the workload related to on-line resources. The seventh section included three items about students' management. Finally, the eight sections included five items dealing with students' overall satisfaction with on-line materials and activities in supporting face-to-face learning. All items of the questionnaire were adapted to the goals of this study and translated to Arabic. The questionnaire distributed to students was in English and Arabic, however.

### **Data Collection:**

The questionnaire (translated to Arabic) was passed to and collected from students by the researcher himself in the summer semester of the 2012/2013 academic year.

### **Validity**

A panel of ten faculty members from the University of Yarmouk and AOU reviewed the instrument and offered suggestions regarding additions or deletions to enhance the content validity of the questionnaire. Feedback was used in clarifying some words, statements, as well as the translation of some items. The overall opinion of the judges showed that the questionnaire was suitable to be used in the study.

### **Reliability**

Responses of thirty five (35) subjects were analyzed to test the reliability of each section of the questionnaire. This randomly selected sample was later excluded from the final sample used in the study. The calculated Cronbach alpha coefficient was 0.79 for Section1, 0.81 for Section 2, 0.70 for Section 3, 0.75 for Section 4, 0.70 for Section 5, 0.71 for Section 6, 0.80 for Section 7, 0.88 for Section 8, and 0.85 for the whole questionnaire. This suggested that this instrument was suitable to measure AOU students' perception of the quality of adopting BL in their education.

### **Limitations of the Study**

This study is limited by the sample that was chosen from the Jordan Branch of the AOU. Thus, generalization of results is limited to this audience. The study is also restricted to the scale used in this survey.

## Methodology

This study is mainly quantitative in nature and was conducted using a survey methodology.

## Population and Sample

The population of the research consisted of (321) students specializing in Elementary Education and enrolled in the summer semester 2012/2013 at the AOU Jordan Branch. The sample (N= 205) was randomly chosen representing about (64%) of the population. Details of the demographic data are shown in Table (1).

Table (1):  
Demographics of the Sample

Variables	No.	Percentage
Gender	Male	29 14.15%
	Female	176 85.85%
Academic achievement level*	A	35 17.08%
	B	63 30.73%
	C	49 23.90%
	D	40 19.51%
	F	18 8.78%
	Total	205 100.00%

\* According to cumulative average: 3.67-4 A (Excellent); 3-3.66 B (Very Good); 3.33-2.99 C (Good); 2-2.32 D (Pass); below 2 F (Fail) (AOU BA/BSc Award Requirements By-Laws No. 28, Feb. 23, 2009).

## Data Analysis

The students' responses to the likert scale (agree =3, neutral = 2, disagree =1) of all subjects, were coded and entered into the SPSS computer package, version 16 (reversing the negative items). Then, and the following statistical analyses were carried out: descriptive analyses to compute means, percentages, and standard deviations for variables and items of the scale. An independent samples t-test to find out if there was any statistically significant difference ( $\alpha = 0.05$ ) among AOU students' perceptions of BL due to gender. Finally, a one-way Analysis of Variance (ANOVA) was conducted to determine whether there were any statistically significant differences ( $\alpha = 0.05$ ) among AOU students' perceptions of BL and their overall satisfaction of the online experience based on academic achievement level.

## Results and Discussion

### Results and discussion of the first eight questions

The first eight (8) questions investigate students' responses to the thirty two (32) items of the Quality of BL Questionnaire. The items were distributed into eight (8) domains; each one provides data to answer a question of this study. It can clearly be noticed that the students' responses to all items in the domains were overly positive except, for their response to the sixth domain that deals with appropriateness of workload.

Table 2 shows the means and standard deviations for the students' perceptions of the quality of teaching in a BL context in supporting their face-to-face tutorials.

Table (2):

Mean scores and standard deviations of students' perceptions of the quality of teaching in a BL context.

<b>No.</b>	<b>Items</b>	<b>Mean</b>	<b>S.D.</b>
1	I received too much feedback through the LMS from my tutor.	2.47	0.73
2	The tutor's responses through the LMS motivated me to learn more deeply.	2.50	0.64
3	The tutor helped to guide discussions between students through the LMS.	2.34	0.69
4	The tutor's interaction with me through the LMS encouraged me to get the most out of my learning.	2.43	0.68
5	The tutor's responses through the LMS motivated me to do more on-line learning than I would have done otherwise.	2.29	0.72
6	I didn't receive enough helpful feedback from my tutor through the LMS.	2.21	0.78
7	The tutor helped to focus on discussions between students through the LMS.	2.34	0.64
<b>Total</b>		<b>2.37</b>	<b>0.68</b>

Table 2 shows that the tutors' responses through the LMS motivated their students to learn more deeply (item 2). However, although they received much feedback (item 1) from their tutors, students believed that much of it was not helpful enough (item 6).

Table 3 shows the means and standard deviations for the students' perceptions of their interaction and engagement.

Table (3):

Mean scores and standard deviations of the students' perceptions of interaction and engagement.

<b>No.</b>	<b>Items</b>	<b>Mean</b>	<b>S.D.</b>
8	Reading other students' submissions through the LMS clarified some of my own ideas.	2.41	0.60
9	I interacted with students' postings/ submissions through the LMS even if they weren't assessed.	2.31	0.75
10	Other students' submissions through the LMS helped me understand my ideas from a new perspective.	2.32	0.71
11	Other students' submissions through the LMS encouraged me to investigate further sources of knowledge.	2.35	0.74
<b>Total</b>		<b>2.35</b>	<b>0.67</b>

In Table 3, the results suggest that other students' submissions appear to be more helpful to clarify their own ideas (item 8) than investigating further sources of knowledge (item 11). Moreover, this domain scored the second least overall mean (2.35) indicating that students were not encouraged to interact and engage in LMS activities.

Table 4 shows the means and standard deviations for the students' perceptions of the clarity of goals and standards of the online component.

Table (4):  
Mean scores and standard deviations of the students' perceptions of the clarity of goals and standards of the one line component.

No.	Items	Mean	S.D.
12	Information needed to understand the purpose and contents of the courses was integrated in one place on the LMS.	2.64	0.58
13	The guidelines for using discussions were clear to me through the LMS.	2.49	0.66
14	Information needed for assignments was integrated in the one place through the LMS.	2.83	0.42
Total		2.66	0.54

Table 4 reveals that "the clarity of standards" domain scored the highest overall mean (2.66) indicating that information and guidelines related to the course content, forums, and assignment were very clear to the majority of the students. Indeed item 14 scored the highest of the 32 items (2.83). This finding seems to be logical, and indicates that academic and administrative monitoring in the branch is well conducted.

Table 5 shows the means and standard deviations for the students' perceptions of the Quality of on-line resources

Table (5):  
Mean scores and standard deviations for the students' perceptions of the quality of online resources.

No.	Items	Mean	S.D.
15	The e-teaching materials in the courses are extremely good at explaining many related issues.	2.44	0.66
16	The activities on the LMS are designed to get the best out of students.	2.41	0.66
17	The e-teaching materials are designed to really try to make topics interesting to students.	2.30	0.69
18	The e-learning materials helped me to learn during the face-to-face situations of the courses I studied.	2.51	0.69
Total		2.41	0.65

Table 5 shows that students perceived the e-materials to be interesting (item 17) and as supportive of face-to-face situations (item 18).

Table 6 shows the means and standard deviations for students' perceptions of the appropriateness of the assessment.

Table (6):  
Mean scores and standard deviations of the students perceptions the appropriateness of assessment.

No.	Items	Mean	S.D.
19	To do well in the on-line quizzes all you really need is a good memory.	2.72	0.65
20	The on-line quizzes helped me to learn effectively.	2.59	0.54
21	The e-materials on the LMS supported some key assessment items in the courses I studied.	2.55	0.58

Total	2.62	0.55
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Table 6 shows that the "appropriateness of assessment" domain scored the second highest overall mean (2.62), indicating that students prefer online quizzes (items 19 and 20) and that the materials supported key assessment tasks.

Table 7 shows the means and standard deviations for the students' perceptions of the appropriateness of the workload related to online materials and activities.

Table (7):

Mean scores and standard deviation of the students perceptions of the appropriations of workload.

No.	Items	Mean	S.D.
22	The workload of the e-component of the courses is too heavy.	1.53	0.71
23	I generally had enough time to understand the things I had to learn through the LMS.	2.13	0.78
24	The sheer volume of work for the e-component of the courses means it can't all be thoroughly comprehended.	1.86	0.73
Total		1.84	0.70

Table 7 revealed that this domain scored the least overall mean (1.84), indicating that the workload related to the e-materials and activities was too heavy (item 22) and was very difficult for the students to understand it thoroughly.

Table 8 show the means and standard deviations of the students' perceptions of student management on the online environment.

Table (8):

Mean scores and standard deviations for the students perceptions of students management in the online environment.

No.	Items	Mean	S.D.
25	The tutor used the e-learning environment when appropriate to keep students informed about results.	2.61	0.60
26	The tutor used the e-learning environment to regularly update students about relevant course information.	2.54	0.65
27	The tutor ensured continuous access to the relevant e-materials throughout the semester.	2.51	0.65
Total		2.55	0.61

Table 8 shows that students were most positive about the extent to which the tutor provided continuous access to relevant information about results (item 25) and e-materials (items 26 and 27).

Table 9 shows the students' perceptions of BL and overall satisfaction with e-learning experience through the LMS.

Table (9):

Mean scores and standard deviations of students' perception of BL and overall satisfaction with e-learning experience through the LMS.

No.	Item	Mean	S.D.
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28	It was clear if the LMS resources were related to assessment.	2.50	0.66
29	The e-activities on the LMS helped me to understand the face-to-face activities in the courses I studied.	2.45	0.67
30	The relationship between the e-resources and the whole units of the courses was clarified on the LMS.	2.49	0.65
31	It was clear to me how a part of a unit on the LMS is related to the whole unit of a course.	2.56	0.64
32	Overall, I was satisfied with the quality of the e-materials and e-activities.	2.53	0.64
Total		2.50	0.63

Table 9 shows that the students' had positive perceptions about the degree to which the e-materials and activities on the LMS support face-to-face learning (items 28, 29, 30, and 31) and reported equally positive attitudes towards the overall satisfaction with the quality of the e-materials and activities (item 32).

### Results and discussion of the ninth question

The ninth question examines if there was a statistically significant gender difference ( $\alpha = 0.05$ ) in students' perception of BL and overall satisfaction with online experience. The results of the t-test (Table 10) show that there was no statistically significant difference between gender groups.

Table (10):

Results of the independent t-test of the effect of gender on students' perceptions of BL and overall satisfaction with on-line experience due to gender.

	Gender	N	Mean	S.D.	t	Sig.
Students perceptions	Female	176	2.51	0.54	0.45	0.65
	Male	29	2.46	0.50		

This result might be attributed to the fact that both female and male students enjoy similar learning environments at AOU, with equal access to the LMS. The low number of male students (29) as opposed to the high number of females (176) might have affected the result as well.

### Results and discussion of the tenth question

The tenth question investigates if there were statistically significant differences ( $\alpha = 0.05$ ) in the students' perceptions of BL and overall satisfaction with online experience due to academic achievement level (A, B, C, D, or F).

The results of the ANOVA (Table 11) show that there were no statistically significant differences that can be attributed to differences between the various academic achievement levels. This is a trending significance, though. So, there could be some effect of academic level on perceptions.

Table (11):

Results of one way ANOVA examining students' perceptions of BL and overall satisfaction with online experience due to academic achievement level

	Sum of Square	df	Mean Square	F	Sig.
	s				

Student	Between Groups	2.518	4	.629	2.270	0.063
Perceptions	Within Groups	55.450	200	.277		
	Total	57.968	204			

This result suggests that the students use the LMS in the same manner regardless their different achievement levels. Moreover, the result seems to be logical as all students with different achievement levels have to get benefit of the e-materials and e-activities on the LMS which constitute a fundamental support for their face-to-face learning.

### **Conclusion**

The goal of this study was to investigate AOU students' perception of the quality of on-line learning in supporting their face-to-face tutorials. Drawing on previous research on students' perceptions of the teaching-learning environment (Ginns & Ellis, 2007), a modified version of the "QEQ" was adopted in this study. The 32 items of the questionnaire were adapted to the goals of this study and translated to Arabic before distributing them (in both languages) to the 205 students who represent the sample of the study. The items were distributed among (8) domains, namely: quality of instruction in a BL context, student interaction and engagement, clarity of goals and standards, quality of on-line resources, appropriate assessment, appropriate workload, student engagement, and BL and overall satisfaction with on-line experience.

The findings of this research concluded that students' responses were overly positive except towards the domain which deals with workload. The e-materials and e-activities were too loaded for them to thoroughly understand. Although students receive much feedback from their tutors, much of it was not helpful enough. The goals and standards of the courses were very clear to students, e-materials on the LMS were interesting and supporting to face-to-face situations, students preferred online quizzes, the e-materials supported key assessment tasks, and tutors provided continuous access to relevant information about results. Regardless of gender and academic, however, achievement, students were satisfied with the quality of e-materials and activities in supporting their face-to-face learning.

Much research (Prosser and Trigwell, 1999; Ramsden, 2002) has focused on students' experiences of coursework and the relation of these experiences to quality learning outcomes, and a pioneer study (Ginns & Ellis, 2007) investigated the relationship between on-line and face-to-face teaching and learning in which one site of a unit in veterinary science represents the e-learning resource. This study bridges the gap in research by looking at the relationship of learners' experiences across all courses on the LMS to their face-to-face learning. Results from this study have some implications for educators who are involved in BL.

Tutors are advised to pay more attention to the quality of feedback by making it more informative so as to help students figure out their pitfalls. The university should continue the process of computerizing exams. Tutors should also pay attention to the quality of e-materials and e-activities by deciding the extent to which they contribute to the face-to-face learning. Also, tutors and program coordinators should advice student about their study load in relation to their other occupational and personal commitments. Tutors should encourage their students to be more interactive and engaged in the LMS by activating the course forum and online communication office hours.

The use of moodle LMS may help students to work as a learning community as it is believed that "ongoing conversation between student and [tutors] about course structure and [activities] may facilitate students' capacity to conceptualize and value learning as an interactive, social

activity” (Phelan, 2012, p. 41). This notion of learning is consistent with the currently prevalent socio-constructivism (Dawson, 2006, p.153), which emphasise learning as a social and interactive activity. Indeed, Davies and Graff (2005) found that first year undergraduate business students who failed spent a lower proportion of time in the group and communications section of the course’s website.

This study's findings are limited in their generalisability to the participants and time of conducting it. The sample consisted of students specializing in Elementary Education and who were enrolled in the summer semester 2012/2013 at the Jordan Branch of AOU. Although this is the case for all programs in the branch, males represent only about 14% of the sample. Distribution of the questionnaire during the last tutorial session of the summer semester may have resulted in hasty responses.

This study advanced current research and recommends more research as follows:

1. Conducting another study to investigate how on-line learning is being used to complement the face-to-face tutorials of the other three AOU based programmes.
2. Exploring the perceptions of learners with varying learning styles on how online environment may support their face-to-face tutorials.
3. Replicating the study at other branches of AOU by adding some qualitative measures such as semi-structured interviews for the purpose of cross validation.

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# There is more to Success than Meets the Eye: Tutor's Role on Student's Performance in E-Learning

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## Abstract

A major concern for both tutors and learners in e-learning systems is how to compensate the motivational effects that accompany the transfer of education in the traditional, that is, face-to-face learning system. We studied this problem by considering the number as well as the temporal vicinity of on-line interactions between tutors and their students over the Learning Management System (LMS), provided by the Arab Open University. We found that different tutors used the LMS differently frequent. This affected not only the frequency of using the LMS by their students, but also the students' overall performance in the corresponding courses. The more often a tutor interacts with her students over the LMS, the higher the students' overall performance. This suggests that the frequent use of the LMS by tutors could compensate the motivational effects that are otherwise characteristic for face-to-face interactions between tutors and students in the traditional learning system. Moreover, applying regression techniques to the collected data demonstrates the capacity of the number of LMS interactions between tutors and students as a predictor of students' overall performance in a given course. Other students preserve an almost steady frequent number of interactions with their tutors along the whole semester. This emphasizes the role of individual differences (apart from tutor's engagement) for enhanced performance. Our findings imply that beside students' indispensable engagement, achieving successful results in e-learning also depends on the tutor's effective use of the Learning Management System.

**Keywords:** Tutor-Student Online Interactions, E-Learning; Learning Management System

## Introduction

The conventional wisdom holds that a dialogue-based instructing is more effective than a monologue-based one. Previous research quantified this commonplace intuition by comparing students' performance on the basis of receiving 'one-to-one' and 'one-to-many' tutoring from expert tutors (Desmarais and Baker, 2012). It was shown that participants of a dialogue-based learning scored two standard deviations higher than monologue-based learners (Bloom, 1984). This finding was known among educational researchers as the two sigma effect (Anderson et al., 1994). Similar results arose with tutors having less expertise, confirming the objective quality of the two sigma effect (Cohen et al., 1982).

On the other hand, students' performance in a blended-learning system is determined by a bundle of intrinsic as well as extrinsic factors. Lim and Morris (2009) identified three main categories of such factors. Some refer to students themselves, in terms of individual differences, others concern the course delivery, and the third category deals with students' motivation.

It is well known that students in a blended-learning environment have less opportunity to interact with their tutors face to face. This calls for additional efforts on the side of both tutors and students. For example, a student may still need the help of the tutor despite having tried alone to understand the delivered material. The problem becomes if the failing material constitutes a prerequisite for further materials.

The current work focuses on two points. Firstly, we look at how students and tutors of different faculties use the Learning Management System (LMS) of the Arab Open University – Kuwait Branch. Secondly, we test the hypothesis that tutor-student LMS-interactivity enhances students' performance in terms of final course grades.

Finally, we present results that pave the way for further interesting hypotheses, e.g. which category of students, in terms of grade scale, benefits most of tutors' LMS-interactivity.

## Methods

To investigate the role of tutors' online activity on students' performance within blended-learning environments, we analyzed data gathered over the Learning Management System (LMS) of the Arab Open University during the period from February 15<sup>th</sup> to May 15<sup>th</sup>, 2013. Table 1 summarizes our organizing of the data.

### Data

We compared two sets of data: one preserves tutors' LMS activity and the other corresponds to students grades after they have completed their courses. Specifically, records of data demonstrating tutors' LMS activity was collected for tutors in the Faculty of Computer Studies (referred to by the numeric value 1 in column 1 of Tab. 1), the Faculty of English Studies (value 2 in column 1 of Tab. 1) and the Faculty of Business Studies (value 3 in column 1 of Tab. 1) at the Arab Open University – Kuwait Branch. A single record contained the total number of sections and students the tutor had, the number of LMS hits she did, the number of messages she sent to and received from her students and the amount of time (in minutes) she spent on the LMS within the three months period of collecting the data.

Secondly, data corresponding to students' performance were made available *only* for certain courses. This reduced the size of the investigated sample to a total of 26 tutors distributed over the three faculties as follows: 9 tutors from the Faculty of Computer Studies, 10 tutors from the Faculty of English Studies and the remaining 7 tutors belonged to the Faculty of Business.

Table 1: Organizing the data

### Measuring Tutor's LMS Potential Contribution to Students' Performance

The limited number of courses to which students' grades were available restricted the analysis to lesser students than could have been, otherwise, had the full capacity of students' number been deployed for each tutor. However, assuming an evenly tutor-student interaction, we compensated the failing in students' number by averaging the time each tutor spent on the LMS over the total number of her students during the period of data collecting. In so doing, a new measure resulted that described the **Average Duration of a Tutor's LMS Activity (ADTA)**, expressed in minutes per student (column 4 of Tab. 1).

For example, during the time of data collecting, tutor 1 from the Faculty of Computer Studies had 9 sections with a total of 183 students. She spent 725 minutes on the LMS, ranging from posting learning materials to interacting with her students (reading and replying to messages). However, since the students' grades we have for tutor 1 refer to only 6 sections (with no more than 118 students), we consider the number of minutes that tutor 1 potentially assigns to each of her students by dividing 725 by 183. The resulting value, 3.96, describes then tutor's 1 LMS-contribution to the performance of every one of her students. This way, we can compare LMS-contributions of the various tutors regardless the number of students they have whether due to missing sections in the course grades data or differences in the teaching loads.

### Measuring Students' Performance

Students' performance was measured in terms of the number of students who passed the course in question relative to the total number of course attendees. For example, of the 118 students tutor 1 had during the period

Tutor	Dept.	Pass %	ADTA (min/std)
1	1	55	3.96
2	1	59	1.60
3	1	77	1.66
4	1	51	1.16
5	1	63	1.90
6	1	71	3.50
7	1	30	1.35
8	1	43	0.46
9	1	52	0.47
10	2	79	0.00
11	2	93	1.22
12	2	81	0.27
13	2	82	0.74
14	2	68	0.08
15	2	88	0.00
16	2	83	0.41
17	2	85	0.46
18	2	82	11.55
19	2	79	2.16
20	3	58	4.45
21	3	64	0.01
22	3	63	0.37
23	3	65	0.61
24	3	69	1.98
25	3	47	0.94
26	3	65	1.49

of data collecting, 53 couldn't successfully complete their courses. As a result, performance of the students taught by tutor 1 during the time interval of data collecting is 1-(53/118) or 55%. Column 3 of Tab. 1 lists students' performances for the 26 tutors that made up the sample.

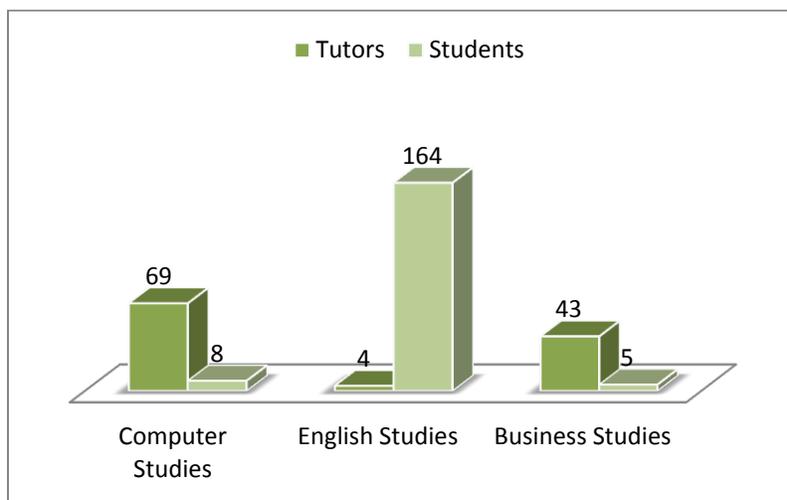
## Results

Concerning the first hypothesis, our analysis shows that different tutors used the LMS quite differently. In average, tutors belonging to the Faculty of Computer Studies sent 69 messages over the LMS to each student and received 8 messages per student. The figures were 4 messages from tutors and 164 from students compared with 43 and 5 messages, respectively, for the Faculties of English Studies and Business Studies (Fig. 1).

To show the effect of tutors' LMS activity on students' performance, we calculated regression correlations between the ADTA and students' performance for each faculty by:

$$r_{ij} = \frac{Cov(x,y)}{\sqrt{Var(x).Var(y)}}$$

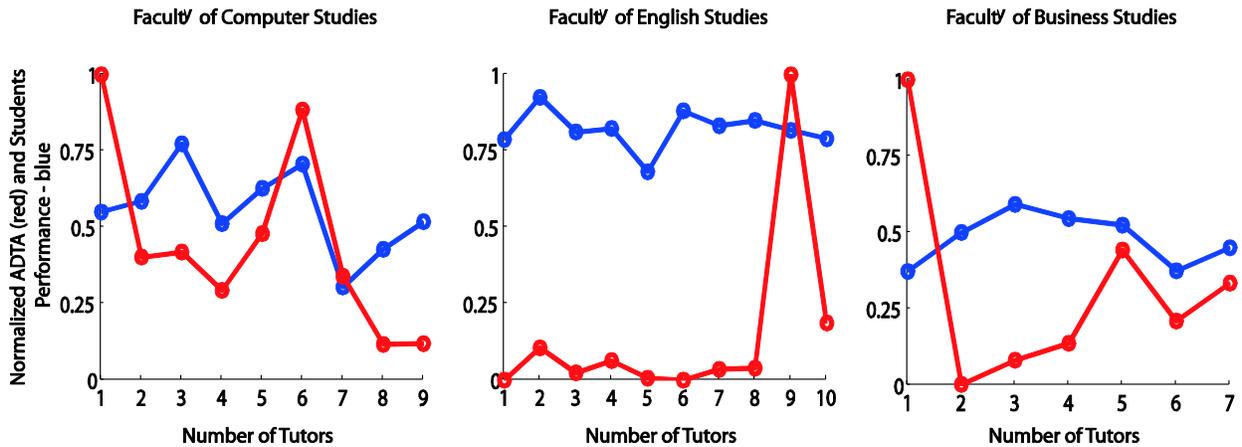
Table 2 summarizes the calculated values.



**Figure 1:** LMS interactions between tutors and students in the various faculties in terms of number of messages they exchanged.

**Table 2:** Correlation values

Faculty	<i>r</i>	<i>p</i>
Computer	0.42	0.25
English	0.02	0.95
Business	-0.14	0.77



**Figure 2:** Plots showing normalized average duration of tutors' LMS activity (red) and the corresponding students' performance (blue).

## Discussion

We have investigated the role of tutors' LMS activity on students' performance in a blended-learning environment. Our sample was taken from the Arab Open University – Kuwait Branch. We were particularly concerned about whether the LMS imposes different conditions on its users (tutors and students) and whether the interaction between tutors and their students affect the performance of the students. We quantified students' performance as the ratio of the number of students who successfully completed a course to the total number of the course attendees.

Regarding the first issue, we grew contemplative through observing the discrepancies in the frequency of using the LMS across the faculties. Especially, members of the Faculty of English Studies showed a modest tendency to use the LMS (Tab. 2). Meanwhile, their students achieved the highest scores (Fig. 2). In terms of a hypothesized correlation between the tutor-student LMS-interactivity and students' performance, this would be a paradoxical result. In particular, in the absence of frequent face-to-face interactions that is adherent to traditional learning. However, to be able to hold our ground, we prefer to enlarge the test sample and expose the data to further analysis.

Yet apart from alleged paradoxes, the above observation sheds light on the role of motivation in e-learning. This includes both intrinsic and extrinsic motivation (Keung, 2012; Litman, 2005). Specifically, not only persons with backgrounds in e-technology should be capable of using the e-media. Rather, e-learning provides an opportunity to improve learners' chances in participating in education (Maguire and Zhang, 2007). In case of members of the Faculty of English, it means tutors should get themselves motivated and motivate their students to effectively use the LMS.

As to the second issue, i.e., the role of tutors' LMS activity on students' performance, only in case of the Faculty of Computer Studies could the data show a positive tendency. The *p*-value in table 2 could not provide statistical significance. However, we think of our results in terms of type II error (false negatives). Accordingly, a larger sample would only provide the statistical significance, confirming the tendency we see in Fig. 2 (first plot).

Interestingly, when running the statistical check, considering this time only students who completed their courses with grades between C and B, the correlation increases from 0.42 to 0.49 with lesser probability to get a correlation as large as the observed value by random chance, when there is effectively no correlation. In this case, the probability decreases from 25% to 18%. This raises another question that should be investigated in further studies, namely, for which students' categories within the grade scale is tutors' LMS-activity especially beneficial? Here, too, preserve this question for further investigations.

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## تجربة الجزائر في التعليم المفتوح والتعليم عن بعد (دراسة تحليلية)

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### ملخص البحث:

تهدف هذه الدراسة إلى إبراز أهم الخطوات التي سبقت التعليم المفتوح في الجزائر عن طريق ما أحدثته وزارة التعليم العالي والبحث العلمي الجزائري تحت اسم المشروع الوطني للتعلم عن بعد والذي يتضمن الشبكة الجزائرية للبحث ونظام التعليم الإلكتروني وشبكة المحاضرات المرئية ويجدر بنا أيضا ذكر الديوان الوطني للتعليم والتكوين عن بعد (1969) وجامعة التكوين المتواصل (1990) التي فتحت منصة للتعليم المفتوح والتعليم عن بعد المسماة إفا، مع إبراز أهم محاورهم واهدافهم وقد اعتمدت هذه الورقة على أهم الإحصائيات المتوفرة في مواقع هذه المؤسسات ، وقد توصلت هذه الدراسة الى حقائق هامة تؤكد أهمية ودور التعليم المفتوح والتعليم عن بعد في توفير فرص التعليم ، ومساهمة هذه المشاريع في اعداد كل الفئات التعليمية ، كما توصلت الى إبراز دور الدولة الجزائرية في تحقيق مبدأ تعميم التعليم، ورؤيتها المستقبلية حول دور التعليم المفتوح ومستقبله الذي يُعد نقلة نوعية في مجال التعليم الحديث. كيف يمكننا تقويم تجربة الجزائر في التعليم المفتوح والتعليم عن بعد ؟

### المقدمة

يُعد التعليم المفتوح من أهم هذه الأساليب التي تساعد الإنسان الفرد والمجتمع على النهوض وتحقيق أهداف التقدم والرفي ومواكبة العصر، فالتعليم المفتوح لم يعد مجرد ضرورة من ضرورات مواجهة التغير المتسارع، بل إنه يسهم في حل كثير من المشكلات وتلافي جوانب القصور الناتجة عن تلبية متطلبات واحتياجات الحياة المعاصرة من التعليم والتدريب والتثقيف في ضوء الأنماط الحديثة من التعليم النظامي وغير النظامي.

في خضم هذه التحولات الكبرى والتي بدأت منذ أوائل السبعينات ، تزايد الاهتمام الدولي بمسألة التعليم المفتوح والتعليم عن بعد ، وظهرت العديد من المبادرات الجادة في الميدان، وقادت هذه الحركة الجامعة البريطانية المفتوحة ، وبذلك تكون قد مهدت الطريق أمام 850 جامعة مفتوحة متواجدة في أكثر من 90 دولة من بينها عدد من الدول العربية.(عكوش وآخرون ، 2012)

اصبح التعليم عن بعد منتشراً بسرعة في جامعات مؤسسات التعليم العالي ليس في الدول المتقدمة فحسب بل حتى جامعات الدول النامية تحاول جادة الاستفادة من ايجابيات هذا النظام، وعلى مستوى الجامعات الخليجية مثلاً فقد أثبتت دراسة استطلاعية عن واقع التعليم عن بعد بجامعات ومؤسسات التعليم العالي بدول مجلس التعاون لدول الخليج العربي أن معظم الجامعات الخليجية تخطط للأخذ بنظام التعليم عن بعد لما له من ايجابيات.(عيفي، 2007)

### 1- موضوع البحث :

تسلمت الجزائر غداة الاستقلال نظاما تعليميا مهترنا، و مهيكلا بالشكل والصورة التي كانت تخدم مصالح المستعمر و أهدافه، عاجزا عن تلبية حاجات أبناء البلد و فاشلا في التعاطي مع متطلبات البناء و النمو الضروريين للدولة الجديدة، وبلغت ظروف الاستلام حدا بالغ الصعوبة، بالنظر لضرورة توفير الوسائل والأدوات الكفيلة بمواجهة التدفق الكمي الهائل لإعداد الجزائريين الراغبين في مزاولة تعليمهم ممن هم في سن التمدرس، و أولئك الذين حرّمهم الاستعمار من هذا الحق، وذلك في غياب تام للإمكانيات المادية و البشرية، و قلة في المنشآت والهيكل و التأطير.(صحراوي ، 2012)

ان من أهم التحديات التي واجهتها الجزائر بعد استقلالها ضرورة اعادة النظر في الجانب التعليمي ، الذي يلعب دورا هاماً باعتباره واحد من أهم أعمدة النهضة والتقدم وعليه فقد تم إحراز إنجازات ملموسة في الخدمات التعليمية في السنوات الأخيرة ، جسدتها الدولة الجزائرية ببناء مؤسسات تعليمية و انتهاج سياسة التعليم ومجانيته ، بهدف بناء نظام تعليم عالي فعال وعصري ، وانطلاقا من هذا جاءت فكرة إنشاء مركز يعمل على تعميم التعليم عن طريق المراسلة ، في بداية

الستينيات من القرن الماضي ، تم انشاء الديوان الوطني للتعليم والتكوين ومنه كانت بداية التعليم عن بعد في الجزائر فقد سعت الدولة الجزائرية الى تحديث العملية التعليمية ، قصد تخفيف نقائص التأطير، من جهة، وأيضا من أجل تحسين نوعية التكوين، تماشيا مع متطلبات ضمان النوعية، تم إدخال طرائق جديدة للتكوين والتعليم، تتضمن إجراءات بيداغوجية جديدة خلال مسار التكوين . لهذا تم إطلاق المشروع الوطني للتعليم عن بعد، والذي يرمي إلى تحقيق أهداف متنوعة ، واستمرت الجزائر في مواكبة مستجدات العصر والاستفادة من التقنية وتوظيفها في تطوير العملية التعليمية من ذلك الاستفادة من التعلم الالكتروني والتعليم عن بعد في تطوير التعليم الجامعي فسخرت من أجله ميزانية ضخمة تقدر (8,831,500) دولار امريكي وأسفر هذا الاهتمام عن مبادرة بعض الجامعات في تطبيق التعليم عن بعد حاليا على شبكة منصة للمحاضرات المرئية و التعليم الالكتروني، موزعة على غالبية مؤسسات التكوين، والدخول إلى هذه الشبكة ممكن عن طريق الشبكة الوطنية للبحث.

## 2- قراءة في نظام التعليم عن بعد والتعليم المفتوح في الجزائر:

### 1-2 الديوان الوطني للتعليم والتكوين عن بعد

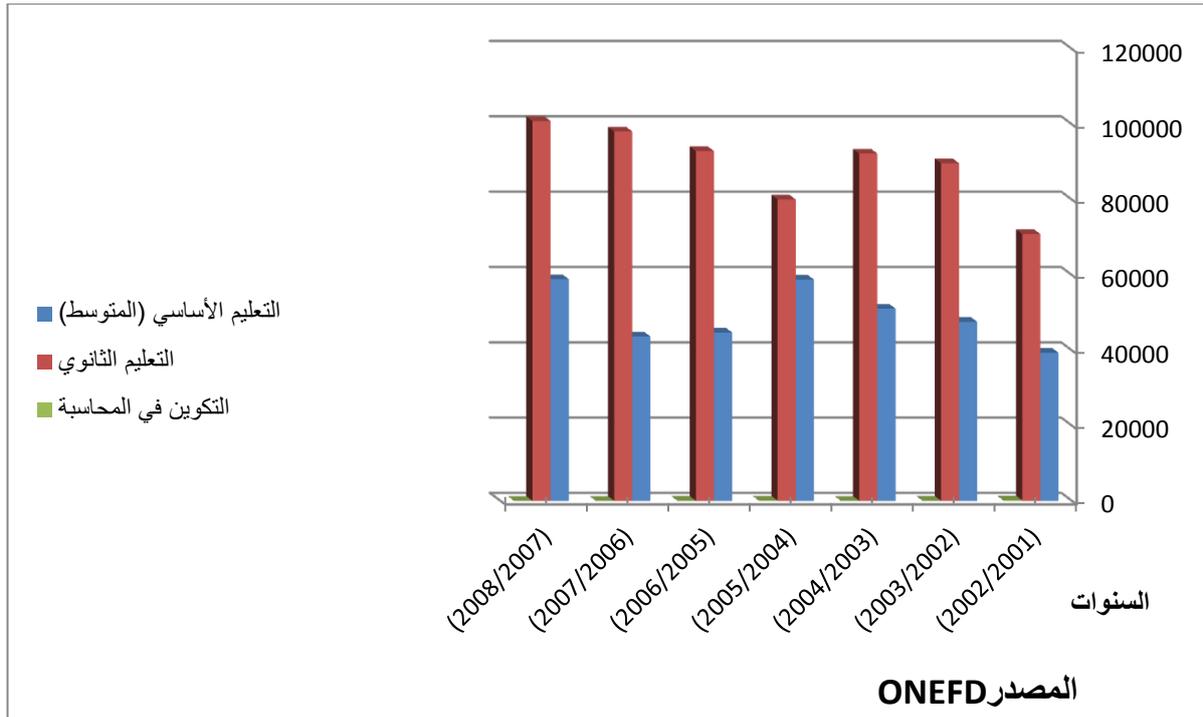
أنشأ المركز الوطني للتعليم المعتم والمتم بالمراسلة عن طريق الإذاعة والتلفزيون بمقتضى الأمر رقم 69-67 المؤرخ في ربيع الأول عام 1389 الموافق لـ22 ماي سنة 1969 وهي مؤسسة عمومية ذات طابع إداري تتمتع بالشخصية المعنوية والاستقلال المالي ويوضع الديوان تحت وصاية الوزير المكلف بالتربية الوطنية سمي بعد ذلك الديوان الوطني للتعليم والتكوين عن بعد ، ومن مهامه منح تعليم مطابق للبرامج الرسمية بالمراسلة أو باستعمال تكنولوجيات الإعلام والاتصال لفائدة الأشخاص اللذين لم يتمكنوا من مواصلة تدرسه العادي.

### 2-3 احصائيات :

#### احصائيات المسجلين في السنوات الدراسية (2001-2008)

إحصائيات السنة الدراسية							
) 2008/2007 (	) 2007/2006 (	) 2006/2005 (	) 2005/2004 (	) 2004/2003 (	) 2003/2002 (	) 2002/2001 (	
58932	43695	44773	58829	51098	47631	39420	التعليم الأساسي (المتوسط) (ط)
100887	98116	92929	80086	92251	89686	70901	التعليم الثانوي
53	58	61	95	52	77	154	التكوين في المحاسبة
159872	141869	137763	139010	143401	137394	110475	المجموع

الشكل رقم (01) مبيان الديوان الوطني للتعليم والتكوين عن بعد



#### 4-2 المخبر الافتراضي:

أنشأ الديوان الوطني للتعليم عن بعد المخابر الافتراضية لصالح المستويات الثانوية والأساسية لتعلم مادة الفيزياء وتغير ظواهرها و المقادير المؤثرة فيها، كما أنه في الحالات التي تكون فيها التجربة صعبة الإنجاز أو لا تسمح فيه مدة التجربة بالمتابعة أو لا يتوفر التجهيز اللازم للقيام بالتجربة يصبح فيه استعمال تقنيات المخبر الافتراضي أكثر من ضروري، كما يمكن للمتعلم باستعمال تقنية المحاكاة (la simulation) أن تستعمل وتندرب على تجهيز التجريبي بكل أمان. (موقع الديوان الوطني)

#### 5-2 المعالم :

هو عبارة عن فضاء تعليمي إلكتروني، أنشأه الديوان كأرضية تعليمية رقمية تتضمن دروسا تفاعلية بالصوت والصورة لتلاميذ السنة الرابعة متوسط والثالثة ثانوي عن طريق الأنترنت (باستعمال تقنية Skype) وغير حصص زمنية معينة في مختلف المواد وذلك تحقيقا للهدف البيداغوجي أولا ومساعدة المتعلمين في تنظيم أوقاتهم وتعليمهم كيفية العمل على شكل مجموعات عبر غرف المحادثة ، وسبقه في ذلك مخبر سمعي بصري في فيفري عام 1987 لإنتاج الوثائق السمعية البصرية. (موقع المعالم )

#### 3- جامعة التكوين المتواصل:

جامعة التكوين المتواصل هي مؤسسة عمومية ذات طابع إداري تتمتع بالشخصية المعنوية و الاستقلالية المالي، تحت وصاية وزارة التعليم العالي و البحث العلمي، أنشئت بموجب المرسوم التنفيذي رقم 149/90 المؤرخ في 1990/05/26.

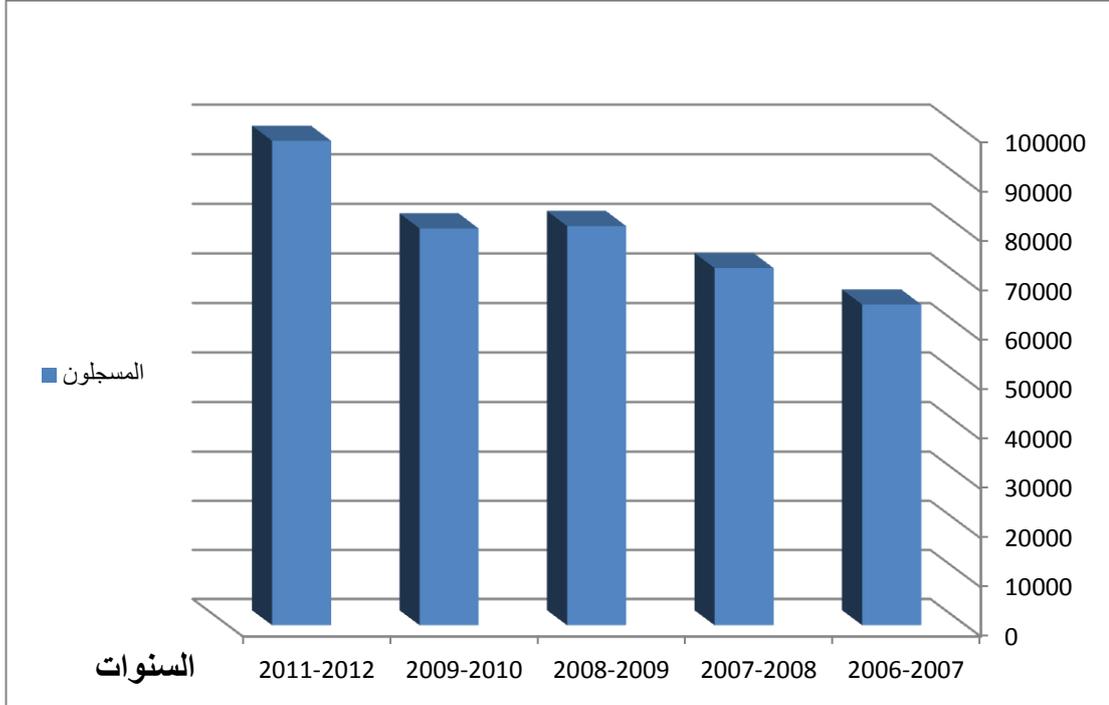
جاء انشاء جامعة التكوين المتواصل تلبية لحاجات كثير من خريجي الثانويات الذين لم يلتحقوا بالجامعة العادية لسبب أو لآخر ، كما جاءت هذه الجامعة ايضاً تلبية العمال والموظفين في تحسين مستواهم العلمي بعد أن تخرجوا في مراكز ومؤسسات التكوين ، فتقدم جامعة التكوين المتواصل بهؤلاء وأولئك تكويناً مسائياً، اي بعد أوقات الدوام الرسمي ، يتولى هذا التكوين أساتذة من ذوي الخبرة والكفاءة العالية من الجامعات العادية. (بورقيبة، 2005)

وتقترح تكوينات مكللة بشهادة جامعية لتتطابق مع احتياجات سوق الشغل، وتهدف الى تحسين مستوى و قدرات العمال، أما التأطير البيداغوجي ذو مستوى عل من أساتذة دائمين ومشاركين

بالإضافة الى توفرها على أزيد من 32 تخصصاً عبر 53 مركز ، وتتوفر جامعة التكوين المتواصل على محطة اذاعية متخصصة ومحطة تلفزيونية بثت أول محاضرة تعليمية سنة 1999 وتقدم برامجها على القناة الوطنية الجزائرية كل يوم

جمعة . بالإضافة الى انشاء فضاء مخصص للأخبار الهامة و المستجدات و المعلومات الضرورية التي يستفيد منها كل الفاعلين على مستوى الأراضية التعليمية و على رأسهم المحور الأساسي في العملية التكوينية و يتعلق الأمر بالمتكوّن سميت خلية التكوين المفتوح و عن بعد.

الشكل رقم (02) مبيان احصائيات جامعة التكوين المتواصل



المصدر: موقع الديوان الوطني للإحصائيات الجزائري

تم تسجيل قفزة نوعية في تسجيلات المتكويين حيث بلغ عددهم في الموسم الدراسي (2006-2007) 65043 مسجل الى 98080 في موسم (2011-2012) .

### 1-3 إفاذ :

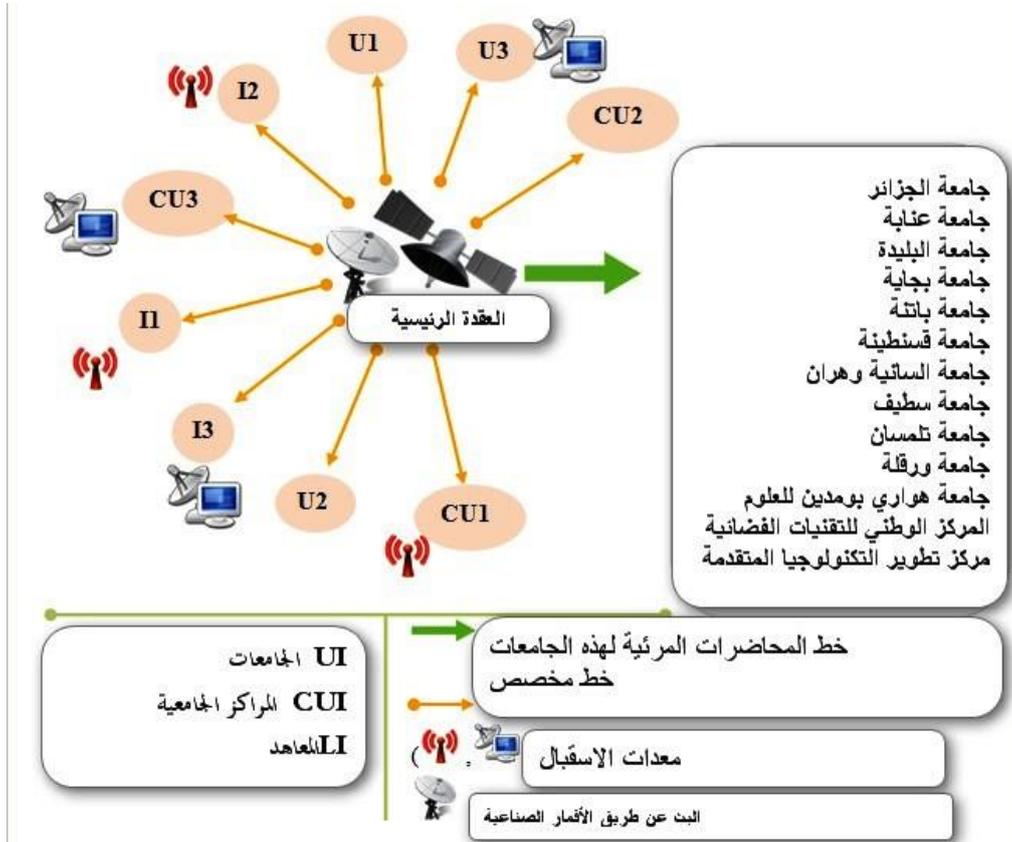
إفاذ هو نظام تسيير للمحتوى البيداغوجي تم تطويره عبر موقع الكتروني في إطار مشروع مشترك ويهدف إلى تطوير منصة شاملة للتعليم المفتوح والتعليم عن بعد وفقا لمعيار سكورم (SCORM) منصة إفاذ تسمح المتعلمين للحصول على الدروس عبر الخط وإجراء اعمال مشتركة والقيام بالاختبارات التقييمية في حين تلقي الدعم والمتابعة المستمرة من طرف الادارة، وتسمح هذه المنصة للمتعلمين الدخول الى مختلف التخصصات التكوينية المقترحة والمحاضرات والدروس. (موقع إفاذ)

### 4- المشروع الوطني للتعلم عن بعد :

تم إطلاق المشروع الوطني للتعليم عن بعد سنة 2006 التابع لوزارة التعليم والبحث العلمي الجزائري من أجل تحسين نوعية التكوين، تماشيا مع متطلبات ضمان النوعية، ويتكون من شبكة المحاضرات المرئية التي تدمج كل المؤسسات الجامعية تسمح بتسجيل وبث غير مباشر للدروس فإنها مستعملة أساسا في شكل متزامن، وقد تم توسيع الشبكة بتزويد المدارس التحضيرية بمخابر افتراضية وقاعات تدريس متعددة الوسائط موصولة بشبكة خاصة للمحاضرات المرئية. أما

نظام التعليم الإلكتروني يركز على قاعدة للتعليم عن بعد في صيغة (زبون- موزع) يسمح بإعداد والوصول إلى موارد عبر الخط، في شكل غير متزامن (مؤخر). وبإمكان المتعلم الوصول إلى هذا النظام في أي وقت وأي مكان.

الشكل رقم (03) الهيكلية الشاملة لنظام المحاضرات المرئية



المصدر: وزارة التعليم العالي والبحث العلمي الجزائر

سبعة وسبعون (77) مؤسسة معنية بالمشروع يعد مركز البحث العلمي والتقني النقطة المركزية في المشروع.

#### 1-4 الشبكة الجزائرية للبحث (Algerian Research Network)

يرتكز التعليم عن بعد حاليا على شبكة منصة للمحاضرات المرئية والتعليم الإلكتروني موزعة على غالبية مؤسسات التكوين ، والدخول الى هذه الشبكة يمكن عن طريق الشبكة الوطنية للبحث وتعتبر النواة المركزية التي تسمح بوضع نظام الإعلام والتعليم العالي والبحث العلمي، من خلال إقامة مجموعة من الخدمات الجديدة المتكاملة، ( G2C وG2G ) في خدمة الطلبة، الأساتذة، الباحثين، الموظفين، والمواطنين، وتهدف الشبكة الى:

- تطوير البنية التحتية للاتصالات .
- التكامل بين جميع الهياكل من أجل توفير بنية تحتية تكنولوجية والبرمجيات.
- تطوير البنية التكنولوجية للتعليم الإلكتروني .
- انشاء قناة شبكية . (webtv.cerist). (موقع الشبكة)

#### 5- الاستنتاجات والخلاصة :

في ضوء العرض السابق يستخلص أن الدولة الجزائرية جهزت غلاف مالي مسموح لمؤسسات وزارة التعليم العالي والتربية الوطنية للالتحاق بالنظام التعليمي العالمي الحديث لإقامة نظام للتعليم عن بعد .

القفةزة النوعفة التي حققها الءفوان الوطنف للءلعم بفنشفط و ءعمفم الءلعم ومساءءة المءعلمفن لبلوغ شهاءاء أفصل عن طرفق كل الوسائل الءفءة (المراسلة؁ أقراص مضغوطة؁ وسائل سمعفة بصرفة؁ مخابر افتراضفة؁ فضاء ءلعمف الكءرونف).

ءوسفع نطاق الءلعم عن بعء بفصل المشروع الوطنف للءعلم عن بعء فف اءلب ءامعاء ءزانر.

ءطففق وسائل ءءنولوجفا الاعلام والاءءصال الءفءة قنواء ءلعمفة ومنصاء الكءرونفة (إفاء؁ المعالم؁ قناء ءلعمفة خاصة بمركز البءء العلمف والءقنف).

بناء شركاء فف مءال الءعلم الكءرونف بفن مؤسساء الءلعم العالف والءواص (مءل ءربة EEPAD المءرسة الرقمة (

واءفرأ فمكن القول من ءلال ءراسة ءربة الءف ءاضءها ءزانر والمراهل الءف مرء بها والأشواء الءف قءءءهما نءو الأهداف الءف ءسعى للءققها والءف منها اءاحة الءءماء الءلعمفة الكءرونفة لكافة المءعلمفن بفصل برامء الوزارة الوصفة؁ و منح ءلعم مطابق للبرامء الرسمى بالمراسلة أو باءءعمال ءءنولوجفاء الإعلام والاءءصال لفائدة الأشءاص اللءفن لم فءمءنوا من مواصلة ءمءرسم العاءف؁ هءه ءربة انصبء على قءاع الءلعم العام والءلعم ءامعف وقبل ءامعف وبهءا ءكون قء اءبء نءاح ءلك.

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# المستودعات الرقمية (LOR) كمنصات تعليمية في التعليم المفتوح

بحث مقدم للمؤتمر الأول للجامعة العربية المفتوحة للتعليم المفتوح: الدور، التحديات، التطلعات، الكويت

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## الملخص:

تتسارع خطى مؤسسات التعليم العالي لتحقيق تعليم أكثر مرونة مما ساهم بمرور صيغ جديدة للتعليم تعتمد إلى توظيف التكنولوجيا التي تمثل الملمح الرئيس للتغيير في التعليم العالي، فظهر لنا التعليم المفتوح كأحد الاتجاهات التعليمية الحديثة ضمن تلك المؤسسات، رافقه بروز منصات تعليمية تتخطى حدود القاعات الجامعية من أبرزها المستودعات الرقمية (LOR) Learning Object Repository كمنصات ثرية خلقت موارد تعليمية جديدة غيرت تماما التوقعات للتعليم في جميع أنحاء العالم حيث جعلت هذه المستودعات التعليم في متناول الجميع، وشكلت منبرا لتبادل الخبرات والموارد التعليمية، وتتناول هذه الدراسة أهمية منصات (LOR) في التعليم المفتوح إلى جانب معوقات استخدامها في التعليم المفتوح والحلول المقترحة لتطوير استخدامها وضمان جودتها في هذا المجال بالملكة العربية السعودية.

كلمات مفتاحية: المستودعات الرقمية، التعليم المفتوح، LOR.

## المقدمة:

يشهد عالم التعليم تحولات جوهرية يرافقها اهتمام مطرد بتكنولوجيا الحاسبات والمعلومات والاتصالات، والواقع أن المرء سيرى أينما توجه تدافع المؤسسات التعليمية من أجل تبني التكنولوجيا بكافة أدواتها وأساليبها، وعلى الأخص مؤسسات التعليم العالي نتيجة للضغوط المتزايدة عليها خاصة فيما يتعلق بتوسيع مجال خدماتها التعليمية وتمكين التعليم العالي للجميع، وهذا ما ساهم بمرور أنماط تعليمية جديدة كالتعليم المفتوح باعتباره منظومة تعليمية تتجاوز حدود القاعات الدراسية وتقوم على العديد من التقنيات التي تتيح قدرا كبيرا من المرونة في متى وأين وكيف يتم التعليم.

ويعد استثمار التعليم المفتوح في التعليم العالي ضرورة ملحة باعتباره نموذجا رائدا لحل مشكلات التعليم الجامعي التقليدي (حسين، ٢٠٠٨)، ونظرا لكونه يستند إلى مجموعة من المعايير في طليعتها بناء ثقافة المشاركة التي تمكن أي فرد من أن يصبح كاتب ومحرر وطالب، فعالم التكنولوجيا يجعل الفرد ينتقل إلى عالم آخر ويشارك بقدراته ومهاراته في ذلك العالم، كما أن المرء يتعلم مهارات كثيرة عبر التواصل من خلال كافة الأساليب التي يمكن أن يعبر بها عن أفكاره (Jenny et al , 2012).

وتمثل تكنولوجيا الحاسبات والمعلومات والاتصالات ركائز رئيسة في التعليم المفتوح ترتبط به فكرا وتطبيقا، وتوفر له شبكات تعلم عالمية تضم من خلالها بيئات تعليمية غنية ومتنوعة للغاية تساهم في تحقيق تعليما أفضل، مما أدى إلى حدوث نمو معرفي ومعلوماتي هائل تمثل منصات المستودعات الرقمية (LOR) حاليا جزءا لا يتجزأ منه (AlMegren& Yassin,2013). ولتحقيق الاستثمار الأمثل للمستودعات الرقمية (LOR) في التعليم المفتوح فلا بد من تبين الأهمية الفعلية لهذه المستودعات في التعليم المفتوح من منظور عملي والتعرف على معوقات استخدام المستودعات الرقمية (LOR) في التعليم المفتوح ومقترحات تطوير استخدامها في هذا المجال ، لذا وظفت هذه الدراسة المنهج المختلط الذي يتيح فرصة استخدام كل من الأساليب الكمية والنوعية لجمع وتحليل البيانات، مستخدمة لهذا الغرض أداتين متمثلتين في الاستبيان والمقابلة الموجهة تم تطبيقها على مجموعة قوامها (١٠٠ مختص) من الأكاديميين والمسؤولين عن مراكز التعليم الإلكتروني والتعلم عن بعد في الجامعات السعودية ، وتعد نتائج هذه الدراسة مهمة لأنها قد تقدم أفكارا من شأنها أن تطور الاستفادة من المستودعات الرقمية LOR في مؤسسات التعليم المفتوح بالمملكة العربية السعودية ، كما أنه من المأمول كذلك أن تزود صانعي القرار والمصممين التعليميين والمبرمجين بحلول لتنمية التعليم المفتوح.

## الخلفية النظرية:

### أولا: التعليم المفتوح:

يمثل التعليم المفتوح حركة مبتكرة في التعليم ذاع صيتها مع إنشاء الجامعة المفتوحة بالمملكة المتحدة في العام ١٩٦٣م باسم جامعة الهواء، ثم أطلق عليها اسم الجامعة المفتوحة وبدأت الدراسة بها في العام ١٩٧٠م (سالم، ٢٠٠٤: ٣٩٩)، ويشير مصطلح التعليم المفتوح إلى نظام يعزز من فرص التعليم داخل نظم التعليم الرسمي أو يوسع فرص التعليم وراء نظم التعليم الرسمي (Dantoni, 2009)، ويرى عامر (٢٠٠٧: ١١٣) بأن التعليم المفتوح يتكون من شقين هما: الفلسفة التي تهدف إلى إتاحة فرص التعليم لأكثر عدد من الأفراد ويمكنهم من التعليم بصورة أكثر إنتاجية وملائمة لاحتياجاتهم، إلى جانب الطريقة ويقصد بها مجموعة أساليب التدريس والتعليم التي تتم باستخدام مواد التعلم الذاتي التي تتضمن مجموعة متعددة من الوسائط، وتوجد العديد من المزايا التي تحفز المجتمعات والمؤسسات التربوية على تبني التعليم المفتوح وتطوير الاستراتيجيات المعنية به من ضمنها: انخفاض التكاليف والمرونة الهائلة لهذا النمط التعليمي، تحسين نوعية التعليم وتسهيل التعاون بين الأكاديميين لتطوير المحتوى، تحسين التواصل وتعزيز المصلحة الاجتماعية (Alexander&Spiro,2012). إلا أن الانفتاح يولد الانفتاح وفقا لما أورده (Jenny et al , 2012) ، لذا لا بد من الوقوف على التحديات التي تواجه التعليم المفتوح، ودراسة كيف تحدث المشكلات عند وجود ضعف وقصور في إعداد البرامج أو افتقار التعليم المفتوح إلى متطوعين أكفاء لتطويره، فقد دعا جيني وآخرون إلى ضرورة وجود تعويض مادي ومقابل معقول لبناء المحتوى التعليمي المفتوح وان يكون هناك وضوح وتفعيل قوي لبرامج التعليم المفتوح وتحديثها باستمرار أو رصد مكافآت لهؤلاء الذين يضعون محتويات التعليم المفتوح لضمان استمراره وفعالته ، مشيرين الى أن العامل الأساسي في القصور في تصميم برامج للتعليم المفتوح هو عدم تغير الثقافة الحالية ، إذ لا توجد مشروعات كافية في مجال التعليم المفتوح، ولا توجد مشاركة فعالة من قبل الكثير من الأفراد.

## ثانياً: المستودعات الرقمية (LOR):

بدأ في منتصف العام ١٩٩٠م ظهور المصادر التعليمية بشكل إلكتروني، مشتملة على كم هائل من الكائنات التعليمية متمثلة في شرائح الباوربوينت والرسومات التوضيحية وملفات الصوت والفيديو وغيرها ( الخليفة وديفيوس، ٢٠٠٥م)، ويتم الاحتفاظ بهذه الكائنات التعليمية عادة في نظم قابلة للوصول من خلال شبكة الإنترنت يطلق عليها مسمى: مستودعات الكائنات التعليمية Learning Object Repositories أو اختصاراً (المستودعات الرقمية) ويرمز لها بالرمز (LOR) والتي يعرفها جودت وعبدالعزيز (٢٠٠٩) على أنها نظم معلومات متاحة عبر الانترنت تعمل على حفظ الكائنات التعليمية ومعالجتها وإدارتها بالتكامل مع نظم ادارة المقررات الالكترونية CMC، كما وصفها عبدالباسط (٢٠١١: ٦٣) بأنها "مماثلة بنوك يمكن إعادة استخدام مواردها في العديد من المواقع التعليمية الجديدة".

وفي ظل انتشار نظم إدارة التعلم وما يمثّلها من تقنيات متجددة ، تتوفر لدى العديد من المؤسسات التعليمية دوافع حقيقية لتشجيع المعلمين والمتعلمين على التوجه لاستخدام المستودعات الرقمية (LOR) لما تتيحه من مرونة في طريقة استعراض المعلومات وقابلية الوصول لها دون قيود زمانية أو مكانية ( Smith, 2004 )، وتساهم المستودعات الرقمية (LOR) في تطوير التعليم من خلال المزايا التي تمتلكها، فهي توظف التكنولوجيا بشكل فعال وتستخدم هذه التكنولوجيا لخلق موارد جديدة للتعليم الفعال ، كما توفر هذه المستودعات المشاركة في المحتوى من خلال توفيرها إمكانية تحرير المحتوى وتعديله وتطويره وهذا ما يدعم العلاقات بين المجتمعات المستفيدة من هذه المستودعات (Nash,2005)، ومن المزايا الأخرى التي تمتاز بها المستودعات الرقمية كذلك إتاحة المحتوى التعليمي بأي زمان ومكان وتيسير سبل الوصول إليه والاستفادة منه ، ويعد توفير الوقت والجهد والتكلفة من أهم ما يميز المستودعات الرقمية فهي تتيح المحتوى بصورة أسرع وأحدث وأقل تكلفة من الكتب الدراسية أو الدورات التدريبية (طلبة وأبو السعود، ٢٠٠٨).

وللمستودعات الرقمية أهمية كبرى لعموم المؤسسات التربوية ذلك أنها تساعد على تطور هذه المؤسسات باعتبارها امتداداً طبيعياً للمؤسسات الأكاديمية ، تحافظ على أصولها الفكرية وتولد العديد من الأبحاث الأساسية، ومكون رئيس في تطوير بنية الاتصالات التعليمية، كما أن لدى هذه المستودعات إمكانيات كبيرة للتأثير إيجابياً على نوعية التعليم والبحث والتجربة . (Hayes, 2005)، إلا أنه على الرغم من المزايا الكبيرة التي توفرها المستودعات الرقمية وفعاليتها في تحسين جودة التعلم إلا أن هناك مجموعة من العقبات التي تعوق استخدامها، وقد حددها طلّبة وأبو السعود (٢٠٠٨) في: عدم وضوح الفكرة لدى العديد من العاملين في مؤسسات التعليم، صعوبة البحث عنها وتحديد مكانها، حداثة الفكرة، بالإضافة إلى المهارة والجهد والتكلفة الكبيرة التي يتطلبها تطوير الكائنات التعليمية.

## النتائج:

### أولاً: نتائج المقابلات:

شملت المقابلات الموجهة Structured interviews للمختصين محورا رئيسا تمثل في أهمية المستودعات الرقمية (LOR) من واقع استخدامها في التعليم المفتوح، وتم تطبيق الأساليب الكيفية لتحليل بيانات المقابلات، حيث تم استخدام الأسلوب الاستقرائي

لتحليل البيانات الكيفية (Creswell,2002) Inductive Approach for Qualitative Data Analysis، وأظهرت استجابات المشاركين في هذه المقابلات بعد معالجتها وتحليلها أهمية المستودعات الرقمية (LOR) فيما يلي مرتبة حسب تكرار ورودها:

١. تساهم في بناء مقررات التعليم المفتوح بجودة عالية.
٢. توفر مصادر تعليمية ذات جودة عالية يمكن استخدامها بسهولة في التعلم الذاتي أو التعلم المدمج.
٣. تمثل أحد روافد التنمية المهنية في التعليم المفتوح.
٤. تدعم التواصل العلمي الفعال وتشكل منبرا لتبادل الخبرات.
٥. تشجع على التعاون والبحث والابتكار والنشر العلمي.
٦. المرونة والتنوع والثراء المعرفي في المصادر التعليمية.
- ٧.ديمومة المصادر التعليمية واستمرارها لفترات طويلة.
٨. تحديث المصادر التعليمية المتنوعة بصورة مستمرة ومتوافقة مع التطورات العلمية والاكاديمية.
٩. خفض تكلفة التعليم العالي ورفع جدواه الاقتصادية.
١٠. رفع جودة مخرجات التعليم العالي.
١١. تعزيز التعلم الذاتي المستمر مدى الحياة.

وبشكل عام فقد أكد جميع المختصين على أهمية المستودعات الرقمية (LOR) في التعليم المفتوح واعتبروها معيار من معايير جودة مؤسسات التعليم المفتوح.

## ثانياً: نتائج الاستبيان:

أولاً: توضح نتائج الاستبيان الذي طبق لاستيضاح معوقات استخدام المستودعات الرقمية (LOR) في التعليم المفتوح ما يلي:

م	معوقات استخدام المستودعات الرقمية (LOR) في التعليم المفتوح	موافق بشدة	موافق	محايد	غير موافق بشدة	غير موافق	المتوسط المرجح	الانحراف المعياري	الاتجاه	المرتبة
١	عدم وضوح فكرة المستودعات الرقمية LOR لدى العديد من العاملين في مؤسسات التعليم .	٧٤ %٧٤	١٦ %١٦	٤ %٤	٦ %٦	٠ .	٤.٥٨	٠.٨٣١	اوافق بشدة	٧
٢	تدني الوعي باستراتيجيات وسياسات المستودعات الرقمية LOR.	٨٠ %٨٠	١٢ %١٢	٧ %٧	١ %١	٠ .	٤.٧١	٠.٦٤٠	اوافق بشدة	٤
٣	صعوبة وجود اقتصاد خاص بهذه المستودعات.	٩١ %٩١	٢ %٢	٧ %٧	٠ .	٠ .	٤.٨٤	٠.٥٢٦	اوافق بشدة	٢
٤	غياب الحفزات الداعمة للمشاركة في المستودعات الرقمية LOR.	٩٥ %٩٥	٤ %٤	١ %١	٠ .	٠ .	٤.٩٤	٠.٢٧٧	اوافق بشدة	١
٥	القيود والشروط للاستفادة من محتويات المستودعات الرقمية LOR.	٧٢ %٧٢	١٥ %١٥	١٢ %١٢	١ %١	٠ .	٤.٥٨	٠.٧٤١	اوافق بشدة	٧
٦	صعوبة استخدام البعض من المستودعات الرقمية LOR.	٧٤ %٧٤	٢٢ %٢٢	١ %١	٣ %٣	٠ .	٤.٦٧	٠.٦٥٢	اوافق بشدة	٦
٧	صعوبة البحث عن المستودعات الرقمية LOR وتحديد أماكنها.	٧٩ %٧٩	١٣ %١٣	٨ %٨	٠ .	٠ .	٤.٧١	٠.٦٠٧	اوافق بشدة	٤
٨	المهارة والجهد والتكلفة الكبيرة التي تتطلبها عملية تطوير المستودعات الرقمية.	٨١ %٨١	١١ %١١	٤ %٤	٣ %٣	١ %١	٤.٦٨	٠.٧٧٧	اوافق بشدة	٥
٩	التباين في جودة المصادر التعليمية في المستودعات الرقمية LOR.	٨٣ %٨٣	٨ %٨	٩ %٩	٠ .	٠ .	٤.٧٤	٠.٦١٣	اوافق بشدة	٣
١٠	ضعف البنى التحتية اللازمة لاستثمار المستودعات الرقمية LOR في التعليم المفتوح.	٤٤ %٤٤	٣٨ %٣٨	١٧ %١٧	١ %١	٠ .	٤.٢٥	٠.٧٧٠	اوافق بشدة	٨
	الاتجاه العام لمعوقات استخدام المستودعات الرقمية (LOR) في التعليم المفتوح	١ %١	١ %١	٧ %٧	١٤ %١٤	٧٧ %٧٧	٤.٦٥	٠.٧٤٤	اوافق بشدة	

احتل غياب الحفزات الداعمة للمشاركة في المستودعات الرقمية LOR صدارة معوقات استخدام المستودعات الرقمية (LOR) في التعليم المفتوح وبتوسط حسابي ٤.٩٤ ، تلى ذلك في المرتبة الثانية صعوبة وجود اقتصاد خاص بالمستودعات الرقمية وبتوسط حسابي ٤.٨٤ ، وجاء في المرتبة الثالثة التباين في جودة المصادر التعليمية في المستودعات الرقمية LOR بمتوسط حسابي ٤.٧٤ ، وفي المرتبة الرابعة جاء كل من تدني الوعي باستراتيجيات وسياسات المستودعات الرقمية LOR بمتوسط حسابي ٤.٧١ ، إلى جانب صعوبة

البحث عن المستودعات الرقمية LOR وتحديد أماكنها بذات المتوسط الحسابي ٤.٧١، وحل في المرتبة الخامسة من هذه المعوقات المهارة والجهد والتكلفة الكبيرة التي تتطلبها عملية تطوير المستودعات الرقمية و بمتوسط حسابي ٤.٦٨، وفي المرتبة السادسة جاء صعوبة استخدام البعض من المستودعات الرقمية LOR و بمتوسط حسابي ٤.٦٧، وفي المرتبة السابعة جاء كل من عدم وضوح فكرة المستودعات الرقمية LOR لدى العديد من العاملين في مؤسسات التعليم بمتوسط حسابي ٤.٥٨، إضافة إلى القيود والشروط للاستفادة من محتويات المستودعات الرقمية LOR و بمتوسط حسابي ٤.٥٨، واحتل ذيل هذه المعوقات بالمرتبة الثامنة ضعف البنى التحتية اللازمة لاستثمار المستودعات الرقمية LOR في التعليم المفتوح و بمتوسط حسابي ٤.٢٥.

ثانيا: توضح نتائج الاستبيان الذي طبق لاستيضاح الحلول المقترحة لتطوير استخدام المستودعات الرقمية (LOR) وضمان جودتها في التعليم المفتوح ما يلي:

المرتبة	الاتجاه	الانحراف المعياري	المتوسط المرجح	غير موافق بشدة	غير موافق	محايد	موافق	موافق بشدة	الحلول المقترحة لتطوير استخدام المستودعات الرقمية (LOR) وضمان جودتها في التعليم المفتوح	م
				العدد %	العدد %	العدد %	العدد %	العدد %		
٥	وافق بشدة	٠.٢٣٨	٤.٩٤	٠	٠	٠	٦	٩٤	دعم التعاون العلمي والبحثي والتعليمي في مجال المستودعات الرقمية بين مؤسسات التعليم المفتوح.	١
٦	وافق بشدة	٠.٢٥٦	٤.٩٣	٠	٠	٠	٧	٩٣	تحفيز البحث والتأليف والابتكار من أجل التنمية المستدامة للمستودعات الرقمية.	٢
٢	وافق بشدة	٠.١٤١	٤.٩٨	٠	٠	٠	٢	٩٨	اتاحة الفرصة للمختصين والمبرمجين لمناقشة قضايا المستودعات الرقمية.	٣
٤	وافق بشدة	٠.٢١٩	٤.٩٥	٠	٠	٠	٥	٩٥	المساهمة في التطوير المهني للأكاديميين بمجال المستودعات الرقمية.	٤
٤	وافق بشدة	٠.٢١٩	٤.٩٥	٠	٠	٠	٥	٩٥	زيادة وعي المجتمع الأكاديمي بقضايا حقوق الملكية الفكرية في المستودعات الرقمية.	٥
٨	وافق بشدة	٠.٢٨٨	٤.٩١	٠	٠	٠	٩	٩١	دعم البحث العلمي في مجال المستودعات الرقمية.	٦
٥	وافق بشدة	٠.٢٣٨	٤.٩٤	٠	٠	٠	٦	٩٤	تكييف المستودعات الرقمية لحاجات مؤسسات التعليم المفتوح.	٧
٧	وافق بشدة	٠.٢٧٢	٤.٩٢	٠	٠	٠	٨	٩٢	إصدار أدلة مرجعية مخصصة بالمستودعات الرقمية LOR.	٨
٣	وافق بشدة	٠.١٩٤	٤.٩٦	٠	٠	٠	٤	٩٦	توفير دعم مادي مستمر لضمان استمرارية المستودعات الرقمية.	٩
١	وافق بشدة	٠.١	٤.٩٩	٠	٠	٠	١	٩٩	التحقق المستمر من البنية التحتية والمراجعة المنهجية للمستودعات الرقمية.	١٠
	أوافق بشدة	٠.٢١٩	٤.٩٥	٠	٠	٠	٥	٩٥	الاتجاه العام للحلول المقترحة لتطوير استخدام المستودعات الرقمية (LOR) وضمان جودتها في التعليم المفتوح	

احتل التحقق المستمر من البنية التحتية والمراجعة المنهجية للمستودعات الرقمية صدارة الحلول المقترحة لتطوير استخدام المستودعات الرقمية (LOR) وضمان جودتها في التعليم المفتوح. بمتوسط حسابي ٤.٩٩، بينما جاء في المرتبة الثانية إتاحة الفرصة للمختصين والمبرمجين لمناقشة قضايا المستودعات الرقمية و بمتوسط حسابي ٤.٩٨ ، وفي المرتبة الثالثة جاء توفير دعم مادي مستمر لضمان استمرارية المستودعات الرقمية و بمتوسط حسابي ٤.٩٦، بينما جاء في المرتبة الرابعة كلا من المساهمة في التطوير المهني للأكاديميين. بمجال المستودعات الرقمية و بمتوسط حسابي ٤.٩٥، إلى جانب زيادة وعي المجتمع الأكاديمي بقضايا حقوق الملكية الفكرية في المستودعات الرقمية بذات المتوسط ٤.٩٥، وفي المرتبة الخامسة جاء كلا من دعم التعاون العلمي والبحثي والتعليمي في مجال المستودعات الرقمية بين مؤسسات التعليم المفتوح و بمتوسط حسابي ٤.٩٤ إضافة إلى تكييف المستودعات الرقمية لحاجات مؤسسات التعليم المفتوح أيضا بذات المتوسط الحسابي ٤.٩٤، وفي المرتبة السادسة جاء تحفيز البحث والتأليف والابتكار من أجل التنمية المستدامة للمستودعات الرقمية بمتوسط حسابي ٤.٩٣، وفي المرتبة السابعة جاء إصدار دليل مرجعي مختص بالمستودعات الرقمية LOR بمتوسط حسابي ٤.٩٢، بينما احتل المرتبة الأخيرة من هذه الحلول دعم البحث العلمي في مجال المستودعات الرقمية و بمتوسط حسابي ٤.٩١.

## الاستنتاجات:

- أجمعت نتائج المقابلات على أهمية استخدام المستودعات الرقمية (LOR) كمنصات تعليمية في التعليم المفتوح سواء كانت منصات (LOR) قائمة بذاتها، أو مدمجة في نظم إدارة التعلم المختلفة ومتكاملة معها، حيث أن تكامل نظم المعلومات أمر بالغ الأهمية في التعليم المفتوح، وأكدت المقابلات كذلك على نقاط أهمية المستودعات الرقمية (LOR) في التعليم المفتوح التي انبثقت من واقع استخدام هذه المستودعات في مؤسسات التعليم المفتوح ومن قبل المختصين القائمين عليها والعاملين ضمنها، كما قد خلصت نتائج الاستبيان لما يلي:
- فيما يتعلق بمعوقات استخدام المستودعات الرقمية (LOR) في التعليم المفتوح فقد أجمعت آراء المختصين على الموافقة بشدة حول المعوقات التي شملها الاستبيان والتي تناولت ثقافة هذه المستودعات وآلية استخدامها والبنية التحتية لها وقد أكدت النتائج على انخفاض الوعي العام بالمستودعات الرقمية (LOR) وضبابية التعامل معها إلى جانب معوقات أخرى يجب معالجتها واتخاذ خطوات جادة في سبيل ذلك عبر نشر ثقافة المستودعات الرقمية وإنشاء مراكز مختصة بإنتاج المحتوى الرقمي مع توفير دعم مستمر لها، إلى جانب تحفيز وتدريب الأكاديميين والطلاب لمضاعفة جهودهم لإنتاج محتوى تعليمي بجميع أشكاله الرقمية.
  - فيما يتعلق بالحلول المقترحة لتطوير استخدام المستودعات الرقمية LOR وضمان جودتها في التعليم المفتوح، فقد اتسمت آراء واستجابات المختصين على الموافقة بشدة على جميع الحلول المقترحة المطروحة من خلال الاستبيان ولكن يبقى التحدي الأكبر أمام هذه الحلول هو آلية تنفيذها ومدى الرغبة بذلك والعمل على تنفيذها من قبل صانعي القرار في مؤسسات التعليم المفتوح فلا بد من توفير حوافز تشجع المعنيين بالمشاركة في هذه المستودعات وإثراءها ، كما أنه لا بد من التوسع في إنشاء وتطوير المستودعات الرقمية (LOR) وربطها بمؤسسات التعليم العالي في إطار تعاوني كفيل بدعم هذه المستودعات وتحقيق الهدف المرجو منها ، إلى جانب دعم الباحثين والمصممين التعليميين والمبرمجين لتطوير هذه المستودعات وإثراءها، وتشجيع جهود البحث العلمي في هذا المجال.

## الخلاصة:

جاءت هذه الدراسة لتؤكد على أهمية استخدام المستودعات الرقمية (LOR) كمنصات تعليمية في التعليم المفتوحة مسلطة الضوء على المعوقات التي تحد من استخدامها والحلول المقترحة لتطوير استخدامها وضمان جودتها في مؤسسات التعليم المفتوح في المملكة العربية السعودية، فعلى الرغم من منصات (LOR) المتوفرة في المملكة العربية السعودية إلى جانب منصات (LOR) الدولية إلا أنه حتى الآن لم تستثمر بشكل فعال لإثراء التعليم المفتوح على الرغم من الوعود والإمكانات الهائلة التي تقدمها تلك المنصات، والحل يكمن بالوقوف على المعوقات التي تعترضها ودراسة الحلول المقترحة وتبني خطة استراتيجية لتنفيذها.

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