Program and Abstracts

2011 Asia Pacific LAMS and Learning Design Conference:

Learning Design for a Changing World

6th-7th June

Nanyang Technological University, Singapore

LAMS FOUNDATION

LAMS INTERNATIONAL

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Leanne Cameron and James Dalziel

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Welcome

Welcome to all our delegates to the 2011 Asia Pacific LAMS & Learning Design Conference held at Nanyang Technological University (NTU), Singapore on June 6th & 7th, 2011.

We were pleased at the response to the call for proposals and the special focus given to "Learning Design for a Changing World". The variety of papers and presentations in the program should provide an interesting conference for all delegates. As with our previous conferences, we hope to make slides and audio recordings available after the event to provide a record for those who could not join us in person at the time.

We are pleased to welcome Eva Dobozy as a Keynote Speaker – Eva has many years of experience with e-learning design and implementation and will be sharing with us her excellent “DeBono” LAMS templates. This complements the work of our second Keynote Speaker, Daniel Tan, who will provide reflections on the place of Learning Design in the broader e-learning needs of universities. Taken together, these two keynotes should provide a fascinating insight into new ways to use LAMS and Learning Design that foster active engagement with students in the teaching and learning process.

A special thank you once again to the Review Committee for giving their time to assess presentation proposals and to peer review submissions for the conference proceedings. We gratefully appreciate their time and very thoughtful comments. Special thanks to Leanne Cameron for leading the organisation of the conference from both academic and practical perspectives, to Jeremy Page for webpage construction and to Renee Vance for her tireless logistical and practical support and to Macquarie University (on behalf of the LAMS Foundation) for support

We hope you have an informative and enjoyable time at the conference, and look forward to interesting discussions and collaborations in the future!

Professor James Dalziel
on behalf of the Conference Organising Committee

Acknowledgements

Conference Organising Committee

The LAMS Conference Organising Committee would like to thank all the authors, presenters, reviewers, sponsors, technical support team and other conference helpers, for their time and efforts in ensuring the conference came to fruition. We would also like to thank Nanyang Technological University staff for their assistance in organising the conference and for the use of the venue.

Professor James Dalziel
Leanne Cameron
Renee Vance
Ernie Ghiglione

Review Committee

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Conference Program

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12.00-12.25	Moodle 2 Integration *Ernie Ghiglione*	Adoption of Learning Designs in Higher Education *Leanne Cameron*

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Keynote Addresses

Keynote Address 1:

Introducing the de Bono LAMS Sequence Series: What is the value-add of knowledge centric, interdisciplinary and open education resources in higher education?

Eva Dobozy
Edith Cowan University, Perth Western Australia

The shift in teaching and learning modes, fuelled and infused by technological changes and a globally accepted need for changed qualification demands of the future workforce, is allowing for more knowledge-centric pedagogies to emerge. In this presentation, the de Bono LAMS sequence series will be introduced, providing an insight into the theory and practical application of this generic teaching and learning tool. The five LAMS sequences shown are based on Edward de Bono's attention-directing ideas and thinking skills, commonly known as the CoRT tools. Finally, an argument will be presented outlining why the de Bono LAMS sequence series can be perceived as an important milestone signifying the current paradigmatic shift in higher education, moving from a student-consumer paradigm to a student-producer paradigm.

Biographical notes

Eva has worked in Swiss and Australian schools and higher education institutions. Her special interests include problem-based learning with ICT, student learning engagement and the development and testing of interactive blended learning tasks. Eva has been part of several ICT-related projects testing the feasibility of interactive lecture podcasting and online academic learning support. More recently, she has been studying students' utilisation of flexible learning provisions and engagement with LAMS activities. She is widely published and her latest co-authored book: Psychology applied to teaching (2009) is used in higher education across Australia. Eva was awarded the Early Career Award from the Western Australian Institute for Educational Research in recognition

of her ability to generate new knowledge about the impact of democratic, learner-centric pedagogical practices on students' learning experiences.

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Keynote Address 2:

Back to the Future of Learning: Reflections, Insight and Reality

Daniel Tan

Nanyang Technological University, Singapore

Biographical notes

Daniel Tan is Director of the Centre for Excellence Centre in Learning & Teaching at Nanyang Technological University.

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Daniel Tan
Director of the Centre for Excellence Centre for Excellence in Learning & Teaching and Associate Professor in the School of Electrical and Electronic Engineering,
Nanyang Technological University, Singapore.

Closing Keynote

Templates for Effective eTeaching Strategies: Predict-Observe-Explain, Problem-Based Learning and Role Plays

Professor James Dalziel
Macquarie University, Australia

One of the great promises of the field of Learning Design is sharing of effective eTeaching strategies in the form of "runnable" templates. This presentation explains how educators can adopt novel teaching approaches like Predict-Observe-Explain, Problem-Based Learning and Role Plays using LAMS, with a focus on practical steps to implementation. It considers background educational theory, differences between face to face and online implementation, and issues to consider during implementation with students. For each eTeaching strategy, a worked example is provided with sample content, as well as a generic template that can be adapted to suit any appropriate content area. The presentation will include live demonstrations of adapting the generic templates to suit specific content areas - educators can often adapt a generic template to their own content area in less than 10 minutes.

Biographical notes

James is the Director of the Macquarie E-Learning Centre Of Excellence (MELCOE) in Sydney, Australia, and also a Director of the LAMS Foundation and LAMS international Pty Ltd. He is known nationally and internationally for his research into and development of innovations in e-learning, and technical standards. James has directed and contributed significantly to e-learning projects such as the Meta-Access Management System project (MAMS), The Collaborative Online Learning and Information Services project (COLIS) and LAMS.

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Abstracts

e-Portfolios and Student Wiki Interdisciplinary Group Project

This paper is reproduced on pp42-59 of this document.

Trikartikaningsih Byas
English Department, Queensborough Community College

Due to their potential in assessing and promoting student learning and reflection, the application of e-Portfolios has grown in North American colleges and universities. This paper explores a project entitled the Student Wiki Interdisciplinary Group which, through partnership of students in different courses using Epsilen academic environment, creates a shared space allowing students to electronically archive and share their written and audio/video compositions. The project aims at encouraging symphonic reflections whose data are gathered via three identical online surveys administered at different times. The analysis of the survey data demonstrates student growth and the recursive nature of the surveys cultivates student awareness of the process. At the institutional level, the project fulfils the High Impact practice mandate, meets the General Education objectives, and helps retain students.

Biographical notes

Trikartikaningsih Byas is an Assistant Professor at Queensborough Community College, City University of New York. Her research interests include e-Learning, Reflective practice, English Language Learners, Teacher Education, and Cross-cultural communication.

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Adoption of Learning Designs in Higher Education

Leanne Cameron
Macquarie University, Australia

During the "Implementing Learning Designs Project", the project team developed a number of scaffolded templates designed to facilitate the learning design planning process. These templates were introduced to university teaching staff so that they might share examples of good design practice. Additionally, a framework was developed that could be used by academic staff to tailor these exemplary learning designs to meet the individual lecturer's and/or course co-ordinator's particular requirements, whilst providing them with the underlying pedagogical principals involved in the learning design.

Biographical notes

Leanne is currently working with MELCOE (Macquarie University's E-Learning Centre Of Excellence) in Sydney, Australia. She is managing a number of research projects including the planner project described in this presentation that will provide a scaffold to help new university lecturers and teachers develop effective Learning Designs. Until April 2007, Leanne was working with the Australian Centre for Educational Studies at Sydney's Macquarie University. Prior to that Leanne spent a number of years working as a teacher in both primary and secondary schools and as Technology Trainer for the Department of Education's Training & Development Directorate.

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Reusable Learning Designs in Medical Education

Bronwen Dalziel
University of Western Sydney, Australia

Medical students have access to a wealth of content through the internet and yet most medical schools make little use of this content in a structured manner, and are protective of their own course materials. Our model of teaching medical students at the University of Western Sydney is to harness internet medical content by using Learning Designs (implemented with LAMS) to guide students through freely available content in order to teach them the adult learning skills that they will need as professionals. This is very important in the medical profession, as medical science knowledge is in a constant state of advancement and doctors, as lifelong learners, should continually update their knowledge and skills.

Using a Learning Design approach as opposed to a content driven approach has also allowed us to make our Learning Designs freely available to other medical schools for repurposing (e.g. language or discipline changes), reusing, and giving back to the education community. It is our goal to grow a community of medical educators who can develop Learning Designs and share experiences so that 'reinventing the wheel" is less common and good practice can be more easily adopted in both old, new, advantaged or less advantaged medical schools around the world.

Biographical notes

Bronwen is currently a Senior Lecturer in Medical Education at the University of Western Sydney. Prior to that she worked at LAMS International, primarily on the creation of a LAMS library of sequences based on British K-12 curriculum. She has a PhD in Science (genetics of obesity) from the University of Sydney.

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Learning Design and Strategic Pedagogical Change

Paul Gagnon
Nanyang Technological University, Singapore

This presentation will focus on the ways that LAMS supported the rapid design, development and delivery of a Team-based Blended Learning pedagogy to rollout the first PhD programme for the recently established Duke-NUS Graduate Medical School here in Singapore. Specifically, the presentation will outline how the 30 research scientists were prepared for the new pedagogical application, how each of their two class sessions were designed, delivered and facilitated, using an adaptation of the what is known in Team-Based learning as (i) Individual Readiness Assessment (IRA), (ii) Group Readiness Assessment (GRA) and (iii) an Application Exercise.

Biographical notes

Paul is the Director, E-Learning at the newly established Lee Kong Chian School of Medicine at NTU. His research interests include how to successfully morph existing effective F2F pedagogical practices to online learning environments, the role of online pedagogical agents, and the relevance of the latest research in Cognitive Psychology and Cognitive Neuroscience to advance online teaching and learning. He has led teams in pioneering (i) effective online course development, (ii) the use of Content Management Delivery Systems, (iii) mobile learning applications, and (iv) the use of synchronous Virtual Classroom technology.

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Moodle 2 Integration

Ernie Ghiglione
Macquarie E-Learning Centre Of Excellence, Australia

Ernie will discuss the progress and development of the LAMS integration into Moodle 2.

Biographical notes

Ernie is the LAMS Project Manager, based at the Macquarie E-Learning Centre of Excellence (MELCOE), Macquarie University. He has previous experience in various open source projects in e-learning. He has developed parts of the .LRN Learning Management System, specially the Learning Object Repository, content delivery platform, one of its assessment engines, the IMS Content Packaging, IMS Metadata and SCORM implementation. Prior to managing e-learning projects, Ernie led large enterprise software development in the US, the Netherlands and India for five years. He holds an MSc BSc Management Information Systems from New York University and a Master of Software Engineering from the University of Sydney.

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Using LAMS to teach a Project Management course for a class of 40 learners

Yap Chin Hooi
Singapore Polytechnic, Singapore

The use of a Learning Management System (LMS) in an e-learning environment is not new and continual strides have been made towards improving lesson planning. In the SP School of Mechanical and Aeronautical Engineering (MAE), LAMS has been adopted in October 2010 to improve lesson planning and to engage student's learning. LAMS (open sourced software) has been installed and integrated into the Blackboard (BB) learning environment.

This paper describes the teaching of a project management course based on a blended pedagogical model in an online environment. Forty learners have been identified to use LAMS lessons, both in and outside of classroom using wi-fi activated laptops. As educators we must explore and exploit emerging info-communication technologies tools to engage and stimulate our 21st century learners.

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Using LAMS to teach Geography and Biology in K-12 students: A rural Greek high school case study

This paper is reproduced on pp29-41 of this document.

Ioannis Katsenos
Avgio High School, Greece

Spyros Papadakis
Hellenic Open University, Greece

Students in remote rural schools in Greece lack often both motives for participation and opportunities to participate in innovative lessons. Two LAMS sequences were applied in the context of Geography and Biology disciplines at the remote Avgio High School. The students, although sceptical and reluctant in their majority initially to participate, turned out to be very enthusiastic. LAMS sequences proved to be very attractive to them. LAMS sequences also proved to be a more efficient learning means from the traditional methods applied in this target group.

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Using LAMS at Technological University: Successes and Challenges

Kevin Jones
Nanyang Technological University, Singapore

LAMS has been used to sequence the on-line learning portion of the Software Engineering subject since 2008. The presentation will share the experiences of the author in applying LAMS to this endeavour.

Software Engineering is a core second-year subject, and the first of its kind in the university to incorporate a blended learning teaching and learning for the full term. LAMS provides the structure for a sequence of thirteen weeks of material introduction, study, and assessment. LAMS tracks the students in their journeys through each weekly segment of the subject sequence. After each week's learning is completed, LAMS tables the results of each student's participation in the on-line sequence. LAMS has proved adept in coordinating and tracking on-line participation.

The last part of the presentation will deal with the challenges of LAMS in the authoring mode. As an authoring tool, it has some demonstrable weakness. It is not easy to revise an existing program, and linking to resources is very slow and antiquated. The editor does not provide enough customizability of some constructs. Finally, there is a significant scarcity of performance statistics available to a sequence designer from LAMS.

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Setting up a CoP for LAMS to share best pedagogical practices in SP

Gerald Ng
Singapore Polytechnic, Singapore

In the traditional way of delivering electronic learning through Singapore Polytechnic, (SP), Blackboard (Bb) has been used primarily as a repository for content. It is not progressed and regarded as a hindrance to effective online learning. Its usability and functionality are being questioned.

A new generation of an open-sourced software, LAMS (Learning Activity Management System) that are better suited to meet the dynamic online learning content, interaction, collaboration and networking. Whereas traditional LMS approaches traditionally tend to relegate students to be more passive learners, LAMS will allow learners to take proactive control of their own learning.

This paper will discuss on how LAMS, not only affected the design and delivery, but allow lecturers to co-create and share their LAMS templates. Through LAMS, SP will evolve into a community of practice for sharing, co-creating and collaboration among lecturers and practitioners.

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Advancing from Blackboard to LAMS

J. Selva Raj
Singapore Polytechnic, Singapore

In this paper, we want to share our experiences in adopting the open-source Learning Activity Management Systems (LAMS) to refine the School of Mechanical and Aeronautical Engineering's existing Blackboard (BB) learning environment. The scope of our project is from October 2009 to March 2011. We share our experiences from when our Learning Technology team were inspired by possibilities that LAMS presented to enhance teaching and learning, through to initiating a programme of training of faculty, awareness and progressive adoption of this innovative teaching using technology with students.

However, we hope that we will not delude you into thinking that LAMS in any sort of pedagogical panacea. Teaching and Learning is a complex mix of human interaction, emotion, formal structure and increasingly technology.

Ultimately as teachers, you will have to examine, evaluate and decide for yourselves how much this new and novel system can help you as an educational strategy in your teaching and learning journey.

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Bringing the World into the Classroom

Chen Siyun
Chestnut Drive Secondary School, Singapore

Bearing in mind the C2015 desired students outcomes, we integrate ICT into curriculum, pedagogy and assessment, to achieve our various objectives.

Using the chapter on classification, we help the students to make sense of the world around them, teaching them an important skill of organising complex information.

Lessons started with students doing collaborative work online, constructing a series of mind maps. Students learned to classify and organise the vast number of non-living things around them by using their creativity and by readjusting and constructing their own knowledge and understanding accordingly as they correct their misunderstanding by learning through a guided reflection after every mind map. Teacher acts only as a facilitator in these lessons, including guiding the students to explore the world around them, collecting their own data for their mind maps through a mobile learning trail using Microsoft Tag.

To classify living things, students were led through a series of activities creating their own Zoo of organisms from Southeast Asia online, learning through design and play. This project involves an international collaboration with students from South Africa, where the students act as active contributors, sharing their knowledge, communicating and collaborating across the globe with South African students, and in turn learned about the classification of organisms from South Africa students. Students are exposed to another culture and habitat, developing into global citizens.

This project would be expanded to include schools from other countries such as Australia and China. This lesson package would be a foundation for students to work on a further international collaboration project on Ecosystem.

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Chen Siyun
Bringing the World into the Classroom

Beginners Workshop

The workshop is provided in addition to the main conference program. Separate registration is required.

Intended audience:

This workshop is designed for teachers, instructors and students from any educational context, who have little or no practical experience with LAMS.

Workshop description and aims:

The overall aim of the workshop is to provide a general overview of what LAMS is. We will also look at how the development of LAMS has evolved and how it is different from (but complementary to) other Learning Management Systems. Results from various trials will also be discussed. There will be a brief introduction to the LAMS Community site and the resources that are offered.

The workshop will be highly practical with participants having ample opportunity to explore the Learner, Monitor and Authoring interfaces in LAMS. There will be a number of ready made sequences available for participants to look at and/or adapt.

Outcomes for participants:

During the workshop participants will:

- Examine the place of LAMS in e-learning;
- Examine the integration of LAMS with other Learning Management systems;
- Participate as a learner in an introductory LAMS sequence;
- Author a sequence in LAMS;
- Explore the monitoring environment;
- Explore various existing sequences and discuss pedagogical approaches;
- Evaluate LAMS as a tool for facilitating e-learning.

Prerequisites:

Familiarity with using the Internet, and basic computer skills. No prior experience with LAMS is necessary for this workshop.

Advanced Workshop

The workshop is provided in addition to the main conference program. Separate registration is required.

Intended audience:

Teachers, academics and students who have designed and implemented LAMS sequences for any educational context. Familiarity with the basic LAMS tools, LAMS authoring and monitoring will be assumed.

Workshop description and aims:

The workshop can be tailored to the needs and backgrounds of participants, but overall will be a mix of practical activities using LAMS, and reflection on the pedagogical issues which arise when designing for online and blended learning environments. Throughout the workshop examples from a range of educational contexts will be used for demonstration and analysis.

The workshop aims to explore ways in which LAMS can support collaborative and individualised approaches to learning. We go beyond the basic functions of LAMS and reflect on design, construction and implementation issues. Participants will have the opportunity to practise designing using all the LAMS tools, in particular the new branching and optional sequence features, HTML Noticeboard, adding images and linking learning objects, and managing grouping, optional and monitoring functions.

Outcomes for participants:

During the workshop participants will:

- Design a LAMS activity using the advanced tools and/or the optional and grouping tools;
- Discuss the learning and teaching issues arising in relation to the design and implementation of collaborative activities;
- Evaluate for themselves the scope of LAMS as a technology to promote and develop rich learning environments

Prerequisites:

Familiarity with the basic LAMS tools, LAMS authoring and monitoring. Participants are welcome to bring along their own examples of LAMS sequences for discussion and development.

Workshop Presenters

James Dalziel

James is the Director of the Macquarie E-Learning Centre Of Excellence (MELCOE) in Sydney, Australia, and also a Director of the LAMS Foundation and LAMS international Pty Ltd. James is known nationally and internationally for his research into and development of innovations in e-learning, and technical standards. He has directed and contributed significantly to e-learning projects such as the Meta-Access Management System project (MAMS), The Collaborative Online Learning and Information Services project (COLIS), and the Learning Activity Management System (LAMS) project.

Leanne Cameron

Leanne Cameron worked as a Research Co-ordinator with MELCOE (Macquarie E-Learning Centre Of Excellence) and was Project Manager for two ALTC (Australian Learning and Teaching Council) grants researching Learning Design. Originally employed as a Lecturer in Education (ICT), she then moved on to manage the Teacher Education Program's IT Centre where she maintained teaching responsibility for two courses looking at the integration of ICTs in educational settings.

Ernie Ghiglione

Ernie is the LAMS Project Manager, based at MELCOE. He has previous experience in various open source projects in e-learning. He has developed parts of the .LRN Learning Management System, specially the Learning Object Repository, content delivery platform, one of its assessment engines, the IMS Content Packaging, IMS Metadata and SCORM implementation. Prior to managing e-learning projects, Ernie led large enterprise software development in the US, the Netherlands and India for five years. He holds an MSc BSc Management Information Systems from New York University and a Master of Software Engineering from the University of Sydney.

Presented Papers

Using LAMS to teach Geography and Biology in K-12 students: A rural Greek high school case study

Katsenos Ioannis
Gymnasio Avgiou, Amaliada Ilias, Avgio Highschool, Amaliada Ilias, Greece
Greek Ministry of Education

Papadakis Spyros
Hellenic Open University

Students in remote rural schools in Greece lack often both motives for participation and opportunities to participate in innovative lessons. Two LAMS sequences were applied in the context of Geography and Biology disciplines. The students, although sceptical and reluctant in the majority initially to participate, turned out to be very enthusiastic. The LAMS sequences proved to be very attractive to them. The sequences also proved to be a more efficient learning means from traditional methods applied to this target group.

Keywords: LAMS sequences, remote schools, Geography, Biology

Introduction

Contemporary information and communication technologies (ICT) appear to provide support for assisting the process of teaching and learning. The potential of learning design to improve teaching and learning through e-learning is a subject that is currently gaining recognition. ICT is commonly used in the delivery of learning and teaching to offer functionality and opportunity that holds strong potential for the development, storage and access of reusable and sharable learning designs.

Despite the plethora of ICT tools and resources available, practitioners are still not making effective use of e-learning to enrich the student experience (Conole and Fill 2005). A supposed benefit of learning technologies is their potential for providing access to a wealth of knowledge and tools for students to interact with the knowledge, the teacher and their peers. Yet teachers receive little guidance on how to use these tools to best effect (Falconer and Littlejohn 2007).

Pioneer teachers make significant efforts by themselves.

LAMS (Learning Activity Management System) is software for designing, managing and delivering online learning activities which was developed by James Dalziel of Macquarie University in Australia. It allows teachers to create sequences of activities for learners supporting a variety of models of learning. The learning design tool, LAMS, is promoted by LAMS International (2007) as "a revolutionary new tool for designing, managing and delivering online collaborative learning activities".

The objectives of this paper are twofold: namely to evaluate the use and suitability of LAMS as an activity-based e-learning tool across rural high schools. This study will focus on evaluating the impact of LAMS on learning and teaching in a rural high school and establishing whether it is feasible to re-use and, or re-purpose a sequence of learning activities.

Theoretical background

Design for learning is a comparatively new field. Dalziel (2003) stresses that 'Learning Design' is activity based and "more concerned with context rather than content" supporting collaborative as well as individual learner. Butler (2004) reported that teachers felt that LAMS aided their students' learning, understanding, cognitive skills and enhanced motivation. He stressed that motivation remained high, "even after the students had been using LAMS for more than a year". LAMS enabled teachers to produce "a fully operational lesson, not just a paper-based outline that still had to be translated into a lesson" (Cameron 2006).

LAMS is an open source tool for designing, managing and delivering online collaborative learning activities. By using LAMS teachers gain

access to a highly intuitive visual authoring environment for creating sequences of learning activities (LAMS International 2007). These activities may be individual tasks, small group work or whole class activities.

The creation of sequences of learning activities which involve groups of learners interacting within a structured set of collaborative environments, referred to as "learning design", is less common and LAMS allows teachers to both create and deliver such sequences. LAMS trials indicate it can transform the approach teachers and learners take towards e-learning in the both K-12 and the higher educational learning contexts.

The idea of design for learning offers practical benefits to teachers in terms of improved teaching quality and efficiency. Documenting the design of learning activities that have proved effective, is to share and reuse practice, providing advice and guidance and increasing the efficiency of planning in learning. The issue of re-using and re-purposing LAMS designs is a theme explored by several studies (Masterman and Lee 2005).

Finding, creating or adapting, suitable learning designs can be both challenging and time consuming. Sharing and adapting effective learning designs for blended learning is both a stimulant and a time saver. Unlike many failed attempts at fostering re-use and adaptation with e-learning content, LAMS sequences are easily re-used for different discipline areas or different groups of learners, and easily shared and adapted by the same or different teachers.

There is little research regarding students in rural high schools using LAMS.

The key issue for this paper is:

> Does the use of a learning design tool such as LAMS support effective practice in designing for learning and an individual teacher at a rural high school?

Methodology

This case study is set within the interpretive paradigm (Cohen, Manion and Morrison 2007). In this paradigm the viewpoints of the participants are examined taking a holistic approach.

The Avgio High School (Gymnasio Agviou) is a special school, although not officially ranked as such. It is located at a rural area of Ilia in Western Peloponnese, 7Km away of the small town of Amaliada. The students attending the high school are gathered from five different small villages. The students' family background is mainly agricultural.

About 50% of the student population comes from the village Kentro. People living in Kentro are of Rom origin, however settled permanently there for many decades. Their community is somehow closed and discriminated by the surrounding villages. However in the Avgio High School the students from Kentro have to coexist and advance with their fellow students from the other villages. They are proud and independent people, which makes them difficult to follow the school rules being however some of them very clever. For them, attending school is already a victory, against the stereotypes of their tradition.

Moreover, in the school there is a number of students with learning difficulties, both among students from Kentro and from the other villages. None of the students, however, is officially diagnosed. The parents resist to the teachers suggestions to seek help from specialized state personnel most probably fearing that their children will experience social discrimination.

One LAMS sequence targeted the second class (Class B) of the Avgio High School, having fourteen students (14 years old) with all the above characteristics. Their overall performance is poor to moderate, their attention during lessons is very often disrupted and lessons are in most cases going very slow. Out of the fourteen students, there is one female student, who stands out in terms of performance and another two female students who have some potential. Also there are three male non-Kentro students, with severe undiagnosed learning difficulties.

The second LAMS sequence targeted the first class (Class A) of the Avgio High School, having 10 students (13 years old). Again this class has most of the characteristics, already described above. However, there are three female students, who are well above the average level. The presence of these students has a positive effect on the whole image of the class, as all students are much more cooperative.

Sequences' Structure and description

There were two LAMS sequences developed and applied.

1. The "Mediterranean Sea" sequence

The sequence, "Mediterranean Sea", has a planned duration of two didactic hours and was applied to the Class B in the context of Geography. The sequence is published in http://lamscommunity.org/lamscentral/sequence?seq_id=1142533. The educational objectives of the sequence are that the students should after its completion to be able to:

1. Recognize Mediterranean Sea on the globe;
2. mention the major peninsulas, islands, points of communication to other seas, countries around Mediterranean Sea;
3. mention the major climatic characteristics of Mediterranean Climate, major native plants and agricultural products;
4. know the basic elements and benefits of Mediterranean Diet;
5. Know which food should be preferred and which should be avoided.

The LAMS sequence had the following structure:

1. Introduction and objectives
2. Geographical information

   a. Investigation: The students are asked to identify on the map major geographical features of the Mediterranean. The students should note down the links of Mediterranean to other seas, its larger islands, its major peninsulas and the countries with significant shoreline. Before proceeding, the students are left to check other's answers and modify their own if needed.

3. Summary of Mediterranean Sea's major geographical information.
4. Mediterranean Climate & Vegetation

   a. Presentation: The students are requested to watch an annotated video presentation about the major climate and vegetation of the Mediterranean Sea.

b. Investigation: Based on a presentation attended at the previous activity (and having the ability to navigate forward and backward), the students are asked to discover the specific characteristics of Mediterranean climate and typical Mediterranean vegetation of the northern shores of the Mediterranean. The students are asked to note down their answers and before proceeding, the students are left to check other's answers and modify their own if needed.
c. Summary: This activity summarizes the knowledge about climate and vegetation of the Mediterranean Sea.

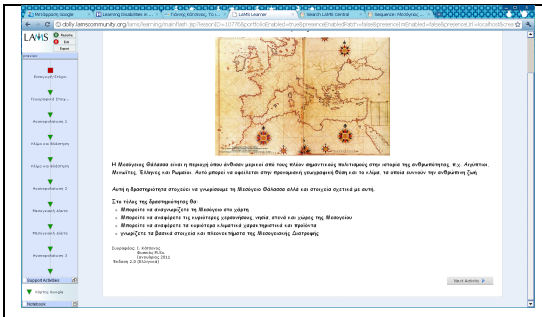
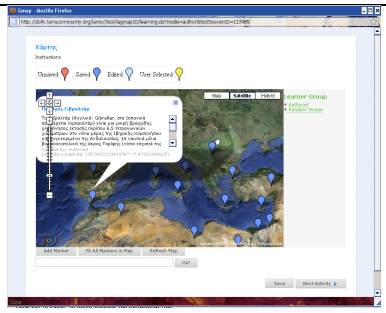
5. Mediterranean Diet

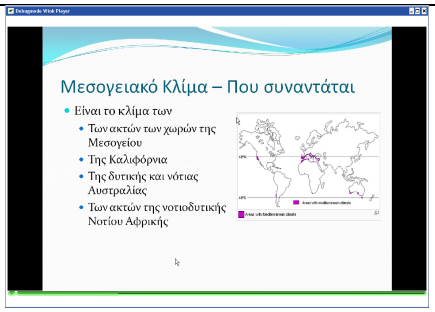
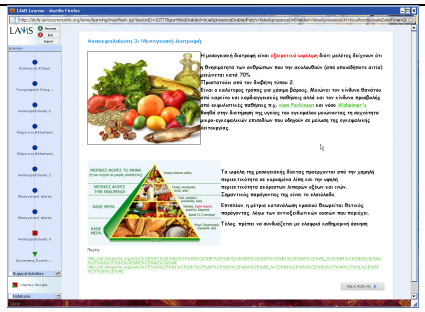
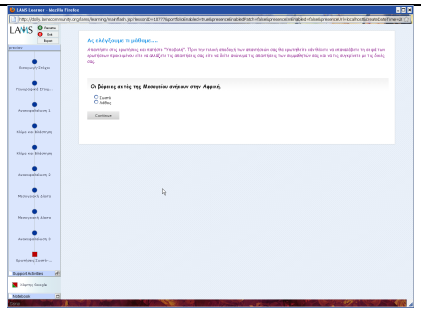
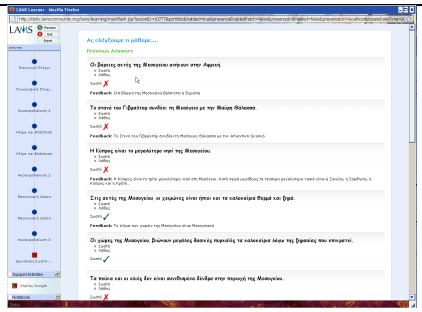
a. Presentation: The students are requested to watch an annotated video presentation about the basic elements and benefits to human health of the Mediterranean Diet.
b. Investigation: Based on the presentation attended by the previous activity (and having the ability to navigate forward and backward) the students are asked to isolate and note down the characteristics of the Mediterranean diet and its benefits.
c. Summary: This activity summarizes the elements and benefits of the Mediterranean Diet.

6. Evaluation

a. It involves twelve right/wrong questions to assess knowledge gained in previous activities. Three questions are related to the geographic data, four questions are related to the Mediterranean climate and vegetation and five questions are related on the Mediterranean diet and its benefits.

Table 1: LAMS sequence screenshots

	
Welcome Screen and Objectives	Using Gmap tool to locate information

	
Annotated video presentation regarding Mediterranean Climate	Summary page for Mediterranean Diet
	
Right/Wrong questions	Summary of right/wrong questions' answers

2. The "Mediterranean Diet" sequence

This sequence is a fraction of the above sequence "Mediterranean Sea", modified in terms of contents and technically improved. Essentially, it is the forth part of sequence "Mediterranean Sea", combined with a new Introduction and Objectives activity, as well as with changed Evaluation Part. The sequence targets Biology of the Class A of Greek High School. Its planned duration is one didactic hour. The sequence is published in http://lamscommunity.org/lamscentral/sequence?seq_id=1208947

Observations

All observations were quite similar for both classes, therefore they are listed together. Wherever there was a difference, it will be pointed out.

Observations before the application

- Most of the students of the Class B were sceptical and reluctant to try this new approach, while students of the Class A were more curious.

- Since this was the first time that the students were going to use the LAMS environment, there was a presentation of it beforehand. This initial presentation aimed to introduce the students to the user interface of the sequence (actually the one provided by LAMS). The feeling here was that this didn't gained students' attention as much as expected, as it seems they perceived it as nothing different than the usual unidirectional transmission of information from their teacher to them. However, introducing the students to an unknown environment is something that shouldn't be omitted.

- The students of Class B formed seven pairs (named avgio1 to avgio7), whilst those of Class A were separated into five pairs (avgiot1 to avgiot5). The reason for this was actually practical, due to lack of a sufficient number of workstations. However, it was thought at that time, that forming pairs would facilitate the sequence application, expecting that stronger students would help weaker ones. Each pair had its own user account on the LAMS server of Hellenic Open University, in order to be able to track pair's performance afterwards.

- Pairs' composition was done by the teacher. The first pair in Class B (avgio1) was formed by the students having the best grades of the class to serve as later reference for comparison. For forming the other eleven pairs it was chosen to have one strong part and one weak part, in terms of their grades and overall performance. It was also given special attention to account for compatibility of the student's personalities and their ability to collaborate.

- Pair composition was an issue for the students, from the very beginning. There were complaints for the partner chosen for them in several cases. Complaints were heavier in the Class B, while in Class A the students accepted it more easily. This probably has to do with the mentality of the students of the Class B, as explained in previous section and the fact they are one year older.

Observations during sequence application

- The LAMS sequence application was done in the high school's computer lab with help provided by the informatics teacher.

- During the first half of the sequences, the progress was slow and the students required a lot of help by the teachers. Requested help concerned mainly navigation but there were also questions

regarding the content due to unknown terms. During the second half the requests for help were significantly less, as the students were familiarizing with the LAMS environment and the sequence itself. Requests for help were more in Class A, which is considered normal given their lower familiarization with computers.

- All pairs copied the information into their physical notebooks and then they wrote it down for a second time electronically wherever it was requested by the sequence. This was not planned and proved to slow down the progress. It is then important that the students should be familiar with the copy/paste process and to windows alteration, in order to smoothly proceed or extra time should planned.

- Nine out of twelve pairs concluded the sequence. Of the other three pairs:

  - one pair just advanced through the steps without really giving effort, trying to avoid real work;
  - two teams (of different classes) remained with only one member, as the other was absent. Despite the fact these particular students are very clever, they didn't have enough computer literacy and despite the increased support they received, they soon got disappointed and quitted their effort.

- The stronger pair (avgio1) was capable of noticing a difference between the school textbook and information taken from Wikipedia regarding the relevant size of Crete to the other Mediterranean islands.

- One pair had an "accident", one of the students (the lowest performer in the class) turn off the computer! They started all over again and they managed to finish thanks to the other student, who was very dedicated.

- The collaboration of a female student with very good grades and a male student with high computer literacy in Class A resulted in them finishing well before the others and with a very good outcome.

- One pair of the second class, having finished their work, remained in the lab helping and supporting two other pairs to reach the end.

Sequence application evaluation

The main means of evaluating the application of the sequence was structured discussions with the students of each class on the next session with them. The discussions were planned to:

Find out what is their experience on computers and how they normally use it;

1. Investigate how they perceived the digital lesson and if they would like to repeat it and why;
2. Investigate if and how their partner helped them during the application of the LAMS sequence;
3. Investigate their degree of confidence after first time using LAMS;
4. Get their opinion on the sequence (structure, content, guidelines, interactivity).

The results of these discussions are listed below:

- More than half of the students own a desktop computer at home. Some of them also have a netbook. However, only three students have an internet connection. The students use their computers to store their photos, to move files to and from their mobile phones and to play games.

- The vast majority of the students declared that it was a fruitful experience for them and they look forward to repeating it. Actually, most of them were enthusiastic and expressed the wish that "the school to be like this everyday". This was a total reverse in the initial approach, especially for the second class.

- Again the vast majority, declared that they learned something new and they were in a position to mention examples of new things they learned (e.g the pyramid of Mediterranean Diet).

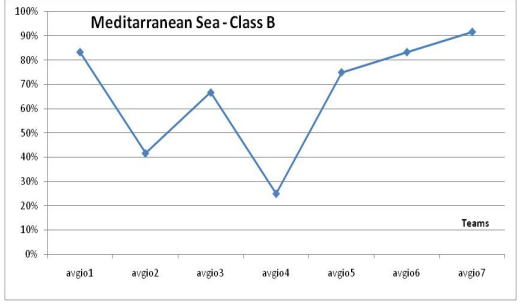
- Some of them mentioned that learning with LAMS was similar to a game, while others (in fact younger ones) repealed this opinion and considered LAMS sequence as very serious issue.

- When asked why they liked learning through the computer, they answered that it was more interesting, less boring, more interactive and one female student mentioned it was easier than looking for information into maps and tables of data.

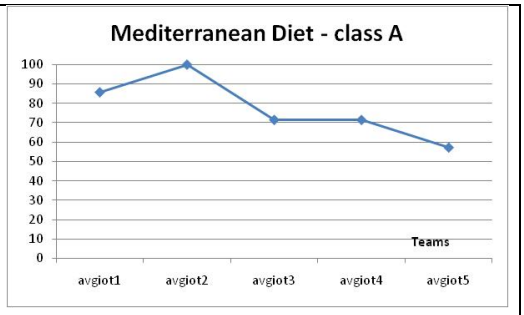
- Half of the students want to choose their partner next time as only half of the students felt they received help from him/her (this was expected due to the formation of the pairs). However half of the students also think they can do it alone next time, which can be interpreted as a sign of increased confidence.

- There were no suggestions for improvement as the students declared they were satisfied both from the content and the sequence guidelines.

- Seven out of twelve pairs achieved 67% or more on the final sequence activity, which is indicatives that the students were focused.



Evaluation Activity for Class B



Evaluation Activity for Class A

Conclusions

The introduction of the LAMS sequences in Avgio High School certainly exceeded the expectations of the teacher for this particular student population. The students overcame themselves, showing interest and achieving more than in the usual teaching sessions. The LAMS sequences proved to be a very attractive means of learning for high school students. Learning with LAMS can be interactive and gives the students the feeling that they 'do' things, thus enabling learning by doing.

The difficulties related to basic computer skills were significant, however these are expected to be less next time. For running the sequences smoothly, the students should made familiar with copy/paste process and should be able to alternate the active window.

LAMS sequence preparation effort of the teacher for the sequence "Mediterranean Sea" was significant; however the modifications to create the "Mediterranean Diet" sequence needed no more than 10% of the initial effort, giving a very good reusability result. In all cases, the results from application in Avgio High School persuaded the teacher that the effort was worth it. After all, both sequences will be ready next time, demanding zero effort!

The findings of this case study are that the design for learning tool, LAMS, enhanced the teaching and learning experience of the teacher and students who used it at rural high school, had a positive effect on student motivation and participation and aided independent learning. All the students want to use LAMS again and, in this case study, enhanced learning. The teacher also wants to use LAMS again and considered that LAMS complemented the way he plans lessons, giving them an opportunity to create a range of activities that he could not provide without it. However, as this is a small case study, any conclusions cannot be generalised.

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e-Portfolios and Student Wiki Interdisciplinary Group Project

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Due to their potential in assessing and promoting student learning and reflection, the application of e-Portfolios has grown in North American colleges and universities. This paper explores a project entitled the Student Wiki Interdisciplinary Group which, through partnership of students in different courses using *Epsilen* academic environment, creates a shared space allowing students to electronically archive and share their written and audio/video compositions. The project aims at encouraging symphonic reflections whose data are gathered via three identical online surveys administered at different times. The analysis of the survey data demonstrates student growth and the recursive nature of the surveys cultivates student awareness of the process. At the institutional level, the project fulfils the High Impact practice mandate, meets the General Education objectives, and helps retain students.

Keywords: e-Portfolio, Interdisciplinary Collaboration, Reflection

Introduction

Technology development has impacted higher education a great deal. Most students who grew up in the digital era are surrounded by technology throughout their lives. Naturally, they are not afraid of technology; rather, they are active users of various technology platforms mainly for personal and social purposes. To some extent, the faculty has also caught up with the development. Most college faculty and students carry at least one portable wireless device, making wireless connection availability crucial. Accordingly, wireless connectivity has become ubiquitous in colleges and universities. To serve these Net Generation students and faculty (Jones, 2002), educational institutions have incorporated technology in their

pedagogy, administration, and learning space designs. Many colleges also provide Course Management Systems (CMSs) which have become "essential features of information technology at institutions of higher education" (Warger, 2003, 64).

With the students use of Web 2.0 applications, such as wikis, blogs, RSS feed, podcasting, and social networking in their daily lives growing, higher education institutions have considered incorporating these tools into their system (Tracey & Unger, 2010; Williams & Jacobs, 2004) in order to help increase students interest in learning and prepare them for the workplace or for lifelong learning (McAllister, Hallan, & Halper, 2008). Donnison (2004) advised higher education to carefully assess the potentials of these tools for improving educational outcomes, since not all Web 2.0 application are equal. In addition to CMSs, an increasing number of higher education institutions also incorporated e-Portfolio into their technology platforms for use by faculty, staff, and students. Lorenzo & Ittelson (2005) define e-portfolio as "a digitized collection of artifacts, including demonstrations, resources, and accomplishment that represent an individual, group, community, organization, or institution" (2). The application of e-portfolio which is a personal and private learning space that is organized and managed by the owner while also allowing the owner to share with others, has grown in different disciplines due to their potential as an assessment tool and in promoting learning and encouraging personal development. Being a personal space for each individual, e-portfolio can be used to reflect on learning. With an increased availability and application of technology, many incorporate technology in their pedagogy as a means to connect with and accommodate the students. Despite the challenges, the application of Wiki (for collaborative purpose) and the Showcase features of *Epsilen* portfolio platform in the Student Wiki Interdisciplinary Group (SWIG) project at Queensborough Community College proved to be beneficial for the students, faculty, and institutions.

Literature Review

The Pew Internet and American Life Project survey found that college students, the Net Generation, adopt technology early and use the internet heavily (Jones, 2002). Lomas & Oblinger (2006) characterized the habits of twenty-first century students as being digital, mobile, independent, social, and participatory. To

accommodate these students, educational institutions need to create learning spaces enhanced with technology and service that allow student participation, connection, involvement, and integration. The spaces should be flexible and provide support and access to students' personal devices. Such learning spaces would help educators prepare students for a technical world that require self-initiative in learning, precision in process, and ability to identify and analyze pertinent information (Batanieh & Brooks, 2003). Taking the above characteristics of students into consideration, the design of any learning spaces needs to allow flexible technology-enriched learning that requires flexibility in use of time and space, as well as flexibility over goals, methods and assessment. The learning spaces should allow authentic discussions where participants can explore issues of interest through articulation of ideas and opinion in response to other participants for authentic dialogic purposes and whose objective is beyond reaching a pre-ordained conclusion, rather developing new and more sophisticated understandings (Hadjiannou, 2007). Many designs that incorporate technology in teaching and learning have been proposed and implemented in different college campuses throughout North America (Oblinger, 2006; Williams & Jacobs, 2004).

With more than 200,000 students, 6,000 faculty and 20 colleges, City University of New York (CUNY) is the nation's third largest public university system. CUNY has had a long history of providing innovative technology services that enable its colleges, faculty, staff and students to succeed in their role as learners, teachers, researchers and decision makers. In the past decade, CUNY has added many new technology platforms to keep up with the growing application of and demand for technology. Between 2001 and 2004, CUNY implemented University-wide *Blackboard Enterprise* course management system (CMS) for 50,000 students in credit-bearing programs throughout its colleges and schools. At Queensborough Community College, one of the six community colleges under the CUNY system, a course shell in *Blackboard* is created for every course offered prior to the start of the semester for the faculty to populate. Faculty members who teach online or blended courses generally use the created shells, while others who teach face-to-face classes often use their course shells to varying degrees, such as for posting syllabi, course materials, announcements, or grades. In recent years, Blackboard has also added the Wiki and Blog features which help make the seemingly cold, impersonal learning spaces become more

"social, active, contextual, engaging, and student-owned" (Carmean & Haefner, 2002, p. 27).

Located in Queens, the most diverse borough of New York City, Queensborough Community College (the College) serves students who either came from or have family member who migrated from about 143 countries. Almost half of the student body speak a language other than English at home; thus, many of them learn English as a second or even third language. In addition to linguistic challenges, many of the students at the College have family and community ties and obligations. Almost half of the students have at least one part-time job. As a means to appeal to and meet the needs of these diverse student groups, the College promotes High Impact practices that promote students engagement and active learning , including Learning Communities, Writing-Intensive Courses, Undergraduate Research, Diversity/Global Learning, Service Learning/Community-Based Learning, and Capstone Courses and Projects (Kuh, 2008). In 2008, the College adopted an academic platform—*Epsilen Academic environment*—for their e-Portfolio initiative.

During the Freshmen Orientation sessions, incoming freshmen are introduced to Epsilen, among other technology platforms available on campus. By the time they start their first semester, they will have created an account in Epsilen, which will serve as their personal e-portfolio space. As they progress with their studies at the College, they are encouraged to use their Epsilen account in different ways. Several Departments—Nursing, Business, and Technology—encourage students to showcase items in their e-Portfolio to facilitate their transfer to Senior College or for job search. Three years after the adoption, the number if Epsilen users continue to grow. There are over ten thousands accounts (9,196 student and 369 faculty and 540 group) created on Epsilen as of April 2011. The College has also added e-portfolio to its list of High Impact practices. Along with the development in educational technology grows the interest in enabling college students to become more 'critical reflective thinkers' who will be able to cope with a rapidly changing world (Harvey & Knight, 1996). Many believe that e-Portfolio could become the space for such critical reflections (Knight, Hakel, & Gromko, 2008; Lin et al, 1999; Searle & Cann, 2000; Stansberry & Kymes, 2007). Many higher education institutions seem to agree and begin to tap into the potential of e-portfolio. Almost one third of the institutions applying for the AAC&U and Carnegie Foundation's 2005 Integrative Learning

grant placed e-portfolio as their central project element (Cambridge, 2007). At the College, Epsilen environment serves as the main academic e-portfolio space as well as the space where students to reflect on their academic experience. One of the initiatives that focus on collaboration and reflections is the Student Wiki Interdisciplinary Group (SWIG) Project.

The Student Wiki Interdisciplinary Group (SWIG) Project

The SWIG Project involves students in using e-Portfolio to archive and reflect upon their work over time while virtually and asynchronously communicating and sharing their work with students from different courses in the *Epsilen* academic environment. Interest in the potential of online communication often stems from a desire to encourage student writing (Blair, 2003/2004; Kadjer & Bull, 2004; Rice, 2003). Initiatives that incorporate writing as "a means for expression and a tool for learning" (Fouberg, 2000), such as the Writing Across the Curriculum, have also been enriched by technology. Projecting the interest and need for technology, the English Department at the College has taken bold steps by spending portion of their budget for technology preparation. The English Department has two computer classrooms, each was outfitted with 24 student PCs controlled by the teacher PC which is also connected to a large screen TV, a sets of speakers and DVD player. At least one laser printer is available and connected to all the PCs in these rooms. Moreover, the Department also had two rooms furnished with a smart podium—a fixed smart console (PC, DVD player, an LCD projector, speaker set) and a screen; and 2 smart-carts—equipped with a PC, an LCD projector, speakers and LAN cable for internet access—that could be wheeled to any regular classrooms in the building. However, it is by coincidence that the English course serves as the anchor course in the SWIG project.

The SWIG project started in 2001 with three faculty members; and a decade later, the project at present includes more than twenty faculty members from different disciplines including English, Basic Skills, Education, Social Sciences (Psychology, Sociology, and History), Speech/Theatre, Mathematics, Nursing, and Massage Therapy. The Project grew from participation of individual faculty in several grants opportunities, including:

1. The 'Learning to Look' grant by the Graduate Center of CUNY and the American Social History Project from 2001 to 2004. The project, which was supported by the National Endowment of the Humanities grant focused on training participants from humanities to develop strategies to utilize digital artefacts to promote learning.
2. The Georgetown 'Crossroads' project which was funded by the Carnegie Foundation, in 2005. Several QCC faculty members joined the training to use web-based resources for classroom projects.
3. LaGuardia Community College 'Making Connections' institutes which was funded by the Fund for the Improvement of Secondary Education (FIPSE) from 2007 to 2009. The institutes taught faculty teams to use e-Portfolio as 'learning spaces' that showcase student projects to facilitate transfer and reflection.
4. The College 'Pedagogical Research Challenge' in 2010 supported the pilot project then entitled Digital Story Team to implement using of e-portfolio wiki as the space for student wiki interdisciplinary collaboration involving fifteen faculty members from diverse disciplines.

The learning spaces

The *Epsilen* academic environment serves as the main technology platform in the project. Additional productivity software—*Microsoft Word*, *Microsoft Powerpoint*, and *TechSmith Camtasia Studio*—are used in document and story production. In the *Epsilen* environment students have different learning spaces:

1. Personal Space. The student *Epsilen* account is their personal space where they can store, reflect on and showcase their work. They have control over visitor's access to this space.
2. Class Space. When students take an English class as part of the SWIG Project, they will be invited to become a member of a Course or a Group through which course materials and work for the class are delivered or submitted. In this space, the members have varying levels of access to the materials.
3. Collaboration Space. Students will be invited to a group where they will be interacting with students from other class(es) via its Wiki feature. This space might be the same Class Space; but, for protection of privacy and information, most instructors are advised to create a new group for the collaboration.

Through their participation in the project, students learn to navigate across the different learning spaces, in addition to their own personal and social spaces. Some professors also use another platform—Blackboard—for Course Management purposes. In such cases, students have to learn to navigate across even more spaces.

The Collaborative-Reflective Process

Reflection is an essential part of the SWIG Project. Dewey (1934) claimed that reflection occurs as a process when the individual makes form out of the disparate elements of the experience. In addition, Cambridge (2007) argued that students need to develop their symphonic self—"a broader conception of what's important in a life" (48)—through synthesis of their experiences and networked self to achieve integrity of the whole. In an attempt to make the reflection process visible to students, the SWIG team divides the reflection cycle into eight stages (see Figure 1), called Symphonic Reflection (Darcy, Dupre & Cuomo, 2010). The Symphonic Reflection consists of:

1. Entering the Academic Community (or Threshold experience). Students learn their meaning making processes and their relationships to disciplinary discourse. In their respective classes, the students read several materials that model the discourse of their field. As they share ideas in the class they learn and enter the disciplinary discourse. The students in the English class are required to write an essay—applying the disciplinary discourse—while the collaborating courses might or might not be required to do so.
2. Negotiating the Borders of Disciplinary Discourses. Students post their essay utilizing the disciplinary discourse convention to the Wiki of the Collaboration Space. The members of the other class(es) read and offer gifts to the Wiki posting using the Edit-Wiki feature. In working with members of other discipline(s), students negotiate and reflect on the asymmetrical power relationships across disciplinary boundaries.
3. Mutual Gift Giving. To find meaningful gifts—textual (comments, questions, suggestions) or multimedia (graphic, audio, or video)—that are relevant to their discipline, students learn to look at, evaluate, and select web and other objects to enhance their partner's story.
4. Selecting and Storyboarding. Reflecting on their story and the gifts they received, students select and extract important scenes and

create a Storyboard. The storyboard is then converted into Powerpoint slides (8 to 12 slides). They incorporate the gifts from their partner(s) or their own collection of graphics and visuals to their slides. At this stage, students deliberate on their selections of details then sequence the selected details to create narrative piece.

5. Integrating Voice with Visual-Knowledge. Students draft a script for their Powerpoint slides as preparation for recording their story. They then practice their recording to add and captured the most appropriate nuances to the voice over the slides.
6. Producing and Distributing. Students learn to use another software—CamtasiaStudio—which will capture their slides/voice and covert them into a video clip—a new artefact. Students become producers of new knowledge, which require them to learn ways to distribute it. Reflecting on the dissemination of their story, students become an agency in relation to audience. The default dissemination medium is their e-Portfolio showcase, but many prefer means like YouTube.
7. Presenting to Audience. In the process of disseminating their stories, students become aware of the relationship between the public and private self. In watching other people's stories, they start seeing connection between their stories and others.
8. Assessing Reflection. Students participate in assessing the reflection cycle by completing online survey at various points during the cycle. The common times are at the beginning of the Cycle, after the collaboration, and after the production of the digital stories. The three surveys are identical.

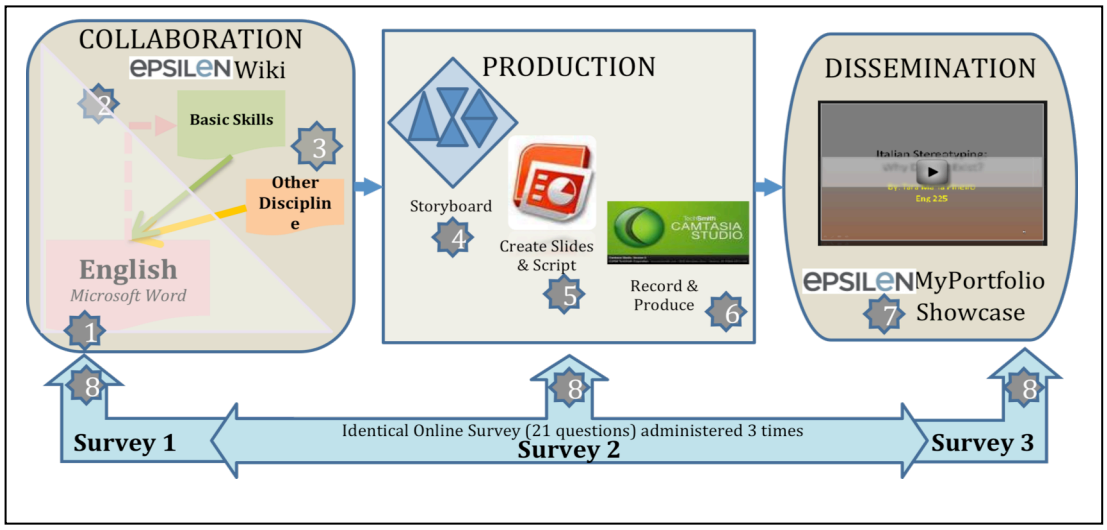

Figure 1 Collaboration and the Symphonic Reflection

Methodology

The data for this paper were gathered from the anonymous online survey administered to the participants of the SWIG Project in the Spring 2010 and Fall 2010 semesters. The participants took the identical survey consisting of 10 reflective questions and 10 demographic questions (see Appendix1) three times throughout the semester. The reflective section of the survey provided space for write-in comments, even though students were not required to provide comments; while the demographic section only had multiple choice questions with only one answer per question. The aggregated survey data were analysed using simple statistics and corroborated with the qualitative data.

In the Spring 2010 semester, 273 students responded to the first survey. The number of respondent decreased to 166 (61%) in the second survey, and 81 (29.7%) in the third survey of the semester. Similar trends occurred in the Fall 2010 semester with 254 students took the first survey, 166 (65.4%) responded to the second survey, and 98 (38.6%) completed the final survey. The decrease in the number of survey takers could result from various conditions. One main reason was limited access to computer classrooms. Except for the English courses, the other courses did not always have access to the computer classrooms. They generally scheduled session in the computer classrooms a few times during the semester mainly for the collaboration. When the survey time occurred they might not be meeting in a computer classroom that would allow them to

communicate the task to nor facilitate the students to complete the task.

Finding & Discussion

High Impact and General Educational Objectives

The design of this project combines several objectives that are usually achieved over time into one integrated learning experience in Web 2.0 environment with which students are familiar. Darcy, Dupre, & Cuomo (2010) reported that the SWIG project "[synthesizes] longitudinal goals in the General Education Objectives into one experience in the first semester Cornerstone course, an introductory course that teaches general education skills of communication, critical thinking, organization and development of values" (p. 42). Through their participation in the project, incoming students make social connection with diverse student population while gaining experience in career options using cultural artefacts found in the world-wide-web. In her study at Cal State Northridge, Huber (2010) found that student involvement in High Impact Practices enhanced their exit GPA, reduced time to degree, and increased the likelihood to graduate in a timely fashion. The current SWIG data did not trace this connection, especially since most students in the English class were in the first year or first semester. Future implementation of this project might consider adding an element or question in the survey instrument that will highlight this important connection.

The participants of this project achieved six out of the ten General Educational Objectives of the College (2009-2011 College Catalog, 11). When they incorporated ideas from the reading materials discussed in their class in their own story—both in writing and in digital format—students learned to communicate effectively in various modes—reading, writing, listening and speaking (Objective 1). When they analysed their partner's story and then selected gifts that would be suitable for the partner's story, students developed and used analytical reasoning to identify issues or problem (Objective 2) in the piece they read and critiquing. In addition, they used information management and technology skills (Objective 4) when they researched and evaluated web and other objects that would be suitable for their partner's and their own stories (Objective 10). They applied aesthetic and intellectual criteria in evaluating and creating works in the humanities or the arts (Objective 10). Through the collaboration, students realized that each discipline had its own

discourses convention, and this realization assisted students in integrating knowledge and skills in their respective programs of study (Objective 5). Reading about and sharing different experiences help students differentiate and make informed decision about issues based on multiple value systems (Objective 6). It is clear that the SWIG High Impact synthesis facilitated social networking, information literacy, and interdisciplinary collaboration whose end-result is the production of a new artefact of knowledge.

Retention and Reflection

Knight, Hakel & Gromko (2008) found in their assessment of 821 students e-portfolio in Bowling Green State University that "students who had e-portfolio artefacts had significantly higher grade point average, credit hours earned, and retention rates than a matched set of students without e-portfolio artefacts" (1). The SWIG Project showed similar results in student retention in that the first time full time students who participated in the project stayed or planned to stay in college at a higher rate (92.6%) compared to the first time full time students as a whole (88.0%).

Lin et al (1999) stated that technology can assist reflection through process display, process prompts, process models, and a forum for reflective social discourse. The design of the project showed an increase in student reflection. In all 10 reflection questions asked, participants showed a high level of reflection in that they often or always strived to think, learn and understand the information presented. Students were more aware of how they think, learn and understand information towards the end of the project (close to 90%) when compared to at the beginning (65%).

Moreover, reflecting on how the media and internet influence their learning, 70% of the students realized this fact by the time they took survey # 3 as compared to only half of them realizing this fact when they took survey 1. Seale & Cann (2000) found that learning technologies helped facilitate reflection for some students, depending, among others, on the way the technologies are used and the students' preference on the mode of reflection. The online surveys in this project seemed to make the process of reflection easier for the students. When asked for their thoughts on taking the survey, most students said that it was easy, and they at the end of the semester, they were used to reflecting on the projects.

In addition, the recursive deployment of the same survey helped student see the reflection process clearly by the time they took the third survey. The data also demonstrated growth in students thinking and maturity, as the following students wrote:

- In the beginning I thought 'wow' this is hard. Then as one step led to another, I saw it was easy. This project made me see I can do more than I think (Student 7).

- I could not help but be humbled by the positive reaction when I presented my digital story to the class ... great things come from small beginning (Student 10).

- You learn something every minute of your life and that will ultimately allow you to hone your skills, thoughts, and actions (Student 4).

In addition, by the end of the semester, more students saw the uniqueness of and interconnection between different disciplines. From Survey 1 to survey 3, there was an 11.7% increase in students seeing that different disciplines influenced one another. One student wrote, "I also considered how my writing style might change because the literacy piece contains two types of [discourse], which are academic and creative..." Students also showed an increase (13.4%) in considering what they needed to learn as they completed the project. Furthermore, students seemed to also realize the interconnectedness of things, event, and people at different setting, as expressed by the following comments.

- I considered the information [from the collaboration] as a learning process because I learned new information I did not know about college decisions (Student 4)

- I had help from my girlfriend, she reviewed [my story] and corrected it for mistakes and gave me advice on how to make it better (Student 21)

- ...I sometimes considered my own thoughts and feelings because I wanted to keep the information balance. By having my thoughts and my partner's, I could get information valid for the both of us. (Student 4)

One student made the interdisciplinary connection between the collaborating classes when he wrote "The project as a whole was

great because it not only allowed me to sit back and reflect on my own personal metamorphosis into adulthood, but it also enabled me to apply psychological terms to experience" (Student 5). On a more personal level, students empathized with and got inspired when they read others' experience, as one student aptly stated, "From the experience I read, I figure out that there are people who went through very harsh situations, despite of it, their behaviour and expectations are very high it really taught me a lot" (Student 1).

Challenges

Even though the SWIG project has generally brought positive changes in students, there are challenges along the way. As expected, the majority of students expressed high level of comfort with technology prior to their participation in the class. These students shared the characteristics outlined by Lomas & Oblinger (2006), as can be deduced from, "I am very comfortable with technology. I've had a computer since I was 11, and I'm 21 now" (Student 32) or the confident statement, "I am tech-savvy" (Student 37). Some students, especially older returning students; however, indicated a level of discomfort in using technology. One student expressed something along the line of, "I was a little lost but I am getting the idea now" (Student 38). For these students, technical supports were of high importance.

This project, as one student put it, relied heavily on technology, thus most of the challenges were related to technology. One main challenge that has been discussed earlier is limited access to computer classrooms, which possibly contributed to the decreasing number of participants in follow-up surveys.

Furthermore, the use of more than one software (Microsoft Word, Microsoft Powerpoint, and Camtasia Studio) and in some classes different technology platforms (Campus mail and/or Blackboard in addition to Epsilen) might have added the technology burden on the students. Some students observe, "Computers should not be used as much. Too much technology causes too many problems" (Student 21) or "too much media and technology can present problems for students. Too much technology and internet is bad" (Student 22). These students might refer to the distraction technology presented to some students or to the glitches that occurred quite frequently as they were working on their project, requiring certain levels of troubleshooting expertise on the professor's part, some of whom were as novice as the students.

Added Benefits

In an attempt to provide relevant technical supports, the College has hired graduates to assist students in their learning of technology. Several students got hired as a result of their participation in the project, mainly to assist next cohorts of students who participate in the project. In addition to the benefits for students, the SWIG Project has also benefited the Faculty participants. The Project design has provided the faculty researcher with a mass of data that can help them reflect on their teaching practices. The collaborative nature of the research and teaching have made the challenge of doing research more manageable, as shown in the few regional and international presentations and publications by the participants. These scholarly activities have also encouraged other faculty to take get their certification and credential for purposes of conducting research on their practices. Several faculty participants have indicated interest in exploring other aspects of the Project, which will bring new meaning to the current project.

Conclusion

The Student Wiki Interdisciplinary Group project, which partnered students from different disciplines using the *Epsilen* wiki feature, fit George Kuh's description of High Impact practices. It is expected that their participation in High Impact practices will enhance their performance and persistence in important ways (Huber, 2010). The project appealed to and developed the habit of Symphonic Reflections in students, which eventually helped them achieve the majority of the College's General Educational Objectives. The data which were collected via online at three different times throughout the project provided proofs of the student growth and learning. The project has also brought professional development benefits for the faculty participants, which open doors for further explorations.

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Appendix 1 – SWIG Online Survey Questions

Student Wiki Interdisciplinary Group (SWIG) – Survey

1. I AM 18 YEARS OF AGE AND I AGREE TO TAKE THIS SURVEY

○ Yes ○ No

REFLECTION SURVEY

2. While doing this project, I considered past memories and learning experiences.

○ Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

3. While doing this project, I considered my own thoughts and feelings.

○ Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

4. While doing this project, I considered how I think, learn and understand information.

○ Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

5. While doing this project, I considered how media, including the Internet, influences my learning.

○ Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

6. While doing this project, I considered another person's point of view, skills and knowledge.

○ Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

7. While doing this project, I considered how group work impacts my own learning.

○ Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

8. While doing this project, I considered my impact on another's understanding and knowledge.

○ Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

9. While doing this project, I considered what I need to learn.

○ Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

10. While doing this project, I considered how different disciplines influence one another.

Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

11. While doing this project, I considered how this project might influence my future thoughts, learning and actions.

○ Never ○ Not Often ○ Sometimes ○ Often ○ Always
Comments:

DEMOGRAPHIC QUESTIONS

12. How old are you?

○ 16 – 18 ○ 19 – 21 ○ 22 – 30 ○ 31-40 ○ Over 40

13. What is your gender?

○ Female ○ Male

14. What is your College Grade Point Average(GPA) so far (on four point scale)?

○ 1.5-2.0 ○ 2.1-2.5 ○ 2.6-3.0 ○ 3.1-3.5 ○ 3.6-4.0 ○ don't know
○ first semester; no GPA yet

15. Do you work?

○ Yes, I work one part time job.
○ Yes, I work more than one part time job.
○ Yes, I work one full time job.
○ Yes, I work more than one full time job.
○ No, I don't work.

16. Do you have children?

○ Yes ○ No

17. Is English spoken at home?

○ Yes ○ No

18. How many college credits have your earned so far?

○ 0 – 15 ○ 16 – 30 ○ 31 – 45 ○ 46 – 50 ○ 51 – 60 ○ don't know

19. When do you plan to leave Queensborough Community College?

○ after completing an Associate's degree
○ after completing a certificate program
○ after completing remedial course(s)
○ after completing introductory/general education courses
○ don't know

20. What is your race/ethnicity? (check all that apply)

☐ American Indian or Alaska Native ☐ Asian
☐ Black or African-American ☐ Hispanic
☐ Native Hawaiian or Other Pacific Islander ☐ White
☐ Other

21. Do you receive financial aid to attend Queensborough?

○ Yes ○ No