

Using Virtual Spaces for Learning Communities to Facilitate Project Development and Collaborative Learning

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Abstract— With the extensive expansion of the Information and Communication Technologies in the learning, business and home environments it is becoming apparent that there is considerable opportunity for increasing collaborative interaction if a framework is developed to coordinate the activities of the individuals across the different sectors. As a possible way of achieving this objective, we present the online Community of Practice developed and presently being in trial at the Institute for Work Based Learning, Middlesex University. In this paper, we describe our approach for developing and utilising of this Community of Practice. We will describe the benefits of the educational software tools we have used in the implementation process. Through case studies we will present two ways in which the online Community of Practice is being currently applied. We will outline the main advantages and some challenges of using the newly created Community of Practice.

Keywords – *online community of practice (CoP); Google Apps; Web 2.0; social constructivism; interaction; collaboration.*

I. INTRODUCTION

The purpose of this paper is to introduce ways that Google Apps and other Web 2.0 technologies can be used to develop an integrated virtual space for a learning community by putting in place an online Community of Practice (CoP). This project has been developed and is presently being in trial at the Institute for Work Based Learning, Middlesex University with the intended aim to “progress its online learning activities (including an increased use of social media) from individual, Programme-based initiatives to an institution-wide, strategic project which will be core to realising strategic objectives in learning and teaching” [1].

A well designed online learning environment is seen as a means of enhancing the student learning experience: students will be able to engage with a variety of online and

blended activities which will be learner-centred and will provide increased flexibility, choice and support.

The structure of this study is as follows: Section 2 briefly depicts the institutional context of the project. Section 3 outlines possible tools for creating an online CoP and justifies the selected approach. Section 4 describes the overall aims of the project and outlines the development stages. Section 5 clarifies the main technical aspects of the project framework and identifies initial advantages and challenges. Sections 6 and 7 present two examples (case studies) for using the newly created online CoP. The last section summarises the key outcomes of the Pilot project and outlines ideas for future developments.

II. STATE OF THE ART

The Institute for Work Based Learning (IWBL) has a long history of on-campus and off-campus innovations in e-learning and blending learning, as evidenced by BA Professional Practice (Arts) Programme web-site [2] and a wide range of Institute level good on-learning practices [1].

The way in which ICT was being utilised by the IWBL, whilst being innovative and desirable, lacked a common structure which isolated the different stakeholders. By the integration of a framework and consistent approach, the CoP establishes a wider collaboration and a sharing between multiple stakeholder groups.

In particular, the IWBL staff are seeking developing suitable approaches to address the feedback stated in the university Validation Report, April, 2011: “Consider greater use of social media to engage all students in communities of Learning”[8].

In response, the IWBL envisages that the development of a structured online CoP will have a big advantage in terms of supporting the attainment of key strategic goals in learning and teaching, including:

- Student-centred approaches to learning which address issues of diversity through flexible and varied modes of study;
- Flexible approaches to learning, teaching and assessment which meet the varied requirements of students and of IWBL and academic staff;
- Increasing competitiveness of work based learning courses;
- Increased flexibility in course structures and modes of delivery that provides a greater level of interaction and feedback between tutors, students and employers.
- Development of integrated virtual learning elements, resulting in increased efficiency.

The online CoP aims to expand the effective use of ICT towards fulfilling more of its potential and greatly widen the participation by providing an integrated virtual space for a learning community that will include multiple stakeholder groups [1].

Having developed and established a CoP for staff to which they are now actively contributing the remaining target for the project is to extend it to the other identified stakeholder groups (students and employers) [1].

The CoP utilises integrated Google Apps for Education including the new Google App called “Course Director”. The advantages of this online platform are described in the next section.

III. RATIONALE FOR CHOOSING GOOGLE APPS FOR EDUCATION/COURSE DIRECTOR FOR CREATING COP

The creation of a suitable virtual online learning space for the multiple stakeholders that we envisage using this facility made the choice of tool for the development and management of the space a crucial one. We aimed to find a tool that was simple, accessible, interactive, collaborative and cost effective.

Detailed discussions between the e-resources consultant, the IWBL management team and staff as well as with the University’s ICT policy makers have taken place. We looked at different Virtual Learning Environments (VLEs) including online learning systems.

As explained in [3], “commercial VLE products, which form the vast majority of VLEs in use in UK FE and HE, are generally characterised as ‘content-centred’, rather than being aimed at encouraging the active learning embodied in constructivist pedagogies”. In addition, we share the understanding that “a VLE cannot be implemented effectively in an institution without addressing a number of management issues, and the complexity of organisational structure within further and higher education is impacting on VLE uptake” [3].

Considering the needs of the stakeholders for open access to e-resources with no cost for administration and the requirement to use an intuitive interface, we have looked at flexible online platforms, such as Moodle and Google Apps that could meet our requirements.

Moodle and Google Apps are not the only flexible learning environments but they are the ones where the flexibility comes at a low cost.

Moodle provides tools for creating courses in a linear form using sites, blogs, online discussion forums, has tools for embedding HTML code and has uploading option for files. It is easy to create online course activities and interactive quizzes, however Moodle requires complicated administration.

Google Apps and Google sites are web-based services with more general structure, and are suited to both business and educational uses. The services are maintained and upgraded constantly by Google.

Considering our stakeholders’ needs, we have made a decision to set up a CoP based on Google Apps for Education and extended by a new Google App called “Course Director”. We have chosen suitable Google Apps/Course Director features to assist the development of the CoP in terms of sharing e-resources, information and archive documents in Google Sites. Stakeholders can jointly submit to Google Docs and there can be discussion groups for each community of practice in Google Groups.

Google Apps/Course Director support social constructivist approaches to learning. Social constructivism creates a learning environment that emphasises collaboration and exchange of ideas [4]. Constructivism gives people ownership of their learning, since they are engaged through questions, explorations, and designing assessments [5]. “Course Director” offers educators a set of tools to support collaborative forms of learning that can encourage publications, multiple literacy and inquiry. As suggested by Williams and Jacobs [4], “learners are able to develop new ideas, and transform their own understanding through reflection by publishing and sharing their work to a wide audience”.

In short, a range of free interactive and collaborative Google Apps has been installed. Google Course Director is the only Google App in the EDUCATION Marketplace to be awarded the TRUST e-Privacy certification. Free online support is available through a series of help, online demos and e-mail advice.

The desirable characteristics we outlined above as well as the fact that we trusted the application were crucial in our final decision to use Google Apps/Course Director.

IV. DEVELOPMENT AND UTILISATIONS OF THE ONLINE COMMUNITY OF PRACTICE

The development of the online CoP Pilot commenced in September 2011 and has been in trial with academic staff at the IWBL with very promising outcomes.

We are in a process of organising a survey for collecting feedback and will complete the Pilot project evaluation report by the end of January, 2012.

In the next development stage, we are aiming to extend the Pilot CoP involving students and other faculties at Middlesex University, business organisations, and other

stakeholders. Project findings will be presented and discussed at workshops organised at Middlesex University.

In [1], we stated our overall goals “to enhance the interactivity and connectivity involving tutors, students and employers and to achieve greater integration and use of a more diverse range of digital media (i.e., video) and social media (e.g., Blogging, Wikis)”. As suggested in [6], these technologies can “provide new ways for students to collaborate and communicate within their class or around the world”.

In the creation of an online CoP, a real opportunity has been given to stakeholders to share best practice, interact and collaborate. The contributions each individual gives to the community will continually refine the CoP and as the contributions and utilisations accumulate it will engage a much wider participation. Throughout the trial, academic staff have been using the online CoP effectively in this manner as will be demonstrated partly in the presented case studies.

In the next development stage, the IWBL is looking to widen the participation in the CoP to include all staff, students and external institutions such as businesses. Past experience has shown that aligning the sometimes very different expectations, priorities and values that pertain to different shareholders, for example, students and employers, can be difficult.

The online CoP approach is considered an effective means of achieving this. The CoP project avoids duplication of effort by bringing the efforts of the key stakeholders together to work towards a common set of principles and guidelines for best practice. The development provides opportunities for improvement of interaction, sharing and collaboration, for developing well-structured e-content, potential cost savings and income generation opportunities.

We are at end of the Pilot stage and we have a number of IWBL staff contributions published within the newly created collaborative CoP web-site.

V. TECHNICAL ASPECTS OF THE FRAMEWORK AND CHALLENGES WITH ITS IMPLEMENTATION

Our practical proposal has included the setting up an online CoP for staff, students and employers (based on Google Apps for Education and extended by a new Google App “Course Director”). We have benefited with a free trial for three months followed by a low cost annual subscription fee of 500 EUR.

The main features of “Course Director” include the following:

- Online communities of practice/courses for sharing information between tutors/students and employers in Google Sites;
- Student assignment submission to Google Docs;
- Online tests and quizzes in Google Docs;
- Discussion group for each community of practice/course in Google Group;
- Timetabling in Google Calendar;

- Grading, attendance and report cards (if no needed, these features can be hidden).

We have identified a number of benefits of the chosen solution as follows:

- With “Course Director” users only have to log on to Google Apps not an external Learning management System ;
- Simple user experience - tutors/faculty don’t need to learn a new system, they learn Google Apps which they see as a useful skill. Students already use Google products and learning is intuitive;
- Simple interface - Google Apps offer a range of interactive and collaborative tools that meet most of the teaching and learning needs;
- Data privacy and security – Google Apps is designed to provide the educational institutions with a safe, reliable platform for its data offering better security and reliability than most educational organisations could achieve on their own;
- Greater reliability and more hard drive space - Google offers 7 GB per user for free on Google Apps.

Google Apps administration is very easy and includes the following characteristics:

- Modular structure - turn off/on selected features;
- Import and export spreadsheet data easily;
- Quickly create online communities of practice or courses, then add/remove tutors/students or employers;
- Create standard online templates, but allow tutors to easily customise their community of practice/course themselves;
- Copy recurring communities of practice/courses, together with all files and attachments - no need to recreate courses from scratch;
- Never have to delete information - keep a full history of all your previous communities of practice/courses;
- Automatic password reset.

One challenge in the implementation of the chosen framework is that Google Apps do not support great additional customisation. This may restrict development of more sophisticated software platforms. However, for the purpose of creating communities of practice, using Google Apps is a very good idea due to the great interactivity, connectivity and collaborative tools.

While the initial CoP design and the administration settings took only a couple of weeks, the maintenance of the information flow has been a challenge. The e-resources consultant and the technicians have provided continuous training and support for the IWBL staff in the process of developing of individual and collaborative web-spaces and resources.

At the time being we have thirty –thirty five members of staff contributing e-resources, comments, sharing good practice, building up collaborative knowledge and expertise via the IWBL online community of practice. Five members of staff have designed their own Google web-sites aiming to

enhance the interaction between tutors, students and employers.

A survey and a full evaluation of the Pilot, including both qualitative and quantitative analysis of the collected data will be conducted at the end of January, 2012.

The table below shows some of the benefits and challenges we have identified so far as well as the relevant success factors we have considered.

TABLE I: BENEFITS, BARRIERS AND CRITICAL SUCCESS FACTORS (CSFs) OF THE ONLINE CoP

| Benefits | Barriers | CSFs |
|--------------------------------------|---------------------------------------------------|---------------------------------------------------------------------|
| Enhanced learning Environment. | Perpetuation vs. variety and flexibility. | Good use of Google Apps and other Web 2.0 technologies. |
| Knowledge sharing. | Culture of independence. | Institutional promotion of the online CoP as a communication media. |
| Building up knowledge and expertise. | Maintaining the interaction and information flow. | Common values, shared understanding, varied communications. |
| Feeling of connection. | Read-only participants. | Sense of purpose, sense of belonging, sense of ownership. |

We believe that the case studies developed by IWBL staff will help to promote the concept of using online CoP at a wider level and will engage participation at university level and from many more organisations and individuals.

We share the case studies via the CoP web-site in order to support and disseminate good practice and innovations, both internal and external, in online and blended learning approaches, including greater use of social media.

VI. CASE STUDY 1: USING THE IWBL COP FOR EDUCATIONAL PROJECT DEVELOPMENT

The online CoP approach provides an ideal opportunity to support projects which have multiple shareholders, all of them aiming to contribute to a common outcome.

The immediate positive of such a tool is practical as it could enable a well structured project approach, make resources and on-going comments available at any time and remotely during the development stage, and would assist researchers and educators to effectively manage the project process, to collaborate and take the ownership of the final product.

At the commencement of a project, we established a suitable Google site (CoP) to develop virtual space where members of staff were able to share resources and

comments. This is work in progress, but so far, we have found that tutors share good practice and consider advice from internal and external advisers.

In addition, colleagues prefer addressing project issues on an ongoing basis through comments on the online CoP rather than reviewing negative aspects after finishing the project when it would be too late to make improvements. The project web spaces are used for reflection on the process of project development, and publishing of relevant project materials.

We have been using the CoP to develop two project proposals – a Joint Information Systems Committee (JISC) - UK bid proposal and a Higher Educational Academy (HEA) - UK travel fund proposal. We are using Google docs as the main tool for developing collaborative material. After achieving the final product we embed it within the online CoP and share it with staff through the CoP site. This creates the opportunity for the team members to learn from each other and to provide peer feedback.

A positive benefit from this collaborative approach was that it overcame many of the spatial and temporal difficulties often encountered when a project requires contributions from a large range of shareholders. The opportunity for very rapid feedback and subsequent development that moves the project on is continuous and uninterrupted by constraints often put upon projects by peoples’ different responsibilities and locations.

VII. CASE STUDY 2: USING IWBL COP TO SHARE AND DEVELOP A SMALL PIECE OF ACTION RESEARCH

IWBL is increasingly developing programmes of study in partnership with large employers. Some of the challenges of such programmes are that they tend to roll continuously throughout the year and involve large student cohorts. This action research focuses on how we can best operationally manage such programmes. IWBL has considerable experience of supporting learning and assessment in a wide range of work based programmes and we interviewed eleven colleagues for their perspective on this process for this piece of action research.

The CoP is being used in two ways. Firstly, it is an alternative medium to ‘writing a paper’ about what emerged from this interview data for the IWBL colleagues who are the audience for the research. A Google website not only allows for non-linear representation of information, but for interaction with it. Academic staff can associate the units of information on each page and respond to them in the way they want. We hope this will be a creative stimulus to developing responses to the complexities of managing these large programmes, in a way that the familiar activity of simply reading a copy of a paper might not be.

Secondly, the CoP is being used as an exemplar of how all members of an IWBL programme team might collaborate and share core information about the management of an actual employer programme, for example, by being able to collaboratively develop material

using more types of media than just words (pictures, video clips, etc.) to give a richer picture.

This case study has highlighted that there has had to be a lot of learning for staff to understand what a Google website can do and how this can be made relevant to real and pressing needs in IWBL. For example, embedding Google Docs for colleagues to comment on and using a Google website to organise and display data in ways that are persuasive through their visual representation, are all processes that have had to be learned. Training and support have been crucial for colleagues to help them to master the technical action required to produce certain effects.

We hope that the outcome of this case study will be that collaborative CoPs like this can be used as long-term resources for employer-based programmes, since they allow for the organising, sharing and development of information across a whole 'programme team'.

However, we anticipate that the realisation of this will depend on the time and motivation of academic staff to do the hard graft of learning how to make the most of this new technology. This is costly in time and effort and would need technical support. The extent to which colleagues feel able to engage with the CoP developed for this piece of research will provide one gauge for the future value of this kind of resource in IWBL.

It is envisaged that a future development will be to make the employers active stakeholders. This should help to build the strength of the partnership by providing the employers a more active role and an involvement which will promote their understanding of the academic processes. Also by their comments the IWBL will get a better understanding of the employers' requirements. In other words, there will be promotion of mutual benefits in the partnership. Moreover, as [7] depicted, "Communities among practitioners create a direct link between learning and performance".

VIII. CONCLUSION AND FUTURE WORK

Considering our initial experience for using the newly created online CoP, we conclude that Google Apps/Course Director and other Web 2.0 technologies offer educators a set of tools to support forms of learning that can be strongly collaborative.

Both case studies illustrate key benefits for using the online CoP: accessibility at any time and remotely, flexibility, collaboration and a sense of ownership of the final product.

We are aiming to extend the online CoP and involve not only IWBL staff, but also colleagues from other faculties, students, employers and other stakeholders to develop and cultivate cooperative relationships by posting and exchanging digital materials, joining project groups, sharing information and building up knowledge together.

The CoP is to be designed to support the development of collaborative resources, to gain access to e-resources and it is needed to protect and increase the value of the content for all stakeholders. We anticipate that the CoP will help to

continuously enhance the professional practices of IWBL staff and collaboration with other stakeholders, and that the coordinated and ubiquitous use of e-resources will provide increased flexibility, sharing, choice and support.

Further refinements of the online CoP should be able to effectively incorporate both existing and future developments in social networking taking advantage of methods of communications frequently used widely by many of the stakeholders.

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