AN EVALUATION OF SOCIAL LEARNING NETWORKS: A QUALITATIVE PERSPECTIVE

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Abstract

Affordances offered through ubiquitous nature of Web 2.0 technologies and social media have progressively become universal constituents of our lives. Presently our students have seen the escalation in use of multimedia in their studies. With technological advances in telecommunication technologies, students have become accustomed to instant, global communications modes. Educational institutions have progressively adapted more innovative pedagogical approaches in their provision. Web 2.0 has fundamentally altered communication methods between people around the world. Access to information, dissemination, sharing and creation of new digitised content are powerful tools that ease social media adaptation in everyone's life. Over the last decade multimedia authoring tools have become more useful for content generation. The price and expertise to use these authoring tools has decreased, therefore offering opportunity for educators to broaden their experimental horizons with these technologies. With the advent of Web 2.0, access to information, dissemination, sharing and creation of new digitised content are powerful tools that ease social media adaptation in student's life. Universities have reported reforms in the use of Education 2.0, while Web 2.0 is finding its momentums in further education and schools. Since the advent of Web 2.0 many educational institutions have reported remarkable positive influences in students learning behaviours. Research studies have illustrated association between students improved communication and collaboration linked to improved motivation hence more on going academic performance. Social learning networks represent a more diverse mechanism than a content delivery platform. The potential to release both students and instructors creative talents, ease of content creation and collaboratively sharing teaching and learning resources has enabled educational institutions to explore the strategic benefits of social learning networks. Recent studies indicate that these digital elements when aligned with the best practices of multimedia design become powerful learning agents. This study is aimed at highlighting the importance of social learning networks in education from a qualitative perspective. A series of recent studies at higher and further education has provided guidelines for the improved use of social media in e-learning. This paper's findings will introduce qualitative verdicts for a framework adaptation of social learning networks in e-learning.

Keywords: Social learning networks, Education 2.0, Learning evaluation, Facebook, Social media.

1 INTRODUCTION

This paper provides an overview of research work carried out in the field of social learning networks. The paper discusses how students have been using social networks in a number of pilots with emphasis on gaining support for a number of learning activities. The scope of this research is to come up with a set of guidelines for instructors who wish to introduce social media in their learning settings.

The emergence of Web 2.0 has transformed the web into a more dynamic and interactive environment, offering a set of tools that enhance contact and collaboration between users. The tremendous potential of online social networks to enhance e-learning experiences has elaborated on creating an atmosphere of cooperation and easy interaction amongst teachers and students. Evolution of traditional learning management systems into a more conceptual learning approach is mediated with the affordances of Web2.0 and Web 3.0. The concept of community, relationships and interaction among users, along with the diverse student learning processes overcomes the rigidity of traditional learning management systems. Creation of social learning networks offers personal learning platforms and experiences that are not equated by other digital learning platforms. This was one of key drivers for this research as it was necessary to investigate

The undoubtable revolution of Web 2.0 tools has brought about accelerated transformation rate in interaction methods in the education system. Social software represented by blogs, wikis, social networks, tags, and podcasts form a collection of tools and techniques through which students

connect with each other, exchange collaborative skills and develop their social knowledge. Younger generation in particular students have welcomed the transformation of Web 1.0 into Web 2.0 with their adaptability and implementation of the web based technologies. The authors witnessed this transformation during the early stages of the Facebook success and experienced that certain learning activities seemed to be more suitable for social media environments rather than virtual learning environments. For example instant messaging made more sense to students rather than the use of synchronous communication via chat tools. Access to information and enabling social interaction are the new methods of communication. The new digital generation use Web 2.0 technologies to access information for communication as well as spreading their social boundary. Use of Web 2.0 in education has brought about revolution in the use of traditional teaching methods and e-learning techniques. As [5] states the traditional forms of e-learning in which the teacher as the leading role is responsible for production of teaching materials, dissemination of knowledge and evaluation of learning, has been complemented with the concept of e-learning 2.0 [5]. With the use of Web 2.0 our students use the collaboration and exchange of ideas through social interactions to create new knowledge that is actively shared amongst other students.

Ganis [7] emphasizes that creating a well-crafted social learning platform would most likely require a deeply collaborative effort among technology experts, educators, social learning theorists, psychologists, sociologists and students. Many studies support the positive influence of using social networks such as Facebook in educational settings. Heiberger and Harper [8] present examples and recommendations for Facebook use, to increase university student involvement, while Junco and Cole-Avent [9] state that newer technologies such as social networking could be used to increase college student engagement and improve educational outcomes. In another study, Maguth et al. [11] conducted a project-based study via social networks. They found that students using technology to access and analyse information, communicate, and showcase their learning were successful in their pursuits of research, as well as in the production and presentation of research results. As Teclehaimanot and Hickman [15] noted, a comprehensive understanding of how Face book can best be utilized in education is still lacking. Finally, as Facebook has been underutilised within educational contexts [4], more research and practices are necessary. The scope of this study was to investigate the role of social learning networks in an effort to establish a grounded theory for using social media in domain-specific learning [2]. The investigation presented in this paper is particularly focused on qualitative analysis of students' use of Facebook pages for a number of learning activities.

Social media are increasingly visible in higher education settings as instructors look to technology to mediate and enhance their instruction as well as promote active learning for students. With the advent of Web 2.0 tools, educators are looking to these new technological tools to examine its potential in enhancing teaching and learning. While its runaway success as a social networking tool is now renowned, the use of Facebook for educational purposes may be considered still at its infancy stage but Facebook as one of the widest adopted social networking tools offers more facets than an advertising media. The potential integration of Facebook into delivery of E-learning at further and higher education has been summarised with identified criteria and factors that complements its use as a course delivery platform. There is indeed a clear role of certain social media tools in the enhancement of the learning experience, with evidence of its impact supported by both qualitative and quantitative approaches [14]. The Social Learning Technology is a proposed framework that aligns its purpose of guiding instructors through the process of facilitating with the aims of learning. Its aim is to build a bridge between the collaborator and the virtual social interaction. The framework acknowledges social and individual elements within the creative process of interaction and does not commit to a linear route but a cyclic nature of creating and sharing knowledge amongst learners. It also describes guidelines for the delivery of blended learning on higher education courses.

2 SOCIAL LEARNING TECHNOLOGIES

During the early stages of the study it became evident that the work was positioned at the intersection of several fields. Figure 1 illustrates the multi-disciplinary nature of this study. At later stages the core of the work emerged from the intersection of social networks, e-learning tools and social learning technologies, leading us in the field of social learning networks [14]. The concept of social learning framework is useful as it is aimed to help us improve and change the way we learn. The problem faced by many educational institutions is the various use of e-learning across different levels of studies as the focal method of integration of technology in education. This method although still widely used in education, is reputed as deficient in bridging the gap in facilitating communication, participation and collaboration between social groups. With the rapid growth in the technology

advancement and profound use of Web 2.0 tools and social networks, learners dedicate a great percentage of their time online within the communities of family and friends in order to exchange ideas and foster the feeling of belonging to social groups and networks of people from across different parts of the world.
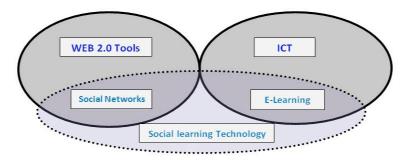

Figure 1: Positioning the domain of this research study.

How we as educationists can take advantage of the powerful and yet rapidly changing world of social networks to bring people closer together in order to enhance their learn experiences? On one hand our students are heavily engaged with e-learning throughout their educational life from primary school age to higher education using VLE environments to share and forward and absorb feedback from their teachers and on the other, use of social networks are increasingly becoming their integrated part of learner's online experience. Could the phenomenon of social networks and its enticement potential be exploited to influence learning experiences? Learning trends have shifted from traditional classrooms to e-learning over a decade ago towards mobile learning in recent years and then more recently towards the new dimension of social learning. Traditional methods of learning styles in and out of classrooms have been maintained through peers and friends while e-learning allowed for group cohorts to entail and invite participation and collaboration of learners. Social learning is geared towards electronic friends that necessitate acceptance and creating friendship by indicating their likes and dislikes and ratings through the use of social networks. The challenge is to find ways for investigating whether the shift in technology has also affected learning paradigms and calls for a new set of guidelines for instructing students.

3   FIELD WORK

The following section discusses the work conducted in social learning networks, with emphasis on a number of further education and higher education pilots. The scope of each pilot study was to enable students to interact and collaborate via the use of certain social media features, while evaluating their learning experiences supported by a Facebook page.

3.1   Further Education pilots

The first stage of the primary data collection involved both a further education college advanced level diploma course. The pilot series involved students from the IT programmes, as emphasis was given on domain-specific study. The selection of IT students was also a calculated decision to reduce issues associated with the use of technology. The study involved four groups of students during two pilots lasting between one to six weeks. All modules ran in the second semester and seminar groups consisted of around twenty students. Approximately 80 students took part in the further education pilots and three IT related modules were taught to include 4GL Programming, HCI, and spread sheet design at advanced level. This paper focuses on qualitative analysis of two pilots with HE courses.

3.2   Higher Education pilots

3.2.1   First pilot

The first HE pilot included approximately 40 undergraduate students split into 10 groups. Participants studied in the first year of the BSc Business Information Systems (BIS), formed their own groups and were responsible to maintain and manage a Facebook page for learning purposes. They were also involved in the testing and peer evaluation of all student pages in the course. In total, four questionnaires were used for each group to determine various aspects of the development of their

social learning network. The questionnaires were designed to capture responses of participant's study of the social network representing simulations of 10 other educational establishments created by the student groups. The online survey included both open ended and multiple-choice questions. The structure of the survey was based on issues relating to different stages of software development life cycle followed when creating the Facebook pages. The survey consisted of sections on strategy, operations, deployment plan, testing, and evaluation. During the strategy stage, participants studied the Facebook pages to provide their understanding of the goals and objectives of social learning networks geared towards the enhancement of user learning. During the operation stage of the survey, participants ranked Facebook pages according to the learning opportunities offered to online learners. During the development plan stage participants were asked to record the features used in the various university Facebook pages. The testing section of the questionnaire requested responses to a testing log with three parts: describe the testing feature, reflect on the feature and test the feature. In the evaluation section of the questionnaire participants were asked to evaluate university Facebook pages. The evaluation plan of the questionnaire consisted of (i) goal based evaluation rating university Facebook pages for user learning operations, (ii) goal free evaluation section of the evaluation log required participants response to 10 key questions in relation to each university Facebook page, and (iii) an evaluation log consisting of four key questions. The deployment plan of the questionnaire gathered data through their response to identify 5 common ways that the 10 university Facebook pages utilise the face book features.

Further to individual responses, each participating group provided responses in relation to strategy, operation, development, testing, evaluation and deployment. Group responses following consensus between group members, were focused on how each participating group in the study would integrate use of Web 2.0 in their learning process. The group questionnaire followed the same structure with the survey used with individual members, to ensure alignment research variables. Further work involved the collection of Facebook participation data from each group page through N Capture and further analysis with the Nvivo 10 qualitative data analysis software.

Define abbreviations and acronyms the first time they are used in the text, even after they have been

3.2.2   Second pilot

The second pilot study was conducted involving 13 groups of students studying the same course, one year after the first pilot. The same survey questionnaire was used including sections on strategy, operations, development, testing, evaluation and deployment. Each section was made up of the definition for the goal of the relevant part and few objectives. Group participants and individuals were to reply to each section question by identifying the objectives of their social media group page for the strategy section. For the operations sections, the groups had to identify the main activities they were involved in through the Facebook page. In the development section participants were asked to define what features of the Facebook pages would help with the goal of having an effective social media group page. The testing section required students to identify Facebook features used for learning purposes, test their functionality and provide their feedback on the use of these features. The evaluation section included the three sub-sections mentioned before, while the study concluded with student groups identifying ways for making their page informative and usable.

For the purpose of this study Nvivo was used. Data were organised in to sets and through manual handling of the scripts. The most obvious pattern for the collected themes was through the survey parts. The collected data were prepared and organised in Nvivo data sets through the internal data. The group data sets were organised in a different file from the individual data sets. Nodes were created according to the phases of the online survey and sub nodes were created for each main node. Data from the data sets were auto coded and recorded into main nodes and sub nodes. For the strategy node there were three objective nodes and for the operation node there were three activity nodes. For the testing part there was one main node and one main sub node. For the goal based evaluation there were three goal nodes and for the criteria based evaluation there were three four sub nodes created.

3.2.3   Data gathering and coding

Nvivo was used to identify the emerging themes at each stage of the collected data. Word frequency query was used at each main node and outcomes were recorded as case nodes. Word search query was used to identify the most prominent themes from each collected word frequency nodes, which were already stored in Nvivo as case nodes. Matrix query was created to compare data sets and queries at selected nodes. The presence of classification data would have made this study more

productive as classification sheets and classification nodes would help with creation of framework matrix.

4 QUALITATIVE ANALYSIS

The individual questionnaire section on strategy, operation, development and deployment plan generated qualitative data while the section on evaluation plan generated quantitative data. Qualitative data of individual's responses in these sections were analysed using Nvivo10 software. During the first pilot, 10 group sets of data and 40 individual surveys were also analysed using Node XL network analysis and visualisation software. During the second pilot the 13 group set data and 45 individual surveys were analysed using qualitative analysis software. The nodes or themes that corresponded to factors were identified to be strategy, operation, development, testing, evaluation, and deployment. These nodes are corresponding with the design of the survey template used in the pilots. These nodes also correspond to the stage of social software development of Facebook pages. Each main node (factor) has its child nodes, for example under the development node many Facebook features and attributes that were identified through the survey to be important criteria (e.g. post targeting, featured likes). Under strategy node few child nodes (factors) were identified and child nodes such as updating information, provide interaction, provide understanding and provide objectives were created. Under the evaluation node, three child nodes named as evaluation goal1, goal2, and goal 3, were created in Nvivo10. Under the operation node, important attributes that were used for capturing evaluative survey data such as performance, usability, interactivity, sociability were stored as child nodes. An important feature of Nvivo10 is use of queries in order to search for required data. Many queries were created on strategy, testing and evaluation nodes (factors). Text search queries and word search queries were conducted on sources and nodes and results stored as child nodes. Many queries were run on sources of data in both pilot 1 and pilot 2. Each created node was represented with a word frequency query to identify the most popular themes. Each important theme then can be stored as a theme node in Nvivo10. Word frequency query on strategy phase of the survey data generated two words "Learning" and "Information".

Analysis of the strategy objective provided "updated information" and having "interactive activities" and "informative posts" that allows visitors to learn about the purpose of the social network page created. The operations node generated "activities", "videos", "images", "comments" respectively. The testing node generated the Word frequency of testing phase revealed student activities on Facebook that provide informative activities and have learning features such as updates about deadlines and events and also receiving feedback from the user (students) were the emerging themes. The evaluation phase involved three types of questions. The strategy phase identified "updated information" and having "interactive activities" and "informative posts" as the emerging factors. The matrix query of criteria based evaluation and auto code result of strategy phase produced the following chart. The presence of the four important themes in criteria based evaluation of the social network pages alongside its mapping with the emerging themes from the strategy phase indicates that all the emerging themes are incorporated into the four phases and factors that contribute to the Facebook pages evaluation.

Figure 2 illustrates the autocode result for the deployment node with the corresponding emerging themes.
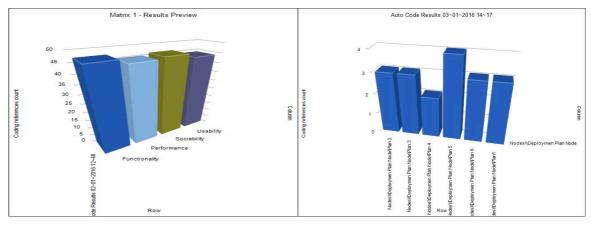

Figure 2: Deployment node analysis.

The analysis of the deployment plan node identified the following criteria for the implementation of Facebook pages, focusing on cooperation tasks such as (i) creating a discussion thread on the FB page, (ii) creating groups within the page for different subjects, (iii) sharing links of posts on different social networks so it reaches the wider audience and sharing videos and poster on different platforms.

At the operation node, auto coded node resulted in the three-activity chart shown in figure 3.
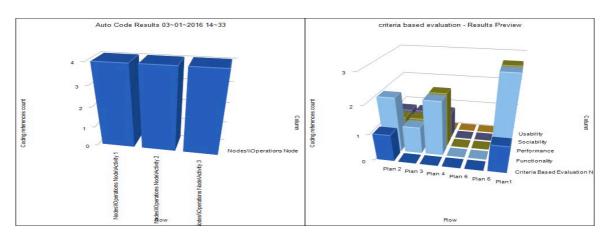

Figure 3: Deployment node analysis.

Analysis revealed that provision of Facebook activities under the "update information" theme such as exam dates or coursework deadlines and receiving feedback were most common, while other emerging themes included game quiz. Figure 3 also illustrates the the evaluation node, showing the matrix query of criteria based evaluation data set and the deployment plan node. It is clear from the above chart that the provision of "update information" was the most voted theme that contributes to the usability and sociability of Facebook pages.

The word frequency of deployment plan 1 identified having student activities that provide daily updated information are linked to the usability and sociability of Facebook pages (see figure 4). Also word frequency of deployment plan 4 identified informative comments and videos, events and user posts to provide performance and sociability (see figure 4). Word frequency on Functionality of criteria based evaluation results in posts, videos, events, polls and liking and comments to be important respectively (See figure 4).

Figure 4: Deployment plan word frequency.

5   CONTENT ANALYSIS

Enumerative content analysis provides a number-orientated overview while ethnographic provides a numerical overview but with the thematic analysis with more depth of explanation as to why and how words have been used in particular cultural contexts. The repetitions of the words in content analysis indicate their level of importance in the document. Having identified the frequency of key words, several other tools can be used to identify the contextual use of the chosen key word. In this study enumerative content analysis of text was used following the manual coding process that resulted in

identification of the emerging themes that corresponding to the identified nodes in Nvivo software. Conducting content analysis of text with Nvivo, using queries to interrogate the database with word search queries and text search queries, many emerging themes were identified at different stages of the survey study. The use of enumerative content analysis provided us with frequency query highlights the importance of repeated word and text during the analysis of large amount of qualitative data such as the survey results. More important words are repeated more frequently that is indicating how the participants in the study have reacted to the survey questions.

5.1 Results

Both source of pilot's studies yielded results that support the hypothetical question and literature review with the role of social media in e-learning within this study. The two series of FE pilots resulted in a series of guidelines for the implementation and use of Facebook as an informal and complementary platform in e-learning for the instructors and facilitators. Additional guidelines and outcomes are underway during the write up of this paper and will not be covered here due to timing restrictions.

5.2 Themes

The identified themes lead to the following guidelines:

a) Introductory online activity tasks should avoid using on line search for abstract topics.

b) Online Instructions need to be written in short and concise sentences of one or maximum two lines.

c) The online task needs to be broken down into shorter and more meaningful activity to only include one question.

d) Each online task is to be accompanied by graphical representation such as image, photos, illustration, presentation, map, diagram, etc.

e) Use of demonstration software (prototype) to complement software development online activity is proven to enhance learning.

f) Adequate attention to detailed instructions and learning cues should be used to differentiate learning for those with cognitive difficulties.

g) Online activities aimed at differentiated learning for mild cognitive learners should be complemented with additional time frames.

h) The online summative assessment should be designed to indicate exact type of learner's response to reduce diversity and complexity of output.

i) The assessment activity of each learner's ability to evaluate their own knowledge of the abstract topics should be aimed at designing concise definitions.

j) Learner's ability to evaluate their own knowledge should be designed with differentiated tasks suitable for the type and ability of the learners.

k) Working within teams to complete online activities will require paying attention to group dynamics and factors contributing to teamwork sustainability.

6 MATURITY MODEL

Traditional learning methods such as questioning techniques, verbal and written feedback, group discussion, project work, demonstration and simulation are proven to have been enabled through the use of VLEs ever since the creation and implementation of Web 1.0 in distance education. The Web 2.0 (re)evolution has resulted in changes in terms of using the Internet in all areas of work and also in education. Traditional forms of e-learning, in which the central role was that of the teacher responsible for the selection and production of teaching materials, dissemination of knowledge and evaluation, has been supplemented by the concept of *e-learning 2.0 [5]*. With the use of Web 2.0 tools students are no longer passive recipients of information but through the exchange of knowledge and experiences they create new knowledge themselves. Basic features of the new generation of e-learning are the interaction among learners and resources. Researchers suggest that social networks such as Facebook have become a valuable resource to support students' educational communications and collaborations with faculty [13], as it can provide a different model of how online tools can be utilized in

educational contexts [6]. Many studies suggest the potentials of Facebook use in educational settings. As Karl and Peluchette [10] noted, the ever-growing popularity of Facebook has led educators to seriously consider the role social networking could play in education. Facebook as the delivery platform was the most favoured social media due to its ease of access and participants familiarity in this study. During the 4 pilot studies at both further education and higher education courses, many traditional teaching styles and delivery methods were incorporated in the delivery of the learning aims through Facebook pages.

Synchronous and asynchronous learning were adapted in delivery of activities through Facebook pages. Written feedback was evidently enabled through the use of posts. The comment feature allows discussions during and out of the class activity times. Group work as the most favoured pedagogy is well enabled in Facebook with the allocation of pages to tasks facilitated by clear facilitator instructions. Facebook posts can be used for demonstrating videos and presentations, while file uploads are used for project work and simulations.

7   CONCLUSIONS

By proposing a model that helps assessing the readiness of academics and students for using social media to learn/teach/be assessed, we attempt to contribute to the successful use of social learning networks and their success. In other words if a model can be used to asses readiness/maturity of a learner or an instructor then we can claim that social learning networks play an important role in enhancement of learning experiences. The readiness model suggests that two main sets of variables can be used to assess the maturity of learners in exploiting the potentials of social networks for learning purposes. The Web 2.0 criteria are related to how learners successfully would use the FB features in their studies and how instructors can implement the use of such features to maximise potentials of this media. Facebook features such as polls, tags, comments, likes, and videos are used but how popular are these features? The time spent during the online activity is another important criterion, as well as how each individual communicates with the rest of her or his own community of learners. Student's participation in the learning process and the response to she/he provides to the activities as well as the other criteria such as motivation to learn are important criteria. Another set of variables are learner's progress and achievements. Participation logs and progress reviews indicate individual learner's level of attainment while their achievement in studies are ranked according to their contribution to the coursework component and written assessment components. Each of these elements is constitutional factor that influences the readiness of individuals and groups of learners who would benefit from exploiting Facebook as a complementary learning platform at college and university.
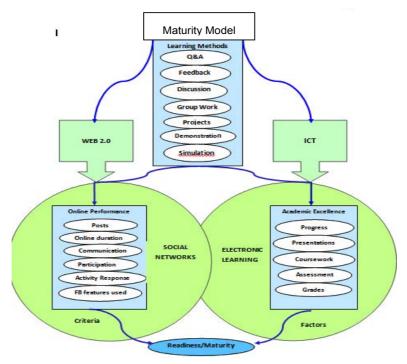

Figure 5: Proposed maturity model.

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