Redefining and Renovating Social Learning

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Abstract. **Teaching for engineering students has uncovered a more detailed range of approaches to learning, with procedural approaches in between the classic deep and surface approaches. In this paper, concerns are raised to meet the needs of the diverse range of students that are entering in higher education. The Accreditation Board for Engineering Education and Technology (ABET) criteria requires engineering programs to demonstrate that their students attain a recognition of the need for and an ability to engage in lifelong learning. Fortunately social software platforms and open learning repositories provide opportunity for institutions and learners to establish a stimulating and constructive interaction to strengthen learning and increase effectiveness. This paper argues that the success of organizations depends on their ability to design themselves as social learning systems and also to participate in broader learning systems such as an industry, a region, or a consortium. It explores the structure of these social learning systems. It proposes a social definition of learning and activities to be carried over for introducing social learning in education system.**

Keywords: social learning, lifelong learning, ABET, Social software platforms

I. INTRODUCTION

Education and Social Renovation

History indicates that human progress towards higher levels of material and cultural achievements has four basic requirements: socio-cultural transformation and technological development, the accumulation of Knowledge, and man‘s fight for freedom; all can be completed with education and the social awareness. Through education, societies transmit knowledge from one generation to another and societies learn how to develop and gather knowledge, transform and introduce changes social and culture in the form of new, non-conventional ideas, values, attitudes, and non-traditional ways of thinking. Through education, people can learn how to become more socially and politically conscious and how to use knowledge to improve the quality of their lives[1].

Over the past few decades, Engineering [2] has played substantive and integral driving force that links society and science in an innovative and forward-thinking manner. Campus is a social institution that provides students with an environment for learning and living a unique and healthy life experience. In campus, students get a chance to discover their particular talents, and also to develop such talents. Institutes also help students to be innovative, creative, behave rationally and work systematically [3]. Institute helps students, how to continue to learn, and how to enjoy learning. If any university fails to perform these tasks, wastes valuable human resources. It means that it denies its students the opportunity to get the right education, and limits student’s abilities to succeed in life.

Learning spaces in universities are being updated day by day . Shifts in student mobility, pedagogy, curriculum management and technological tools are impacting directly on the planning and development of campus learning spaces. There is a shift from transmission models of learning to constructivist approaches which emphasize active, collaborative, peer and social learning.

Reflecting this adoption of constructivist approaches to learning nationally and internationally, there is a shift away from the concentration on lecture and classroom spaces to collaborative, informal and social learning. In many cases, these spaces extend to the enhancement of student agency and a shared construction of knowledge and learning contexts. The aim of learning space innovation is to improve the student learning experience, and by association, transform student learning outcomes.

II. SOCIAL LEARNING-THEORIES

Social learning involves the transfer of information from a more experienced person to a new one. A subset of social learning is observational learning. In this a demonstrator influences the behavior of an observer such that the observer's behavior is altered in subsequent analogous situations. Social learning is also observed in a variety of animals including fish, birds, reptiles, and mammals [4].

Psychologist Albert Bandura is the father of social learning theory**.** His work in 1970s on behaviorist and cognitive theories of learning, focuses on the learner's attention, retention, reproduction, and motivation as a result of observing others. In this kind of learning, students learn how to perform tasks by observing someone who knows how the task should be performed [5].

Vygotsky's **Social Development Theory** is based on how we learn in the company of others. This theorist's work with children and language development showed that relationship building and social interaction are both critical parts of the process of expanding cognitive development [6].

Marcia Conner has mentioned that social learning is participating with others to make sense of new things, which helps us think about how the concept might be put into practice in both education and training contexts. Online students participate with each other to make sense of new things in their courses.

Julian Rotter's social learning theory indicates that personality represents an interaction of the individual with his or her environment. One cannot speak of a personality, internal to the individual that is independent of the environment. To understand the behavior, one must take both the individual and the environment into account.

a. Bandura Theory

Learning would be exceedingly laborious, not to mention hazardous, if people had to rely solely on the effects of their own actions to inform them what to do. Fortunately, most human behaviour is learned observationally through modelling; from observing others one forms an idea of how new behaviours are performed, and on later occasions this coded information serves as a guide for action.

In the late 1970s, Albert Bandura established the most well-known theory of modern social learning, which proposes that people can learn in a social context. More specifically:

- Learning occurs by observing others‘ behaviors and the resulting outcomes
- Learning can occur cognitively without a corresponding change in behavior
- Three variables in the social learning context—the learner, the behavior, and the environment—can influence each other.

III. HOW TO INTRODUCE SOCIAL LEARNING IN EDUCATION SYSTEM

a. Curriculum development- Student-centered learning

Student-centered learning conceives of indicates that students should play more active role in their learning processes. Active learning is often associated with experiential, problem-based and project-based learning, and other forms of collaborative learning, and less dependent on the large lecture format.The benefits of student-centred learning that includes staff-student and peer interaction can be understood in relation to the social and emotional dimension of learning. This influences student’s sense of belonging and their motivation and achievement. Pedagogies that involve students as active learners instead of recipients of knowledge, show respect for student’s views and experiences, and therefore diversity and difference is less likely to be problematical and more likely to be valued within a transformative model of higher education. Tinto found that students benefited and enjoyed being part of learning communities, which forged interaction between students to facilitate their learning both inside the classroom and beyond. Similarly reviews and existing literature find that student-centered, discussion-based and group-based learning activities promote:

- Enhanced student participation and interaction.
- More willingness by students to present their ideas.
- Improved communication among students in culturally diverse classes.
- A shift towards deep learning as a space is created for learners to test out new concepts.
- Increased motivation, quality of discussion and level of analysis.

b. Humanities and Social Sciences In Engineering Curriculum

The role of humanities in engineering curriculum needs to be observed through two main Perspectives [7], which are:

- The nature of humanities and social science subjects in engineering curriculum
- Proportional allocation of engineering curriculum to humanities and social sciences.

The nature of humanities and social sciences, which are to be incorporated into engineering courses, should be relevant to workplace discourses in which the engineering profession is embedded.

We recommend that subjects concerned with ethics such as social and Industrial history and history of technology are relevant to engineering education. A report into engineering education in Sweden recommended the inclusion of History in core engineering curriculum. As a subject, History expands cultural references and enhances the understanding of human condition in the context of development of ideas. In interpreting human condition, History is based on theories from political science, economics and sociology and as such the subject is multi-disciplinary. History is highly contextual to the technical and scientific part of engineering curriculum. There is a general international acknowledgement which concerns the value of humanities and social sciences in engineering education to enhance workplace discourses and raise the social standing of the profession.

Grinter suggested that 30 percent of engineering curricula in the United States be allocated to core humanities and social science disciplines. Heitmann in his overview of European engineering education felt that 20 percent of allocation to humanities and social sciences was enough. The Accreditation Board for Engineering and Technology (ABET), a body responsible for accrediting professional engineering courses in the United States, mentioned that a minimum of 12.5 percent of engineering curriculum to be allocated to humanities and social sciences if these course were to be accredited. Challenge is to support the students in their informal learning practices and in the construction of their learning environments and networks as a next step in increasing digital literacy.

c. The Social Engineering

It is proposed by the two educational programs [8] design teams can be described as: The field of study, which main goal is to solve social problems promoting the civilization evolution. It is not just the application of technology to solve social issues. It is a practical study which tries to reform the society by the development of new policies & concepts. Certainly it is not an easy task to accomplish such program because it is an engineering program less technical and more practical. Anyway the whole concept is very new and feasible once it is becoming more and more necessary the services of this professional. Very soon it will be a promising scientific and technical area, which matches the needs of the present and future society. The complexity of societies is a motivation for the social engineering students who can see in it as a challenging career.

d. Social Networks and Lifelong Learning

Educational institutions adopt social networks at an increasing

rate. All higher educational institutions have Face book pages, LinkedIn alumni and student groups and even active Twitter accounts to inform students and faculty about emergencies. The idea behind this is to mainly create a network where all staff, faculty, students, and alumni are connected and are informed about campus news. Higher number of participants on university and college social environments proves that, these environments can successfully reach to masses.

Even though there is lot of increase in the use of social networking platforms in the higher education institutions, the social network platforms are more targeted towards directed searches. Their main area is not education; therefore actively using them for educational purposes is not a common approach. Social networking platforms are available after the course is over or after students have graduated; transforming them great candidates for lifelong education.

People enrolled in the same study programs or courses are used to meet in social settings to do homework or prepare exams. With these trends, higher engineering education institutions should have a closer look at these informal personal and social spaces and practices, which are expending at a global scale and are giving students access to an unlimited potentially valuable resources and experts. In addition, educational scientists crate learning environments and the integration of learning communities as an integral part of the learning process. It helps students to develop the high-level skills and competences required by their future employers. Hence, a challenge for academic institutions is to integrate the student's practices and environments in the existing institutional ones to take advantage of them. Another

e. ***Scholarship In Engineering Education***

Learning and teaching promote and enhance the student experience within Engineering Education is:

Relationships (R)+ Variety (V) + Synergy (S) = Environment for Success (1)

Developed to address the overall pedagogical aim of student success, the above proposition recognizes that one of the main challenges faced by Engineering educators today is how to create a learning environment in which such success can be nurtured and achieved. In this perspective, there are three key components necessary to engender such an environment.

Crucial to the learning environment, Relationships are keyto successful learning – as such they need to be valued and nurtured. Relationships in the learning environment reflect the complexities of the social networks within and across educational settings. Different types of relationship exist between students and their peers, students and teachers, among colleagues including families, employers and other stakeholders such as policy makers. Previous studies have suggested that relationships play a vital part in addressing issues of retention by promoting a sense of belonging.

Variety in learning and teaching motivates Engineering educators to adopt an innovative approach. Variety within the learning environment can include a range of different learning and teaching approaches including active learning, work-based learning, project and problem-based learning. Whilst it is imperative that all learning and teaching should be contextualized within a discipline-specific setting Engineering is in a fortunate position in that it can provide numerous opportunities for Engineering educators to introduce variety into the curriculum: work-based learning: project-based learning: tutorials etc.

The third component, Synergy, captures the concept of constructive alignment. This approach can be further developed to include the requirements and expectations of a wider group of stakeholders including Professional bodies, industries and wider society. A synergetic approach to teaching involves deliberately designing the curriculum in such a way so as to engage students by providing realistic, interesting learning approaches which capture their imaginations while meeting university demands in terms of quality and content.

IV. REQUIREMENTS AND TOOLS

*Social Learning Tools***:** Social media and networking tools provide a mechanism for communication which is critical in online learning. When students and instructor cannot meet face-to-face, other resources are required to engage in all of the activities. Social media, as defined by Marcia Conner, is technology used to engage three or more people.

a. Learning Management Systems

Online schools and programs commonly use websites or learning management systems (e.g. Blackboard, Desire2Learn, Module) to deliver their individual courses. These systems typically consist of basic communication tools and forums for student and instructor interaction such as discussion forums, virtual meeting rooms, and email, as well as group workspace with file storage and access.

b. Social Networking Systems

These tools allow students to create individual profiles and join groups and conversations with others who have similar interests. LinkedIn, Ning, Twitter, and Facebook are just a few examples of social networking tools that are popular in education circles.

c. Collaboration and Sharing Spaces

This category covers a lot of ground. A wide variety of web-based tools is available to help students communicate and work together online to complete social learning activities. The Centre for Learning and Performance Technologies publishes an annual list of the Top 100 Tools for Learning. The tools also change day by day. Google+ was recently introduced as a new social media and networking tool. It has already gained attention in higher education. Social media and networks, make the switch to new systems at some point.

V. ACTIVITIES TO BE ORGANISED

Students working together learn from each other and from more experienced instructors. Individual programs, courses, and student groups can encourage interaction of their members as communities of practice in their field of study. This is important in online education, where students and instructors

are not in the same location.

a. Social Learning Activities

Activities that require students to interact with each other create an environment where social learning can take place. Many options are available in current online courses.

b. Small groups

Collaborative work is assigned in the form of a small group project where three or more students work together to complete an assignment. All group members are expected to contribute and to assist each other. Students are assigned to groups where members have different levels of skill or knowledge. Northern Virginia Community College has posted this example of a group writing assignment submitted via Google Docs.

c. Class discussions

The discussion forum is a better learning management systems. This platform can be used to engage students in learning through debate activities, case studies, The University of Illinois provides an example of an online discussion assignment.

d. Games and simulations

Online are using technologies that allow for game playing and simulation. Through games, students work as teams, the social activities can have a positive impact on learning. Games can be as simple as scavenger hunts and puzzles, or as complex as multi-user video games and activities in virtual worlds. Game and virtual world formats also allow for simulated problem-solving exercises and role-playing activities. The video from Duke University describes the use of Second Life with their online nursing students.

e. Mentorship experiences

Through planned experiences, internship requirements, program alumni, and student clubs and honor societies, students get the opportunity to work with members of a larger community of practice where experts can help to facilitate and guide learning. Online mentoring is becoming more popular in higher education and in professional development situations. The National Science Teachers Association reports on its mentoring program highlighting benefits and challenges.

f. Project-Based Learning

Well-designed projects ask students to: Tackle real problems and issues that have importance to people beyond the classroom. Projects emanate from issues of real importance to students and adults in the community and answer the age-old student question "Why do we need to know this?"Projects provide opportunities for students to produce observable evidence that they have mastered rigorous curricular standards as they apply their learning and solve the problem at hand. Projects and exhibitions also provide extensive evidence of process work and self-directed learning.

PBL lends itself perfectly to performance-based assessments, applied learning, and demonstration of deep content understanding. Using this approach, project ideas can emerge from local environmental conflicts, regional development proposals, or national political issues. Once they have found the hook for the project, teachers can backward map their design to ensure that required standards are adequately addressed. In a PBL environment where teachers ask students to engage fully in their own learning and exhibit their work beyond the classroom, teachers must reciprocate and model an elevated level of commitment in return. Parents can play a key role in supporting PBL by engaging with their students in the inquiry process, providing additional resources to the classroom, and serving as audience members for public exhibitions of student learning. The authentic nature of well-designed projects helps teachers move parental involvement beyond the bake sale into truly meaningful engagement in learning. Community organizations, employer partners, and institutions of higher education can also support classroom PBL efforts in a multitude of ways. Some of these partners can provide the impetus for a project by "subcontracting" students to solve real problems for their school, business, or organization

g. *Outdoor learning*

Learning outdoors is about engaging young people in many different ways. Practitioners frequently act as facilitators, using multi-sensory and experiential approaches. This encourages young people to become involved in emotional, physical, aesthetic, spiritual and cognitive experiences as part of their learning. The place or context in which learning takes place is an integral part of the learning process. The relationships between the people involved, the activities undertaken and the place where the learning happens require thought and consideration to maximize the learning opportunities and to meet the needs and aspirations of children and young people.

Outdoor learning encompasses the entire range of learning experiences undertaken outside. Whether it is reading a book outside or participating in an overseas expedition, the curriculum design principles apply. Curriculum planners and managers should recognize the place of the full spectrum of outdoor learning experiences and should not interpret the promotion of the use of grounds and local areas as an alternative to outdoor residential experiences but as part of a spectrum of learning opportunities.

VI. CASE STUDY AND EXPERIENCES

Supplemental Instruction (SI) has been introduced to the first year engineering and mainstream chemistry students at the University of KwaZulu-Natal A qualitative research methodology was used to understand the first year engineering student's experiences of the social learning created by the SI leaders. In this study, a sample of engineering students from UKZN was observed over a period of thirteen weeks. During this period fifteen SI sessions were observed in two different first year engineering chemistry modules. The qualitative research method employed in the study involved observations through video recording. The use of video-recordings helped

to observe situations more than once.

Towards the end of the course, students were asked to attend focus group interviews on a voluntary basis to ascertain factors that influenced student learning through engagement. The main aim of this paper was to understand student's experiences of the social learning spaces created in chemistry SI sessions. Thus, to explore this aspect further, students were asked to describe the ways in which they felt the social learning spaces in chemistry SI sessions played an integral part in improvement of their understanding of chemistry concepts. Individual interviews were conducted with students with different academic performance in order to obtain a range of perspectives with respect to student's experiences of chemistry SI.

An SI session is neither a lecture nor a lesson in the traditional sense of the word but rather a formal learning space where students discuss the subject matter on a voluntary basis and out of their own interest. These SI sessions are usually held for 45 minutes twice a week. The learning spaces designated for SI sessions are flat rooms with approximately 5round tables seating 10 students around it to enable communal arrangements. The findings from this study show that SI social learning spaces create opportunities for learning engagement that differ from lectures in many ways, particularly as they offer more opportunities for practice and reflection and provide opportunities for collaboration. They provide access to support and immediate feedback and also support students taking responsibility for learning.

Students commented that student focused learning, which involved peer teaching and learning, encouraged them to:

- develop thinking, reasoning and social skills which enabled them to engage with the problem solving activities more effectively;
- develop confidence with respect to making appropriate choices in terms of chemistry concepts; and
- explore, question and research other alternates as a fundamental component of their learning.

It is evident from these responses that students who engaged in these social learning spaces developed a better understanding of concepts through collaboration. It is therefore argued that the social learning spaces created during the SI intervention session have the potential to develop independent lifelong learners in chemistry.

VII. BENEFITS AND IMPACT

a. Social Learning Is New

The advantages of social learning, including learning by example and the reinforcement of knowledge that comes with the human connection are valid today. However, the advent of social networking technologies has helped create a new breed of social learning. In today's environment, instructors still act as facilitators, mentors, and guides, but at the same time relinquish a degree of their authority to the learning community, which includes students in the classroom, remotely located students, and a huge variety of resources that are as close as an Internet connection. In turn, each individual in the network of learners actively shares both knowledge and challenges.

b. Social Learning Is the Same as Social Media

Social media sites such as Twitter, Facebook, LinkedIn make it easy and motivate people to connect, share information, and develop relationships. Yet they can also discover people and information that may serve no value when it comes to learning. When using these sites in the classroom, specific directions and guidelines on how to reach them can be used to facilitate formal social learning. However, social learning can also occur informally, without a pre-defined leader or curriculum, when topics originate from the learners themselves. An example for this is a group of students who get together to study for an upcoming test.

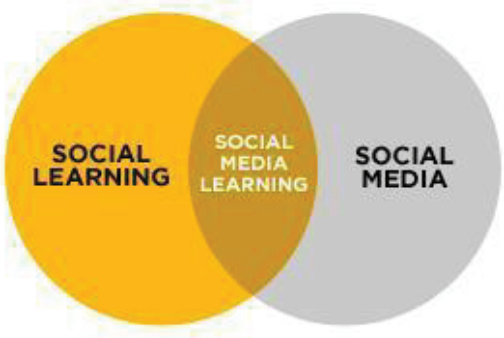

Fig. 1 Social learning methodology

Social learning strategist and designer Tom Spiglanin explains social learning and social media exist separately, but social media can be used in support of social learning. Dan Pontefract, head of learning and collaboration at Canadian firm Telus, posed a further distinction in Chief Learning Officer: Social media is a tool; social learning is an action. and online social technologies have enabled frictionless social learning opportunities. An Social learning methodology is shown in Fig. 1.

VIII. CONCLUSION

Various social learning theories explained in detail. This paper presents different methods and subjects which are to be included in education system to enhance social learning. Social learning networks are putting significant effort ensuring the educational nature of the service and allow subject related information. In future, the first generation of active learners who have grown up in a digitally connected environment provides a 21st century direction for social learning.

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