The Impact Of Social Computing Tools In Multi-National Student Project

Srimathi H, Krishnamoorthy A

Abstract— The rapid growth of social computing (SC) is changing the way of knowledge exchange and communication in more connected form. The educational institutions are forced to support the digital learning styles of young generation students who seamlessly integrate social network in their daily life. The modern economy insists the need of virtual team and virtual projects s as the organizations look for better talents across boundaries. In this research, the students are assigned with short term project development where the team members are compulsorily distributed from different geographic location and are communicating each other through SC tools. The collaborative learning opportunity enhanced the students towards team work, better communication skills and also helps in mapping cognitive skills with foreign qualification. The study focus on how Web 2.0 social tools blended in project development for the distributed team.

Index Terms— Social Computing Tool, eLearning 2.0, Distributed Team, Multi National Project, Meta Cognitive Skill, Collaborative learnnig

1 INTRODUCTION

THE eLearning 2.0 tools increase the peer engagement and promote reflective practice and experiential learning. (Ivanova, 2008). The collaboration ranging from book-mark sharing, podcasting, photo sharing, video sharing, RSS / Atom Syndication, collaborative writing tools to growing number of others. The choice of SC tools is important in learning process depends on the support of technical features (Charles, 2008). SC responds to modernize educational system by new approach for fostering lifelong learning with the vision of future learning space (Ala-Mutka, 2008). The research work concentrate on in-depth analysis of relationship between SC technologies and eLearning in multi-national distributed project development environment.

2 ELEARNING 2.0

The first phase of eLearning utilizes the Learning Management System (LMS) in the closed environment and called as eLearning 1.0. The LMS is useful to administer the online / blended learning environment, which is developed based on behaviorist learning of knowledge-transfer paradigm. The eLearning 1.0 is further enhanced as personalized learning using intelligent tutoring and user adaptive learning model based on cognitive theory (Ulrich, 2008). The Web 2.0 SC tools are considered as second phase of online learning and named as eLearning 2.0, (Downes, 2005) which encourage participation, collaboration and reflexive learning. This permits the team to create closed or open group to share / broadcast information.

- *Srimathi H, Professor & Assistant Director, Directorate of Admissions, SRM Institute of Science and Technology, Chennai, India. E-mail: srimathh@srmist.edu.in*
- *Krishnamoorthy A, Professor & Associate Dean, Department of Electronics and Instrumentation Engineering, SASTRA Deemed University, Thanjavur, E-mail: ak@eee.sastra.edu*

Though it is viewed mainly as a communication platform, the real purpose is subject to utilization in term of entertainment, social relations and learning (Williams, 2012). Some of the SC tools used in eLearning 2.0 are Facebook, Twitter, YouTube, Google Plus, Sourceforge.Net and Skype. The SC provides two way communication and interaction, which enables active learning participation (Esam, 2016). The students of similar interest groups can be networked and removed with the barriers of passive mode of distance learning. The Web 2.0 helps in knowledge sharing between peers, caters to multiple learning style and generates dynamic learning content. The Web 2.0 is considered as a new public of higher education which promotes learning among non-traditional millennial students and life-long learners. The SC tools assures

- Any-time, Anywhere learning environment
- New model of inquiry
- Active engage of participants
- Helps in formalizing online social behavior of students

However, there are some challenges while using SC platform for learning (Saeed, 2009), which require audited content to go live and require SC etiquette among team members.:

- Usefulness of filtered content
- Content Distraction and lack of Concentration (Ali, 2016)
- Authenticity and E-safety of the shared content
- Addressing variation in learning preference based on learning style

There are several studies showed the positive pattern of using SC tools in collaborative learning approach despite its challenges (Al-Aufi, 2015).

3 META COGNITION

The cognitive growth within individual will happen only after

the social level (Vygotsky, 1978). The knowledge process is affected by social intervention, and further assisted by community culture. The qualitative study is proposed to investigate the impact of SC tools on the meta cognitive skills of higher education learners (Redecker, 2009). The peer-assisted learning develops integrative element between knowledge reasoning and meta cognition (Higgs, 2008).

Asynchronous environment of Web 2.0 provide a candidate to review the recorded message of all peer communication through navigated pathway and promote personalized, self-regulated learning (McLoughlin, 2010). The learners are expected to attain higher order thinking skill and decision making process (Melissa, 2010). The study focus on impact of collaborative peer-assisted learning in the heterogeneous geographically distributed learning environment.

4 EXPERIMENT

The purpose of the project is to educate the next generation about the effectiveness of collaborative learning through SC tools in globally distributed multi-national team. The three different project titles are assigned to two geographically distributed institutions from different countries. The descriptive information of the team members:

- Twelve members in each project with equal distribution.
- Equal gender ratio is also maintained
- The team comprise of pre-final year batch.
- Each sub team of the project is constituted with the mix of members from geographically distributed and they are not allowed to swap team to form members within same location.
- Team members are provided opportunity to learn about two things as listed in Table 1.
- The workflow for each project is planned as shown in Fig 1.

Table 1. Expected learning from Team Members

Technical	Personal
• Project preamble, • Structure of programming platform, • Identify the need of good programming practices, • Understand the need of proof-of-concept before implementation • Version control of documents • Code of conduct	• Open mind to consider alternatives • Simple and clarity in communication • Conflict Management • Sense of multi-cultural community • Socialization process • Positive and constructive approach

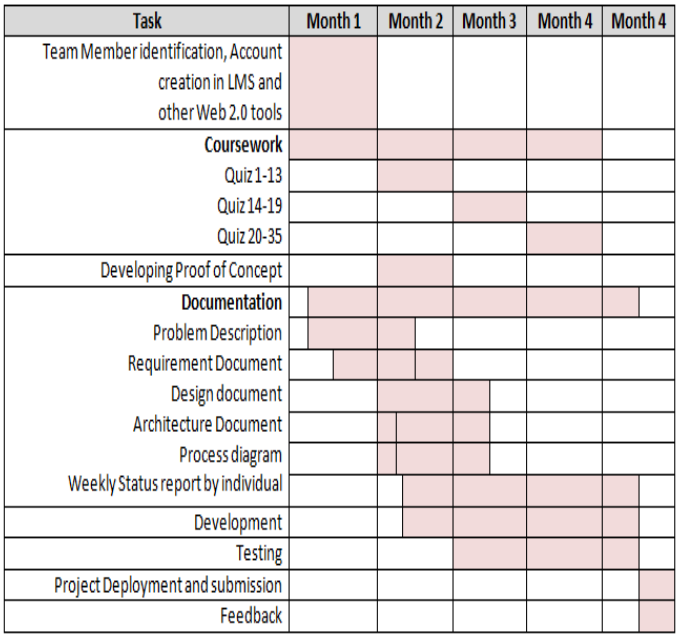

Fig 1. Workflow of Multi-National Project

5 SC TOOL UTILIZATION

The Web 2.0 tools are utilized throughout the project at different phases. The team realized the ease of communication and document organization using Web 2.0 tools. As all the three projects are software development and involved the computer science students, the emphasis is given to utilize open source. The challenge is on choice of tools, as there is a continuous development of SC tools with enriched user interfaces (Sarwar, 2018). The list of tools used in project

- WhatsAPP for conversation and short messaging
- Skype calls are used for formal video conferencing
- Facebook to bring closeness among team in question answer
- Google Docs and Drive is used to store documents and share
- Google Forms for feedback and rating
- Google Classroom for course, assignment and quiz related to project courseware
- Sourceforge.net to store version of code and helps integration
- GoogleCode is also used by few teams to replace Sourceforge.net

At the end of the project, student s are allowed to showcase their design product in project expo, for sponsorship and funding to implement real time.

6 RESULT AND EXPERIENCE

The choice of appropriate SC tools, attitude and interaction of partners are two important criteria in making the project

success. The team members are recorded that the success of the project depends on leaders who drive and ensure better communication among members. The benefits recorded by team members are

- Increased knowledge sharing
- Exposure to different ideas, perspectives
- Social development and Cultural exchange

The team 1 which performed (see Fig. 2) over other teams had followed some of the basic team communication as follows:

- The communication always begin with introductory note and orientation
- Meeting with well planned agenda
- Specific roles to individuals
- Encouragements and positive suggestions during review
- Presence of Team members who had previous experience of handling virtual communications in official environment

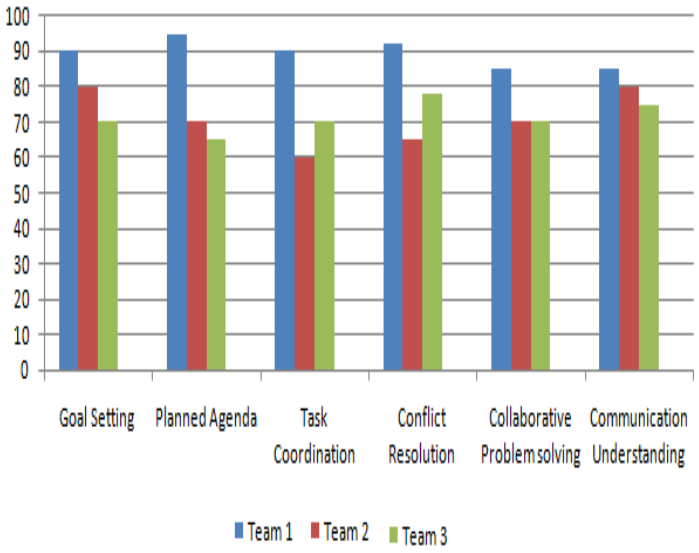

Fig. 2. Comparison of coordination factors among Team

The team 3 which had faced difficulty on establishing team structure, additional time taken for setting the ground for development, overcoming culture barrier had realized challenge on communication, which delayed the success of the project. The faculty coordinators recorded the team challenges dominant factors in Fig. 3.

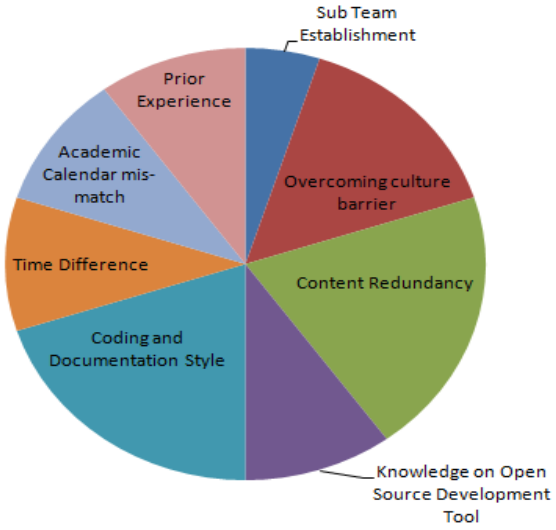

Fig. 3. Challenges on Multi-national Global projects

There is also a need of virtual maturity among the team to meet some of the geographical challenges as listed.

- Day-night time difference in conducting meeting
- Variation in academic schedule and holiday

Both students and faculty coordinators are benefited from the project, as students gain experience on development and negotiation skill, the faculty coordinators are experienced in managing such globally distributed team.

Also, it is found that Indian students scored high in programming experience, coding, knowledge of tools & emulator, compared to their counterparts who scored high in developing proof of concepts, documentation and version control.

7 CONCLUSION

The study is conducted with the qualitative objective of identifying the cognitive skill and higher order learning experience of learner in global distributed project. The research work recommends the institutions to utilize their autonomy on bringing such innovative learning experience in their curriculum. The social dimensions of the learning are focused at the forefront which provides unique experience to team members about understanding their peer partners in different nation. Knowing the popularity and usage of SC tools among digital natives, the institutions of higher learning must adopt social media as one of the key collaborative learning approach and develop educational plan accordingly.

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