

Digitally Engendering Soft Skills Through Stixy – A Web-based Bulletin Board

NG SHI ING

*School of Education and Social Development
Universiti Malaysia Sabah
jacyln.ng@gmail.com*

LEE KEAN WAH

*School of Education and Social Development
Universiti Malaysia Sabah*

TAN CHOON KEONG

*School of Education and Social Development
Universiti Malaysia Sabah*

YEO LI MIN

*General Studies Department
Politeknik Melaka*

ABSTRACT

There have been complaints by private sectors about the quality of local graduates as an employable asset which for private sectors are paramount for career and industry success. In an effort to imbue local undergraduates with requisite soft skills, Higher Education Institutions (HEIs) are tasked to comply with the Malaysian Qualifications Framework to guarantee quality of soft skills among graduates. Traditionally, soft skills are learnt while pre-service teachers are engaged in project related assignments while assessment of soft skills is done during Q&A sessions. However, there is a possibility of developing soft skills by using Web 2.0 tools during learning. This study investigates the efficacy and the extent of the suitability of a free formed, web-based bulletin board, Stixy, as a learning platform to inculcate soft skills through collaborative knowledge building. Thirty eight first year TESL pre-service teachers at Universiti Malaysia Sabah (UMS) used Stixy as a bulletin board to contribute and discuss ideas in the process of creating a poster for an English Language literature assignment. Using elicitation tools such as questionnaire, focus-group interviews, reflective journals, both quantitative and qualitative data were gathered. Quantitative data were analysed descriptively using mean and standard deviation, while qualitative data were content analysed using the Collaborative Learning Conversation Skills Taxonomy (CLCS). Findings indicate that Stixy has succeeded in promoting soft skills through collaborative knowledge building and was adopted favorably by the pre-service teachers.

Keywords: Stixy; free-formed web-based bulletin board; soft skills development; knowledge building; Web and Pedagogy 2.0

INTRODUCTION

The number of jobless graduates rose from 65,500 to 71,600 although there was a slight drop in the overall employment rate in Malaysia from 3.4% in 2010 to 3.1% for the first quarter of 2011 (The Star 2011). It has also caused 6 out of 10 graduates from Malaysian universities to take as long as six months to find a job (The Star 2012). This period of unemployment for the graduates indicates that companies are not inclined to consider growth and career advancement potential in local graduates. The preponderance of this employability issue has been acknowledged and the higher education sector has been tasked to imbue local undergraduates with fundamental social or soft skills (henceforth referred to as soft skills) for

their future careers. However, the graduates have shown a mismatch of skills expected by employers (Hesketh 1999), as a result of misaligned expectations between HEI (Higher Education Institutions) and the immediate stakeholder i.e. industries, in which most who have been employed had to undergo various trainings all over again (Badaway 1995). Recently, the HEI academic structure has undergone gradual changes to ensure undergraduates possess essential soft skills which allow them to perform, individually or in a group, according to different social and work context besides the required theoretical knowledge. The teaching and learning process is supported by combining technology with conventional classroom approaches.

The ubiquitous Web 2.0 technology has become a staple in the teaching and learning process. Information currently is subjected to ‘natives’ fusing experience with knowledge and facts of other natives to create a constant changing Web 2.0 landscape. The literature published investigated pre-service teachers’ perception of Web 2.0 tools to encourage declarative learning using blogs (Song & Chan 2008), as a learning platform using Facebook (Muhammad Kamarul Kabilan et al. 2010) and supporting learner-centred learning using vodcast and podcast (Lee, Chan & McLoughlin 2006). However, there is scant literature on the use of Web 2.0 tools to engender soft skills development through collaborative knowledge building. Therefore the purpose of this study is to evaluate the potential of Stixy, a free-formed web-based bulletin board as a plausible tool to engender development of soft skills during knowledge construction process through collaborative knowledge building.

This study would enable educational practitioners and researchers to ascertain and envisage how Stixy’s features can be used to facilitate outcome achievements at the knowledge and soft skills levels for digital pre-service teachers. Moreover, the knowledge and interaction exchanges between digital pre-service teachers on the bulletin board give an insight on how exchanges influence their soft skills development. It is hoped that with this information, educators and researchers will be able to design and construct creative and context-related instructional ideas or techniques while making effective use of Sixty.

The research questions for this study are to:

- (a) What extent does Stixy provide collaborative knowledge building support features to promote cultivation of soft skills among users?
- (b) What extent do pre-service teachers demonstrate soft skills particularly communication, critical thinking and teamwork skills during collaborative knowledge building while using Stixy?

WEB-BASED PEDAGOGICAL AFFORDANCES

The transition from read-only to read/write web has prompted computer developers to create tools to match the current digital wave. A majority of web-based tools and sites depict the socially inclined temperament of the web, and recent research on such web-based tools and sites tend to show an inclination towards learners’ perception regarding efficacy of the tool or sites functionality on supporting learning (Song & Chan 2008, Muhammad Kamarul Kabilan et al. 2010, Krish, Supyan Hussin & Sivapuniam 2012). However, the potential for these tools should not merely shape the pedagogical outcomes. Rather the pedagogical outcomes should also define the ‘affordances’ offered by these tools (McLoughlin & Lee 2008). Affordances refer to manipulating the functions of tools through imagination and creativity when conceptualising learning problems or issues in their own environment (Burden & Atkinson 2008). For example, web screen casting involves recording visual information on the computer screen is not an affordance, rather the affordances entailed are sharing the

user's knowledge from a different angle as well as enhancing the user's designing video skills. Moreover, pedagogical affordances differ among every learner as each learner possesses different learning aims and needs (Kirschner 2002). Despite the awareness that affordance is a personalized choice, there is a need to ensure that web-based tools used in learning are able to engender affordances pertaining to soft skills development. Krish, Maros and Siti Hamin Stapa (2012) claimed in their findings that learners' develop appropriate and positive communication skill through online interaction. McLoughlin and Lee (2007, p. 667) categorize affordances as having the connectivity and social rapport, collaborative information discovery and sharing, content creation and knowledge and information aggregation content modification. Taking into consideration the tenets of web-based pedagogical affordances, the criteria to evaluate the efficacy of a web-based tool will depend on the affordances revolving around collaborative knowledge building to help learners engender soft skills. The affordances are derived from instructional motives and principles (Warschauer 1997, The University of Adelaide 2000, Resta & Laferriere 2007) and stated as below:

- preparing learners for the knowledge society
- enhance learners' cognitive performance or foster deep understanding
- adding learning flexibility of time and space
- fostering engagement and keeping track of learners' discussion and work

Thus the focus of this research is based on the analysis of a free-form web-based bulletin board, Stixy, as a device to propagate these affordances during learning.

FREE-FORMED WEB-BASED BULLETIN BOARD

Scardamania and Bereiter (2006) suggest the use of web-based bulletin board to enhance learning through collaborative measures. Comments, views, linking views or notes can be developed in some chained discussion to trigger active participation and creative knowledge building among pre-service teachers. One of the more recent free-formed web-based bulletin boards to appear is Stixy.

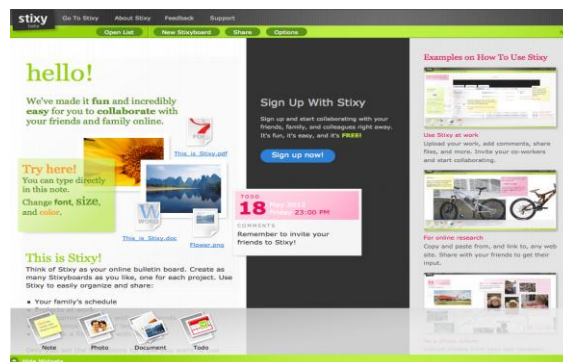


FIGURE 1. Stixy's front page

Founded by Jonas Höglund and Anders Ottoson in 2007, Stixy was presented as an alternative to the current online bulletin boards (Stixy 2012). The developers were dissatisfied with the restrictions imposed by other available online options and wanted to create a flexible, easy interface for everyday users. Unlike the linear rigidity found in current

bulletin board layout, Stixy enables pre-service teachers to tack widgets (notes, to-do, documents and photos) within the project. Teachers who have used Stixy found it a good tool to help pre-service teachers develop digital presence, be aware of digital ethics and collaborate with their friends (Teachers First 2012, Carboni 2012). However, size limitations are imposed on certain widgets such as 4MB for photos and 50 MB for document. Fundamental features mirroring the Web 2.0 principles such as personalizing text type and size, basic editing functions for notes and photos, editing capacity on other users comments, and dis/allowing public to post and edit comments are integrated into Stixy.

THEORY OF DIGITALLY CULTIVATING SOFT SKILLS

The use of Web 2.0 tools to propagate soft skills through knowledge construction is achievable by supporting the ‘soft skills’ learning triangle with Pedagogy 2.0. The ‘soft skills’ learning triangle comprises of three components, the learner, the content and the context (Adams & Morgan 2007).

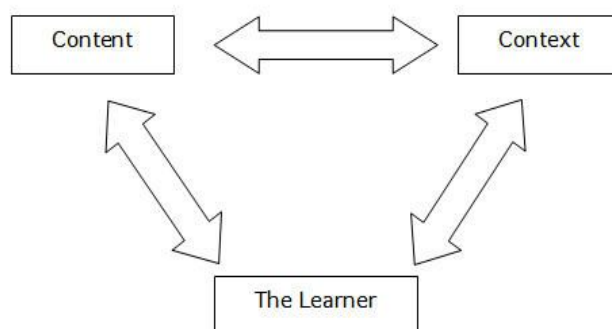


FIGURE 2. The Soft Skills Learning Triangle (Adams & Morgan 2007)

Each component is inter-dependent. The ‘learner – content’ relationship delineates content relevancy to elucidate the learner’s needs similarly possessing significant engaging value (Morgan & Adams 2009). The ‘learner – context’ and ‘content – context’ relationships illustrate that the learner is encouraged to comprehend, evaluate and rebuild the content and apply learning to context related situations (Morgan & Adams 2009). Mezirow (1992) explains this scholarship as the transformative learning theory whereby “learning is understood as the process of using a prior interpretation to construe a new or revised interpretation of the meaning of one’s experience in order to guide future action” (p. 162). These three components have to co-exist simultaneously to allow reflective learning for pre-service teachers to engage and selectively modify their content knowledge according to context-related situations. Personalized knowledge for each learner has to be constantly rebuilt as “change is continuous” (Taylor 2008, p. 5) and context is socio-culturally dependant. The strength of this triangle can be further enhanced by Pedagogy 2.0.

Pedagogy 2.0 is a framework focusing on achieving desired learning outcomes by capitalizing on the lifestyle dictated by the digital society which is identified by “its specific social structure: networks powered by microelectronics and software-based information and communication technologies” (Castells 2004, p. 222). It denotes a concept to address current independent learning direction propagated by learners engaging in a meaningful and flexible learning strategies and activities (McLoughlin & Lee 2008). The framework is structured upon knowledge creation in the digital era as a “product of cultural communities” whereby learning is established in “multiple networks of distributed individuals engaging in a variety

of social processes”. (McLoughlin & Lee 2008, p.14). The alteration of learner’s psychological behaviour in the digital sphere reflects Siemens’s (2004) theory of connectivism. Connectivist theory suggests that learning exists within the learner and the community and by connecting the specialized information blocks, it expands our current state of knowledge allowing learning to become rhizomatic (Siemens 2004). The learning process follows an oscillating movement beginning with the learner to the community and back, allowing growth and expansion from the initial information block. The life-span of an information block is dependent on garnering sufficient collective interest and on-going discussion from users.

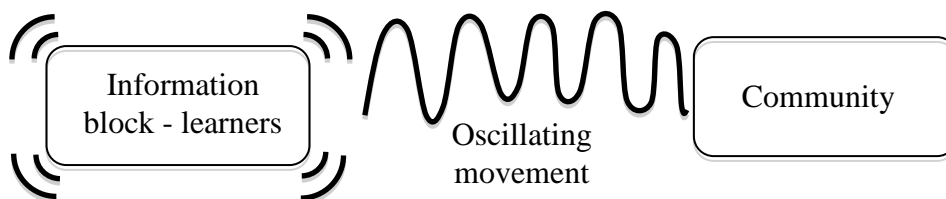


FIGURE 3. Connectivist theory flow of learning

Maintaining social interaction, connection and collaboration is and will become an important skill to create first class human capital for a knowledge-based society (McLoughlin & Lee 2008).

The behaviour and movement within Web 2.0 is a hybrid amalgamation of infusing technology with human-like characteristics while shaping humans to integrate technology in everyday activities. This hybrid amalgamation is identified by three main elements in the Pedagogy 2.0 structure as personalization, productivity and participation with knowledge creation the main output of this framework. Personalization refers to users accessing resources, information and specialized groups to support learning encouraged by their immediate choices and needs (McLoughlin & Lee 2008). Productivity views learning as an active social process underlying the “knowledge of” principle whereby knowledge is creatively fused through a combination of declarative and procedural aspects (McLoughlin & Lee 2008, Scardamalia & Bereiter 2006). The former and latter elements require active participation of sharing, arguing and forming novel knowledge in local and global networked communities through any social or academic discourse channel ranging from special interest forums to status updates in social networking sites (McLoughlin & Lee 2008). The premise of each element underpins the importance of active negotiation and collaboration within and between learners for successful learning.

Pedagogy 2.0 distinguishes the aspects for efficacious learning in a digital-dictated environment thus complementing the “soft skills” learning triangle by providing opportunities for extensive participation to create personalized production. On the other hand, the ‘soft skills’ learning triangle focuses on pre-service teachers honing these skills through active discourse negotiation by determining the level of need for particular information block, thus, augmenting the vivaciousness of knowledge exchange and creation through Pedagogy 2.0.

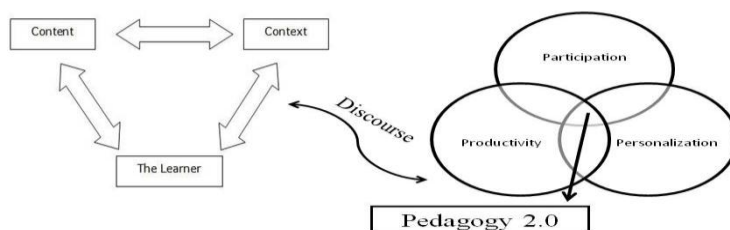


FIGURE 4. Symbiotic relationship between “soft skills” learning triangle and Pedagogy 2.0

This symbiotic relationship entails knowledge building of either theoretical information through skills accession or vice versa. It is consociated by virtue of discourse motivated by collaborative negotiation (Scardamalia & Bereiter 2006). The efficiency of collaborative negotiation hinges on the learner being aware of the procedures required to achieve an objective (process), particularly knowledge (content) and by ensuring intent of meaning through use of language (form) which is subjected to situations (context). Collaborative negotiation becomes a learning mechanism to improve soft skills through development of knowledge building as it involves commitment for progress and commitment to seek common understanding among learners (Scardamalia & Bereiter 2006). Learning takes place mostly through interactions among learners by posing their questions, pursuing lines of inquiry together, teaching each other and seeing how others are learning (Stahl, Koschmann, & Suthers 2006). Discourse employed between learners to encode and decode embedded meaningful intent in encouraging knowledge building is fashioned by soft skills activation whereby the function of each utterance (written or audio) reflects the intent of the soft skills. For example, micro-managing under leadership skills for any projects is identifiable by learners using discourse intended for tasks delegation by different pre-service teachers.

The dependency of each element in Pedagogy 2.0 and the ‘soft skill’ learning triangle highlights the importance of collaborative negotiation through discourse to support generative and creative personalized knowledge building by accessing contents and contextualising those contents within the networked society. In order for these elements to translate into practice, practitioners should select web-based tools that are able to sustain these elements.

METHODOLOGY

PARTICIPANTS

A total of 38 year one TESL pre-service teachers from the School of Education and Social Development, Universiti Malaysia Sabah participated in the study. They represented the purposive group of participants who enrolled in the academic coursetitled TE10103 – Literature and Language Learning in Semester 2 Year 2011/2012, which is among the twenty-one pre-requisite TESL courses they have to take to qualify for 4-year Bachelors of Education in TESL degree. As part of the course requirements, the pre-service teachers were required to participate in a project to create a poster on literary elements depicted in the novel entitled ‘The Metamorphosis’ by Franz Kafka. Literature learning is not entirely new to the participants as they had prior knowledge about literary elements from their past secondary education, where Literature formed an essential component of the secondary English Language curriculum.

INSTRUMENTS

A self-constructed questionnaire (Appendix A) was used to elicit the pre-service teachers’ perceptions of the efficacy of Stixy after the pre-service teachers have completed the poster presentation. The items for the questionnaire were created based on categories of affordances culled from earlier studies (Smith & MacGregor 1992, Oxford 1997, Warschauer 1997, The University of Adelaide 2000, Stacey 2002, McLoughlin & Lee 2007, Resta & Laferriere 2007, Woo & Reeves 2007, Fleming 2008). The questionnaire is divided into two sections

and uses a 5-point Likert scale to measure levels of agreement, with scales that are marked “1 to 5”, with 5 being strongly agree (SA)” through to 1 being strongly disagree (SD). The first section has twelve items on the efficacy of using Stixy as a collaborative knowledge building workspace. The items in this section were derived from instructional motives and principles distinguishing the features of a web supported collaborative learning tools (Warschauer 1997, Resta & Laferriere 2007). The second section consists of twelve items looking at pre-service teachers’ demonstrating a set behaviour with regards to social skills in particular communication, critical thinking and problem solving as well as teamwork skills during collaborative knowledge building taken from Malaysian’s Ministry of Higher Education (MOHE) definition and categories of soft skill. Both sections registered a value of 0.84 on Cronbach’s alpha reliability, indicating that the questionnaire was of a good value (George & Mallery 2003).

The second data gathering instrument came in the form of a reflective journal (Appendix B). The weekly reflective journal requires all the pre-service teachers to record and reflect on a number of issues pertaining to their experiences in using Stixy. The pre-service teachers were required to actively keep track of any significant events made by their group members and peers toward designing the poster. Besides that, pre-service teachers were also required to write down conflicts and mediation process which occurred during active discussion. By using this method, the researchers were able to track learner’s behaviour exhibition of soft skills on a weekly basis through evidence of learning and contributing distinctive information or knowledge (Woo & Reeves 2007).

Semi-structured interviews (Appendix C) were conducted with two groups of six pre-service teachers. The interviews were done after the pre-service teachers have completed the project. 12 pre-service teachers participated in the interviews voluntarily. The interview protocol focused mainly on the purposes (1) to elicit richer responses from the pre-service teachers concerning their experiences using Stixy as a collaborative knowledge building workspace with regards to the features found in Stixy and (2) to probe deeper into how the pre-service teachers’ develop their social skills abilities through collaborative learning specifically critical thinking and problem - solving skills, communication skills and team work skills (MOHE 2006).

PROCEDURES

The pre-service teachers were given one month to complete this project. This project was carried out in groups of four or five members and each group was tasked to select a significant literary element to focus on. Bean (1996) postulates a group containing less or more than five members would decrease the learner’s learning and collaborative experience. Resta and Laferriere (2007) concur by noting that four members in a group tend to split into two pairs. The pre-service teachers had no problems working in groups and were able to work in a comfortable collaborative rhythm. The comfortable collaborative rhythm was generated, though not entirely, based on macro social factors such as boundaries and identities, social categories or circumstances of learning (Saville-Troike 2006). For example, certain pre-service teachers find it easier to work with others using the same mother tongue for ease of communication to minimize misunderstanding.

Next, in order to minimize repetition of literary elements, the groups have to randomly choose the elements by drawing lots. The pre-service teachers were instructed to use Stixy to discuss their ideas to create the posters. They were required to invite their lecturers into their Stixy board to allow their lecturers to monitor their participation and discussion. A brief explanation was given to the pre-service teachers on the functions and methods to use Stixy. In addition, during the one month period a conducive social

environment was created to aid the pre-service teachers to construct knowledge and formed informed opinions regarding the literary elements based on the novel. Constant creation and development of novel knowledge stems from robust interaction sustained by employing certain soft skills e.g. communication skills, critical thinking skills and teamwork skills between multiple pre-service teachers and content within the net domain (Pedagogy 2.0). The pre-service teachers' were required to contribute ideas, opinions, and agree on the layout on their respective boards in Stixy to design their poster before actual production. One of the methods to support the pre-service teachers' learning process and soft skills development is 'reading circle' and it required weekly participation on Stixy. Social environments provide an optimal zone for pre-service teachers to expand their knowledge by latching onto information gathered from lectures and their friends (Vygotsky 1978). A scaffolding process of knowledge building about the definition of literary elements was provided to the pre-service teachers. For example, in the case of the reading circle, pre-service teachers were asked to read the novel/short story beforehand and discuss probing questions regarding the story with their group members before connecting it to their topic. A question regarding the story would be, "Why do you think Gregor manifested into an insect?" leading to the question of their topic, "Which stage do you think this part falls under?"

DATA ANALYSIS

Quantitative data derived mainly from the questionnaire were analysed descriptively using mean and standard deviation. The qualitative data obtained from, reflective journals, semi-structured interviews and pre-service teachers' postings on Stixy, were analysed based on Soeller's (2001) Collaborative Learning Conversation Skills Taxonomy (CLCS). The CLCS taxonomy is suitable to examine the language function of the interaction process during on a web-based notice board as it was designed to promote internalization of collaborative learning skills in computer-supported collaboration learning program (Soeller et al. 1998). Each conversation skill is further expanded into sub conversation skills which comprises several language functions (Soeller et al. 1998, Soeller 2001).

FINDINGS AND DISCUSSION

In the section that follows, findings will be presented based on the extent to which Stixy as a tool provides collaborative knowledge building environment to promote cultivation of soft skills based on data derived from the questionnaire and semi-structured interviews. Pre-service teachers also demonstrate usage of soft skills specifically communication, critical thinking and teamwork skills during collaborative knowledge building while using Stixy based on data derived from the questionnaire, weekly reflective journal and discourse analysis of postings on Stixy.

STIXY AS A COLLABORATIVE KNOWLEDGE BUILDING SUPPORT TOOL

Overall, the mean scores from the four affordances yielded positive results with regards to the efficacy of Stixy as a collaborative knowledge building support tool as shown in Table 1.

TABLE 1. Mean and Standard Deviation scores for affordances

Affordances	N	Mean	SD
Preparing pre-service teachers for knowledge society.	38	3.94	0.788
Enhance pre-service teachers' cognitive performance or foster deep understanding.	38	3.41	0.906

Adding learning flexibility of time and space.	38	3.85	0.853
Fostering engagement and keeping track of pre-service teachers' discussion and work.	38	3.95	0.807

PREPARING PRE-SERVICE TEACHERS FOR KNOWLEDGE SOCIETY

The mean of 3.94 indicates that Stixy allows the pre-service teachers opportunity to amalgamate information from the Internet on a single platform. Wegerif (2006) argues collaborative knowledge building tools support pre-service teachers in deepening and broadening their cognitive ability during engagement in online discussion. Perceiving information in the digital age does not solely depend on written text but a combination of written text, visual images and aural input. Stixy allows pre-service teachers to attach texts and images on information they think might be relevant to the topic. The other group members can access the documents and provide original and useful asynchronous or synchronous feedback without being distracted and persuaded by ‘real-life’ on-going comments and opinions of different members. The features allow pre-service teachers to step back from “identity commitments in order to actively listen to others and thereby to deepen and expand creative dialogue spaces of reflection” (Wegerif 2006, p. 156). By giving opportunities to assimilate and process this information, the pre-service teachers are steered toward honing their cognitive abilities and contributing novel ideas. This is in-line with becoming a member of the knowledge society. For example in Figure 5, pre-service teachers explored various knowledge representation i.e. visual, links and discussion to support their understanding of the topic.



FIGURE 5. Exploration with various knowledge representations

ENHANCE PRE-SERVICE TEACHERS' COGNITIVE PERFORMANCE OR FOSTER DEEP UNDERSTANDING

This affordance registered the lowest mean (3.41) among the list of affordances. The literature mentioned that Web 2.0 learners' cognitive procedure exhibit different thinking patterns compared to traditional learners. Digital natives cognitive structure reflects a hypertext mind or ‘waggle thinking’ (indicative of a bee’s erratic yet meaningful movement)–elucidating Prensky’s (2001) remark on learner’s cognitive behaviour - an unpredictable but systematic pattern of building knowledge by reflecting, searching, re-evaluating and constructing authentic information during interaction with various digital sources. Based on the mean score, it appears that the pre-service teachers, although positively convinced, are apprehensive of Stixy providing the capability to help them to enhance their own cognitive

development. This finding supports Mohd Hafiz Zakaria et al (2010)'s results whereby Malaysian learners were found to be reluctant to incorporate Web 2.0 tools as a means to substantiate their cognitive development. Pre-service teachers tend to gravitate towards using the web for informal learning activities rather for formal education. The pre-service teachers deemed that the features in Stixy helped them to pool their resources together for easier access. However, they rarely edited or expressed disagreement to their friends' ideas or opinions despite such feature being available in Stixy. There are two possible reasons for that. Firstly, such learning behaviours could possibly indicate the reluctance of the pre-service teachers to critically challenge differences in opinions as a result of the sedentary rote-learning learning system they have been so accustomed to. Secondly, the pre-service teachers were not able to give 100% commitment due to their inability to judiciously juggle their time and academic workload, as supported by Yuen and M. Shaheen Majid (2007). The following verbatim quotes extracted from reflective journals illustrate the case.

Too much work to enjoy exploring Stixy.
Got assignment for this course, next week have to pass up another assignment.
Pening...
I know can edit but not nice lar...
How I know that what she say is wrong, maybe I am the one with incorrect info.

ADDING LEARNING FLEXIBILITY OF TIME AND SPACE

A mean score of 3.85 indicates that pre-service teachers agree that they are able to work on their project at their own time as long as they are connected to the Internet. Web supported collaborative knowledge building tool is a part of the supporting web 2.0 ecosystem. The Web 2.0 ecosystem allows users to rethink, rework, reformulate and rewrite information in their virtual workspace by combining their background knowledge and experience by interacting with different online communities e.g. social media sites and information-based websites immediately. The ability to allow users to give asynchronous/synchronous response is an important feature of a collaborative knowledge building tool for pre-service teachers who are "distributed in place and time" as physical distance should not be accepted as valid argument to minimize success towards developing pre-service teachers' soft skills (Resta & Laferriere 2007, p.70). A learner mentioned the ease with regards to providing information at any particular time of the day.

I think with Stixy, I can give my ideas at time which I like. For example during the semester break, when I am at the Kampong, I can access internet and give my idea, even though my friends are back in their hometown. Once, I was working until 3 am but suddenly I got idea, so I log in and give my ideas. Luckily internet was not down.

Another learner mentioned the lack of stress she encountered while using Stixy as an interaction medium.

With Stixy, I don't have to think of transportation to get to my friends place.
Then I can plan nicely without extra stress on things I need to complete.

FOSTERING ENGAGEMENT AND KEEPING TRACK OF PRE-SERVICE TEACHERS' DISCUSSION AND WORK

This affordance scored the highest mean of 3.95. The pre-service teachers find it useful to place comments next to discussed topics as it allows them to monitor the changes regarding a particular topic. The majority of the pre-service teachers concur that Stixy was easy to use and

allowed them to track changes during the duration of the project. Pre-service teachers are likely to experience a high anxiety level if the tool is too difficult to navigate and decreases the interaction time with the tool which affects collaboration effort online (Resta & Laferriere 2007). A feature which received the highest attention from the pre-service teachers is the engagement of auto-save feature once editing begins.

Don't have to worry if my windows crashing...everything is safe.
Goodlar this autosave – immediate and fast
No need to worry if I have save my work.

Moreover, a tool which can foster engagement is vital for pre-service teachers to connect to communities displaying similar needs to allow for growth of information blocks as advocated in the literature discussed. The high mean score for this affordance is supported by Zakaria *et al's* (2010) finding where pre-service teachers rank search engines and friends as their top two sources of information.

ENGENDERING SOFT SKILLS THROUGH COLLABORATIVE KNOWLEDGE BUILDING

MOHE (2006) identified seven soft skills to be inculcated into any learning program. For this particular literature course, three specific soft skills were focused upon, namely, communication (CS), critical thinking and problem solving (CTPS) and teamwork skills (TS). These skills are further categorized into levels with certain levels being a requisite for pre-service teachers to develop. To ascertain if these levels are demonstrated by pre-service teachers, Soeller's (2001) CLCS taxonomy is employed. The taxonomy is divided into three main conversation skills– (a) active learning (b) conversation and (c) creative conflict (Soeller 2001).

TABLE 2. Mean and Standard Deviation scores for soft skills

Soft skills	N	Mean	SD
Communication	38	3.93	0.778
Critical thinking and problem solving	38	3.94	0.835
Teamwork	38	3.91	0.868

COMMUNICATION SKILL

Communication skills scored a mean of 3.93, which shows that the pre-service teachers demonstrated the ability to deliver their ideas and to convey their comments well by using acknowledging and maintaining skills (Soeller 2001). This shows that the teachers are able to listen, request for attention, suggest ideas and explain their ideas. The pre-service teachers, on the whole, demonstrated competency to convey their ideas and comments on the board, with the exception of a few who found it difficult to explain their ideas due to the length of explanation needed to communicate their thoughts. In Stixy, one of the groups uses the “note” feature as an asynchronous chat room to discuss a topic. Another group uses the “note” feature to explain their choices i.e. images and comments by tacking the notes to the image. This free-form arrangement allows the pre-service teachers to communicate feedback and comments on numerous discussions in the same or new note using visual or text without needing to access different threads in comparison where most bulletin boards are linear in arrangement and allow single discussion per thread.

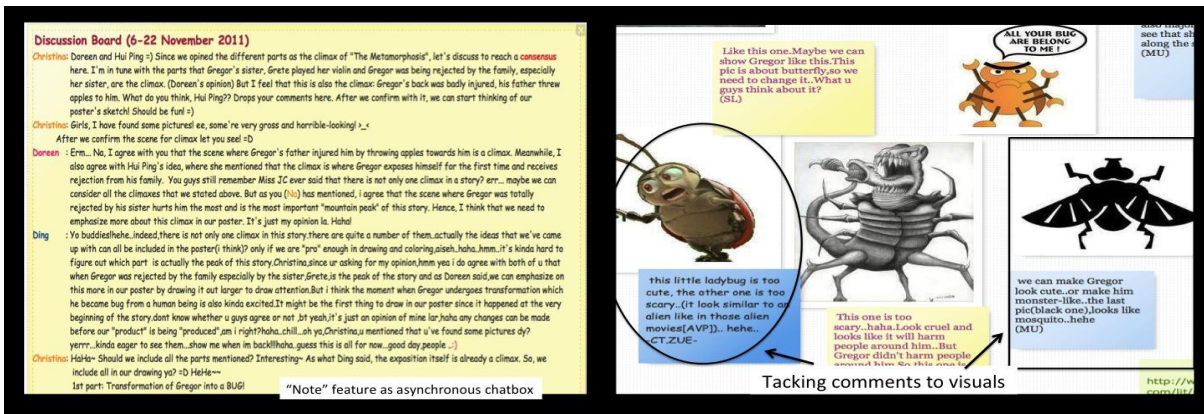


FIGURE 6. Demonstration of communication skills

CRITICAL THINKING AND PROBLEM SOLVING SKILL

A mean of 3.94 suggests that the pre-service teachers are in strong agreement that Stixy assists them in developing critical thinking and problem solving (CTPS) skills. In their opinion, the lapse in time for immediate response from one posting to another provided them the ‘thinking time’ to formulate and construct their explanation, giving opportunities for pre-service teachers to hone their CTPS. A large majority of the pre-service teachers were observed to be actively exhibiting these skills through utterances, although there are a number of them who prefer combining visual media to provide robustness to their opinions or suggestions. This indicates the learners’ ability to cognitively connect different media to develop authentic ideas thus highlighting the shift from a linear to a rhizomic thinking process. The pre-service teachers also demonstrated ability to use utterances to request for information, to inform ideas and comments, to indicate rising issues and to agree to solutions.

TABLE 3. Discourse denoting critical thinking and problem solving skills used by pre-service teachers

Function	Discourse
Request for information	“What do you think...”
Inform ideas and comments	“...actually the ideas that we've came up with can all be included in the poster(i think)...”
Inform different ideas and comments	“But I feel that this is also the climax...” “How abt a drawing of the Samsas' apartment, with the focus on Gregor's room & the living room?” “Maybe an aerial view of the rooms...” “Ever had to deal with the DMV or the IRS? For many people, such institutions exemplify the kafka-esque...”
Indicate rising issues	“Guys, what about the part where Gregor exposes himself as a bug for the first time, receives the first of his physical injuries and rejections...”
Clarify issues	“...do u mean the time when Gregor had been thrown apples??...”
Proposing actions for solutions	“...let's discuss to reach a consensus ...”

TEAMWORK SKILL

The mean score for teamwork is 3.91. This indicates that the pre-service teachers demonstrated commendable teamwork skill as they delegated tasks accordingly, helped their team members when issues are raised, and motivated their team members to complete the project. The ability to work well as a team may indicate that pre-service teachers do not differentiate between cooperating together online or physically, as cooperating online enabled

the pre-service teachers to accommodate to the different time of each individual pre-service teacher. In addition, they were also able to access the virtual library to work on their project. The pre-service teachers had to cooperate to complete the project as the project contributed towards the assessment scores which is tabulated towards their final marks at the end of the course. Since these are mostly first year pre-service teachers, the need to do well for their course is paramount to ensure good grades towards the end of their overall academic performance for that particular semester. Moreover, pre-service teachers encouraged their team members who contributed to the task by using emotional icons or emoticons. Team members would feel appreciated inadvertently, thus, creating a good working relationship between the team members to minimize occurrences of personal conflicts which could jeopardize the project.

TABLE 4. Discourse denoting teamwork skills used by pre-service teachers

Function	Discourse
Delegating task	“1st part: Transformation of Gregor into a BUG! 2nd part: Being thrown apples. Gregor was seriously hurted (mentally and physically) 3rd part: Gregor was rejected by the family.”
Offering to help	“Can u/ do u like to draw B, Y? Which aspects would you like to tackle?” “I can try to draw the furniture, rooms. Kinda rusty with drawing though, will do my best. Lol”
Motivate	“No, pretty...” =D :)
Agree to solutions	“ee~ so cute~ xD...” “I agree with you...” “TOTALLY AGREE WITH YOU...”
Contribute ideas	“tis is another pic tat i can find...”

CONCLUSION

The study was conducted to seek answers to two main questions; firstly, the efficacy of Stixy, a web-based bulletin board, to provide collaborative knowledge building support features to promote cultivation of soft skills among users; and secondly the extent in which the pre-service teachers succeeded in demonstrating the soft skills of communication, critical thinking and problem solving and teamwork skills during collaborative knowledge building while using Stixy. Using a theoretical framework which integrates soft skill learning with pedagogy 2.0, the findings indicated that that pre-service teachers had positive impressions of Stixy as a tool to engender soft skill development; and succeeded to a large extent in aiding them to acquire the requisite soft skills needed. However, Stixy as in any web-based tool is not without its limitations. On the basis of this initiative, it appears that researchers would need to be more prudent and cautious of the affordances and challenges discussed in this study in designing future endeavours. Nevertheless, the experiences gained in this study have convinced us of the need to continue to explore and incorporate Web 2.0 tools to inject robustness into the learning environment to support soft skills development. Nevertheless, vigorous planning at all levels (i.e. program and learning vision and outcomes, lecturers' capacity, pre-service teachers' capacity, and availability of amenities) is paramount to ensure the benefits of using Web 2.0 tools in the teaching and learning process, as noted by Thompson (2008) in order to ensure that the technological tool has positive implications on the pre-service teachers. In so doing, learners can be facilitated to adapt to the culture and habits of institutions and habitats they occupy (Robinson 2008).

ACKNOWLEDGMENT

The writers would like to thank the first year TESL students 2011/2012 cohort for their active and enthusiastic participation in this research.

REFERENCES

- Adams, J. & Morgan, G. (2007). "Second generation" e-learning: characteristics and design principles for supporting management soft-skills development. *International Journal on E-Learning*. 6 (2), 157 – 185.
- Badaway, M. K. (1995). *Developing managerial skills in engineers and scientists: Succeeding as a technical manager*. New York, USA: John Wiley and Sons.
- Bean, J. C. (1996). *Engaging ideas: The professor's guide to integrating writing, critical thinking, and active learning in the classroom*. San Francisco, CA: Jossey-Bass.
- Burden, K. & Atkinson, S. (2008). Evaluating pedagogical affordances of media sharing Web 2.0 technologies: A case study. In Hello! Where are you in the landscape of educational technology? Proceedings ASCILITE conference. Melbourne: Deakin University, November. Retrieved September 19, 2011 from <http://www.ascilite.org.au/conferences/melbourne08/procs/burden-2.pdf>
- Carboni, B. (2012). Website review: Stixy. Retrieved Sept 5, 2012 from <http://bnccarboni89.blogspot.com/2012/02/website-review-stixy.html>
- Castells, M. (2004). Afterword: Why networks matter. In H. McCarthy, P. Miller & P. Skidmore (Eds.), *Network logic: Who governs in an interconnected world?* London, England: Demos.
- Fleming, D. L. (2008). Using best practices in online discussion and assessment to enhance collaborative learning. *College Teaching Methods & Styles Journal*. 4 (10), 21-40.
- George, D. & Mallery, P. (2003). *SPPS for Windows step by step: A simple guide and reference. 11.0 update (4th ed)*. Boston: Allyn & Bacon.
- Hesketh, A. J. (1999). Towards a new economic sociology of the student financial experience of higher education. *Journal of Education Policy*. 4 (4), 385- 410.
- Krischner, P. A. (2002). Can we support CSCL? Educational, social and technological affordances for learning. In P. A. Krischner (Ed.). *Three worlds of CSCL: Can we support CSCL?* Heerlen, The Netherlands: Open University of the Netherlands.
- Krish, P., Maros, M. & Siti Hamin Stapa. (2012) Sociocultural factors and social presence in an online learning environment. *GEMA OnlineTM Journal of Language Studies*. 12 (1), 201 – 213.
- Krish, P., Suppyan Husin & Sivapuniam, N. (2012). Language learning and language acquisition in online forums. *3L: The Southeast Asian Journal of English Language Studies*. 17 (2), 91 – 100.
- Lee, M. J. W., Chan, A. & McLoughlin, C. (2006). Students as producers: Second year students' experiences as podcasters for content for first year undergraduates. Proceedings of the 7th Conference on Information Technology Based Higher Education and Training (ITHET 2006). Sydney: University of Technology, July.
- McLoughlin, C. & Lee, M. J. W. (2007). Social software and participatory learning: pedagogical choices with technology affordances in the Web 2.0 era. In ICT: Providing choices for pre-service teachers and learning. Proceedings ascilite Conference. Singapore: National Technology University, December.
- McLoughlin, C. & Lee, M. J. W. (2008). The three P's of pedagogy for the networked society: personalization, participation and productivity. *International Journal of Teaching and Learning of Higher Education*. 20 (1), 10 -27.
- Mezirow, J. (1996). Contemporary paradigms of learning. *Adult Education Quarterly*. 46 (3), 158 – 172.
- Mohd Hafiz Zakaria, Watson, J. & Edwards, S. L. (2010). Investigating the use of Web 2.0 technology by Malaysian students. *Multicultural Education & Technology Journal*. 4 (1), 17-29.
- MOHE (Ministry of Higher Education Malaysia). (2006). *Modul pembangunan kemahiran insaniah (softskills) untuk Institusi Pengajian Tinggi Malaysia. (Soft skills development module for Malaysian institutions of higher learning)*. Serdang: Universiti Putra Malaysia Publishers.
- Morgan, G. & Adams, J. (2009). Pedagogy first: making web-technologies work for soft skills development in leadership and management education. *Journal of Interactive Research*. 20 (2), 129 – 155.
- Muhammad Kamarul Kabilan, Norlida Ahmad, & Mohamad Jafre Zainal Abidin. (2010). Facebook: An online environment for learning of English in institutions of higher education. *The Internet and Higher Education*. 13 (4), 179-187.
- Oxford, R. (1997). Cooperative learning, collaborative learning, and interaction: Three communicative strands in the language classroom. *The Modern Language Journal*. 81 (4), 443-456.
- Prensky, M. (2001). Digital natives, digital immigrants Part 2: Do they really think differently? *On the horizon*. 9 (6), 1-6.

- Resta, P. and Laferriere, T. (2007). Technology in support of collaborative learning. *Educational Psychology Review*. 19 (1), 65-83.
- Robinson, K. Changing paradigms – how we implement sustainable change in education. RSA/Edge Lecture. London. 16th June 2008.
- Saville-Troike, M. (2006). *Introducing Second Language Acquisition*. Cambridge: Cambridge University Press.
- Scardamania, M. & Bereiter, C. (2006). Knowledge Building: Theory, pedagogy, and technology. In R. K. Sawyer (Ed.). *Cambridge Handbook of the Learning Sciences*, New York: Cambridge University Press.
- Siemens, G. (2004). Connectivism: A learning theory for the digital age. Retrieved Sept 16, 2011 from <http://www.elearnspace.org/Articles/connectivism.htm>
- Smith, B. L. & MacGregor, T. (1992). What is collaborative learning? In A. Goodsell, M. Maher, V. Tinto, B. L. Smith & J. MacGregor (Eds.). *Collaborative learning: A Sourcebook for Higher Education*. Retrieved June 15, 2011 from <http://learningcommons.evergreen.edu/pdf/collab.pdf>
- Soeller, A. (2001). Supporting social interaction in an intelligent collaborative learning system. *International Journal of Artificial Intelligence in Education*. 12 (1), 40 – 62.
- Soeller, A., Goodman, B., Linton, F. & Gaimari, R. (1998). Promoting effective peer interaction in an intelligent collaborative learning environment in Proceeding of the Fourth International Conference on Intelligent Tutoring System (ITS). Texas: San Antonio, August.
- Stacy, E. (2002). Learning links online: Establishing constructivist and collaborative learning environments in S. McNamara & E. Stacey (Eds.), *Untangling the web - establishing learning links: Proceedings of the International Education & Technology Conference, Melbourne, Vic, 7-10 July 2002*. Retrieved July 1, 2012 from <http://www.aset.org.au/confs/2002/stacey.html>
- Stahl, G., Koschmann, T. & Suthers, D. (2006). Computer-supported collaborative learning: an historical perspective. Retrieved Sept 18, 2011 from http://gerrystahl.net/cscl/CSCL_English.pdf
- Stixy: For flexible online creation collaboration and sharing (2012). <http://www.stixy.com/>
- Taylor, E. W. (2008). Transformative learning theory. *New Directions for Adult and Continuing Education*. 2008 (119), 5 – 15.
- Teachers First. (2012) Review – Stixy. Retrieved Sept 5, 2012 from <http://www.teachersfirst.com/single.cfm?id=9631>
- The Star Online. (2011) More employed but many grads jobless. Retrieved July 9, 2012 from <http://thestar.com.my/news/story.asp?sec=parliament&file=/2011/7/6/parliament/9036054>
- The Star Online. (2012) Education system not producing thinking graduates, say experts. Retrieved August 1, 2012 from <http://thestar.com.my/news/story.asp?file=/2012/3/4/nation/20120304123742&sec=nation>
- The University of Adelaide (2000). *Leap into... Collaborative Learning*. Centre for Learning and Professional Development. Retrieved 18 Sept 2011 from <http://www.adelaide.edu.au/clpd/resources/leap/>
- Thompson, J. (2008). Is education 1.0 ready for Web 2.0 students? *Innovate*. 3 (4), Retrieved Sept 18, 2011 from <http://www.innovateonline.info/index.php?view=article&id=393>
- Vygotsky, L. (1978) *Mind in society: The development of higher psychological processes*. Cambridge, MA: Harvard University Press.
- Warschauer, M. (1997). Computer-mediated collaborative learning: theory and practice. *The Modern Language Journal*. 81 (4), 470-481.
- Wegerif, R. (2006). Towards a dialogic understanding of the relationship between teaching thinking and CSCL. *International Journal of Computer Supported Collaborative Learning*. 1 (1), 143-157.
- Woo, Y. & Reeves, T. C. (2007). Meaningful interaction in web-based learning: A social constructivist interpretation. *Internet and Higher Education*. 10 (1), 15-25.
- Yuen, T. J. & M. Shaheen Majid (2007). Knowledge-sharing patterns of undergraduate students in Singapore. *Library Review*. 56 (6), 485-494.

APPENDIX A – QUESTIONNAIRE

Q3. Tick the relevant boxes to indicate your level of agreement with the following statements about using Stixy as a discussion board.

Tick 1 - SD, if you strongly disagree, 2 - D, if you disagree, 3 - DK, if you do not know, 4 - A, if you agree and 5 - SA, if you strongly agree.

	ITEMS	SD (1)	D (2)	DK (3)	A (4)	SA (5)
1	I can link multiple sources taken from the					
2	I can use images to explain comments that I have made.					
3	I can upload documents to provide longer explanation.					
4	anytime of the day as long as I have access to Internet.					
5	I can immediately give feedback after receiving email notifications.					
6	I can place my comments next to the					
7	I can change my friend's comments by adding my own feedback within her					
8	I can arrange my friend's comments to form a mindmap.					
9	I can read the comments in an organized					
10	I can use Stixy with ease.					
11	I can move around Stixy with ease.					
12	I can access Stixy without having to endure long loading time.					

Q4. Tick the relevant boxes to indicate your level of agreement with the following statements about improving your knowledge on narrative elements about "The Metamorphosis" when using Stixy as a discussion board.

Tick 1 - SD, if you strongly disagree, 2 - D, if you disagree, 3 - DK, if you do not know, 4 - A, if you agree and 5 - SA, if you strongly agree.

	ITEMS	SD (1)	D (2)	DK (3)	A (4)	SA (5)
1	I use information obtained from classroom discussions (with friends) to support my ideas.					
2	I use information obtained from the novel to support my ideas.					
3	I use information obtained from various internet sources (webpages, images, blogs) to support my ideas.					
4	I use information obtained from past experiences to support my ideas.					
5	I discuss with my group members before					
6	I highlight incorrect information given by my group members regarding the narrative elements.					
7	I ask for clarification from my group members about unfamiliar and unclear ideas and opinions.					
8	I state my opinions about the topic eventhough it is different from the other group members.					
9	I learn new information about the narrative elements from my group					
10	I share new information about the narrative elements with my group					
11	I combine information from different sources and share with my group					
12	I post various links from the Internet to share with my group members.					

APPENDIX B – REFLECTIVE JOURNAL

Name :
Matrix No :
Date :
Duration of using Stixy (in minutes) :
Topic :

No	Point
1	Describe one thing that each person contribute to the poster board to create the poster
2	What did you do to contribute to the creation of the poster?
3	Describe something new you learn from the discussion.
4	Describe your process of getting new information to be contributed to the discussion
5	Were there any conflicts that came up? Describe how you solved the problem.

APPENDIX C – SEMI STRUCTED INTERVIEW

Introduction

Hello everyone, thank you for making time for this interview. This interview is done to get your responses on Stixy, the web-based bulletin board, as a tool to support collaborative learning and your learning experiences while using Stixy to design your Literature project. This interview will be recorded and the recordings will only be used for academic purposes. Names of participants will be kept confidential. [Any questions?]
Let's begin the interview.

1. What features in Stixy do you find helpful in helping you to complete the project? Can you give an example?
2. What features do you think is lacking from Stixy that would help you to complete the project? Why?
3. What type of difficulties did you face while using Stixy i.e. in terms of using the notice board?
4. Did you learn anything new or different while working together on Stixy? Can you give me an example?
5. What types of information did you contribute while working together on Stixy? Where did you find this information? How did you link this information to your project?
6. Did you face any problems concerning the project while using Stixy? How did you resolve those problems?

That's all for the interview. Thank you once again for your co-operation.