

## REPORT ON PARTIAL FINDINGS OF AN ONGOING RESEARCH: SOCIAL NETWORKING SITES (SNS) AS A PLATFORM TO SUPPORT TEACHING AND LEARNING IN SECONDARY SCHOOLS

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### ABSTRACT

*This paper reports the partial findings of a survey that was carried out in the analysis phase of an ongoing research for the development of a prototype of a Social Networking Site (SNS) to support teaching and learning in secondary schools. For the initial phase of the study, a quantitative research method was used based on a survey involving 383 respondents drawn from two rural and two urban schools in Selangor, Malaysia. The main objectives of the survey were to investigate factors related students' use of SNSs namely the frequency of use, the types of SNSs used, reasons for using SNSs and the types of relationships established in the social networking. Data were analysed in the Statistical Package for Social Science (SPSS). Findings of the research show that majority of the students were frequent users, spending quite substantially in the virtual sessions mostly for leisure rather than for educational purposes. In addition, the SNSs were used almost exclusively for peer interactions where interactions with their teachers were very minimal. These findings underscore the design and development of a dedicated, content-specific SNS to promote a focused use of SNSs for academic purposes involving both pupils and teacher.*

*Keywords: Emerging Technologies, Social Networking, Teacher-Student relationship.*

### INTRODUCTION

Social networking sites (SNSs) are popular among many youngsters today and have become a favoured means of communication. According to Thierer (2007), SNSs are among the most-trafficked sites on the Internet. MySpace, Facebook, Ning, Classmates, Hi5, Friendster, Imeem, Tagged, Orkut, Bebo, and Xanga are just some of the countless SNS available online today and new sites are constantly emerging with certain novel features or applications to appeal to specific niches. Realizing this trend, many educators have embraced SNSs as a pedagogical tool. Scholars have begun documenting the positive impacts of SNSs use in educational environments such as colleges and universities. Since SNSs are quite a recent social phenomenon in Malaysia, longitudinal studies regarding the use of SNS in local context are not available as most of the research are done abroad - they lack insights regarding the local educational context. As the use of SNSs is proliferating at an exponential rate,

studies to examine factors that contribute to the better application of this new, novel social setting are urgently needed.

### 1. Background of Problem

In any school environment, teaching and learning process is mostly derived from teacher-student interactions. Thus, these interactions involving teachers and students in schools engender a unique relationship that undoubtedly serves as one of the dynamics that can influence students' motives for learning. However, most of the time interactions between teacher and student are constrained by the schooling hours. In addition, interactions beyond the confines of the school walls and interactions in the 'teacher-student' realm are invariably given less importance. Should teachers be contented that these 'formal' interaction periods in the classroom are sufficient for teaching and learning? What about the informal teaching and learning that take place outside the four walls of a classroom - for instance from the casual conversations

or interactions at the school corridor, canteen, or even outside school? How is it possible for teachers to extend and to expand their interactions with students? What emerging technologies available today that could be used to enhance teacher-student relationship as well as to support teaching and learning? These questions are pertinent to the teaching and learning of English language as interacting and communicating are important activities in any language learning.

English is taught in Malaysia as a second language. Therefore, students justifiably need more practice in order to grasp the language. Unfortunately, in many circumstances students use and practice the English language only in their classes or within the school compound at most. In the case of students in rural areas, the environment outside the classroom or school may not be conducive for the continuation of use in this language. A study on English language teaching in three primary schools in the east coast of Malaysia by Mohd Sofi (2003) showed that the prevailing school environments for conducive language learning were wanting. Students' opportunity to use English was only limited to the classroom, specifically during the English language lessons. According to him, if the instruction were totally done in English, students would only be exposed to a maximum of 6 periods a week, which is equivalent to three hours per week. However, he stressed that students were not given many opportunities to use the language in and out of the classroom, and students' interaction in English outside the classroom was "practically non-existent" (p. 1).

In addition to the dire circumstances, generally much of the classroom practice for interacting in English is derived from role-plays or contrived make-belief situations. Mohd Sofi (2003) claimed that rote learning and pattern drillings are the typical instructional techniques used in the English classroom. As for secondary schools in Malaysia, students' opportunity to use English as a means of interaction in the classroom is only limited to about 200 minutes per week (Murugesan, 2003), and the recent changes in education policy regarding the teaching of Mathematics and Science in English (PPSMI) have resulted in 280 minutes of English hours per week (Hamidah, 2009).

The policy change demonstrates that the need for more exposure to and contact hours for English is vital. It is easily debatable whether the additional 80 minutes per week is sufficient. However, the more pressing issue concerns with how educators can enhance their language teaching optimally as the new measure is enforced in all schools in Malaysia. Efforts to remedy the situation have so far focused more on what can be done in the classroom or during the formal hours of teaching English. Apparently, there is a great deal of opportunities for teaching and learning of English to take place outside the classrooms, which have been consistently overlooked.

## 2. Literature review

### 2.1 Social Network Sites

Social networking sites (SNS) are defined as web-based services that allow individuals to (i) construct a public or semi public profile within a bounded system, (ii) articulate a list of other users with whom they share a connection, and (iii) view and traverse their list of connections and those made by others within the system (Boyd & Ellison, 2007). Mobile connectivity, blogging, forums, chat/discussion room, photo/video sharing, and RSS feed are among the features available on SNS. While there are numerous SNS supporting a wide range of interests and practices, appealing to specific niches, audiences, groups or cultures, their key technological features are fairly consistent (Boyd & Ellison, 2007).

According to a study carried out in 2007 by Anderson Analytics, a research consultancy, students are heavy users of social networks and Facebook is the most popular site in terms of overall and frequency of use. It is reported that over 80% of students use Facebook whereas only 40% use MySpace. Facebook is also used more often with 74% of students accessing the site at least once a week. A study carried out by ECAR (2008) showed that younger college students use SNS more and spend more time on SNS than older students.

Based on Alexa.com statistics as of January 2009, Facebook, Friendster, and MySpace are ranked among the top 10 popular sites in Malaysia. Other SNSs such as Tagged, Hi5, and Ning are within top 100 popular sites. Many SNS are freewares, available without any charges

from the World Wide Web (WWW).

## 2.2 Teacher-student relationship

Positive teacher-student relationship may lead to positive academic effects. Pianta (1999) asserts that close relationship with teachers lead to higher levels of student engagement and achievement. Stipek (2006) reported that adolescents “work harder for teachers who treat them as individuals and express interest in their personal lives outside school”. Therefore, by building positive relationship with students, teachers can provide the motivation, initiative, and engagement which are essential for success (Pianta, Stuhlman, & Hamre, 2002).

## 2.3 Emerging technologies

According to Veletsianos (2008), emerging technologies are tools, innovations, and advancements utilized in diverse educational settings (including distance, face-to-face, and hybrid forms of education) to serve varied education-related purposes (e.g., instructional, social, and organizational goals). While in Web 1.0 era the end users function merely as receivers of information, Web 2.0 technology brings interactivity where the users are also providers of information. SNSs are part of the emerging technologies that are derived from the evolution of Web 1.0 to Web 2.0. Teachers should maximize these emerging technologies to give opportunities for students to experience learning through discourses and debates online and beyond the traditional face-to-face environment. When students' work, opinions, or ideas are targeted for real audience or readers, and receive feedback from the participating audience, this creates a very proactive learning environment where such collaboration and engagement are the pedagogical aspirations of every educator.

## 3. Purpose of the study

This study is part of a larger, ongoing research, which is based on the design and development research model. This type of research is defined as “the systematic study of design, development and evaluation processes with the aim of establishing an empirical basis for the creation of instructional and non-instructional products and tools and new or enhanced models that govern their development” (Richey & Klein, 2007). The research has two main

objectives, which are (i) to develop a prototype of SNS to be used as a platform to support teaching and learning of English and (ii) to measure user acceptance of the prototype developed.

The prototype is named THE EXCHANGE. THE EXCHANGE will be developed using the ISD model, ADDIE (Figure 1), which represents the five phases of the development: Analysis, Design, Development, Implementation, and Evaluation. This paper only discusses the analysis phase of the development process that has been carried out thus far in the study.

Part of the analysis is to study the users' needs. It is imperative that a study on students' usage of SNS is carried out, and teachers' views regarding SNS are collected. The data from the study serve as a baseline assessment and provide useful insights for the needs analysis. The objectives of the study are (i) to identify students' usage of SNS and (ii) to find out teachers' opinions on the use of SNS in educational setting. The work described in this paper focuses only on the findings of the survey carried out among the students.

The survey was carried out among the students in an attempt to answer the following questions:

- Do students in secondary school use SNS?
- How frequent do students use SNS?
- What do students use SNS for?
- With whom do students have relationship in SNS?
- Which type of SNS do students use?

## 4. Methodology

This research used a quantitative research method by means of a survey that was carried out to elicit the relevant data prior to developing the required prototype.

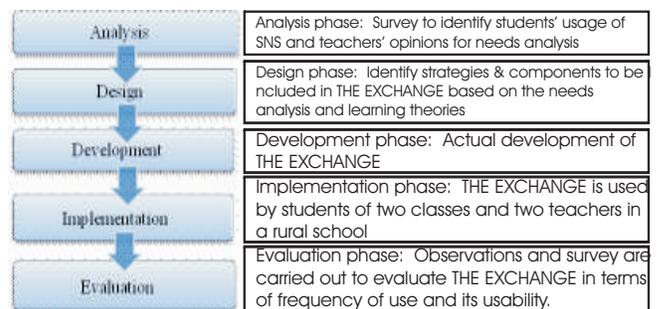


Figure 1. The Methodology for Development of The Exchange

## Respondents

The population of this study comprised a cohort of Form Four students with mean age of 16.5 years drawn from two rural schools and two urban schools in Selangor. The students were also enrolled in the English course in their respective schools.

## Instruments

The main instrument used by the researchers in the study was based on a questionnaire. Four-hundred questionnaire forms were distributed randomly to the students of the four selected schools. The students were instructed to answer all the questions in the questionnaires; and these forms were collected a few days later.

## Data Gathering/ Research Procedure

The research procedure was conducted based on two phases as follows:

### Phase 1

Obtaining written permission from the Ministry of Education and principals of the schools before the implementation of the survey.

### Phase 2

Working with the students. A survey method was used in this study to acquire the appropriate data through a set of questionnaire. The questionnaire forms developed for this study contain three sections which are (i) Demographic Information, (ii) Use of SNS, and (iii) Students' perception on SNSs. Students' use of SNSs was examined in terms of frequency of use, reasons for such a use, relationships established in the SNSs, and the types of SNSs used.

## 5. Findings

Out of 400 questionnaire forms distributed randomly to the Form Four students of the four schools, 384 students returned in the forms, registering a high response rate at 96%. These involved 192 respondents from the rural schools, and 192 respondents from the urban schools. Female and male respondents constituted 61.5% (n=236) and 38.5% (n=148) of the total sample respectively. Figure 2 shows that a high percentage of the respondents used SNSs, regardless of gender and school categories. Out of 384 respondents, 76.6% (n=294) had used SNSs. Urban schools had the most users of SNSs, 82.8%. Interestingly,

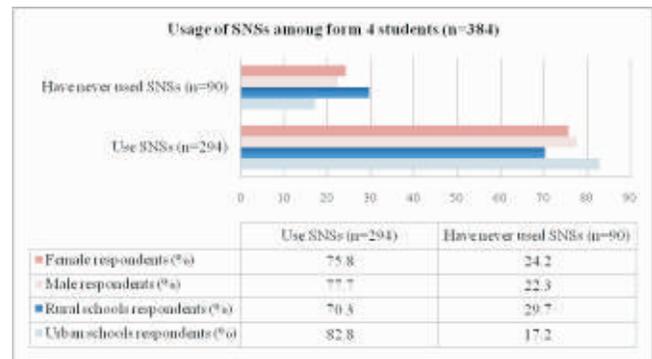


Figure 2. Usage of SNSs among form 4 students

rural schools also had a high percentage of SNS users at 70.3%. Out of 148 male students, 77.7% of them (n=115) used SNSs; meanwhile out of 236 female students, 75.8% of them (n=179) used SNSs.

Figure 3 shows that majority of the respondents used SNSs less than seven times a week and the bulk of SNSs use falls under 1-3 times a week category. More than half of the survey respondents, regardless of gender and school categories, used SNSs between 1 to 3 times in a week. The survey data also showed that the respondents from the urban schools used SNSs more frequent than the rural school respondents in terms of SNSs use of seven or more times in a week, where the percentage of urban school respondents (16.9%) was greater than the rural school respondents (6.7%).

Figure 4 shows that majority of the respondents used SNSs for less than 3 hours every time they logged into the SNSs. Out of 294 respondents who used SNSs, 129 respondents spent 1-3 hours for each SNS use (43.9%) and 103 respondents used less than 1 hour (35%). Only 22.1 % of respondents used more than 3 hours. There was no

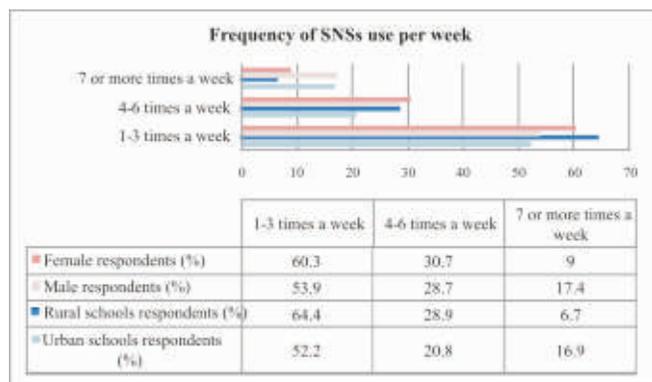


Figure 3. Frequency of SNSs use per week

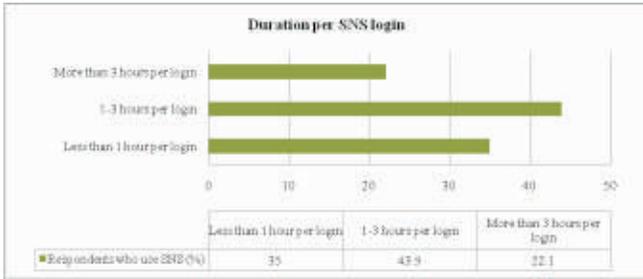


Figure 4. Duration of SNSs use per log-in

significant difference in terms of duration of use between genders and school types.

The three major reasons cited by the respondents in using the SNSs (Figure 5) are as follows: (i) entertainment or fun, (ii) new acquaintance, and (iii) communication. The data showed that majority of the respondents did not use SNSs for self-expression and discussion. Almost all respondents hardly used SNSs for business or promotion purposes.

Figure 6 shows that majority of the respondents (92.2%) who used SNSs were interacting with their offline/real-world' friends, and a high percentage (76.2%) interacted with individuals whom they had never met face-to-face. Majority of the respondents did not interact with teachers

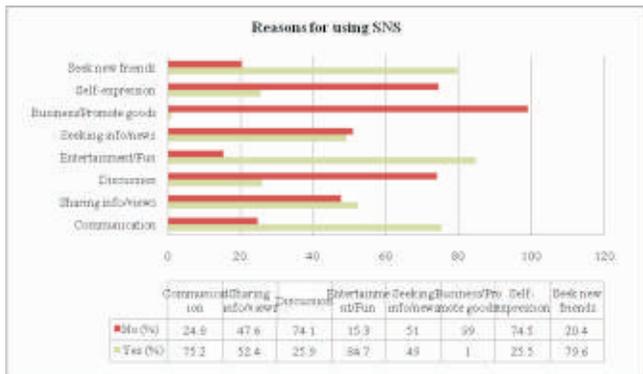


Figure 5. The reasons for using SNSs

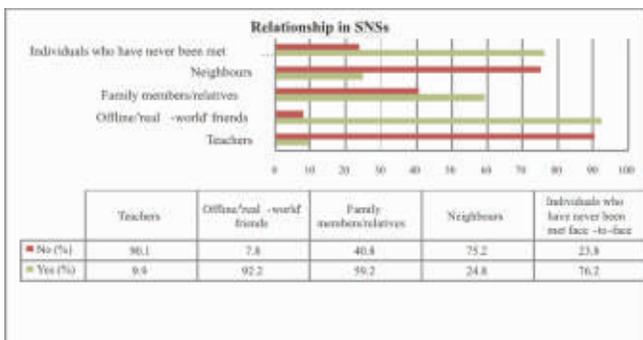


Figure 6. The types of people students communicate with on SNSs

on SNSs. Out of 294 respondents, 265 of them (90.1%) did not communicate with their teachers online.

Figure 7 shows that majority of the respondents used MySpace (89.8%), followed by Friendster (64%), Facebook (35.4%), Imeem (17.7%), Tagged (17%), Hi5 (14.3%), myYearbook (4.4%), Classmates (3.7%), Ning (0.7%), and Orkut (0.3%). In this respect, the findings from this survey are different from the studies done abroad, where Facebook is the most commonly used SNS and followed closely by MySpace (ECAR, 2008).

Figure 8 shows that majority of the respondents felt they could learn new things on SNSs, and opinions conveniently expressed through SNSs. They agreed that one would be considered 'outdated' if that person did not use any of the SNSs, and that the contents in SNSs should be moderated.

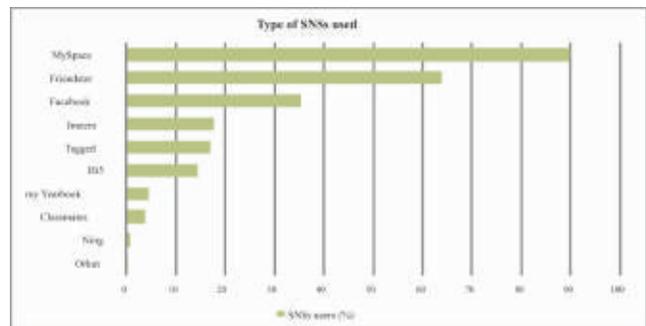


Figure 7. The types of SNSs used by students

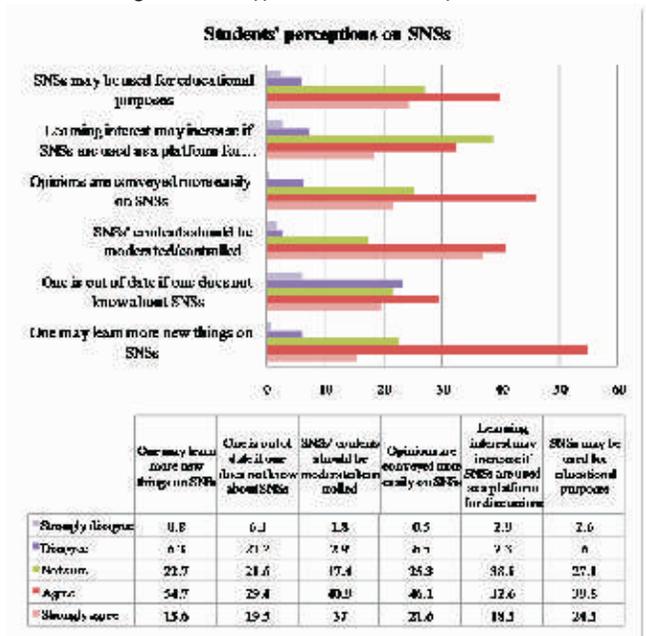


Figure 8. Students' perceptions regarding SNSs

Even though some were unsure whether their learning interests might increase if SNSs were used as a platform for discussion, majority felt that SNSs might be used for educational purposes. Majority of the respondents also felt that the contents in SNSs should be moderated, which implicitly highlights their concerns over inappropriate materials being used online.

## 6. Discussion

Regardless of the public knowledge on the 'digital gap' existing between rural and urban schools, majority of the respondents from both categories of schools have used SNSs. Majority of the students, regardless of gender and school category, use these sites once to three times a week, and most of them spend time one to three hours for each SNS session. These findings concur with earlier study by ECAR (2008) regarding SNS use that highlights prevalent use of these sites by younger generation irrespective of gender, institutional characteristics and size, as well as the social economic status. In this study, age was a constant variable only involving Form Four students of 16 year-olds. This finding implies that many of the Malaysian students at the secondary level are familiar with SNSs and it would be a loss of opportunity if teachers do not leverage their students' experiences in using SNSs. Also demonstrated in this study, majority of the students use the three most popular SNSs namely MySpace, Friendster, and Facebook. The finding concerning the reasons of SNSs use among the students shows that majority do not utilize SNSs for self-expression and discussion, which are essential in any language learning. The students are more inclined to use SNSs for social and entertaining activities. Thus, there is a need for teachers to guide students on constructive use of SNSs, which can improve their academic performance. Rovai (2001) stresses this salient aspect by pointing out that teachers should model the constructive use of the online communication medium since students' technical ability can outstrip their communication skills and their sense of social responsibility.

The findings also show that majority of the students did not communicate with teachers on SNSs. This raises a few questions: Why are the students not communicating with their teachers online? How many teachers are using SNSs

too? Is it because teachers are not present in the online community or these two groups of people just do not 'click' with each other in the online world? It would be interesting to find out the answers to these questions. However, they were not the focus of this research, and this warrants a follow up study to deal with the specific requirements. Regardless of what the answers to these queries might be, teachers need to be involved in online communications with their pupils through the SNSs. Only then, the former could have a firm understanding on the benefits offered and pitfall posed (if not carefully discerned) by the novel setting. Teachers as facilitators in the 21st century should not only encourage learning over the internet, but also promote ethical online practice.

Students tend to interact more with friends and new acquaintances (whom they have never met face-to-face) compared to socializing with their teachers on SNSs. In this study, a high percentage of the students indicated that they have used SNSs to get connected with unfamiliar and unknown people. This particular finding concurs with some studies that showed the use of SNSs is mainly driven by online socializing. However, from the intended educational purposes, this particular finding runs counter to the finding of another important study by ECAR (2008) that highlights more emphasis on learning than socializing that should be the ultimate aim of gaining knowledge by being immersed in virtual, networked environment. The implications of unsolicited, unmoderated online socializing will introduce many social and religious ramifications that can undermine pupils' privacy, safety and security. Online criminal cases involving juvenile victims are one of the many malaises inherent in today's society. The networked virtual environments, which communication barriers have virtually disappeared, have made targeting young and native pupils a simple task by a few strokes of the keyboard and/or a few clicks of the mouse. To mitigate this threat, registered memberships as a requirement for learning online would be mandatory for all pupils. Other dangers associated with SNSs are cyber-bullying and uploading of inappropriate contents. Thus, educational online discourses entail monitoring by moderators set up by trusted members of the online community only comprising selected student leaders, teachers and SNSs' creators.

In light of this need, Malaysian students should learn the proper ethics, safety rules and privacy-related issues when learning online. They should be made aware of the potential pitfalls in using non-educational SNSs. Most important, constructive use of online connectivity that supports meaningful interactions should be encouraged. However, these efforts may be futile if teachers lack the skills and/or knowledge in using the novel setting. The skills and competency can be nurtured when teachers themselves are also involved in using SNSs (i.e., by becoming members of the online communities). On the long run, the teachers would be able to discern and judge the appropriateness and inappropriateness of the application of SNSs for teaching and learning. Blending the teaching and learning based on both the conventional and novel methods would be the main feature of the 21st century's classroom activities, which relies on the constructive use of online connectivity. Evidently, there is a strong case for teachers to incorporate SNSs as part of their pedagogical approaches. The teaching and learning process can be further enhanced when students' growing interest and communicative skills in using SNSs is exploited judiciously.

Overall, the study showed that the pupils perceive SNSs to be beneficial for their learning as some of the sites contain educational contents. This is a welcoming sign, which should encourage teachers to use SNSs as a platform to reach their students, and to support teaching and learning beyond the school hours. To realize the potentials afforded by the new, novel environments, several essential needs have to be identified and their implications are addressed in Table 1.

### Limitations of the study

The sampling for the study only involved Form Four students drawn from two mainstream rural schools and two mainstream urban schools in Selangor. There is a need for

Needs identified	Implications
1. There is a need for teachers to take advantage of students' inclination and interest in using SNSs	Use SNSs to cater for teaching and learning
2. There is a need for teachers to be connected with students in SNSs	Teachers create online presence in SNSs and connect with students
3. There is a need that students be guided on the safe and constructive uses of SNSs	Teacher becomes the administrator and moderator for the SNSs chosen.

Table 1. The needs and implications identified from the survey

replication of the study with greater sample of diverse populations based on ethnographic research that would further illuminate more insights on the long-term implications of SNSs.

### Conclusion

The growing prominence of online social networks in educational settings demonstrates that the utilization of these social networks can expand communication outside the classrooms as they provide a readily available 'space' or channel for interactions with students. SNSs offer yet another cost-effective tool to support the teaching and learning of English, where language learning needs constant communications and interactions. SNS provide opportunities for students and teachers to relate to each other both academically and socially outside the classroom. SNS have already become a part of students' lives. Teachers should take this opportunity to use these free SNSs and reap the educational benefits that they offer. Tailoring teaching and learning to students' preferences and interests may bring greater benefits for both students and teachers. Overall, the findings from the survey provide relevant and current data: first, the provision of the baseline data with regard to the use of SNSs among students in Malaysian secondary schools; and second, to inform the decisions or actions in the next phase of the ensuing study. The findings of the survey also provide a strong case to use the SNSs to enrich the teaching and learning process of English in schools. In addition, the findings discussed in this paper will provide the catalyst for future research on the use of SNSs in other domains of learning.

### References

- [1]. Alexa.com. (2009). *Top 100 Sites in Malaysia*. Retrieved on February 10, 2009, from <http://www.alex.com/topsites/countries/MY>.
- [2]. Boyd, D. M. & Ellison, N. B. (2007). Social Network Sites: Definition, History, and Scholarship. *Journal of Computer-Mediated Communication*, 13(1), 11. Retrieved on December 20, 2008, from <http://jcmc.indiana.edu/vol13/issue1/boyd.ellison.html>.
- [3]. Digizen.org (2007). *Social networking: Benefits and Opportunities*. Retrieved on January 26, 2009, from <http://www.digizen.org/socialnetworking/benefits.aspx>.

- [4]. ECAR Research Study 8. (2008). Retrieved on January 10, 2009, from <http://net.educause.edu/ir/library/pdf/ers0808/rs/ers08086.pdf>.
- [5]. Gallimore, D (2008). *Benefits of social networking*. Retrieved on January 11, 2009, from [http://www.gibline.com/pdf/Benefits\\_of\\_Social\\_Networking.pdf](http://www.gibline.com/pdf/Benefits_of_Social_Networking.pdf).
- [6]. Hamidah, A. (2009). *New Deal for Education*. New Straits Times. Retrieved on July 9, 2009, from New Straits Times.
- [7]. Harris, K. (2008). Using Social Networking Sites as Students' Engagement Tools. *Diverse Issues in Higher Education*, 25(18), 40. Retrieved on January 10, 2009 from <http://proquest.umi.com/pqdweb?did=1588751771&sid=4&Fmt=3&clientId=60729&RQT=309&VName=PQD>.
- [8]. Hung, D. & Khine, M. S. (2006). *Engaged Learning with Emerging Technologies*. Netherlands: Springer.
- [9]. Ito, M., Horst, H., Bittanti, M. Boyd, D. Herr-Stephenson, B. & Lange, P. G. (2008). *Living and Learning with New Media: Summary of Findings from the Digital Youth Project*. Retrieved on February 8, 2009, from <http://digitalyouth.ischool.berkeley.edu/files/report/digitalyouth-WhitePaper.pdf>.
- [10]. Khine, M. S. (2006). *Teaching with Technology: Strategies for Engaging Learners*. Singapore: Prentice Hall.
- [11]. Murugesan, V. (2003). Malaysia Promotes Excellence in English. *ESL Magazine*. Retrieved July 9, 2009, from <http://www.eltcm.org/eltc/Download/paperbank%20PDFs/Malaysia%20Promotes%20Excellence%20in%20English.pdf>.
- [12]. Pianta, R. C. (1999). *Enhancing Relationships Between Children and Teachers*. Washington DC: American Psychological Association.
- [13]. Pianta, R., Stuhlman, M, & Hamre, B. (2002). How schools can do better; Fostering stronger connections between teachers and students. *New Directions for Youth Development*, 93, 91-107.
- [14]. Richey, R. C., & Klein, J. D. (2007). *Design and Development Research*. New Jersey: Lawrence Earlbaum Associates.
- [15]. Rovai, A. P. (2001). Building classroom community at a distance: A case study. *Educational Technology Research and Development*, 49(4), 33-48.
- [16]. Mohd. Sofi Ali. (2003). *English language teaching in primary schools: Policy and implementation concerns*. Retrieved on December 12, 2010, from <http://www2.moe.gov.my/~ipba/EJournal/Mohdsofi.pdf>.
- [17]. Stipek, D. (2006). Relationships Matter. *Educational Leadership*. 64(1), 46-49.
- [18]. Thierer, A. (2007). Social Networking and Age Verification: *Many Hard Questions; No Easy Solutions*. Retrieved on January 23, 2009, from <http://www.pff.org/issues-pubs/pops/pop14.5ageverification.pdf>.
- [19]. Veletsianos, G. (2008). *A definition of emerging technologies for education*. Retrieved on February 10, 2009, from <http://veletsianos.wordpress.com/2008/11/18/a-definition-of-emerging-technologies-for-education/>.

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