

## The Use of ICT in the Implementation of Student-Centered Learning (SCL)

---

**HAFIZOAH KASSIM & ZURAINA ALI**

Universiti Malaysia Pahang

### **Abstract**

*As one of the new teaching approaches, Student-Centered Learning (SCL) has been proven to be effective in its ability to teach students. At Universiti Malaysia Pahang (UMP), the implementation of SCL is being strictly emphasized to ensure that students "...are responsible for their learning in which they can construct their learning by actively seeking their own information" (Abdullah, 2005). On the other hand, UMP places emphasis on the utilization of its vastly equipped multimedia and digital infrastructure to the optimal level particularly in the teaching and learning process. Hence, the aim of this paper is to investigate the effectiveness of integrating ICT into the implementation of SCL in language classes especially through the use of Internet and Microsoft Office PowerPoint. Thus, the questions that we address in the study are: (i) Can the utilization of the Internet and PowerPoint enhance students' learning through SCL? (ii) What are the implications of using these two ICT features in the SCL environment in language learning? The primary sources of the data are obtained from interview, questionnaire, class observation and learning-teaching activities which were gathered in UMP.*

### **Introduction**

In education, many new approaches of teaching and learning have emerged and still continue to emerge; and with advanced technology and globalized information, the teaching and learning approaches are gearing towards the incorporation of technology into the process. In fact, there is growing evidence that technology such as ICT is permeating into every facet of education. Therefore, this profound transition not only has revolutionized how knowledge can be imparted, but also has changed how learning environment can be patterned, and in the process, the roles of students and teachers alike can take new shapes and turns. Language education has not escaped this evolution. Thus, both language educators and learners are challenged to change the way they teach and learn (Ewing, 2000) by importing ICT tools into their language classes. This is particularly important when the multimedia aspects of ICT, of recent years, is essentially advancing every minute, and devices such as the Internet, digital equipments, and computer peripherals are provided to meet the needs of the evolution. The variety of functions offered by such ICT tools can assist teachers to exploit these tools in their teaching, and the abundance of information can help learners to utilize the tools in their learning process.

Flanking together with this digital transformation is another approach to learning - Student-Centered Learning (SCL). The means of defining and explaining SCL is numerous; however, this notion always goes back to the word *student*. This approach positions students at the central stage of the learning process, where they are responsible for their own advances in the knowledge acquisition, in this case, second language (L2) acquisition. Many different views have been opinionated on the features of SCL, but basically most of them focus on students' central role in developing their own learning. Harmon & Hirumi (1996) define SCL as an approach "...where students work both in groups and individually to explore problems and become *active* knowledge workers rather than *passive* knowledge recipients..." (Abdullah, 2005:4). The learning environment, therefore, involves students making an active search for meaning where they construct knowledge and shape it using their experiences and observations. Students have the access to learning opportunities, control over their learning processes and are involved in planning their learning, interacting with the teacher and other students and researching (Student-Centred Learning, n.d.) On the other hand, in their research on the SCL concepts, Bolander (2000) concludes that SCL is an approach that could increase the promotion of active and deep learning, and improve the provision for reflection and interaction among students. In short, SCL strives to move learners to be "...individualistic, flexible, competency-based..." and be exposed to environment, which is "...varied in methodology and not always constrained by time and place" (Arizona Faculties Council, 2000:1).

These transitions into a more digitalized environment and student-centered approach are also being augmented in UMP. As an educational institution, which is equipped with state-of-the-art multimedia, digital and ICT infrastructure with the purpose of providing its academic staff and students with the appropriate tools for a better experience in teaching and learning, it is pertinent that this entire infrastructure is utilized to the utmost. Lecturers at UMP are also encouraged to implement and apply SCL in their teaching. Many teaching and learning courses are offered to lecturers to ensure that not only they understand the concept of SCL but also apply it in their classes. In fact, lecturers are constantly reminded and monitored (through mock teaching) on the benefits of preparing engineering students through SCL approach. Since UMP encourages the implementation of both ICT and SCL, it is the aim of this paper to investigate to what extent the use of ICT especially the Internet and PowerPoint is able to promote SCL.

### **ICT and SCL in Language Learning**

In an ICT-based learning experience, Seufert (2000) states that students are given tools "...which enable them to plan their learning process, carry them out, and evaluate and improve them" (p. 135). By using PowerPoint, different learning styles can be accommodated. According to Shasberge (2002), PowerPoint presentation is one of the "easiest" ways to expand the lesson activity. Students of different learning styles; visual, auditory, artistic and kinesthetic may benefit from the use of PowerPoint application because it is "a great all around tool". As such, having the

tool that can be independently adopted by students in the class put students in a more self-centered learning experience which can harness knowledge acquisition and critical reflection.

There are many features of SCL, but this study focuses on four of them, and how the Internet and PowerPoint are able to enhance these SCL features in language classes. The four SCL features are: student-teacher interaction and negotiation, collaboration and interactivity through group work, self-directed learning and deep learning.

In a traditional class environment, a teacher holds the power to knowledge, the power to deliver the knowledge, and the power to control the learning and teaching environment. In fact, students' interaction with teacher can be limited, and the amount of negotiation for meanings between teacher and students can range from little to none. In SCL, a teacher, who only acts as facilitator, can provide more student-teacher negotiation and interaction, whether in a face-to-face meeting or through ICT. Abdullah (2005) states that a learning environment which promotes interaction between students and teacher can encourage motivation and enhance learning. In the case of using PowerPoint in classes, teachers can ensure motivation in their students when they are able to manipulate and transfer their visual experiences into the presentations (Kat, 2002). Moreover, McCombs (2003) explains that with technology, teachers are engaged with more powerful roles, not only occupying the roles of facilitating the use of technology appropriately, but technology impacts teachers to "...find ways to build meaning, purpose, connections and relationships..." (p. 6). Teachers like these provide better opportunities for meaningful, stimulating and intellectual interaction with students (McCombs, 2003). The opportunity to include suitable photos, music and clips of their own to the content motivate students to get involved in the learning experience and communicate with their teacher on their progress (Kat, 2002).

Secondly, collaborative learning refers to a learning situation where students are grouped and required to collaborate (based on task-related effort) with their group members and through this collaboration and joint-work, students help others to be rewarded, and hence, facilitates growth (McCombs, 2003). Thus, each group member has to be interdependent on each other in order to achieve this aim. This collaboration can be done in and outside the class, and these days, with the assistance of ICT. Felix (1999), in his study, finds that the Web can be mines of treasure which can provide students with abundance of ready-made information for meaningful interactive tasks. Hence, students' collaboration and interactivity can differ with different student but can be fostered and tailored to further reveal students' interests and capabilities in language learning.

The third aspect of SCL is self-directed or independent learning is defined as students' own effort to acquire knowledge. This usually involves students learning at their own pace, and putting their own effort to improve. Therefore, learner independence is important since it can assist learners to find strategies to survive in the future (Bolander, 2000). This is particularly important to engineering students since independent learning (which is one of the soft skills elements) is part of the

demand of the industry. In addition, utilization of technology has also proven to move students towards directing their own learning. Kane (2002) claims that PowerPoint presentation can make them be more independent of their own learning since they access the materials (in power point presentations' forms) at any time they require. Thus, they may review the content of a lesson even though they are unable to grasp the content in the first lesson. Stepp-Greany (2002) finds that combination of technologies such as Internet activities, usage of CD-ROM, electronic pen pals, and threaded discussion does increase students' confidence to be independent learners. She states that in a technology-enhanced environment, students who have control over their own learning are motivated to be "knowledge navigators" (p. 174). In her study, Stepp-Greany (2002) discovers that her students become independently resourceful in finding meanings of difficult words and phrases. In a similar study, California's Model Technology School finds that self-space interactive environment leads to self-directed learning (Blackstock Junior High School, 1993). Similarly, Kajee (2005) reports that through her self-created NiceNet web page conference, many students feel they have more control over their learning; thus, the students gain more benefits by accessing independently to notes, formulating their own learning goals, and even recommending and assisting peers in their learning process. She finds that students not only are directed to learn independently, but also are directed to help others because they are able to see the improvement in themselves, and therefore, willing to share it with others.

Prosser & Trigwell (1999) state that deep learning occurs when students aim "...to understand ideas and seek meaning" (as cited in Bolander, 2000: 8). Therefore, this definition suggests that when learners are intrinsically motivated to be involved in the tasks and enjoy working it out, they are deeply involved in their learning process. Students who are engaged in deep learning, among other things, try to relate the tasks to their own experiences, analyze the evidence and argument of the tasks and assimilate the tasks with their own existing awareness (Bolander, 2000). Findings by Allegra, Chifari & Ottaviano (2001) show that the integration of ICT "...allows learners to reveal their thoughts and feelings, and develop their imagination..." (p. 49).

## **The Study**

The purpose of this study is to investigate the impact of the integration of ICT into SCL environment in language classes. To achieve this objective, the researchers focused on students' use of the *Internet* and *PowerPoint* application in language classes. The decision to use these ICT features is based on a few factors:

### ***Internet***

- a. Easy accessibility to Internet is provided to the community of UMP through wireless and wired network around the campus and hostel.
- b. Internet can provide abundance of information faster.

### **PowerPoint**

- a. use of PowerPoint slides during presentation is common at UMP.
- b. As a way to incorporate ICT element in teaching and learning at UMP, PowerPoint application is encouraged.
- c. Technological features of the PowerPoint application make it possible for students ensure creative and attractive presentation.

On the other hand, in probing into the second part of our aim, we look at four features of SCL that could be enhanced through ICT: *student-teacher interaction and negotiation, collaboration and interactivity through group work, self-directed learning and deep learning*. There are a number of SCL features, but these four are derived based on researchers' interest on the *developmental and social factors and individual differences factors of the Learner-Centered Psychological Principles described American Psychological Association (APA Work Group of the Board of Educational Affairs, 1997) (cited in McCombs, 2003)*.

### **Instrument**

To measure the influence of the selected ICT elements on the development of the SCL features in language classes, a researcher-made survey questionnaire was developed. The instrument is a set of researcher-made questionnaire divided into two sections. Section A gathers personal information such as faculty, sex, amount of exposure to the use of Internet and PowerPoint, self-rating of the Internet and PowerPoint usage to improve English language and self-rating of the ability to use the Internet and PowerPoint.

Section B consists of 21 items (refer to Appendix 1) related to the students' feelings on the usage of the Internet and PowerPoint in order to enhance features of SCL. The first 5 items focus on student-teacher negotiation and interaction; these items are represented by character N. 7 items concentrate on collaboration and interactivity through group work; these items are represented by character GW. The next 6 items query on self-directed learning; these items are represented by character SD. Finally, 3 items ask on deep learning, and these items are represented by character D. The respondents are asked to rate the items based on a 5-point Likert Scale indicating their agreement to each statement (1 = "strongly disagree" to 5 = "strongly agree". A basic reliability coefficients analysis (Cronbach's Alpha) is applied to measure the internal consistency of all items for each variable. The summary of the reliability analysis results of the overall items as well as the break down for each SCL feature are given in Table 1.

Table 1: Summary of the Reliability Coefficients Analysis

Variable	Reliability Coefficients
Overall (all items)	N of Cases = 109.0 N of Items = 21 Alpha = .8522 Standardized item alpha = .8556
Student-Teacher Negotiation and Interaction	N of Cases = 109.0 N of Items = 5 Alpha = .7764
Collaboration and Interactivity through Group Work	N of Cases = 109.0 N of Items = 7 Alpha = .7879
Self-Directed Learning	N of Cases = 109.0 N of Items = 6 Alpha = .7668
Deep Learning	N of Cases = 109.0 N of Items = 3 Alpha = .7438

The overall reliability analysis score of .8522 shows that together as SCL items, the questionnaire is internally consistent. However, the alpha scores for individual variable indicate that the items as individual variable are less consistent. Due to time constraint, the study was continued based on the overall reliability coefficient score of all the items.

### Sample and Method

The respondents of this study were 109 (82 male and 27 female students) randomly selected first-year second-semester students from various engineering faculties who took UHL 1122 (English for Technical Communication), a level 2 English language subject. UHL 1122 covers 5 topics namely; i) technical description, ii) process explanation, iii) problem solving, and iv) short analytical report writing which involves a small-scale survey. Topics 1 – 3 are very technical and are very much related to students' engineering needs whereas topic 4 is also technical in terms of report writing, but the themes that students can cover for their survey are general themes namely transportation problem at UMP, Soft Skills implementation at UMP and wireless network at UMP. Therefore, to find out the effectiveness of using ICT in enhancing SCL in language classes among engineering students, this study

focuses on respondents' learning experience for topics 1 – 3 which are covered in the first seven weeks of the semester.

Covering the three topics involves input from the teacher, discussion with the teacher, group discussion, information research, group oral presentation and written tasks. The respondents were exposed to many and different types of ICT tools in the class which include use of computer, the Internet, audiovisual equipment and Microsoft Office tools; however, this study highlights on the use of the Internet and PowerPoint.

Students were grouped into groups of four to five students. For each topic, students were required to perform Internet information research based on sub-topics given by the teacher, discuss findings in group, transfer findings into PowerPoint slides and present a group presentation. A guideline was prepared for the students to follow in completing task. Although all groups were required to research for the information, only a few selected groups were asked to present for each topic. Selection for presentation is on voluntary basis. At the end of topic three, all groups presented their findings using the PowerPoint slides but focused on different topics. Figure 1 depicts the flow of the lesson.

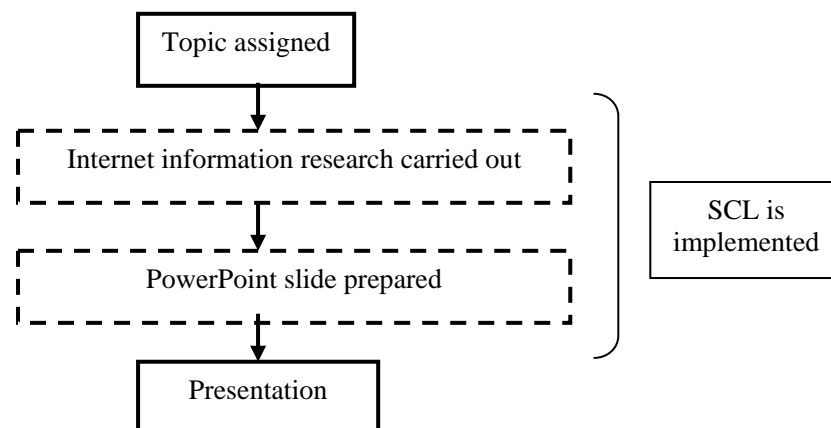


Figure 1: The Flow of the Lesson

Students were given 50 minutes in each class to browse for information in the Internet and prepare the slides, and total freedom on how to go about doing it. Teachers acted as facilitators, going around the class monitoring students' work and progress. Students were also allowed to continue their work outside class leading to their presentation.

At the end of week seven, the questionnaire was administered to the students. There were about 800 students who took this subject, and on the specified day of

conducting the survey, the researchers randomly selected 4 classes. Out of 120 questionnaires distributed, 109 were returned. Respondents were informed that the purpose of the survey is to find the correlation of the use of ICT towards the effective implementation of SCL in the language classes.

### **Findings and Discussions**

The following are the findings tabulated according to the four elements of SCL focused in this study. From the survey, we found that 41% of the respondents have been exposed to the use of the Internet since they were in lower secondary school, and only 15% was first exposed to it in UMP. On the other hand, 31% was exposed to the use of PowerPoint since they were in upper secondary school and about 20% was first introduced to it in UMP. More than 72% admitted that they are good in using the Internet, 21% believed their ability to use the Internet is excellent and the rest ranged from very poor to poor. On the other hand, 20% claimed that their ability to use PowerPoint is excellent, 57% agreed that they are good with PowerPoint, and 23% rated their PowerPoint usage as poor.

When inquired on the frequency of using the Internet and PowerPoint to improve language skills, 33% admitted that they frequently use the tools independently whereas about 57% sometimes use them. The students, however, believed that the Internet has actually helped them with the enhancement of their language. Since these students are skillful at using the Internet, the percentage of the students who agreed that they independently use the Internet to develop their language skills is much higher compared to the use of PowerPoint.

The following sections discuss the findings of the impact of utilizing the Internet and PowerPoint application in the improvement of student-centered learning (SCL). This discussion is based on the data collected for Section B of the researcher-made survey.

#### ***Student-Teacher Interaction and Negotiation***

Figure 2 shows the result for the first SCL feature - student-teacher interaction and negotiation for meanings and clarification when Internet and PowerPoint are involved. In this study, 5 items (Appendix 1), which are related to this feature of SCL, are included in the survey.



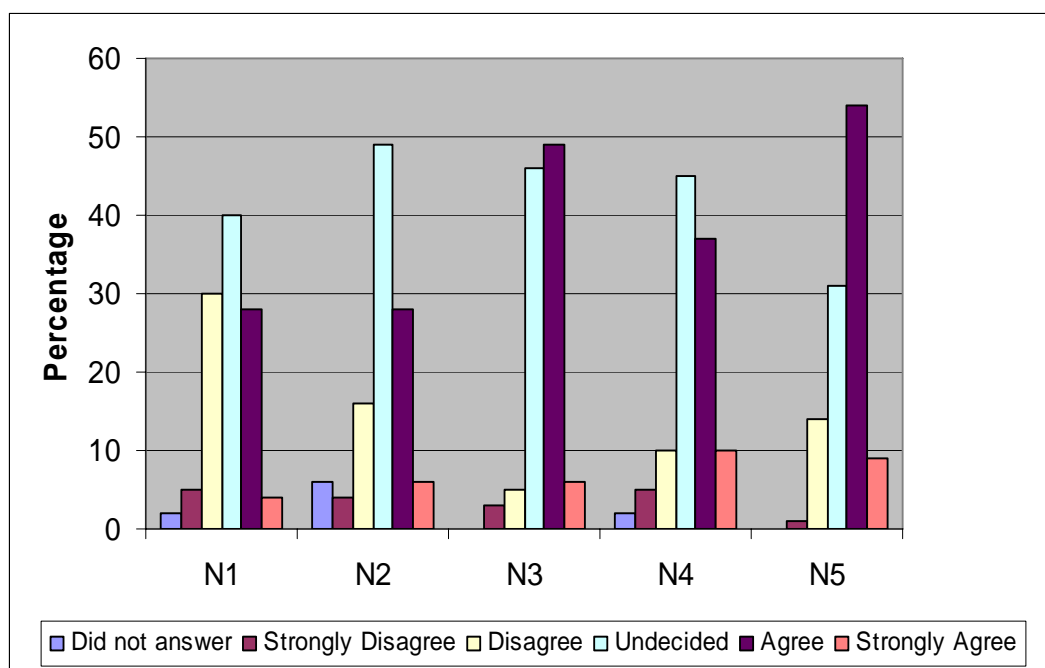


Figure 2: Student-Teacher Negotiation and Interaction

It is evident from Figure 1 that majority of students are undecided when selecting answers for N1–N4. It also can be observed that since a few students did not respond to a small number of items in the survey, missing values occurs.

N1, N2 and N4 demonstrate that students are mostly undecided on the items (40%, 49% & 45% respectively). This suggests that when it comes to completing their tasks using the PowerPoint and using any materials gathered from the Internet, the students prefer to complete the task on their own, rather than putting effort to consult the teachers on the language elements. They believe since they are using the information from the Internet, they consider the materials are authentic even in language use. Since the computer at the language labs in UMP are installed with a Cambridge Advanced's Learners Dictionary software, these students are also encouraged to refer to this dictionary instead of referring to the teachers. The findings by Stepp-Greany (2002) partially agree with this study when she discovers that instructor is actually able to provide vocabulary help to students, but she also finds that once students are familiar with the activities, instructor's help is not necessary anymore.

However, 63% of the respondents agree and strongly agree that they tend to consult with the teachers on the development of their English language through the Internet. In UMP, students are able to communicate with the teachers through e-memo and e-mail. It shows that students prefer to use the technology rather face the teacher individually to talk about their weaknesses in the language.

### *Collaboration and Interactivity through Group Work*

Figure 3 illustrates that vast amount of the students agree with all the seven items whereas a very minimum percentage illustrates their disagreement except for GW1. Table 2 lists all the seven items as used in the survey.

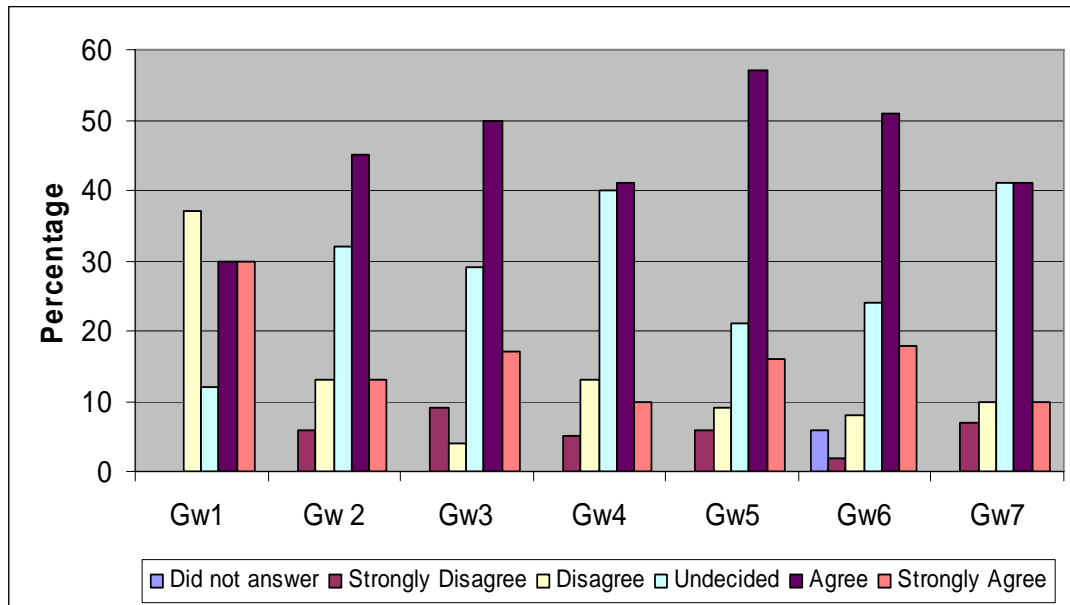


Figure 3: Collaboration and Interactivity through Group Work

For GW1, about 60% confesses that they can collaborate interactively with their group members to gather materials from the Internet. Akahori (2002) describes that this “modeling effect” where students encounter content or information different from their own thinking enables them to learn a lot more from one another (p. 5). This modeling effect can be found in the Internet. Moreover, Monahan (1994) states when students work with their friends, they depend on variety of resources to search for authentic information, and the Internet is a medium that can furnish students with unlimited authentic resources. Interestingly, GW1 also shows the highest percentage of disagreement response. 37% disagrees to this pointing out that students believe sometimes their friends tend to browse other unrelated websites or even go into chat room while the task is still going on.

On the other hand, GW5 indicates the highest response for agree. Almost 73% expresses agreement that working on the PowerPoint presentation allows them to work interactively with their group members. Engineering students love playing with tools and gadgets as they are exposed to them in their engineering classes, and having the chance to play with ICT tools in language classes is a playtime for them. These students even masterfully exploit digital equipment and audiovisual tools in the language lab to prepare for their PowerPoint presentation. They can work interactively to perform better when they can compare their idea and expertise (with ICT tools) with that of their friends. This is done by comparing and evaluating their

own performance through accessing and observing other members during group work (Stepp-Greany, 2002). Akahori (2002) also explains that this learning process leads the group members to exhibit competitive performance and willingness in their work.

Items GW2, GW3 and GW6 illustrate higher percentage on the agreement end. This shows that students are able to collaborate to discuss not only on the information but also on the language elements either when they are gathering information from the Internet, or when they are preparing for the PowerPoint presentation. From a pedagogical point of view, Akahori (2002) believes that students feel more satisfied when group members combine their individual work by arguing and discussing to produce one satisfactory final product. In addition, Monahan (2002) suggests that content for a presentation can be more useful when students are able to monitor group discussion and determine the purpose and its audience. Thus, they learn to write for “real purposes” and “real audiences” (p. 6).

However, on the language part, as indicated by GW4 and GW7, students are not sure whether collaboration with their group members using the ICT tools can help the enhancement of their language skills, 40% and 41% respectively. Although the percentage of students who agrees is higher (about 51% for both statements), the students still believe that for language enhancement, consultation with teachers gives them more confidence. Rubens et. al. (2003) postulates that collaboration is not an easy task to be achieved because it depends largely on students’ English proficiency. Students who have high level of English proficiency may be able to gradually advance in the language, should they be able to be active participants in the process of knowledge building. Yet, this advancement might be stunted if they are grouped with very weak students. Rubens et. al. further describes that students are in e-based collaborative knowledge building environment when they “...neither merely deliver knowledge nor are they just skimming or surfing the knowledge...,” they are actually “within” a local or virtual learning community (p. 6).

### ***Self-Directed Learning***

Figure 4 demonstrates the effectiveness of using Internet and PowerPoint in promoting self-directed learning among engineering students in UMP. Table 2 lists the 6 items (SD1-SD6) that were used in the survey.

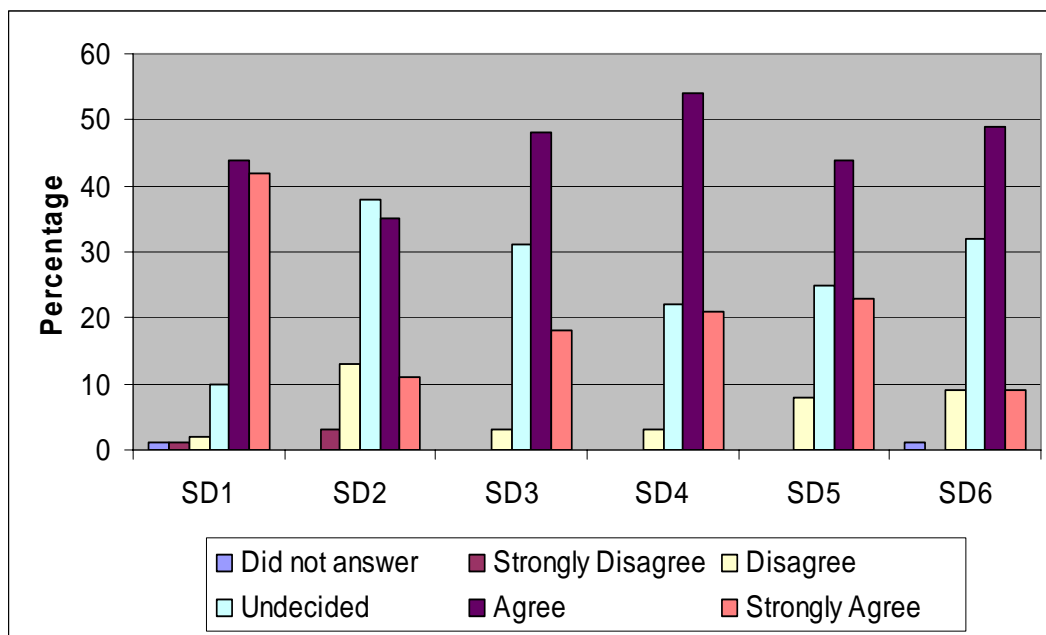


Figure 4: Self-Directed Learning through ICT

In general, students agree that Internet and usage of PowerPoint in language classes does encourage them to learn independently. On Internet use, 86% of the students express agreement that the Web does allow them to learn English language independently. They believe that they can find abundance of information in the Web within short period of time compared when they have to refer to books. The easy access of the Internet at UMP is also another contributing factor. In addition, over 65% of the students express agreement that the Internet helps them to improve their language enhancement at their own pace. Since UHL 1122 deals with technical topics and requires them to know more technical words, they are essentially urged to browse the Web to find correct technical vocabulary especially when preparing for their written assignment. They believed this is also helpful for them since they will be using similar vocabularies in their engineering classes. This is supported by Stepp-Greany (2002) who reports that even in a linguistically complex Internet environment, learners learn to be independently resourceful especially in findings meanings of difficult words and phrases; and by Kajee (2005) who finds that students independently improve their language skills particularly in their writing style. However, when it comes to independent usage of Internet for online exercise, only 46% of the students express their agreement. The students prefer to browse the Web to look for information, but not to do exercise. They, however, will put the effort to browse only the Webpage which addresses are given by the teachers. Most students who agree indicated that they are encouraged to do so since they have been exposed to self-access activity in the first semester. They believe many students will probably do the same if self-access activity is conducted in the second semester. They also state that since the level of the online exercises for UHL 1122 is much higher, it has at some point prevented them from doing the exercises. Seufert (2000), on the contrary, reports that electronic learning

opportunities (namely online exercises) offer students attractive opportunities to apply acquired knowledge and engage in critical reflection, therefore, the higher the level of exercise or information found in the Internet, the more are the students challenged to be involved in self-directed learning.

### *Deep Learning*

Figure 5 illustrates the effects of using ICT tools to increase deep learning. Only 3 items (D1-D3) were used to in the survey (as shown in Table 2).

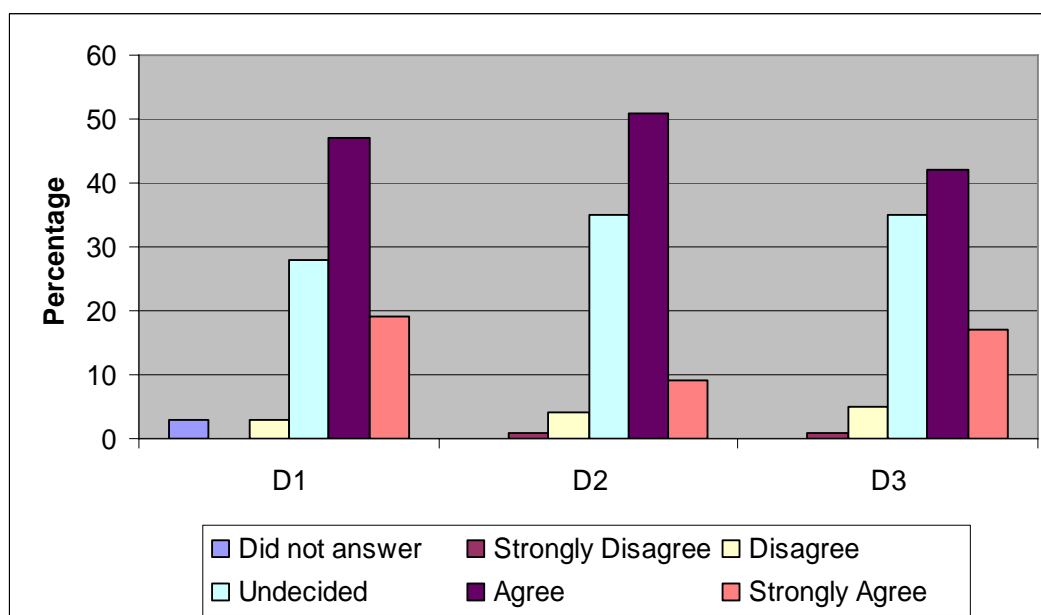


Figure 5: Deep Learning

Generally, all the items used reveal positive feedbacks from students in the enhancement of deep learning within themselves when the Internet and PowerPoint are used. There are, however, a very small percentage of missing values for all three statements. 66% expresses agreement that they are able to express their creativity. When students are able to show off their artistic quality, in whatever means (in this case, through ICT tools), they are encouraged and motivated to be involved in the learning process. This is supported by Allegra, Chifari & Ottaviano (2001) when they find that integration of ICT could help to stimulate students' creative thinking and in turn develop their creative potential in learning in general.

Items D2 and D3 also reveal similar findings; usage of the Internet can increase deep learning among students when 60% and 59% respectively agree to the statements. Since deep learning is concerned with students' intrinsic interest to learn, the nature of the Internet, which offers profusion of authentic, low-cost and easily accessible information at anytime, motivates learners to indulge into the learning process.

## Conclusion

This study has illustrated the perceptions of one group of university students about the enhancement of student-centered learning (SCL) through the implementation of ICR tools. The learning environment that promotes the integration of ICT and SCL is more “relevant” and interesting nowadays as students are able to benefit from one another in language classes. ICT helps students to be more creative and innovative by using “appropriate” tools available such as word processing. They can also use Internet to find suitable resources and materials as Monahan (1994) describes that the Internet is a source for “a living database” (p. 3). It is able to “turn students on” to research. Manohan (1994) also claims that the Internet “whets their appetite to research, and they start wondering what is in the library. Thus, it encourages traditional research as they end up going to the library spontaneously” (p. 7).

SCL, on the other hand, enable students to collaborate with their teachers, for instance, to discuss and consult materials or resources they found in the Internet. Besides that, students can also learn interactively in group discussion, since they can argue and discuss with their friends concerning the contents that they think are “suitable” for their work. Also, in SCL environment, students “need to take greater control of their own learning and develop lifelong learning skills” (Alagic, Gibson & Doyle, 2004:1). This means that teachers are no longer the sole provider of information. Yet, students themselves monitor their learning techniques while teachers are the facilitators in the language classes. Last but not least, SCL guarantees deep learning when topics are relevant to the students’ lives, needs, and interests, and the learning process creates self-satisfying impulses and interest in the students. In this environment, students themselves are actively engaged in creating, understanding, and connecting to knowledge (Bolander, 2000; Alagic, Gibson & Doyle, 2004).

This study, however, has several limitations, which can be improved for further study. The data description is descriptive rather than inferential; therefore, the results may not be generalized in other contexts. The samples are selected from 800 students who are taking the same course. Although all the teachers were briefed on the implementation of SCL in their language classes, individual approaches to the application of SCL among these teachers might have also affected the results, and the number of the selected samples might not totally represent the real population.

## Reference

- Abdullah, I. (2005).** *Teaching Guide*. Academic Staff Development Center. University College of Engineering & Technology Malaysia.
- Akahori, K. (2002).** Qualitative Analysis of Information Communication Technology Use on Teaching-Learning Process. A Paper Presented at ED-MEDIA 2002 World Conference on Educational Multimedia, Hypermedia & Telecommunications 2002. Retrieved February 11, 2006, from ERIC Document Reproduction Service
- Alagic, M., Gibson, K. & Doyle, C. (2004).** The Potential for Autonomous Learning through ICT. *Society for Information Technology and Teacher Education International Conference*. 2004(1), 1679-1684. (available online) <http://dl.ace.org/14560> [February 22, 2006]
- Allegra, M., Chifari, A. & Ottaviano, S. (2001).** ICT to Train Students towards Creative Thinking. *Educational Technology & Society*. 4(2), 48-53.
- APA Work Group of the Board of Educational Affairs (1997).** *Learner-Centered Psychological Principles: Guidelines for School Reform and Redesign*. Washington, DC: American Psychological Association.
- Arizona Faculties Council (AFC). (2000).** *Definition of Learner-Centered Education*.(available online) [http://www.abor.asu.edu/4\\_special\\_programs/lce/afc-defined\\_lce.htm](http://www.abor.asu.edu/4_special_programs/lce/afc-defined_lce.htm) [January 3, 2006].
- Blackstock Junior High School: Multimedia Technology Drives Smart School. (1993).** *Technology and Learning*. 14(1), 41-44.
- Bolander, K. (2000).** *Student-Centred Learning – Whole Report*. (available online), <http://www.gla.ac.uk/services/tls/ProjectReports/whole/index.html> [January 5, 2006].
- Ewing, J. (2000).** Enhancement of Online and Offline Student Learning. *Educational Media International*, 37(4), 205-217
- Felix, U. (1999).** Web-Based Language Learning. A Window to the Authentic World. *WORLDCALL: Global Perspectives on Computer-Assisted Language Learning*. Swets & Zeitlinger.
- Harmon, S.W. & Hirumi, A. (1996).** A Systematic Approach to the Integration of Interactive Distance Learning into Education and Training. *Journal of Education for Business*. 71(5), 267-271.

- Kajee, L. (2005).** *Making Waves, Not Just Surfing the Net: ICT and Learning in the ESL Classroom.* (available online) <http://www.readingmatrix.com/conference/pp/proceedings/kajee.pdf> [February 11, 2006]
- Kane, J. (2002).** *Power Point Ideas.* (available online) <http://www.techtrekkers.com/PP> [July 18, 2007]
- McCombs, B. (2003).** *Assessing the Role of Educational Technology in the Teaching and Learning Process: A Learner-Centered Perspective.* (available online) [http://www.ed.gov/rschstat/eval/tech/techconf00/mccombs\\_paper.html](http://www.ed.gov/rschstat/eval/tech/techconf00/mccombs_paper.html) [January 22, 2006].
- Monahan, B.D. (1994).** *The Internet in English Language Arts.* A Paper Presented at the Annual Meeting of the National Council of Teachers of English. Retrieved February 11, 2006 from ERIC Document Reproduction Service.
- Prosser, M. & Trigwell, K. (1999).** *Understanding Learning and Teaching - The Experience in Higher Education.* The Society for Research into Higher Education: Open University Press.
- Rubens, W. et. al. (2003).** *A New Dawn for Collaborative Learning in Europe.* Retrieved November 24, 2005, from: [http://www.euro-cscl.org/site/itcole\\_brochure.pdf](http://www.euro-cscl.org/site/itcole_brochure.pdf)
- Shasberge, M. (2002).** *Power Point Ideas.* (available online) <http://www.techtrekkers.com/PP> [July 18, 2007]
- Suefert, S. (2000).** The NetAcademy as a Medium for Learning Communities. *Educational, Technology & Society*, 3(3), 122-136.
- Stepp-Greany, J. (2002).** Student Perceptions on Language Learning in a Technological Environment: Implications for the New Millennium. *Language Learning & Technology*. 6(1), 165-180.



### Appendix 1

Student-Teacher Negotiation and Interaction	
N1	I can consult my teacher on the content of the PowerPoint slides.
N2	I can consult my teacher on the use of English language in my PowerPoint slides.
N3	I can refer to my teacher on the resources of materials I took from the Internet.
N4	I can refer to my teacher for the correct spelling and use of grammar of the materials I found in the Internet.
N5	Using Internet allows me to negotiate and consult my teacher on the development of my English language.
Collaboration and Interactivity through Group Work	
GW1	I can work interactively with my friends to gather materials from the Internet.
GW2	Internet enables me to work interactively with my group members about English language.
GW3	Internet allows me to argue and discuss on the information taken from the Internet with my group members interactively.
GW4	I can discuss with my friends on the development of my language based on materials from the Internet.
GW5	Using PowerPoint allows me to work interactively with my group members.
GW6	To come out with the PowerPoint slides, I argue and discuss with my friends on its content.
GW7	I can discuss with my team members on the correct usage of English in the PowerPoint slides.
Self-Directed Learning	
SD1	Internet allows me to explore the Web to learn English language independently.
SD2	I can lead myself to try online exercises on my own.
SD3	Internet helps me to improve my language at my own pace.
SD4	To prepare for the slide, I discover the functions of PowerPoint on my own.
SD5	I learn on my own to make my PowerPoint slide attractive and interesting.
SD6	To ensure correct use of English on the slide, I take the effort of finding it myself.
Deep Learning	
D1	I can be more creative when I use PowerPoint.
D2	I can reflect on my strengths and weaknesses when I use the Internet.
D3	Internet makes my tasks more coherent and meaningful to my language learning experience.

The main author can be contacted via email: [hafizoah@ump.edu.my](mailto:hafizoah@ump.edu.my)