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Editorial

Divergent Curriculum
Donald G. Perrin

Tonight I took some time out for internet videos – specifically John Taylor Gatto at http://www.youtube.com/watch?v=8ogCc8ObiwQ entitled State Controlled Consciousness; and Sir Ken Robinson at http://www.ted.com/talks/ken_robinson_says_schools_kill_creativity.html explaining how schools kill creativity. Both had a common message – about schools, conformity, and standardization. John Gatto equated it to excessive control; Ken Robinson equated it to draining the creativity out of children, and making them afraid to make mistakes. I suddenly realized that almost everything I do in distance learning is to emulate what is done in the existing system of education, resulting in the same kinds of educational product.

Then I visited Stephen Downes Groups and Networks, at http://video.google.com.au/videoplay?docid=-4126240905912531540&q=downes&total= 653&start=0&num=10&so=0&type=search&plindex=0# (a visible link is included in case you are working from a printed copy). The technical quality is poor but the ideas are outstanding.

Downes compares groups and networks. Groups are designed to develop unity, not diversity; coordination, not autonomy; closed membership rather than openness; distributive (one-to-many like television and publishers) rather than connective (like Skype, podcasts, and blogs); and privatization of knowledge rather than equal access. The Internet does not have to be a closed group activity. It is more democratic. It is an opportunity for openness, sharing, and creativity.

If online learning is attempting to emulate the old group method, it is failing, in many instances, to capitalize on its capability as a network.

Going back to schools and curriculum, the standardized curriculum is confining and convergent. It is built on theories of control that date back to the 1840s. It does not reflect the modern world or future jobs. It is a bastion on conformity, not creativity. The question, then, is how to foster creativity, to develop a relevant and divergent curriculum, and how to use the ultimate network – the Internet - to replace conformity with creativity. We need an educational system that will serve the needs of a rapidly changing world where everything is accelerating at light speed, whether it be social, economic and political changes, or science, technology and engineering.

Taking the words from *The Trends Journal*, 2007 p.6, the United States

> "will require a recapturing of its lost attributes of entrepreneurial spirit, free thinking, professed morality, civic courage and the "can-do" pioneering zeal that once defined the nation' spirit."

A divergent curriculum seems like an oxymoron. Perhaps we need a different word. Just as the confining term "audiovisual" was changed to an expansive term "instructional technology", we need a word that will encompass the knowledge, skills and aptitudes that we need now and in the future. Distance learning is already making changes. We talk about learners, not students; observable and measurable performance objectives, not learning objectives; interactive activities rather than lectures; and new forms of personal communication such as social networks and mobile learning. We need to put together the best of the old and the new with clarity of purpose and an eye to the future.

It is time to change this editorial page to a dialog. The editors need help to build databases, blog lines, and wikis and stimulate research of a new kind to support an expanding networked world.

Editor's Note: Bruce Joyce's *Models of Teaching*, now in its 8th edition, is the classic text on methodologies such as Advance Organizers (AO). This research by Chen and Hirumi is a gift to update the repertoire of instructional designers and writers of online curriculum. I had assumed AOs worked for everybody, ignoring the role of learning styles and levels of experience. Now I have to rethink, as you will, when and how to use this tool most effectively. It would be interesting to have readers of this article respond with their comments pro and con on their experiences with Advance Organizers for distance learning.

Effects of Advance Organizers on Learning for Differentiated Learners in a fully Web-Based Course

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In online education, the use of multimedia resources often brings challenges of cognitive overload and learner disorientation (Dias & Sousa, 1997), especially for learners with low learning ability or poor prior knowledge. While learners enjoy the flexibility and abundance of Internet resources, they may also be overwhelmed with multiple tasks and sources of information. Effective online teaching and learning strategies, including advance organizers, debate, case studies, and guest experts, have been widely perceived as potential solutions to the learning challenges (Bonk & Dennen, 2003). However, there is limited research on integrating teaching and learning strategies in fully Web-based environments. The present research is an endeavor to explore the potentials of using an instructional strategy – advance organizers (AOs) – in a fully Web-based course.

Keywords: *Online education; advance organizer; Web-based learning; instructional strategy; instructional designer; learning ability; experimental research; ANOVA; concept map; learning outcome; higher education*

Purpose of the study

An advance organizer (AO) is relevant introductory materials presented in advance in any format of text, graphics, or hypermedia (Ausubel, 1968). A concept map was used as a graphic AO, and a text outline was used as a textual AO. As the outcome of the study, students' learning achievement in knowledge acquisition and application was tested both immediately and four weeks after the experiment. In analysis, students of the treatment groups and the control group were divided into two sub-groups based on their scores. Specifically, this study investigated if the use of AOs would improve learning outcomes differently for learners of differentiated learning ability levels in a fully Web-based course.

Theoretical framework

The rationale for using AOs is rooted in cognitive learning theories. Cognitive theories state that learning performance depends on processing capacity and prior knowledge. With the aid of AOs, learners are able to link what they already know to new information and apply it to new contexts.

Ausubel first introduced the concept of AOs in his assimilation theory of meaningful learning and retention. Based on his theory and early experiments, Ausubel (1968) asserted that the use of AOs helps learners activate prior knowledge in the new instructional context and makes the instructional process meaningful. Moreover, one of his assumptions was that learners having either low ability or low prior knowledge of the material should be helped more by AOs than other learners are.

Mayer (1979) reinterpreted Ausubel's theory in terms of his assimilation encoding theory. He contended that if the learner already possesses a rich set of relevant past experiences and knowledge and has developed a strategy for using it (eg, a high-ability learner), the AO would not be effective. The results of his analyses demonstrated that AOs more strongly aid performance when material is poorly integrated and for inexperienced learners.

However, later studies were not consistent in supporting that AOs are especially effective for low-ability learners. On one hand, a study on graphic AOs supported the assumption for learners of differentiated learning ability (Alvermann, 1988). The study found a facilitative AO effect for self-perceived low-ability students. But for the self-perceived high-ability students, the AO appeared not to help but to interfere with their learning. On the other hand, two meta-analyses were conducted on extensive AO research in the early 1980s. Both analyses found AOs are effective for all ability levels, and they have no special facilitation for low-ability learners (Luiten, Ames, & Ackerson, 1980; Stone, 1983).

In the 1990s and 2000s, many researchers conducted studies on AOs of various formats, such as graphic AOs (DaRos & Onwuegbuzie, 1999; Hirumi & Bowers, 1991) and multimedia AOs (Calandra, Lang, & Barron, 2002; Tseng, Wang, Lin, & Hung, 2002; Yeh & Lehman, 2001). However, in the recent studies, the variables such as learning ability or prior knowledge were not controlled. Thus, there is no evidence to suggest if the use of AOs would have special facilitation for learners of high or low learning ability in Web-based learning environments.

Hypotheses

Two hypotheses were posited for this study.

Hypothesis I. Students of high ability using an advance organizer (either a concept map or a text outline) will achieve higher learning outcomes in both short-term and long-term knowledge-based and performance-based assessments than those in the control group.

Hypothesis II. Students of low ability using an advance organizer (either a concept map or a text outline) will achieve higher learning outcomes in both short-term and long-term knowledge-based and performance-based assessments than those in the control group.

Methods

Subjects

The population of this study consisted of 166 undergraduate students enrolled in a fully Web-based health-related ethics class in fall 2006 at a southeastern university in the United States. The students were mostly above 21 years old in either their junior or senior years. One hundred and twelve of the total 166 students voluntarily participated in the experimental activities.

Research Design

This study used an experimental control-group posttest-only design with a random assignment to examine the effects of AOs on learning achievements as illustrated in Figure 1.

R E$_1$	X$_1$ (Graphic Organizer)	O$_1$	O$_2$
R E$_2$	X$_2$ (Text Organizer)	O$_3$	O$_4$
R C	(No Advance Organizer)	O$_5$	O$_6$

Figure 1: Research Design Diagram

The 166 participants were randomly (R) assigned to three groups, two treatment groups and one control group. AOs were the intervention in this experimental design. The experimental group (E$_1$) reviewed a concept map (X$_1$), a form of graphic AO, before reading a textbook. The comparison group (E$_2$) reviewed a text outline (X$_2$), a textual AO, and the control group (C) did

not read any AO. During the course of the study, all three groups completed an immediate posttest I (O_1, O_3, O_5) and a delayed posttest II (O_2, O_4, O_6).

Dependent and Independent Variables

One of the dependent variables in this study is students' learning achievement, encompassing their short-term and long-term knowledge acquisition and application learning achievements. The short-term and long-term knowledge acquisition was tested with two parallel 9-item knowledge quizzes. The short-term and long-term knowledge application was tested with problem-based scenario essay questions.

The independent variable is the treatment of AOs. The three groups had the same instruction, except for the treatment of AOs. The experimental group was intervened with a graphic AO; the comparison group was intervened with a textual AO; and the control group had no AO exposure before textbook reading. The graphic AO is a flash-based interactive concept map. The textual AO is a text outline. Both AOs present the same concepts with a different presentation of the relationship among the concepts.

Instruments

This study utilized two major instruments: posttest I and posttest II. Posttest I is comprised of Quiz 1 and Scenario 1. Posttest II is comprised of Quiz 2 and Scenario 2. Both posttests are parallel in content and format, with a 9-multiple-choice-question quiz examining concept acquisition and three open-ended questions based on a scenario, testing knowledge application. Posttest I measures students' short-term learning achievement, and posttest II measures their long-term achievement.

Procedures

This study lasted for six weeks. During the first week of the fall semester, 2006, participants were randomly assigned into three groups. The experimental module was open to the students for seven days in week two. The students were suggested to first review the AOs to gain an overall idea of the key concepts, if they had one AO available. The experimental group (group 1) reviewed the concept map before reading the book. The comparison group (group 2) reviewed the text outline. The control group (group 3) proceeded directly to textbook reading without reading an AO.

After textbook reading, the students were instructed to complete posttest I. The knowledge quiz of posttest I was a timed WebCT quiz. For the second part of posttest I, the students answered three questions based on a scenario using Microsoft Word and submitted the assignment to the WebCT Assignment tool.

Four weeks after the module, in week six, posttest II was administered through WebCT. With all other assignments, posttest II, including a quiz and three scenario questions, was open for students. Students completed posttest II with the knowledge they learned in week two module.

To back up the results from the quantitative analyses, student surveys and interviews were conducted to further explore students' attitudes toward using AO and how they used AO.

Analyses

Statistical procedures, including descriptive analysis and Analysis of Variance (ANOVA), were performed to study the research findings. Descriptive analysis was used for scores in the posttests. Means, standard deviations, and students' learning achievement scores were computed for each quiz and scenario questions. Based on Ausubel's assimilation theory, students having low learning ability should benefit from using AOs more than their peers (Ausubel, 1968). To validate this theoretical proposition, students were divided into two sub-groups based on the average mean scores of posttest I, and ANOVA analysis was conducted on the high-scorers and the low-scorers.

Findings

Hypothesis I - high-scorers

Knowledge-Based Quiz. ANOVA was performed on the quiz results of students with scores over or equal to 60 in quiz 1. There is no statistically significant difference either in quiz 1 scores ($F_{2, 85}=0.329$, $p>0.05$) or in quiz 2 scores ($F_{2, 74}=1.055$, $p>0.05$) among the high-scorers of the three groups. Table 1 demonstrates means, standard deviations, and effect sizes of the higher-scorers.

Table 1
Descriptive analysis of quiz scores (high-scorers)

| | | Group | | | | Full |
		1	*2*	*3*	**Total**	Score
Quiz 1	Mean	72.14	70.36	71.43	71.30	90
	Std deviation	11.01	9.72	7.93	9.65	
	Effect size	0.07	-0.12	--		
	N	28	28	21	77	
Quiz 2	Mean	62.14	60.71	67.14	62.99	90
	Std deviation	15.95	16.31	14.88	15.82	
	Effect size	-0.32	-0.41	--		
	N	28	28	21	77	

Among high-scorers, group 1 using a concept map achieved the highest mean score (M=72.14), with group 3, the control group, in the middle (M=71.43), and group 2 using a text outline the lowest (M=70.36) in quiz 1. In quiz 2, group 3 (M=67.14) outperformed group 1 (M=62.14) and group 2 (M=60.71). The effect sizes are small in quiz 1 and small to medium in quiz 2.

Performance-based scenario questions. ANOVA was performed on the scenario question results of students with a score over 22.5. There is no statistically significant difference either in scenario 1 scores ($F_{2, 88}=0.165$, $p>0.05$) or in scenario 2 scores ($F_{2, 76}=0.013$, $p>0.05$) among the high-scorers of the three treatment groups. Table 2 demonstrates means, standard deviations, and effect sizes of the scenario scores for higher-scorers.

Table 2
Descriptive analysis of scenario scores (high-scorers)

| | | Group | | | | Full |
		1	*2*	*3*	**Total**	Score
Scenario 1	Mean	23.74	24.04	23.86	23.88	25
	Std deviation	1.215	1.105	1.274	1.185	
	Effect size	-0.10	0.15	--		
	N	29	28	22	79	
Scenario 2	Mean	22.55	22.54	22.43	22.51	25
	Std deviation	2.791	3.144	2.504	2.812	
	Effect size	0.05	0.04	--		
	N	29	28	22	79	

In scenario 1 questions, there is little variation in scores among the three groups. Group 2 achieved the highest mean score (M=24.04), with group 3 in the middle (M=23.86), and group 1 the lowest (M=23.74). In scenario 2 questions, group 1 (M=22.55) and group 2 (M=22.54) outperformed group 3 (M=22.43). The effect sizes are quite small between the treatment groups and the control group in both posttests.

Hypothesis II - low-scorers

Knowledge-based quiz. The ANOVA analysis of quiz results for the low-scorers demonstrates no statistically significant difference either in quiz 1 scores ($F_{2, 53}=0.495$, $p>0.05$) or in quiz 2 scores ($F_{2, 47}=0.208$, $p>0.05$) among the three groups. Table 3 demonstrates the means, standard deviations, and effect sizes for the low-scorers.

Table 3
Descriptive analysis of quiz scores (low-scorers)

		Group				Full
		1	*2*	*3*	**Total**	Score
Quiz 1	Mean	42.94	42.94	39.33	41.84	90
	Std deviation	7.72	9.85	13.35	10.34	
	Effect size	0.33	0.31	--		
	N	17	17	15	49	
Quiz 2	Mean	55.29	53.53	52.67	53.88	90
	Std deviation	9.43	19.02	14.38	14.55	
	Effect size	0.22	0.05	--		
	N	17	17	15	49	

Among the low-scorers, both AO treatment groups achieved the same mean score (M=42.94), considerably higher than that of group 3 (M=39.33) in quiz 1. In quiz 2, group 1 earned the highest scores (M=55.29), with group 2 the second (M=53.53), and group 3 lowest (M=52.67). Both effect sizes are small to medium between the treatment groups and the control group.

Performance-based scenario questions. The ANOVA analysis of scenario questions results of the low-scorers demonstrates no statistically significant difference either in scenario 1 scores ($F_{2, 37}=0.373$, $p>0.05$) or in scenario 2 scores ($F_{2, 30}=0.676$, $p>0.05$) among the three groups. Table 4 demonstrates the detailed means, standard deviations, and effect sizes of the low-scorers.

Among the low-scorers, group 2 achieved the highest mean score (M=20.18), higher than that of group 3 (M=19.91) and that of group 1 (M=19.60) in scenario 1 questions. In scenario 2 questions, group 3 (M=21.09) scores the highest, with group 2 (M=20.21) the second, and group 1 (M=19.75) the lowest. Most of the effect sizes are negative between the treatment groups and the control group, indicating a negative effect of the treatment.

Table 4
Descriptive analysis of scenario scores (low-scorers)

		Group			Total	Full Score
		1	*2*	*3*		
Scenario 1	Mean	19.60	20.18	19.91	19.93	25
	Std deviation	2.271	1.489	1.221	1.646	
	Effect size	-0.17	0.20	--		
	N	10	14	11	35	
Scenario 2	Mean	19.75	20.21	21.09	20.36	25
	Std deviation	2.372	2.137	2.764	2.403	
	Effect size	-0.52	-0.20	--		
	N	10	14	11	35	

Discussions

Hypothesis I

Hypothesis I failed to be rejected. Students of high ability using an AO did not achieve higher learning outcomes in either short-term or long-term knowledge-based or performance-based assessments than those in the control group. The high-scorer subgroup consists of fewer than 80 students, which is a small population and underpowered in terms of significance tests. For most of the test analyses, there was little difference in scores among groups, especially for the learning outcomes of the scenario questions, and no AO effect was found.

The use of AOs interfered with students of high ability in learning, especially in the long-term knowledge-based learning achievements. In quiz 2, the control group scored considerably higher than the other two treatment groups by over five points out of a full score of 90. Both AO effect sizes were negative and ranged from small to medium. Even though the differences among the groups were not statistically significant, the control group outperformed the treatment groups considerably, given the small sample size in the sub-group analysis.

In summary, AOs do not assist students of high learning ability in this study for their knowledge acquisition or retention. Moreover, students expressed a desire to use student-constructed AOs in the survey results. It is estimated that the use of teacher-constructed AOs, as the ones utilized in this study, might have restrained their long-term knowledge retention.

Hypothesis II

Overall, hypothesis II failed to be rejected. According to Ausubel's assimilation theory (1968), it is anticipated that the low-scorers would benefit more from the AOs than the high-scorers did. In the present study, taking into consideration that the low-scorer subgroup consists of fewer than 50 students in the analyses, even though a statistical significance was not reached, AO benefits were demonstrated by better quiz performances of low-ability students who had used an AO.

In both the short-term and long-term quizzes, students in the treatment groups outperformed the control group in mean scores. The effect sizes of the AO groups were small to medium. Although no statistical significance was found among the three groups, given the small sample size in the analysis on low-scorers, the small to medium effect sizes indicate considerable AO benefits with helping low-scorers in knowledge acquisition. The findings are in agreement with prior research

(Alvermann, 1988; Ausubel 1968), demonstrating that AOs, especially the graphic AOs, might assist students of low ability in knowledge acquisition. Compared with the high-ability peers, the low-ability subgroup had more problems with taking an initiative when organizing new information. The AOs, especially the concept map, helped them scaffold the new knowledge and thus made it easier for them to process the information deeply while they were reading.

However, the results in scenario 2 questions showed an opposite trend. The control group outscored the concept map group. The effect size of the concept map is medium and negative. A detailed analysis of the data shows that the negative effect might be caused by skewed and underpowered data, not by a negative impact of the concept map for low-scorers. Small sample size and measurement error might be important attributors for such a high negative effect size.

In spite of the non-statistically significance from the quantitative results, the student interviews illustrate how AOs facilitate learning in this study. The interviewees described that AOs provided them with a general overview of the main topics which prepared them to be more involved in their own reading and learning. They pointed out that AOs refreshed their memory of the declarative knowledge in assessments and helped them relate important concepts with real-life scenarios.

Implications

This study is an attempt to validate Ausubel's AO theory in fully Web-based learning environments. The original AO model was first developed for the face-to-face classroom setting where the blackboard is the main teaching medium. The framework had been constantly modified by later researchers to further investigate the methods for constructing and applying an AO in a computer-based instructional environment in the late 80s and early 90s. In the new century, school learning is enhanced and optimized with the explosive development of emerging Internet technologies and diversified digital media. However, the research on AOs in fully Web-based learning is very limited. The current study expands the AO framework to fully Web-based environments. The use of AOs is a good teaching and learning practice in the context of self-paced online learning. Students might benefit from using AOs not only in a traditional classroom, but also in the ever-growing Web-based learning environment.

The assumption that AOs helped low-ability learners is suggested in the present study. Students of low ability performed better with an AO in both the short-term and long-term tests than those without an AO. The use of AOs helped them cultivate a meaningful learning process by well organizing the relevant knowledge structure, and develop an emotional commitment by integrating new knowledge with existing knowledge.

The results of this study suggest that integration of AOs for online student remedial programs may be beneficial. Since the *No Child Left Behind Act* was signed into law in the United States in 2002, the American schools have tried every means to help students of low learning abilities to catch up with their peers. Many at-risk or dropout students are given another chance to make up for their school credits by taking online remedial courses or programs. It might be helpful to incorporate AOs, especially an interactive multimedia concept map, into self-paced Web-based remedial courses. AOs help learners identify large general concepts prior to instruction of more specific details, and assist them in sequencing learning tasks with progressively more explicit knowledge that can be anchored into developing conceptual frameworks, if they cannot make sense of the materials by themselves. Moreover, graphic and interactive AOs may strengthen students' motivation to choose to learn by attempting to associate new meanings with their prior knowledge, rather than simply memorizing concept definitions, propositional statements or computational procedures.

AOs may be helpful Web-based learning devices for new online learners as well. Nearly 96% of the very largest institutions have some online offerings (Allen & Seaman, 2006). Yet online learning can be intimidating and disorienting for laymen. Instructors and course designers can use AOs to point out course contents and instructional activities relative to their educational goals. With the aid of a graphic or textual AO, students can visualize the course and connections among subtopics its entirety. It is easier for new learners to navigate through different course components with a bigger picture of the course contents and clearly-delineated objectives in mind.

Limitations and Recommendations

Even though the differences between the treatment groups and the control group are considerable, a statistically significant difference was not obtained based on a small sample size in the study. There were only fewer than 30 students in each group among the high-scorers and fewer than 20 among the low-scorers. It is anticipated that a significant result might be generated from a larger population in the future.

Also, the limited intervention duration might be a major factor that negatively influenced the effectiveness of AO in this study. The current AO intervention lasted for one week. However, one week is not long enough for students to fully master the AO strategy in online classes. Longer intervention time is highly recommended for AO research. Future studies should be extended to semester-long interventions. Additionally, students' performance with the aid of AOs can be monitored and measured in multiple posttests throughout the semester.

The assessment instruments for this study can be improved. One of the issues that the researcher had found in the study is that an online quiz is difficult to monitor. Though the quizzes had been instructed as closed-book tests and questions were randomized in order, it was impossible to prevent students from referring to their lecture notes or textbooks while they were taking the online quizzes. This might seriously threaten the validity of the test instruments. An important implication for further research is to develop measures to prevent students from online cheating. Another reason for the non-significant result in the current study might be the lack of measurement of students' analytical and critical thinking abilities. The scenario questions may lack sensitivity and discrimination, since there is little differentiation in results for both performance-based tests. The standard deviation for the scores is very low and the average mean scores are approaching the full score. There is little room for differentiation or improvement in both scenario-question tests. Future studies need to develop more strict rubrics and assessment instruments to differentiate students' learning application outcomes.

For learners of high ability or with ample prior online experiences, the use of teacher-constructed AOs, as the ones utilized in the present study, might not help, but interfere with their learning. The high-scorers are capable of taking a structured and deliberative approach without the assistance of a pre-existing organizer. It is worth trying to engage them with a participatory organizer (student-constructed organizer) for future studies. However, the participatory organizer might be a new direction for future studies on instructional strategies in Web-based learning. Learners can use participatory AOs to create concept maps or outlines of their own. According to the generative learning hypothesis (Kenny, 1993), participatory organizers may improve students' information retention and learning transfer by encouraging them to explore and construct the connections among concepts. In this way, students may interact with the learning materials in great depth, thus making the materials easy for them to comprehend and use.
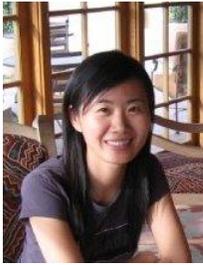
Recently, new instructional concept mapping tools have become available for instructors and students to create digital organizers in computer-assisted instruction and online education. For example, the Visual Understanding Environment (VUE) and the C-Map are two free information

management applications that provide an interactive concept mapping interface. Future Web-based AO research studies can take advantage of these free concept mapping tools, focus on helping students generate their own organizers, and measure the effectiveness of participatory organizers in both face-to-face and Web-based educational settings.

References

Allen, I. E., & Seaman, J. (2006). Making the Grade: Online Education in the United States, 2006. Retrieved Feb. 6, 2007, from http://www.aln.org/publications/freedownloads.asp

Alvermann, D. E. (1988). Effects of spontaneous and induced lookbacks on self-perceived high and low-ability comprehenders. *Journal of Educational Research, 81*(6), 325-331.

Ausubel, D. P. (1968). *Educational psychology: A cognitive view*. New York: Holt, Rinehart, & Winston.

Bonk, C. J., & Dennen, V. (2003). Frameworks for research, design, benchmarks, training, and pedagogy in Web-based distance education. In M. G. Moore & B. Anderson (Eds.), *Handbook of distance education* (pp. 331-348). Mahwah, NJ: Lawrence Erlbaum Associates.

Calandra, B. D., Lang, T. R., & Barron, A. E. (2002). *Assessing Holocaust education: Preservice teachers' knowledge and attitude.* Paper presented at the Annual Meeting of the Eastern Educational Research Association, Sarasota, FL.

DaRos, D., & Onwuegbuzie, A. J. (1999). The effect of advance organizers on achievement in graduate-level research methodology courses. *National Forum of Applied Educational Research Journal-Electronic, 12E*(3), 83-91.

Dias, P., & Sousa, A. P. (1997). Understanding navigation and disorientation in hypermedia learning environments. *Journal of Educational Multimedia and Hypermedia, 6*(2), 173-185.

Driscoll, M. P. (1999). Meaningful learning and schema theory. In *Psychology of learning for instruction* (2nd ed., pp. 113-151). Needham Heights, Massachusetts: Allyn & Bacon, A Pearson Education Company.

Hirumi, A., & Bowers, D. R. (1991). Enhancing motivation and acquisition of coordinate concepts by using concept trees. *Journal of Educational Research, 84*(5), 273-279.

Kenny, R. F. (1993). *The effectiveness of instructional orienting activities in computer-based instruction.* Paper presented at the Association for Educational Communications and Technology, New Orleans, LA. from http://search.epnet.com/login.aspx?direct=true&db=eric&an=ED362172.

Luiten, J., Ames, W., & Ackerson, G. (1980). a meta-analysis of the effects of advance organizers on learning and retention. *American Educational Research Journal, 17*(2), 211-218.

Mayer, R. E. (1979). Can advance organizers influence meaningful learning? *Review of Educational Research, 4*(2), 371-383.

Stone, C. L. (1983). A meta-analysis of advanced organizer studies. *Journal of Experimental Education, 51*(4), 194-199.

Tseng, C., Wang, W., Lin, Y., & Hung, P.-h. (2002). *Effects of Computerized Advance Organizers on Elementary School Mathematics Learning.* Paper presented at the International Conference on Computers in Education.

Yeh, S.-W., & Lehman, J. D. (2001). Effects of learner control and learning strategies on English as a foreign language (EFL) learning from interactive hypermedia lessons. *Journal of Educational Multimedia and Hypermedia, 10*(2), 141-159.

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Editor's Note: Collaborative writing is simplified by the Wiki, a computer program that permits readers to revise and add to an article, and each previous version is preserved. The Wikipedia is collaborative writing on a global scale. Like "open source" software, it attracts thousands of researchers and scholars to make additions and revisions so that readers have the advantage of a single authoritative source of information. It is also a useful educational tool because participants can learn from changes made by others.

Exploring the Use of Wikis for the Improvement of English Writing Skills: Research, Reflections, and Recommendations

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Abstract

As we are consumed by an age where the globalization of information and work is increasingly apparent, students are expected to have many new skills and abilities. In high growth Asian countries such as Korea, much of the new skill emphasis relates to Information Technology (IT) and foreign languages, especially English. One solution is to embrace emerging Web technologies such as wikis, shared online video, blogs, and social networking in schools and to increase opportunities to communicate in English in various ways. Wikis allow people to easily write and edit on the Web. They are considered a new form of collaborative communication tool. The literature reviewed in this article explores the use of wikis for improving students' English writing skills.

Keywords: Wikis, language learning, idea generation, writing research, global collaboration, authentic learning, English writing instruction.

Introduction

Imagine a class where Korean, Indonesian, and Chilean students exchange information that they have examined through their natural environments. Korean students decide to investigate a 'Typhoon,' Indonesian students explore a 'Tsunami,' and Chilean students opt to examine both 'Drought and Flood.' Next, they use collaborative Web technologies to share their natural environments and the disasters associated with each. Korean and Chilean students who have some experience and knowledge of a 'Tsunami' might add to and edit the contents of a special website designed by Indonesian students. Of course, this activity is performed in English as their foreign language. In addition, their geography teachers must continuously monitor the accuracy and depth of the content, so as to give feedback to their students on their learning process.

To foster their online communications and collaborations, the students would also take English classes, especially concentrating on writing about and understanding other countries. Students pay particular attention to the contents that they collaboratively construct about their natural environments. With the expectations that students can communicate with foreign peers, they are engaging in a special opportunity that was heretofore impossible. This activity is highly complex yet a powerful learning process.

Much like the example above, today's students who might be afraid of using English are getting to know an innovative teaching and learning method, mainly performed online with materials they have built in a wiki: not only a device for cooperative writing, but also a base of knowledge and information (Parker & Chao, 2007). Accordingly, when using a wiki to teach, the teacher's role changes to facilitator who must support students with timely and effective strategies that allow them to enjoy this activity.

This paper explores strategies for the use of wikis to improve English writing skills of students in secondary schools. These strategies are primarily based on the special characteristics of wikis.

The more effective characteristics are revealed in the following literature review. In particular, this paper will focus on the collaborative use of peer support among students from other countries.

The wiki as a strong Web tool for authentic interaction through writing

The concept of the wiki

The emergence of the wiki, which has introduced a new way of interacting on the Web has made it possible to create and share information and knowledge in a more authentic way than before. Not only does wiki technology foster communication among participants through writing, but it also facilitates important activities such as collaboration, reflection, and critical thinking for knowledge creation.

Educators such as Lin, Li, Hu, Chen, and Liu (2007) explain that "students through the wiki are able to post information that they want to share and easily interact with each other" (p. 343). Similarly, Lin, Bonk, and Sajjapanroj (2008) describe that in collaboration with other persons, the wiki is an online place wherein one can write information and exchange knowledge with others.

The concept and characteristics of wikis are explained by various educators and researchers. According to Evans (2006), "the wiki concept emerged when programmer Ward Cunningham wanted to create the simplest collaboration platform possible (p. 28)." In effect, a wiki is "a Web page that nobody would own and that anyone could edit" (p. 28). Also, Lin et al. (2007) explain that the wiki is "a type of website that everyone can edit, add and revise context using a normal web-browser" (p. 343). Simply put, wikis are "a multi-user technology" (Wagner, 2004).

Rick, Guzdial, Carroll, Holloway-Attaway, and Walker (2002) introduced the wiki as a "web-site" enabling all participants to revise and add to the content on wiki pages using an ordinary Web browser. As a website that can be revised, communities can form around the content that is produced there. Likewise, Eberbach, Glaser, and Heigl (2006) define wikis as a "Web-based software" allowing people who see wiki pages to change the content by editing it online.
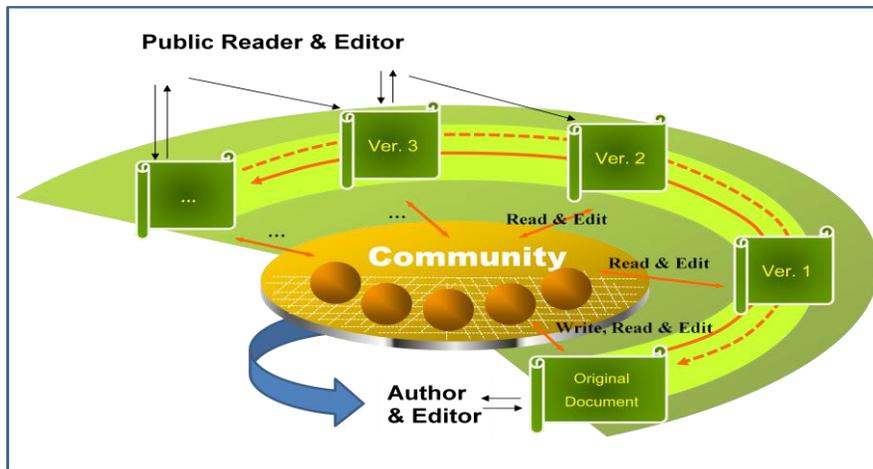
As people exchange ideas over days, months, or years, the fund of information that is available continues to be refined and grow. Wagner (2004) argues that "the wiki is a collaboratively created and iteratively improved set of Web pages…" He further notes that the wiki is an accumulation of Web pages. Augar, Raitman, and Zhou (2004) also explain that the wiki is an aggregation of scripts or program files that go on a Web browser.

In summary, the wiki can be defined as a Web tool that everyone can build collaboratively – information and knowledge interact on a common document, which the participants then want to share. This process allows them to repeatedly improve the content, as well as facilitate interaction among group members.

The characteristics of the wiki

The wiki has three general activities: (1) writing, (2) reading, and (3) editing (or updating). Anyone can be freely involved in these activities by using an open Web document that is particular to the wiki. And the updating process of a document goes on infinitely until no one acts on it (see Figure 1).

As shown in Figure 2, the external appearance of a Wikibook is similar to ordinary Web pages. Figure 2 is an example of Wikibook as one of the wiki projects, and in the aspect of the function, it has four special tab buttons: (1) book, (2) discussion, (3) edit, and (4) history. With a wiki anyone can see the document as a type of e-book, discuss the project and related collaborations, edit the content, and see all changes participants posted.

Figure 1: The evolution of a wiki through the three general activities

Figure 2: A Wikibook constructed by graduate students in a specific course (Bonk, Lee, Kim, & Lin, 2009)

In terms of the characteristics of the wiki, Lamb (2004) enumerates "relative simplicity, empowered users, and bottom-up organization." Kelly (2005) describes the key features of the wiki related to ease of use as follows: (1) creating and updating, (2) linking to other resources and avoiding broken links, and (3) updating by people other than the original author.

Clearly, wiki pages are different from weblogs and many other types of Web documents and resources. In contrast to weblogs, wikis are seldom arranged in sequence by the date on which they were written; instead, they are arranged by circumstance, links, categories, or concepts that appear during the author's process (Lamb, 2004). Consequently, it is easily possible to extend the content (knowledge and information) to wherever and whatever participants want to add. Because of this extension, the wiki can effectively support the expression of students' divergent thinking. The freewheeling of ideas and personal creativity is often emphasized instead of logic.

With regard to the content arrangement, the wiki can also be helpful in that it avoids repeating the same content by other participants. Of course, it helps to have the content layout constructed logically and systematically according to the concepts, categories, or subjects to which participants are contributing. This feature is prominently different from that of weblogs. In contrast to wikis, on weblogs one must click the title of former comments or feedback in order to check their contents and prevent the duplication of similar entries.

Meanwhile, the wiki has another important characteristic that allows people to see multiple layers of ideas and, in effect, the unfolding of those ideas. As shown above, the wiki itself has a '*History*' function which essentially preserves all changes or editions of each page. This feature allows participants to follow an article's editing process (Eberbach et al., 2006). Because of the history function, anyone can also restore a damaged version to a previous version – this is helpful when a wiki page has been tampered with by someone who has bad intentions. It is also possible to compare two or more versions of a wiki document (Pfeil, Zaphiris, & Ang, 2006). In addition, individuals can monitor all wiki editing and evaluate participants' activities on the wiki (Augar et al., 2004).

As mentioned above, due to the unique characteristics of wikis, teachers and students using wikis have several advantages for collaboration and learning. For example, with the ability to see peer views and feedback, students have the opportunity to learn from each other and to reflect on their own ideas. This type of learning process filled with reflective opportunities of their peers is a different way of learning. First of all, it is different from information given directly by teachers. Lecturing will no longer suffice. For rich learning to occur, students must construct and share knowledge in addition to listening to lectures. As this happens, teachers can assume the role of guide and facilitate their students' development by efficiently monitoring their activities with the functions supported by wiki technology.

Of course, wiki tools do not just have positive aspects. The strengths and the weaknesses of wikis that are generally pointed out in the literature are summarized in Table 1.

Table 1
Strengths and weaknesses of wikis

Strengths	Weaknesses
Sharing one good quality document (1)	Weak in visual editing (10)
Maintaining newer knowledge and information (2)	Difficult to embody some special texts that have complicated formats (11)
Allowing collaborative writing without an on-site meeting (3)	Difficulty lending 100% confidence regarding the content students have written (12)
Allowing participants to observe peers' development (4)	
Approaching working areas quickly and easily (5)	
Following up on the contents students built (6)	
Recovering former and deleted versions (7)	
Recording documents' information according to flow of time (8)	
Noticing the revision of the document by email (9)	

* Resources: (1) Lamb (2004); Pedro et al. (2006), (2) Evan (2006), (3) Pedro et al. (2006), (4) Pedro et al. (2006), (5) Kelly (2005), Pedro et al. (2006), (6) Augar et al. (2004), (7) Pedro et al. (2006), (8) Pedro et al. (2006), (9) Pedro et al. (2006); Schwartz et al. (2003), (10) Eberbach et al. (2006); Lamb (2004); Pedro et al. (2006), (11) Pedro et al. (2006), (12) Eberbach et al. (2006); Lamb (2004).

Among the key disadvantages of wikis are questions related to the reliability of wiki content and poorness of design of many wiki-related tools. Recently, some educators and wiki researchers have made suggestions related to such concerns. The reliability of the content, for instance, is maintained through the openness of the wiki editing process. That is, because anyone can add, edit, and delete the content of each page, some content includes errors or might even be purposely destroyed. In terms of wiki's reliability, Evans (2006) quotes Richard Watson, a professor at the University of Georgia's Terry College of Business in Athens, who states that "wiki documents are meant to be self-correcting" (p. 30). Several security tools have been introduced to overcome this weakness; for example, duplicating the saving of pages that have been edited (the "*History*" function), immediate email notification of changes made, and requiring a membership registration (Augar et al., 2004; Eberbach et al., 2006; Lamb, 2004). Furthermore, in relation to school classrooms, participation of teachers as "experts" on educational content can be deliberated.

In terms of the poorness of design in relation to the explicit structure of wikis, some researchers are arguing that this is an inherent strength of wikis. Namely, it is the lack of sophisticated and complex design that enables quick uploading and content construction (Lamb, 2004; Schwartz, Clark, Cossarin, & Rudolph, 2003). In addition, Rick et al. (2002) insist that students who work with wiki technology are focused on the content more than the look of the website. They also note that this results in better quality work. In other words, they claim that wikis are an asset to those searching for tools for more effective learning.

The areas covered in the wiki application

The many uses of wiki technology depend on the aims of the organization, company, or community that wants to use it (Eberbach et al., 2006). In effect, it is vital to find proper arenas in which to use it, particularly according to the nature and the characteristics of wiki technology.

With regard to wiki usage, much research (Coutinho & Bottentuit, 2007; Langie, Lauriks, Lagendijk & Cannaerts, 2006; Lin et al., 2007; Parker & Chao, 2007) reports the benefits and the successful cases of using wikis through online and distant education. Specifically, Parker and Chao (2007) examined the current literature related to wiki usage, and argued that wikis can be used for writing instruction as well as learning the process of collaborative writing. They found it quite beneficial in online/distance education, especially as a way of motivating teams to interact and complete group projects. Parker and Chao viewed wikis as a key tool for collaborative learning and constructivist forms of instruction. Lamb (2004) also states that the most frequent use of wikis in education is to support writing instruction.

Wikis also are valuable for the distribution and sharing of members' ideas and views for the purpose of interacting within a group. Lamb (2004) describes the wiki as a sketchpad or a space for brainstorming online. He gives an example of wiki usage to support the planning of meetings including building on previous agendas, distributing URLs to participants in order for them to comment or add freely their own ideas to the agenda, and so on. Lamb is not alone. Tonkin (2005) also argues that "wikis are extremely useful for brainstorming."

Suffice to say, the wiki is a highly social and collaborative tool. Augar et al. (2004) examined the use of wikis as an icebreaker to solve the scarcity of communication among online learning participants. This research confirmed that wikis increase social interaction and collaboration among participants in online education. If online educators take advantage of this enhanced student interactivity and teamwork, wikis can serve a highly useful function in students' motivation, retention, and satisfaction in their courses.

Consequently, wikis can be utilized not only as a device for the collaborative writing and as a base of information and knowledge (Parker & Chao, 2007), but also as a tool for facilitating interaction among participants to support student course engagement and ultimate completion.

Writing in English as a foreign language

It is widely known that many countries where English is taught as a foreign language (including Korea) continue to persevere in their efforts to enhance their students' English abilities. Specifically, Korea has been deliberating on the ways in which English education can be enhanced (Kim, 2008) since its most recent government was elected on December 19, 2007 (Wikipedia, 2009). As an example, starting in 2008, the middle and high schools in Seoul decided to teach English courses solely in English once or even more times each week (Choi, 2008, February 17). In addition, this school initiative focuses more on the expressive qualities associated with English writing and speaking than with English reading and listening (Choi, 2008, February 17).

This begs the question, however, related to what methods and tools are best used to authentically and effectively support the enhancement of students' expressive abilities in English and other languages. If you seek a distinct method and tool different from former ones, whatever you decide, you need to understand that it should help students reduce their fear of learning English, boost their confidence, and allow them to more richly enjoy the learning process. Accordingly, it is important to explore the characteristics of expressive activities, specially, writing in English as a foreign language. That is the focus of this paper.

Regarding the process of English writing, Zamel (1982), who conducted research on the process of English writing with students from other countries, considers writing to be an activity of finding out meaning including creating, organizing, and clarifying of students' ideas. She also emphasized the importance of revising as a primary element in a composition. Such revision is accelerated through students sharing of their writing with others in the course. Horowitz (1986) proposes several recommendations for enhancing the process rather than just the products or outcomes of English composition, namely: (1) preparation of various drafts, (2) work in a group, (3) writing themes according to individual interest, and (4) peer assessment.

With a process focus in place, more attention is paid to student interaction and knowledge construction including the key aspects of feedback and cooperation by peers in the composition of English as a Foreign Language. Carson and Nelson (1994) assert that the cooperative context of composition groups leads to the development of students' own knowledge from group knowledge construction through discussion among members. Shim (2006), who insists the process of English writing be communicative, argues that revising by peers and combining reading and writing improves writing activity.

Given these trends, it is not too surprising that extensive efforts have been undertaken to apply computer technology for English writing. Baker and Kinzer (1998), for instance, found that in a technology-supported context, the process of composition was dynamic, not linear, even though the students were taught about it step-by-step.

Along these same lines, Neuwirth, Kaufer, Chandhok, and Morris (1990) designed a computer system for collaborative writing and annotation. After many years of research and development, they proposed several important guidelines to support student writing activities in such a technology-enhanced system. Their main findings conclude: (1) the best context for a user (author) and a correspondent (annotator) is when both are on the network and use same editing program; (2) most of comment systems presume that all participants can view the same content; and (3) some annotators would like to have the right to rewrite rather than to merely comment on text; often the latter is much more effective. Moreover, they suggest using a system that enables writers or annotators to revise in the area of the document without destroying previous versions of the document.

In summary, English writing includes a few key characteristics. First, the activity of English composition is a process of finding out meaning starting from individual interests and experiences. Second, students perform various activities during the composition. This process is dynamic and reiterative. Third, the process of writing focuses on communicating and collaborating among peers and the teacher. Fourth, it is important for students to view peers' development and feedback on the same document during the process. When combined, this highly dynamic and collaborative process, rich in social negotiation and meaning making as well as peer and instructor feedback, is an engaging and powerful experience for all those involved. And when a wiki tool is added to process, the potential for such learning power is amplified. When done effectively, collaborative writing in a wiki environment is something learners and instructors will remember forever.

Previous cases related to the use of the wiki

Presently, research on wikis has been done from various angles in order to explore areas of proper application as well as the ability to utilize its functions. In this section, we investigate the advantages and disadvantages (Pedro et al., 2006), effective use (Augar et al., 2004; Lin et al, 2007), implications of distant use (Pfeil et al., 2006; Langie et al., 2006), and cooperative possibilities (Notari, 2006) of wikis in the classroom.

Pedro et al. (2006) conducted survey research after using wikis with college students for two years. When done, they summarized the advantages and disadvantages associated with the use of wikis in the college classroom. The results showed high value for wiki technology. For instance, users can approach a wiki activity easily and quickly, recover former document versions, and view detailed histories of former documents. In particular, the students appreciated the collaborative writing methodology base of wikis because they could cooperate without meeting, observe the development of their members' work, and participate actively in communication (Pedro et al., 2006).

Augar et al. (2004) explored the role of the wiki as an icebreaker in reading new postings added by community members of a particular university. More specifically, they provided students with simple and clear guidelines to prevent improper postings and to build a dynamic and friendly atmosphere. Augar et al. (2004) report that the use of wikis increased students' online activities such as viewing, creating, and editing the documents. In the end, they suggested that wikis can be used to distribute information as well as encourage learner social communication.

Lin et al. (2007) were interested in how each member's role, when using a wiki, impacted learning. In their study, students were allocated to particular roles to complete a team project and developed stances and skills of given roles from the real learning context of wikis. In addition, Lin et al. (2007) confirmed that students collaboratively participated in supporting the writing and related activities among members.

A familiar wiki environment for most people around the world is Wikipedia. Research by Pfeil et al. (2006) illustrated the relationship between cultural backgrounds and communication (that is, the change patterns of the content) using Wikipedia among participants from four countries. For example, the members from a group that emphasized collective purpose engaged in adding contents more actively than a group that focused on individual's thought and purpose. Culturally, varied patterns of behaviors appeared, and the outcomes of the research provide helpful information in understanding the collaborative activities of members online who have different cultural backgrounds and perspectives (Pfeil et al., 2006).

Langie et al. (2006) also conducted international research that used wikis to support peer coaching for collaborative composition between Dutch and Belgian students. This research was part of a two-year project on wikis to encourage cooperative and dynamic context within groups based on the outcomes of the first year of the project. This research was successful for several

reasons: (1) the use of a common language for international cooperation; (2) a strongly constructed project with obviously shared guidelines and high standards for the evaluation; (3) support for interaction in the use of wikis for smooth communication between students; and (4) support by the instructor as a expert who monitored and scaffolded student processes.

Notari (2006) indicated that a wiki is a powerful tool for constructivist learning. She suggested the use of a script to support cooperative wiki-based activities. According to her explanation, a cooperative script is an educational scenario. Notari (2006) also argued for the development of "communication and comment culture" to create a context of smooth comments and editing activities since the beginning of a class. In particular, she insists that teachers need to focus more on encouraging students to participate in input activities than quality control of contents student made.

In addition, there is an important case related to writing instruction through computer technology even though this does not directly relate to using wikis. Dalton (1989) explored the advantages of writing instruction based on the results of case studies using computers. Several implications are mentioned as follows. First, as might be expected, allowing students to use computers to collaboratively write is one of the most useful methods in encouraging students to develop their writing skills. Second, through this collaborative writing process, students can interact with other students outside the classroom through activities such as newspaper publishing using computer communication. Third, it is critical for students to have chances to share documents and to obtain individualized feedback from teachers and other members about the revisionary needs of their own documents. In particular, Dalton (1989) mentioned the positive effects of "collaboratively writing a series of round robin stories on the computer" (p. 2) by three students and a teacher.

Even though Dalton's research was conducted prior to the emergence of wiki technology, wikis can sufficiently support students' writing-related activities and instructional scaffolds. Dalton recognized such acts as important to learning. However, wikis do more than that. They bring people together to a socially shared document to present, evaluate, extend, and transform ideas. Each visitor brings additional knowledge and experiences which can be shared while each visit brings a new awareness of what is important to the writing project or product. A designated space in a wiki is a perpetually unfolding process. It is exciting and dynamic.

In previous sections of this paper, we examined the research on the use of wikis and the functions of computer technology to enhance writing skills. Judging from the relevant research to date, we can conclude that wikis are a sound tool to support the collaborative activity of composition among learners who have different cultural backgrounds. As such, wikis require thoughtful reflection by educators before incorporating them in the classroom as a writing, idea generation, or teamwork tool.

Using the wiki in improving English writing abilities

An effective way to learn writing in English as a foreign language is to be in an environment that allows students to communicate directly with native English speakers. Obviously, however, it is difficult and often impossible for all students to study in this way. If direct conversation in an authentic environment is not possible, students need to be allowed to communicate with other participants within similar contexts where they can use English. Often such an environment is a technology-driven one.

As indicated, wikis can support the process of communicative composition. The linkages between the process of English writing and wikis is shown as Table 2.

Table 2
Support of Wikis for English writing

English Writing	Wiki
The process of finding out meaning (1)	Supporting interactive brainstorming and discussion Supporting critical thinking integrating reading and writing
Emergence of student's various activities (2) (dynamic process, not linear) Repeated revision: various draft (3)	Supporting divergent thought such as adding and linking to other information and knowledge Following participants' traces Creating and keeping all versions (draft) participants made
Interaction and collaboration among peers and the teacher (4)	Supporting interactive and collaborative writing
Development of participants through reviewing others' (5)	Supporting peer review on a same document Supporting teacher's monitoring

* Resources: (1) Zamel (1982); (2) Baker & Kinzer (1998); (3) Horowitz (1986); (4) Carson & Nelson (1994), Horowitz (1986), Shim (2006); (5) Carson & Nelson (1994).

Regarding the use of wikis for writing instruction, Lamb (2004) refers to Joe Moxely who specifies the advantages of wikis: (1) a wiki task pursues "*writing as process"* rather than "product oriented writing"; (2) a wiki-related task makes the composition active; (3) a wiki is an effective way for interaction and cooperation with a low price; (4) a wiki encourages reading, editing, and tracing of all versions; and (5) a wiki allows students to participate and learn from publicly viewable composition processes and products.

Like the previous potential example of using wikis among Korean, Indonesia, and Chilean students, these students would be exposed to a space wherein they can communicate with each other with the support of their teachers. When effective, the students participate in and enjoy an interesting activity which leads to their ideas and thoughts generated from this activity being published in an e-book, which in turn leads to an understanding of other countries' cultures as important parts of language education.

In addition to the possibility of using wikis in English composition as above, significant strategies are needed to be discussed fully in order for a more successful activity to take place. The following section suggests several such strategies.

Strategies for using wikis among foreign students in English writing instruction

The strategies suggested below relate to the support of English writing activities for students in secondary schools who have different cultural backgrounds. The research reviewed previously on the use of wikis provides many implications for English teachers and researchers. Accordingly, we propose several conclusions based on the functions of wikis, and the lessons learned from the previous cases as well as the literature we have reviewed (Refer to Table 3).

Table 3
Strategies for using wikis among foreign students in English writing instruction

Strategies	Literature basis	Functions
Providing continuous feedback by teachers	Augar et al. (2004) Lamb (2004) Eberbach et al. (2006) Langie et al. (2006) Dalton (1989)	
Encouraging the creation of ideas/Finding proper writing topics	Notari (2006)	
Encouraging creative composition	Lamb (2004) Carson & Nelson (1994) Horowitz (1986)	
Building an atmosphere that encourages comments and editing	Notari (2006) Pfeil et at. (2006) Auger et al. (2006) Dalton (1989)	
Monitoring students' activities	Pedro et al. (2006) Lin et al. (2006) Pfeil et al. (2006) Langie et al. (2006)	History
Learning wiki technology at the start of the use of a wiki activity	Notari (2006) Auger et al. (2006)	Markup Language (input tables, images, etc.)

Content Feedback: First, the teacher as a content expert should continuously provide his students with feedback about the content and the expressive ways that the students can write through wikis. One of the most important reasons that this kind of activity is needed is to retain the reliability of the contents. In particular, since the students are not necessarily good at writing in English as a foreign language, it is necessary to continuously investigate the content generated and online collaborations. In this case, an English teacher and a specific subject teacher can deliberate on teaching an integrated class together in order to give feedback effectively.

Idea Creation: Second, students should be encouraged to post their opinions and ideas without hesitation and fear of negative feedback. In existing research (Coutinho & Bottentuit, 2007; Lamb, 2004; Langie et al., 2006; Lin et al., 2007; Parker & Chao, 2007), many advantages of wikis are revealed, but to maximize the achievements of English writing education, teachers need to build careful plans that keep the students' attention and interest in writing activities. Most important of all is that the teacher needs to find the subject areas that are most interesting in order to foster students' energy for the project and overall collaboration for different writing topics.

Creative Composition: Third, students should be encouraged to write 'a creative composition' in presenting their thoughts and ideas without limitation. The final goal of English writing education is to encourage free writing among students. Free writing allows students to generate thoughts and information from their own experiences and ultimately to share them with others (Oh, 2004).

Of course, a common recommendation is that teachers engage in or guide students in writing activities in order to avoid initial confusion in arranging writing topics and sub themes. But, as

time goes by, it is important that students themselves have the authority to explore and arrange the writing topics and the related sub themes.

Collaborative Atmosphere: Fourth, teachers and students need to create an atmosphere in which students do not feel afraid to edit, comment, or change others' documents. When a safe and engaging environment is created, students will accept and participate in those activities. In addition, when everyone in a community reviews and edits a collaborative document, or adds new ideas, students learn to accept the contributions of of others and grow from this experience.

Think back to the earlier point related to building a culture of productive interactions and commenting among members as suggested by Notario (2006). Teachers can consider introducing wikis as a way to help students' understanding of original meanings.

In fact, this strategy is different from merely encouraging students to creatively build their thoughts and ideas in a wiki. It is related to encouraging them to develop their critical thinking, and so it cannot be ignored.

Monitoring: Fifth, the teacher as a facilitator should monitor and encourage the activities of their students while they write a composition on the wiki. In the case of online group activity, some members do not acclimate to the activities, or even can give up. Consequently, a wiki activity or project can result in limited student participation. To deal with this problem, the teacher can facilitate the students' participation using some methods (for example, assigning them roles). Moreover, information related to the students' activities can be efficiently checked through the '*History*' function of wikis that preserves the changes of the wiki content.

Training: Sixth, before using wikis in a class or project, students need to have enough time to get to know the wiki tool. Of course, some research suggests that users need minimal time to understand the wiki tool, and that it is possible to introduce how to use the wiki in simple instructions using e-mail (Lamb, 2004). At the same time, other research indicates that most students who participate in wiki research need more time to get to know the wiki tool or environment (Notari, 2006). Familiarity appears to be a factor for success. Teachers also should remember "the wiki usage as an icebreaker" model. In the beginning use of wikis, for instance, students can learn the technology while participating in an icebreaker activity, such as introducing themselves to the group or getting acquainted with the ways the technology can be used.

Summary

Much previous research describes the wiki as a tool to support writhing instruction and collaborative activities among users far beyond the geographical and cultural limitations of the past. In this paper, we considered English writing for middle and high school students who have different kinds of cultural backgrounds as a proper arena in which to apply wikis. And through the literature review, a set of factors were outlined to smoothly implement English writing instruction among international learners through wikis.

First, the teacher as a content expert should continuously provide his students with feedback about the content and the expressive ways that the students can write through wikis. Second, students should be encouraged to post their opinions and ideas without hesitation and fear of negative feedback. Third, students should be encouraged to write 'a creative composition' in presenting their thoughts and ideas without limitation. Fourth, teachers and students need to create an atmosphere in which students do not feel afraid to edit, comment, and change others' documents. Fifth, the teacher as a facilitator should monitor and encourage the activities of their students while they write a composition on the wiki. Sixth, before using wikis in a class or project, students need to have sufficient time to get to know the pertinent wiki tools.

Conclusion: Future study

As known, the wiki is a useful tool for authentic communication among distant participants in the global world. To make this new and helpful technology into an effective tool for education, future research needs to continuously find proper areas to employ it. In addition, future researchers need to develop strategies that are applicable to other specific settings and that can be used for effective and successful learning.

In the same context, the strategies found in this paper are relatively new since scant research and practice exists related to the use of wikis with middle and high school students. To address this gap in the literature on wikis, our upcoming research will focus on case studies that explore the use of wikis with this population.

Bibliography

Augar, N., Raitman, R., & Zhou, W. (2004). Teaching and learning online with wikis. *Proceedings of the 21st Australasian Society for Computers in Learning in Tertiary Education (ASCILITE) Conference*, Perth: December 5-8, 95-104. Retrieved October 25, 2008, from http://www.ascilite.org.au/conferences/perth04/procs/pdf/augar.pdf.

Baker, E., & Kinzer, C. (1998). Effects of technology on process writing: Are they all good? *National Reading Conference Yearbook, 47*, 428-440.

Bonk, C. J., Lee, M. M., Kim, N., & Lin, M.-F. (2009). The tensions of transformation in three cross-institutional wikibook projects. *Internet and Higher Education*, *12*(2), 1-10.

Carson, J., & Nelson, G. (1994). Writing groups: Cross-cultural issues. *Journal of Second Language Writing, 3 (1)*, 17-30.

Chang, Y., & Schallert, D. L. (2005). The design for a collaborative system of English as foreign language: Composition writing of senior high school students in Taiwan. *Proceedings of the Fifth IEEE International Conference on Advanced Learning Technologies (ICALT'05)*, 774-775. Retrieved February 22, 2008 from http://portal.acm.org/citation.cfm?id=1078028.1078756&coll=&dl=ACM&CFID=15151515&CFTOKEN=6184618.

Choi, H. (2008, February 17). 'English instruction in English': once a week at the middle and high schools in Seoul. *The Hankyoreh*. Retrieved February 17, 2008, from http://www.hani.co.kr.

Coutinho, C., & Bottentuit, J. (2007). Collaborative learning using wiki: a pilot study with master students in educational technology in Portugal. *Proceedings of World Conference on Educational Multimedia, Hypermedia and Telecommunications 2007* (p. 1786-1791). Retrieved January 19, 2008, from http://www.editlib.org/index.cfm?fuseaction=Reader.ViewAbstract&paper_id=25613.

Dalton, B. (1989). Computes and writing. *Tech Use Guide: Using Computer Technology*. Retrieved March 10, 2008, from http://www.eric.ed.gov/ERICDocs/data/ericdocs2sql/content_storage_01/0000019b/80/22/78/61.pdf.

Ebersbach, A., Glaser, M., & Heigl, R. (2006). *Wiki: Web collaboration*. Germany: Springer-Verlag Berlin Heidelberg.

Evans, P. (2006). The wiki factor. *BizEd, January/February, 2006*. Retrieved December 20, 2007, from http://www.aacsb.edu/publications/Archives/JanFeb06/p28-33.pdf.

Horowitz, D. (1986). Process, not product: Less than meets the eye. *TESOL Quarterly, 20 (1)*, 141-144.

Kelly, B. (2005). Web focus: Experiences of using a wiki for note-taking at a workshop. *ARIADNE, 42*. Retrieved October 25, 2008, from http://www.ariadne.ac.uk/issue42/.

Kim, S. (2008, February 11). 'The strategies to enhance English public education' finished by the transition committee of the new administration. *Asian Economic News*. Retrieved February 17, 2008, from http://www.newsva.co.kr.

Lamb, B. (2004). Wide open spaces: wikis, ready or not. *EDUCASE Review, 39 (5) (September/October),* 36-48. Retrieved January 19, 2008, from http://connect.educause.edu/Library/EDUCAUSE+Review/WideOpenSpacesWikisReady o/40498.

Langie, G., Lauriks, W., Lagendijk, E., & Cannaerts, M. (2006). *International peer assisted coaching in a collaborative writing project using wikis*. Retrieved January 19, 2008, from http://www.eadtu.nl/proceedings/2006/Full%20papers%20parallel%20sessions/Langie%.

Lin, C., Li, L., Hu, W., Chen, G., & Liu, B. (2007). Constructing an authentic learning community through wiki for advanced group collaboration and knowledge sharing. *icalt*, 342-344. Retrieved January 19, 2008, from http://doi.ieeecomputersociety.org/10.1109/ICALT.2007.103.

Lin, M. G, Bonk, C. J., & Sajjapanroj, S. (2008). Twin wiki wonder?: Wikipedia and Wikibooks as powerful tools for online collaborative writing. In I. Chen & T. Kidd (Ed.), Handbook of Research on Instructional Systems and Technology. PA: Idea Group, Inc.

Neuwirth, C., Kaufer, D., Chandhok, R., & Morris, J. (1990). Issues in the design of computer support for co-authoring and commenting. *Proceedings of CSCW 90*, 183-195. Retrieved April 23, 2009, from http://projects.ischool.washington.edu/mcdonald/courses/info447_au02/wk6/Neuwirth.P REP.CSCW90.pdf.

Notari, M. (2006). How to use a wiki in education: 'wiki based effective constructive learning'. *Proceedings of the 2006 international symposium on Wikis (WikiSym '06, Odense, Denmark), 131-132*. Retrieved December 5, 2008, from http://portal.acm.org/citation.cfm?id=1149453.1149479.

Oh, S. (2004). A study on new media application in English education. *Journal of graduate dissertation, 33*, 137-158.

Parker, K. R., & Chao, J. T. (2007). Wiki as a teaching tool. *Interdisciplinary Journal of Knowledge and Learning Objects, 3*, 57-72.

Pedro, X., Rieradevall, M., Lopez, P., Sant, D., Pinol, J., Nunez, L., & Llobera, M. (2006). Writing documents collaboratively in higher education using traditional vs. wiki methodology (I): qualitative results from a 2-year project study. Retrieved February 17, 2008, from http:// uniwiki.ourproject.org/dl93.

Pfeil, U., Zaphiris, P., & Ang, C. S. (2006). Cultural differences in collaborative authoring of Wikipedia. *Journal of Computer-Mediated Communication, 12 (1)*. Retrieved December 13, 2007, from http://jcmc.indiana.edu/vol12/issue1/pfeil.html.

Rick, J., Guzdial, M., Carroll, K., Holloway-Attaway, L., & Walker, B. (2002). Collaborative learning at low cost: CoWeb use in English composition. *Proceedings of Computer Support for Collaborative Learning Conference,* 435-442. Retrieved February 22, 2008 from http://coweb.cc.gatech.edu:8888/csl/uploads/24/CoWebInEnglish-CSCL2002.pdf.

Schwartz, L., Clark, S., Cossarin, M., & Rudolph, J. (2003, November). Educational wikis: Features and selection criteria. Online Software Evaluation Report. Retrieved October 25, 2008, from http://cde.athabascau.ca/softeval/reports/R270311.pdf

Shim, Y. (2006). Effective ways of teaching English writing for college students. *Journal of Humanities Research, 32 (1)*, 61-85.

Tonkin, E. (2005). Making the case for a wiki. *ARIADNE, 42*. Retrieved October 25, 2008, from http://www.ariadne.ac.uk/issue42/tonkin

Wagner, C. (2004). Wiki: A technology for conversational knowledge management and group collaboration. *Communications of the association for information systems, 13*, 265-289.

Wikipedia (2009). South Korean presidential election, 2007. Retrieved July 1, 2009, from http://en.wikipedia.org/wiki/South_Korean_presidential_election,_2007.

Zamel, V. (1982). Writing: The process of discovering meaning. *TESOL Quarterly, 16 (*2), 195-290.

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An Evaluative Study of the KidSmart Program as Viewed by Public Jordanian Kindergartens Teachers

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Abstract

This study intends to highlight and recognize the role of the KidSmart software in facilitating children's accessibility to Information and Communication Technology (ICT) tools, and processing and dealing with them to describe the extent to which Kindergarten stage teachers have the necessary skills in the field of ICT in Jordanian public kindergartens. Study tool was distributed amongst teachers (266) who work in public kindergartens, and parents (719) who have children attending these kindergartens, with the collaboration of Kindergarten supervisors. Results indicating that: means concerning the items of Handling of ICT skills, Access to and dealing with ICT tools, and Ease of access and interacting with ICT tools were ranged between medium and good level. Besides, results indicated that female teachers feel very comfortable when they use ICT in kindergartens. Outcomes indicated that the percentage of users having devices and software at home were acceptable; there was disparity between parents' viewpoints regarding the appropriate age to introduce computer to children in kindergartens and at home. The researchers provide some recommendations to improve early childhood education in Jordanian kindergartens.

Keywords: evaluative study, KidSmart, kindergartens teachers.

Introduction and Theoretical Background

The transformation in the teachers' role, within the system of Information and Communication Technology (ICT), has become a vital requisite today. Teachers are no more mere conveyers of information with the sole task of instructing the learners. To the contrary, they are expected to utilize this ICT to help students interact and participate with a view to learning the required information. Education is focused on developing learners' minds, skills, and scientific thinking rather than simply passing the exams. Teachers should also change their traditional (typical) role and play various roles according to the learning situation. The teacher of today may be an advisor, a director of the learning situation, a designer of the teaching / learning process, a producer of the learning materials and an evaluator of the teaching / learning process altogether. Therefore, teachers need constant academic training as well as the traditional educational and professional development and qualifications (Wheeler, Waitte and Bromfield, 2002 ; Odin, 1997).

Today's successful teacher is by no means the person who is either experienced in his/her specialty or who is simply skillful in the subject he/she teaches. A successful teacher in a technology rich teaching environment will be capable of utilizing, modern educational techniques (Weinbrgy, Collier, and Reivera, 2003). Teachers' professional development is a great responsibility of the universities and the Ministry of Education through both pre-service and in-service training. This training helps qualify teachers with the required standards that enable them to facilitate the process of learning to achieve its goals (Simpson & Colon, 2001).

Access to the knowledge age, which is based on full exploitation of modern technology in all fields, requires promoting the future vision and reviewing all typical methods of instruction. ICT

has become a way of living and not a mere luxury tool restricted to a certain domain or a social prominent class. Amidst the global propensity within the knowledge economy, which is mainly based on modern technology to upgrade the social status and utilize resources completely, ICT can well be termed now as a means of existence. Thus, it has become an essential and inevitable tool that teachers cannot manage without in an open world where competitiveness is a criterion for progress and prosperity. Within this framework, the education system is considered the most prominent motivator for dramatic and revolutionary change in the type of life and thinking we live nowadays (Kim, 2003).

New variables have been introduced in the educational fields as a result of utilization of modern technology in the field of education and considering it a way of thinking and taking action as well. Modern technology is also a problem-solving technique and a methodological process that involves a combination of many factors: equipment and tools, views and opinions, action methods, management and human resources (Goodison, 2001 ; Mackes, 2004)

In modern society, alphabetical illiteracy is no longer considered a difficulty for children, especially under the new laws, education requirements and the mass media. However, attention is given to technology which is now a major concern for many parents and education stakeholders. Since childhood is considered the most appropriate stage to help kids acquire concepts and skills. The size of support being offered for kids regarding access to information at present, does not meet their daily needs, amidst the vigorous quantitative and qualitative flow of information. Books and references are incapable of meeting satisfying such needs involving knowledge, practices, and professional skills. Thus, it is imperative to provide children with up-to-date methods to get information properly by computer technology. In addition to their usual role in eliminating children's alphabetical illiteracy, modern educational institutions, which are supposed to be leaders in societies, should now play a more efficient role in eliminating children's technical illiteracy. Performing the role that requires preparing children from infancy is considered a real asset that builds up people's capacities. This is accomplished through full and optimal investment and guidance of all available potentials to achieve the desired interest and aspirations (Turow & Nir, 2003; Brubaker, 2004).

Therefore, kindergartens are considered important social and educational institutions in any highly aware society, as they aim at preparing children properly to enroll in the basic education. Thus, kindergartens help children acquire and develop new skills and experiences. At this stage in their life, children need continuous encouragement from their teachers to love teamwork, with the objective of implanting into them the spirit of cooperation, active participation, self-reliance and self-confidence. In addition, kindergartens enable children to acquire language, gain social skills and build up appropriate attitudes towards the educational process. Hence, intensive efforts should be exerted constantly to qualify female teachers in kindergartens and develop their professional skills, through pre and in-service training (Mackes, 2004).

Teachers at all education stages should master certain scientific subjects and have successful classroom management as well as other skills. However, the situation in kindergartens is somehow different and has special significance. Based on its importance in preparing children for the next generation, kindergartens need teachers who take into account children's needs and competencies, including the skills of information and communication technology. The kindergarten teacher is one of the most important factors affecting children's ability to adapt to and like the kindergarten life, as she is the second adult person with whom children deal directly outside their families. Thus, she plays an essential role in encouraging children to combat all barriers facing them and, enhances the growth of their talents and skills. Nevertheless, she might have a negative impact on children, and subsequently, they may be shocked or frustrated (Weinbrgy, Collier, and Reivera, 2003). So, the importance of the kindergarten teacher ranks second after the family with its role in nurturing children. Children are more responsive and

inclined to the instructions of their teacher compared with any other person because of her closeness to them and their emotions towards her. Therefore, selecting good teachers and providing them with pre and in-service training are basic prerequisites for achieving success of the pre-school education. Educators agree that the degree of the interest gained by children through joining kindergartens depends - largely – on the personality and competency of the teacher (Ali, 2002 ; Turow and Nir, 2000).

Kindergartens in Jordan

The policies adopted by the Hashemite Kingdom of Jordan - supported by all required laws and legislations- give special importance to early childhood stages from pregnancy up to nine years old. Intensive efforts are exerted at the highest levels for the advancement of Jordanian children, safeguarding their interests, providing them with special care, protecting their rights and enabling them to live decently. The services provided for these children are of high quality and are included in a comprehensive national and multi-sectoral policy for early childhood stage. Such policy, launched by Her Majesty Queen Rania Al-Abdullah, was translated into the National Strategy for Early Childhood Development in 2000. As a result, the Jordanian National Plan for Childhood was prepared for the years (2004 - 2013). It aims at providing a safe environment to develop children's capacities through the provision of legislations, policies and programs that deal with all issues related to children including their physical, mental, social and emotional aspects. It also seeks to activate cooperation and partnership between public and private sectors to achieve integration while planning, because such planning adopts the approach of true participation and exchange of roles and tasks. The Ministry of Health is responsible for providing health care for mothers and infants starting from pregnancy, whereas the Ministry of Social Development takes care of children (from birth, to 3.8 years) in kindergartens (Imad Al-deen, 2005 ; Aldumairy, 2007; Ministry of Education, 2007).

Providing children with care and education builds up future generations who are fundamental in the development of human resources, and thus, leads to the achievement of sustainable and comprehensive development in all lifestyles. Moreover, planning for early childhood care is also considered as planning on sound basis that secures an integrated vision for the future. Therefore, children's psychological and social development and the act of raising them on adequate educational, cultural, and educational basis contribute to a large extent in achieving the objectives of a highly competent and efficient educational system (Plowman & Stephen, 2005).

The care given by the Ministry of Education to kindergartens is driven by its belief in the importance of this stage as a basic element that instills positive educational values and attitudes in kids. This interest is in harmony with the Ministry's educational development plan and falls within the framework of the ERFKE project, which involves the principles of "Education for All". One component of ERFKE is focused on the development of learning readiness, starting from early childhood. Education Act (No. 3) for 1994 was endorsed to stress that education in the kindergarten stage is formal education, though it is not mandatory. The Act defined the 'kindergarten' as any educational institution that provides pre-school education for children for two years. The same act also outlined kindergartens' goals and objectives (Ministry of Education, 2007).

 The Ministry is responsible for establishing and licensing kindergartens attended by children at the age group (3.8 - 5.8) years, according to legislative standards and basis. Article 8 of the Act, identified the objectives of the kindergarten stage (providing a balanced and appropriate environment for child education involving personal , physical, mental, spiritual and emotional aspects) .This helps instill healthy habits in children, develop their social relationships and enhance positive attitudes and love of school life. The Ministry established the Division of Kindergartens in 1994/1995 to support educational institutions concerned with early childhood stage and to upgrade their performance. In 1999/2000, the Ministry piloted some kindergartens in public schools distributed in nine districts covering (15) sections, and accommodating some (375children and (15) teachers. This project was

expanded to increase the number of kindergartens in 2008/2009 to (700) public kindergartens distributed all over the Kingdom with a capacity to accommodate 15,000 children. Studies indicated that students who enrolled in kindergartens' education showed a greater willingness and readiness to learn in first grade compared with their peers who did not enroll in kindergartens (Imad Al-deen, 2005 ; Aldumairy, 2007).

Children and ICT

Facing the challenges and complexities of today's life calls on developed societies to change the methods they adopt in teaching kids in kindergartens by means of using new approaches that are expected to replace traditional teaching. This entails the introduction of modernized curricula that implements the methodology of integrated technology, especially at this critical stage of children's education. As a matter of fact, this stage will by no means bear its fruits without a sound scientific approach built on accurate, comprehensive and technologically integrated methodology. Accordingly, this approach will suit the nature of this stage and children's needs, in addition to providing an educational environment with trained and qualified technical cadre at all levels. Kindergarten teachers are sometimes unable to achieve the desired goals, as a result of the insufficiency of and shortages in modernized and developed curricula and other supportive educational activities which meet kids' needs. In addition, they themselves (teachers) are not adequately or sufficiently qualified to perform their task and mission (Lally, 2001; Samaras, 1996).

Studies show that pre-school stage is very important in the evolution and development of children, as it helps in the formation of their personality and ensuring their lifelong learning. Specialists agree that children's personalities (in all aspects) are formed in the first five years, and 60% of their intelligence becomes mature in the first four years. They also think that the first five years are critical in the growth of kids' basic developmental skills. Since childhood is the most fruitful stage which prepares children and enables them to acquire various concepts and skills, it is advisable that educationalists and teachers work together and cooperate to develop such practices from the earliest stage, taking into account the advantage of using computer software as an amusing and didactic tool. This sort of software will indeed help in managing and exploiting children's energy and potential to satisfy their desires and attitudes, rather than wasting efforts in trivialities. Modern technology has become a necessary means to keep pace with the era of knowledge and development. In the case of children, it helps them to develop positive attitudes towards learning, and prepares them for future life in the age of information and concepts. Being aware of children teaching methods, educationalists and teachers are obliged to invest in technology to achieve this goal. Children learn through methods that satisfy their curiosity, playing and doing various activities that encourage them to use their senses, experimentation and positive social interaction with their peers and the adults around them (Samuelsson, 2001; Samaras, 1996).

A study (Plowman, and Stephen, 2005) conducted on children and the Internet, recommended introducing computer in teaching children in kindergartens and to selecting devices that suit young learners, such as touch screens, colored mousses, keyboards, paintings and artwork which are attractive and fascinating for children. Moreover, the study recommended: allocate specialized gates for children that can be easily opened and navigated, use audio guidance and directives, design attractive and specialized sites for children's education and provide teachers in kindergartens with pre and in-service training on using computer and the Internet.

(Samaras, 1996; Shade, 1996) indicated that the three-year old or even the two-year-old kid could use the computers and the Internet. Software makers have taken advantage of the increased interest in pre-school learning and plunged the market with software and programs that address children who are, even at the age of 9 months, learning to deal with

the mouse and the keyboard to identify shapes, numbers, colors, etc. Although experts do not agree when it comes to identifying precisely the minimum age of the child to be exposed to technology, the following questions dictate themselves: What do these programs teach? Can children learn what they have learned from these programs in the same way they learn from a book or a real experience? However, no one denies that making children familiar with computer software and the Internet is very essential for their success in school and their ability to communicate in the twentieth century (Shade, 1996). In the pre-school stage, children learn the relationship between motion, vision, and sound. So, the utilization of the computer (mouse and keyboard) is very useful. Children may learn most of their education through activities related to senses and motions, and therefore, they must be given freedom to feel things in many ways: touching objects, grabbing them, assembling, and disconnecting them, throwing and re-arranging them, etc. In addition, they need to learn by looking and listening, and this learning cannot be imposed on children, as they acquire it through exploration and trial and error (Conway, 2006; Brubakers, 2004). Thus, the computer world is surprisingly impressive and amazing as it develops in children the sense of observation, imagination, and recognition of shapes and sizes (from 3 - 6 years). It also develops the creative capacity of infants two-year old or more, and develops their ability to control, design and innovate from 5 years and older. Children can also discover numbers, words and images (from 3 - 7 years) (Samuelsson, 2001).

Several studies (Plowman and Stephen, 2005; Smeet, 2005; Goodison, 2001) have also stressed the importance of integrating technology in the educational process at all school levels, including kindergarten, because it helps to facilitate the learning process and saves time and effort of the teacher and learner as well. Therefore, in view of the importance of ICT in the educational process, the Ministry of Education in Jordan has given great importance to the technological dimension in all aspects of education including hardware and software, human resources and others. Technology is a modern method that helps promote knowledge. Children discover objects from the world around them. They see tape recorders, tapes, T.V. sets, and phones and they recognize computers because they see them. There are some children who master the utilization of computers by using the painter software. This indicates that providing every classroom in kindergartens with a computer has become a necessity and essential to the enrichment of the classroom environment by providingmore educational and supportive activities. Such activities are targeted at achieving fun and entertaining children as well as developing their higher capacities and achieve integration and inclusiveness in expertise provided for children (Ministry of Education, 2007).

Computers have become an essential tool in modern life, as their usage has increased rapidly at all levels; however, they have not been used in the early childhood education on a large scale until recently. Computers empower children to develop positive attitudes towards learning and prepare them for future life in a knowledge-based world. IBM is a pioneer company in this area, through its provision of the KidSmart program for early education that includes secondary and basic schools of all age groups including those at the age of three to six years old. Launched in the United States of America in 1999, the program focuses on the implementation of strategic initiatives that help improve the educational achievements in less privileged communities with support from the talented and efficient technology of IBM staff. The program has now spread to more than 50 countries including 22 countries in Europe, the Middle East and Africa. Due to the importance of technology in developing children's thinking and instilling positive attitudes towards learning, the Ministry of Education in Jordan signed an agreement relating to KidSmart program on 21/11/2003. It is the first initiative of its kind in the Arab countries, and it was

initiated by the Ministry of Education in Jordan on September 2, 2004 under the patronage of Her Majesty Queen Rania Al-Abdullah. Under the agreement, some 266 KidSmart kits were provided for 2003/2008. The program is one of the most important newly projects that is now being implemented in public kindergartens in Jordan.

The KidSmart initiative includes the donation of equipment specifically designed by IBM for early education in collaboration with Little Tikes Co. which manufactures equipment for children. The kits are designed in a way that enables two or more children to work together. The program responsible for introducing this approach in learning was developed by the River Deep Company. The software that has been Arab-enabled includes basic skills in arithmetic, science, methods of thinking and creative writing. KidSmart program offers opportunities for continuous training and development for teachers in the area of early education in Jordan. This is achieved through KidSmart website which was developed in cooperation with the Center for Childhood and Technology in the United States of America. The KidSmart website accessed at http://www.kidsmartearlylearning.org offers permanent resources and technical support for teachers and parents who are proficient in computing and communication through a multi-language website.

KidSmart Project initiatives aims at:

1. Providing all children with equal opportunities to acquire modern technology, regardless of differences in culture and social status.
2. Backing up the use of modern technology with kids and creating a stimulating learning environment that enhances their cognitive and social development.
3. Supporting children of families with low income and making them aware of various computer techniques.
4. Developing new methods of stimulating students to learn computer technology.
5. Upgrading the educational experiences of children at the beginning of education stages.

Using Computers in Kindergartens

The general aims of computerizing education in kindergartens are:

1. Enhancing the role of computers at all education levels whether computer is being taught as an individual subject or used as a tool that facilitates students' comprehension of other school subjects.
2. Enhancing children's awareness of the importance of using computers in all aspects of their life, and enhancing this technology role in increasing production and achieving success throughout their life.
3. Providing minimum computer knowledge to children in order to enable them to deal with the requirements of this era.
4. Enriching the classroom environment with more purposeful educational activities that facilitate learning and provide learners with high mental enjoyment.
5. Producing developed computer software that uses multimedia so that children can interact with it easily. This will help children develop their different mental abilities.
6. Integrating computers with other experiences used with children in order to:
    - Achieve the educational process goal in all its dimensions.
    - Encourage learners' use of computers at the higher stages.
    - Help teachers use computers in all activities they implement.
7. Benefiting from the huge number of educational softwares available in the local, Arab and world markets which serve this stage.

8. Participating in programs of development and reform of education by using computers and enhancing their role in the entire educational system. This can be done through:

- Introducing computers as an individual subject in the school curriculum,
- Using computers in improving teaching methods and teaching technologies for the different school subjects areas, and
- Utilizing computers in school and teaching management.

KidSmart Unit

It is a unit for children made of hard plastic with attractive colors. A computer is inserted to it with its display, colorful keyboard, and attractive mouse designed to suit children's small hands. The chair is designed to enable two children or more to use the computer at the same time to enhance mutual cooperative learning. Moreover, the unit is designed in a way that suits children's height and takes into consideration safety and security conditions, such as:

- All electrical cables are hidden so that children cannot reach or touch them.
- There are no sharp edges.
- Holes from its all sides are provided for ventilation.
- It is designed as a ready corner that can be easily added to the available teaching corners (Siraj-Blatchford and Siraj-Blatchford, 2004).

KidSmart Software

- It is designed for the technology era that children live in. Children from age 4 years can use it independently to develop their abilities, skills and competencies.
- It is designed in a way that it helps children to implement tasks.
- It is designed in a way that helps children to be trained in different education skills such as problem solving and investigation. The teacher can find links between the software and the applied curriculum to support and enforce education dimensions.
- Activities in the software are presented in different and fascinating ways. There are children characters and a variety of reinforcement expressions. This motivates children.
- KidSmart software contains many different activities (science, art, music, math, sport etc.). These activities help the teacher to choose the suitable implementation that enriches children's activities.
- The software does not use language extensively; instead it depends in presentation methods including sounds, pictures, movements and children's characters.
- The availability of the software in Arabic and English languages helps children learn English letters and numbers.
- It is designed so that children easily master and control their learning.

Many researchers attest to the fact that cooperation of parents, teachers and children to achieve the common goals leads to a tangible improvement in learning at all curricula stages. School reports indicate that parents' participation in teaching their children at home is reflected on their children's positive attitude towards learning and better behavior in school. There are also encouraging indicators which show that KidSmart increases parents' participation in teaching their children at the kindergarten stage. The study results conducted by (Siraj-Blatchford and Siraj-Blatchford, 2004) indicate that the use of KidSmart program in Germany led to:

- Enhancing the relationship with parents since there is communication with them.
- Parents' use of teachers' room to work with their children on the computer proved very useful.

- Children enthusiastically accepted KidSmart centers for early education.
- Children acquired great confidence in themselves when using the previously available programs on the computer, since this encouraged self-reliance and gave children the freedom to choose without scattering the CDs everywhere.
- Helping both children and workers in the program to build confidence since it is easy to use.
- Children like it since they do not fear using it and the program seems a fascinating game to them.
- The good features of KidSmart program go in line with researches' opinions concerning the inclusion of ICT standards in computer programs in an accurate and controlled way; that is to increase children's awareness of computers and technology and make them part of their daily life.

Materials (Subjects) Included in KidSmart Software

The software contains many applications that children can use and operate by themselves. This generates self-confidence and self-respect because children are responsible for their learning. These applications are 1-Mathematics House (The Good Cow), 2-Science House (House of Sami the Snake), 3-Social Life House (House of Miss Crocodile for the Place and Time), 4-Intelligent Beings Games Set 1, 5-Intelligent Beings Games Set 2, and 6-Intelligent Beings Games Set 3

Study Problem and its Questions

The Ministry of Education has taken a pioneer step by including Information and Communication Technology (ICT) into the Jordanian schools for all education stages. It is a new experiment that was initiated few years ago. The Jordanian Government has taken the responsibility of implementing this initiative and exerted efforts to make sure that it will prove successful. The Ministry also spent a huge amount of money on this project. This work needs cooperation and the participation of all sectors to guarantee its successful outcomes as any dereliction will cause a defect in the work. Therefore, it is very important to follow up on the work with a view to identifying obstacles that may hinder its implementation. There is an urgent need to evaluate kindergarten teachers' use of information and communication technology presented by KidSmart. As a result, this study intends to highlight and observe the implementation of KidSmart in kindergartens.

In order to facilitate children's access to ICT, the study raised the following questions:

1. In the teaching/learning process in kindergartens, what are the most important tools and skills used in KidSmart software?
2. Do female teachers feel comfortable when using ICT in kindergartens?
3. Do children have computers and software at home?
4. What is the appropriate age for children to use computers in kindergartens and at home from the point of view of parents?

Importance of the study

The importance of the study is derived from the timely, crucial and significant subject it discusses which is related to the degree of kindergarten female teachers' use of ICT (KidSmart). ICT is a new field employed in all aspects of life in developing countries since it has already achieved success in all sectors in developed countries. Based on the conviction that education is the base of any society's progress and development, Jordan sought to utilize ICT in the teaching/learning processes and to incorporate it in every single element of the educational environment elements.

Thus, the beneficiary group from this study is kindergarten children whose age category forms a critical period in shaping their psychological, emotional and social development. Generally speaking, Arab societies do not attach much importance to the education quality of children at this early stage of their education, compared to advanced countries where due importance and concern are particularly attributed to the quality of education. Given the immense technological advances in the field of ICT, this technology should be integrated in all evels of education. Employing ICT has its impact on involving the learners' senses since it embodies any activity through using multimedia such as sounds, pictures and motion. ICT also motivates children to learn through playing, thus, integrating such technologies will be useful in the educational process, as a whole, and in the kindergarten stage, in particular. A successful educational process in the kindergarten stage bases on senses (Vivankos, 1997). Imad Al-deen recommends in her study (2005) that working on employing ICT effectively in implementing and developing curricula enables kindergarten teachers' basic skills such as planning and using technology.

Methods and Procedures

Study Methodology:

The Descriptive Analytical Method is used in this study with the aim of recognizing the role of KidSmart software in facilitating children's accessibility to ICT tools, and processing and dealing with them to describe the extent to which Kindergarten stage teachers have the necessary skills in the field of ICT in public kindergarten. With the collaboration of Kindergarten supervisors, the study tool was distributed amongst teachers who work in public kindergartens.

Study Sample:

The study sample encompasses all (266) public kindergartens which have KidSmart distributed among the various districts, parents who have children attending these kindergartens, and Kindergarten teachers. These kindergartens were provided with KidSmart units for the years (2003 – 2008). Some (266) questionnaires were distributed amongst teachers and the number of filled in questionnaires that was received reached (262). About (25) questionnaires were distributed among parents in each kindergarten that had a KidSmart unit. Student numbers in each Kindergarten reached (25). The number of questionnaires filled in by parents amounted to (719).

Study Tool:

This study aims at determining the role of KidSmart software in facilitating children's accessibility to ICT tools processing and dealing with it, with a view to describing the extent to which Kindergarten stage teachers have the necessary skills in the field of employing ICT in public kindergarten. In order to achieve this aim, the study applied the same items of the questionnaire that were applied in many kindergartens provided with KidSmart software in other countries such as (France, Germany, Italy, Portugal and the UK) after getting the license from IBM , (Siraj-Blatchford and Siraj-Blatchford 2004). The objective is to identify the role of this software in supporting the teaching/learning process. The study tool was translated into Arabic and submitted to a group of ICT and English Language specialists to verify and check the accuracy of translation and to make sure that the questions did not lose their meaning with translation. The specialists' viewpoint and comments regarding this tool and its applicability were put into consideration before putting it into its final format. This tool included three sections:

First: the first section explains the study in terms of aims and general idea on its main pivots. It also includes the primary demographic data needed for the study; namely (scientific qualification, majoring, and experience in the field of kindergarten.

Second: It encompasses the main pivots of the study:

- Pivot One: information processing and communication skills and it consists of eleven (11) items

- Pivot Two: accessibility and dealing with ICT tools and it consists of eleven (11) items.
- Pivot Three: learning how to use ICT tools and it consists of eleven (11) items.

The measurement used in this study is scaled into seven levels (1=inadequate, 2=adequate, 3=minimal, 4=fair, 5=good, 6=very good and 7=excellent). The high degree indicates that it is a positive degree and expresses good use whereas the low degree indicates that it is a negative degree and expresses little use.

Third: Teachers were asked to answerer some questions related to the importance of KidSmart in supporting the teaching/learning process and to provide more examples of subjects and concepts discussed through using this software. This section works on explaining many positive aspects of the training course held in this domain and teachers have the opportunity to offer their viewpoints regarding the use of computer in kindergarten.

In addition, a tool was used for parents. Many questions were asked to parents with regard to the answer to the sixth and seventh questions of this study related to the availability of hardware and equipment in kindergartens and at home and to the appropriate age for the introduction of computers to children in kindergartens and at home.

Study Tool Validity

To check the study tool external reliability, it was submitted to (10) arbitrators form the Faculty of Educational Science in the University of Jordan who have vast experience in various domains and who are majoring in education technology, child care, measurement and evaluation and statistical education. The study tool was offered to arbitrators to learn about their views on the various items that appeared in the questionnaire in terms of cohesion, and to verify that the statements were linguistically correct. Arbitrators' viewpoints were put into consideration in order to have the best format.

Study Tool Reliability

In order to calculate the validity of the study tool, "Test and Retest" were used. The study tool was implemented on 20 teachers chosen randomly and within interval time of two weeks then the study tool was implemented again on the same teachers. Pearson-Correlation was used to calculate reliability factor. Table (1) shows the total values of the study reliability and subsidiary domains among the pre-tests and post-tests.

Table 1

Values of study reliability and subsidiary domains among pre- and post-tests.

Domain	Reliability Coefficient (Repetition)
1) Data processing and communication skills	0.89
2) ICT accessibility and dealing with its tools	0.87
3) How to use ICT	0.79
Total Degree	0.87

Procedures of the study

After setting the study tool in its final form and after testing its reliability and validity, the following procedures are taken:

- Applying the questionnaire on female teachers in public kindergartens from different education directorates. These kindergartens have KidSmart devices and the teachers were previously trained on KidSmart software. Kindergarten supervisors distributed the

questionnaire on (266) kindergarten female teachers in (266) kindergartens and they explained to them how to fill it out.

- Counting and assorting the received questionnaires which were complete (262 questionnaires) in order to be statistically studied. (4) Incomplete questionnaire, were excluded since they were not completed.

- (20) Questionnaires were taken randomly and were retaken after three weeks from the first application to check the reliability of the study tool.

- (25) Parents' questionnaires to be filled by the children's parents were distributed to each kindergarten that had KidSmart devices. The teacher received the questionnaires and sent them to the kindergarten supervisor in the Ministry. (719) questionnaires were received.

- Inputting the data into the computer using SPSS statistical software and enabled a statistical analysis to answer study questions and derive the results.

Results and Discussions

Results of the First Question

"In the learning/teaching process, what are the most important ICT skills and tools used by female kindergarten teachers in KidSmart software?"

To answer this question, the means and the standard deviations of the responses of teachers who were trained on KidSmart software were calculated. (262) kindergarten female teachers answered the questionnaire in its three domains. Tables (2, 3 and 4) show the results of each domain. The measurement used in this study is scaled into seven levels (1=inadequate, 2=adequate, 3=minimal, 4=fair, 5=good, 6=very good and 7=excellent). The high degree indicates that it is a positive degree and expresses good use whereas the low degree indicates that it is a negative degree and expresses little use.

1- Handling of Information and Communications Skills

Table (2) shows the means and the standard deviations concerning the items of Handling of Information and Communications Skills:

Table 2
The means and the standard deviations concerning the items of handling of Information and Communications Skills:

Items	N	Mean	Std. Deviation
1. Children are encouraged to choose their own applications during free play.	262	5.32	1.70
2. Children are encouraged to provide initial instruction and to help each other in using new programmes and applications	262	5.23	1.56
3. Children are encouraged to use only the supplied and pre-installed software on the computer (e.g. drill and practice literacy and numeracy programs).	262	5.22	1.70
4. Children are not encouraged to operate the ICT themselves (e.g. any computer, video, television, cassette, telephone etc) that is available	262	5.19	1.62

5. There is no or little use made of ICT in the setting	262	5.06	1.67
6. The Programs available include open-ended problem solving, adventure games and draw/paint software	262	4.99	1.72
7. In applying the ICT children make their own choices to produce different outcomes	262	4.99	1.72
8. ICT is applied by staff to enhance the print and number environment throughout the setting (e.g. printouts used in emergent literacy/numeracy/labels)	262	4.97	1.67
9. Staff uses the computer during story telling and/or other group activities (e.g. multimedia, talking books, programmable toys, encyclopedia).	262	4.85	1.84
10. Children are encouraged to use generic software and other applications for their own purposes (e.g. using a paint program to make a birthday card for a parent).	262	4.66	1.69
11. Children are encouraged to use ICT to share their ideas and discoveries with peers (e.g. displaying their painting in a display or the centre's web page).	262	4.11	2.04
Total (Handling of Information and Communications Skills)	262	4.96	1.86

* 1=inadequate, 2=adequate, 3=minimal, 4=fair, 5=good, 6=very good and 7=excellent

The results in table (2) above show that the means ranged between (4.11) and (5.32). The means of seven items concerning information processing skills and tools and communication skills were more than or equal to (4.99) (good and above). The means of these seven items are sorted from the highest to the lowest (descending) as follows: "Children are encouraged to choose their own applications during free play." (5.32); "Children are encouraged to provide initial instruction and to help each other in using new programmes and applications." (5.23); "Children are encouraged to use only the supplied and pre-installed software on the computer (e.g. drill and practice literacy and numeracy programs)." (5.22); "Children are not encouraged to operate the ICT themselves (e.g. any computer, video, television, cassette, telephone etc) that is available." (5.19); " There is no or little use made of ICT in the setting." (5.06);" The Programs available include open-ended problem solving, adventure games and draw/paint software" (4.99) ; "In applying the ICT the children make their own choices to produce different outcomes." (4.99). The means of the other remaining items ranged between (4.11) and (4.97) (medium level). The total degree of this domain items was (4.96) (high medium level close to good level). Comparing this percentage with the percentages mentioned by (Siraj-Blatchford and Siraj-Blatchford, 2004), it was higher than Britain (4.9), Spain (2.4), Germany (3.9) and France (4.0) whereas it was lower than Portugal (5.9). This is due to the Ministry of Education (MoE) efforts in qualifying all teachers (males and females) including kindergarten female teachers. MoE held many training courses for ICDL, Intel, SISCO and other ICT courses. The training course on KidSmart program was easy so kindergarten female teachers benefited from it a lot. These positive results concerning information processing and communication skills are reflected in children's learning.

2- Access to and Dealing with ICT Tools

Table 3 shows the means and the standard deviations concerning the items of Ease of Access and Interacting with ICT Tools:

Table3
Means and standard deviations concerning
Ease of Access and Interacting with ICT tools:

Items	N	Means*	S.D.
1. Children have the opportunity to play with computer programs and/or programmable toys (e.g. Paint).	262	5.16	1.69
2. Children have access to, and operate for themselves, cassette recorders, video, computers	262	5.10	1.70
3. Children routinely select and load their own computer software	262	5.06	1.61
4. Children are rarely or are never given the opportunity to operate ICT (e.g. TV, cassette, video, computers etc)	262	4.98	1.72
5. Computer software is employed to support learning in a range of subject areas (e.g. music and science as well as literacy and numeracy).	262	4.91	1.80
6. Children occasionally select and load their own computer programs under adult supervision	262	4.90	1.72
7. Computer software is available to support learning in all subject areas across the curriculum	262	4.89	1.87
8. Children are encouraged to operate ICTs and to appreciate that signals and instructions are required to control them	262	4.79	1.78
9. Children are encouraged and supported in information retrieval (e.g. accessing a CD-Rom encyclopedia) to answer a question.	262	4.60	1.75
10. Children are encouraged in their play to control a wide range of real and/or pretend technologies (e.g. alarms, washing machines, video recorders etc).	262	4.60	1.765
11. Very little pretend or real technology is available for the children's use in the setting	262	4.38	1.91
Total (Ease of Access and Interacting with ICT Tools)	262	4.85	1.30

* 1=inadequate, 2=adequate, 3=minimal, 4=fair, 5=good, 6=very good and 7=excellent

The results in table (3) above show that the means ranged between (4.38) and (5.16). The means of three items from the items concerning access to and dealing with ICT tools were more than or equal to (4.99) (good and above). The means of these three items are sorted from the highest to the lowest (descending) as follows: "Children have the opportunity to play with computer programs and/or programmable toys (e.g. Paint)." (5.16); "Children have access to, and operate for themselves, cassette recorders, video, computers."(5.10); "Children routinely select and load their own computer software." (5.06).

The means of the other remaining items ranged between (4.38) and (4.98) (medium level). The item "Very little pretend or real technology is available for the children's use in the setting" (4.38). The total degree of this domain items was (4.85) (high medium level close to good level).

These results are due to lack of ICT tools (such as televisions, videos, electronic games etc.) in kindergartens that children can use except for KidSmart units and in some cases one computer without accessories. This goes in line with the results of Al-Dhumeri study (Al-Dhumeri, 2007).

3- Learning the Use of ICT

Table 4 shows the results of the domain "Learning the Use of ICT".

Table 4
Means and standard deviations for learning the Use of ICT Skills:

Item	N	Means*	S.D.
1. The staff sometimes draws children's attention to the ICT in the setting and in their homes.	262	5.34	1.69
2. Children never see staff using ICT for their own purposes	262	5.16	1.71
3. No references are made to the ICT in the children's homes, the early childhood setting or local environment	262	4.95	1.72
4. Children are encouraged to provide narrative accounts of their own and others interactions with ICT (e.g. of scanning products through a supermarket checkout, using a cash point, ICT at home).	262	4.89	1.85
5. Staff provides instruction in new applications as a direct response to a child or to a group of children's interests or expressed needs.	262	4.75	1.84
6. ICT is integrated into a range of socio-dramatic play environments (e.g. in a 'shop' or an 'office' play environment).	262	4.74	1.96
7. Play with pretend or real ICT is encouraged and often included in socio-dramatic play.	262	4.73	1.88
8. Children's attention is specifically drawn to the ICT in their local environment (e.g. through reading stories about technology, visits to supermarket checkouts etc.).	262	4.71	1.79
9. Children sometimes see staff using ICT (e.g. a school secretary using a word processor)	262	4.70	1.83
10. Pretend or real ICT resources are provided for children to use in socio-dramatic play environments (e.g. home corner).	262	4.65	1.87
11. Children routinely see staff using ICT in pursuit of educational aims of the setting e.g. searching on the WWW, programming a video recorder, making labels for display, using a mobile telephone).	262	4.55	1.93
Total (Learning the Use of ICT)	262	4.83	1.33

* 1=inadequate, 2=adequate, 3=minimal, 4=fair, 5=good, 6=very good and 7=excellent

The findings illustrated in table (4) indicate that the means range from 4.55 to 5.34), however, the means of the two items related to learning through ICT were 4.99 or more (more than good).The item "The staff sometimes draw children's attention to the ICT in the setting and in their homes", recorded the highest mean (5.34) followed by the item "The children never see the staff using ICT for their own purposes" which recorded a mean of (5.16). For other items, the means ranged from 4.55 to 4.95 and the lowest mean was for the item "The children routinely see staff using ICT in pursuit of the educational aims of the setting e.g. searching for information on the WWW, programming a video recorder, making labels for display, using a mobile telephone)."as this item recorded a mean of (4.55).

The total average of the items included in this domain was (4.83) which is high and almost close to the satisfactory average of the domain of learning the utilization of ICT. The reason behind the low level of these results is that many teachers in kindergartens don't use technology tools in class such as TVs, videos, computer games and others. Moreover, these tools are insufficient and this is clear in the results mentioned in table (3).

Generally speaking, the findings illustrated in tables (2,3and 4)   conform with the visions of (Plawman and Stephen, 2005; Smeets, 2005 ; Goodison, 2001 ; Al-Dhumeri, 2007) as they stressed the importance of technology inclusion in the teaching/learning process, including the kindergartens' stage. ICT facilitates this process and saves time and effort of both the teacher and the learner because it is one of the modern means for augmenting knowledge in the developed era. Children experience technology in their everyday life through watching tapes, videos, TV, phones and they master using the paint program on the computer as well. Thus, providing every classroom in the kindergartens with a computer has become a necessity and an essential factor to enrich the class environment with constructive educational meaningful activities. These activities entertain children as well as develop their thinking capabilities as they are supported by comprehensive and integrated experiences.

Results of the Second Question

"Do Female Teachers Feel Comfortable when Using ICT in Kindergartens?"

Table 5 shows impressions, frequency, percentages and standard deviations of teachers' responses regarding their impression about the use of ICT in Kindergartens:

Table 5
Frequencies, percentages, Means and standard deviations of teachers' responses regarding their impression about the use of ICT in Kindergartens

Impression	Frequencies	Percentage
Very Comfortable	146	56%
Comfortable	111	42%
Not Comfortable	5	2%
Total	262	100%
Mean	1.46	
Standard Deviation	0.54	

Table 5 demonstrated that the mean degree of teachers' impression about using ICT in Kindergartens was (1.46). This value referred to the degree of teachers' satisfaction as a result of using ICT in Kindergartens was "very comfortable", "comfortable", "not comfortable" were 56%, 42% and 2% respectively. The reason of these results were the training that teachers received through attending ICDL and Intel and other courses relevant to ICT in the Ministry of Educations followed by a training on KidSmart software. All of the above mentioned contribute to kindergarten's great satisfaction.

Results of the Third Question

Question three: "Do children have computers and software at home?"

To answer this question, percentages of parents' responses, who provides answers on this question, were extracted. They were (719) parents. Table 6 demonstrates that the percentage regarding the availability of computer was (%62) which was higher than medium. Percentages regarding games, internet and e-mails and educational software at children's homes were, (%52.9), (%17) and (%43.8) respectively as indicated by children's parents. In general, these results indicated the percentage of having devices and software were acceptable which in turn played helpful role in employing ICT in the teaching/learning process especially KidSmart in kindergartens.

Table 6
Shows the percentages of parents' responses regarding the availability of devices and software in children's homes

Devices and programs used at home	Yes
Computer	62.6%
Games	52.9%
Internet and e-mail	17.0%
Educational software	43.8%

These results were attributed to the collaboration of parents, teachers and children in the process of achieving mutual objectives which in turn worked on having concrete progress in the children's achievements in all phases of the curricula. A report on schools indicated that parents' participation in teaching their children at home and the availability of devices reflected on children's attitude positively toward their learning and behaviors at school. This was clearly demonstrated through the encouraging indicator as spotlighted in a study conduct by (Siraj-Blatchford and Siraj-Blatchford, 2004). The study results indicated that the use of KidSmart program in Germany led to:

- Enhancing the relationship with parents since there is communication with them.

- Parents' use of teachers' room to work with their children on the computer and the parents found this very useful.

- Children highly accepted KidSmart centers for early education.

- Children acquired great confidence in themselves when using the previously available programs on the computer since they encourage self-reliance and give children the freedom to choose without scattering the CDs in every place.

- Helping both children and workers to build confidence since it is easy to use.

- Children like it since they do not fear using it and the program seems to them as a fascinating game.

- The good features of KidSmart program go in line with researches' opinions concerning including ICT standards in computer programs in an accurate and controlled way. That is to increase children's awareness about computers and technology and making them a part of their daily life.

Results of the Fourth Question

Question four: "What is the appropriate age for children to use computers in kindergartens and at home from the point of view of parents.

To answer this question, the percentages of responses provided by children's parents who were 719 were extracted. Table (7) indicates that the percentage of the appropriate age to introduce computer to children in kindergarten whose age were less than 5 were (20.9%) and it was (44.2%) for those who were more than 5 years old and (34%) those would be ready to use computer regardless of their age. Regarding percentage of the appropriate age to introduce computer to children at home whose age was less than 5 were (30.3%) and it was (42.8%) for those who were more than 5 years old and (%44.8) for those who would be ready to use computer regardless of their age. Results indicated that there was disparity between parents' viewpoints regarding the appropriate age to introduce computer to children in kindergartens and at home.

Table 7

Responses provided by children's parents regarding the appropriate age of introducing computer to children in kindergarten and at home

Item	Less than 5 years	More than 5 years	When ready to use computers regardless of their age.
I feel that the appropriate age for children to be provided with a computer in the kindergarten is	20.9%	44.2%	34.9%
I feel that the appropriate age for children to be provided with a computer in the home is	30.3%	26.8%	42. 8%

The highest percentage was for children whose age was more than 5 with (44.2%) while the percentage for those children who would be ready to use computer regardless of their age was (42.8%) and this percentages were approximately the same. In general, the viewpoints of the children's parent regarding the process of introducing computers to children in kindergarten and at home, the percentages were not significantly different between those children who were more or less than 5 years old according to the studies conducted by (Shade, 1996 ; Samuelsson 2000 ; Brubakers, 2004 & Conway, 2006). There was no consensus among experts and researcher about putting minimum age to introduce such technology to child; nevertheless, no one can deny that familiarity between computer programs and the use of internet on behalf of the child is important in order to succeed in school besides his/her ability to communicate with the twenty-first century development. Knowing pre-school stage helps children develop their ability in terms of coordination between movements, vision and sound so that it will be useful to use the mouse and keyboard. The child can has most of his/her learning through physical and sensor activities so that he/she needs great sense of freedom in terms of having opportunities deal with objects through touching things, pushing, collecting, separating, throwing and rearranging them. The child also needs to learn who look and listen to things but this can't be imposed on the child but he/she acquires it thorough experiment, discovery and sometimes through trial and error method.

Recommendations

The study provides the following recommendations to improve early childhood education in kindergartens:

- Vocational training resources should be elaborated through integrating ICT tools in early childhood education and to put into consideration the need and benefits that KidSmart software spotlight on.

- ICT tools should be provided at a large scale in early childhood education and integrated in curricula to get the desired benefits in order to develop early childhood education.

- Parents should be supported in teaching their children through establishing partnership with them. ICT tools encompass the process of urging and motivating parental participation.

- There is an urgent need to support the process of building knowledge and collaboration on all levels. Resources should be provided to support effective networks of fathers and teachers.

Resources:

Aldumairy, M. (2007). The Degree of Child Education Teachers' Mastering and Practice of Information and Communications Technology in Amman Kindergartens and Their Attitudes Towards It. Non-published Dissertation, Jordan University. Amman - Jordan.

Ali, S., and Khan, S. (2002). The Use and effect of Internet on Teachers and Students in Saudi Arabia Retrieved at 21/7/2007 from: http://www.hiceducation.org/EduProceedings/Salman

Brubaker, D. (2004). An Assessment of Technology Learning Styles, Skills, and Perceptions among Teachers of Grades Pre-Kindergarten through Four. Retrieved 29/9/2008 from: http**:**//proquest.umi.com/pqdweb?Did=845709971&sid=4&Fmt=2&clientld=75089&RQT=309&Vname

Champan, C. (2006). Computer and Internet use by Students. Institute of Science Education. Retrieved 20/10/2006 from: http://annenberglibraryBlofspot.com/2006/12/Computer-and-internet-usebystudents.html**.**

Conway, M. (2006). An Evaluation Study of the Effect of a Web-posting Service on parent involvement and Student Sense of responsibility. Retrieved at 23/5/2008 from: http://Proquest.umi.com/pqdweb?did=726316351&Sid

Goodison, T. (2001). Integrating ICT in the classroom: A case study of two contrasting lessons. **British Journal of Educational Technology**. 34(**5**), 549-566.

Imad Eddin, M. (2005) comprehensive Evaluation study to the national interactive curriculum applied in public KG in Jordan. Retrieved 25/6/2008 from: http://www.moe.gov.jo/EDSS/shkg.htm

Kim, Y. (2003). The impact of the Internet on Children's daily Lives: Physical, Social and Psychological Well-being. Retrieved at 26/7/2007 from: http://proquest.umi.com/pqdweb?did=765248111&Sid

Lally, B. (2001). Teaching children to read using technology. **T.H.E. Journa**l, 28(**9**), 56-57.

Mackes, S. (2004). The effect of using the computer as a learning tool in a kindergarten curriculum. Retrieved 29/11/2006 from: http://proquestumi.com/pqdweb?Did=765622401&sid=3&Fmt=2&clientld=75089&RQT=309&Vname=PQD

Ministry of Education. (2007). Retrieved at 20/5/2008 from: http://www.moe.gov.jo

Odin, J. (1997). ALN: Pedagogical assumptions, instructional strategies, and software solutions. Honolulu, HI: University of Hawaii at Manoa. Available from: http://www.hawaii.edu/aln/aln_tex.htm.

Plowman, L., and Stephen, C. (2005). Children, Play, and Computers in Pre-school education. **British Journal of Educational Technology**, 36(**2**), 145-157

Samaras, A. (1996). Children's Computers**, Childhood Education**, 72(**3**), 133-136

Samuelsson, R. (2001). Early Childhood Education and ICT in Sweden. Retrieved 13/9/2008 from: http://www.ioe.ac.uk/cdl/datec/datecfrm1.htm

Shade, D. (1996). Are you ready to teach young children in the 21st Century? **Early Childhood Education Journal**, 24(**1**), 43-44

Simpson, M.; and Colon, T. (2001). Silicon Valley Users Silicon Glen: The Impact of Computers upon teaching and learning: a Comparative Study**. British Journal of Education Technology,** 31(**3**), 137-150

Siraj-Blatchford, j., and Siraj-Blatchford, I. (2004). IBM KidSmart Early Learning Program European Evaluation. France, Germany, Italy, Portugal, Spain and UK Final report. Retrieved 13/9/2008 from: http://www.kidsmartearlylearning.org

Smeets, E. (2005). Does ICI Contribute to Powerful Learning Environments in Primary Education, **Computer & Education**, **44**(**3**), 343-355.

Turow, J., and Nir, L. (2000). The Internet and the family: the view from parents, the view from kids. The Annenberg Public Policy Center. Retrieved at 16/12/2008 from, http://www.annenbergpuplicpolicycenter.org

Vivankos, J. (1997). Implementing information technology in the educational system. A Catalonia Perspective, **European Journal of Teacher Education,** 20(**1**), 39-47

Weinbrgy, M., Collier, S., and Reivera, M. (2003). Preparing Elementary Teachers: Infusing technology a recommended by the International Society for Technology in Education's. National Educational Technology Standards for Teachers (NETST). *Teacher Trends*, 47(**4**), 43-46.

Wheeler, S., Waite, J., & Bromfield, C. (2002). Promoting creative thinking through the use of (ICT). **Journal of Computer Assisted Learning**, 18(**2**), 367-378.

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The Internet and EFL College Instruction:
A Small-Scale Study of EFL College Teachers' Reactions

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Abstract

Though today the Internet use in second and foreign language learning has brought enormous advantages to students, resistance to employ this technology in classrooms by many EFL teachers remains high. This study examined EFL teachers' beliefs, attitudes, willingness, and concerns towards Internet-based EFL instruction, particularly at Yanbu Industrial College (YIC). Data was collected using a questionnaire which includes (a) participants' background information, (b) a four-point Likert scale for measuring the participants' beliefs, attitudes, willingness, and concerns toward the notion of integrating the Internet into EFL classrooms, and (c) open-ended questions to gather richer data on the participants' beliefs, attitudes, willingness, and concerns toward the integration of the Internet into EFL instruction. The findings of the present study indicated that most of the participants showed positive attitudes and willingness to integrate the Internet into the classroom and viewed the Internet as a wonderful and rich source of information for teaching-learning purposes. However, factors such as a lack of training on the use of the Internet, a lack of technology resources, cultural appropriation, and imposition of traditional methods of instructional delivery could be possible internal and external impediments to the use of the Internet in the classroom. Based on the findings some suggestions and recommendations were provided as to help teachers overcome these barriers and implement the Internet technology in their EFL classrooms.

Keywords: Internet technology, college instruction, teachers' beliefs, attitudes, willingness, and concerns

Introduction

The introduction and development of the Internet, by and large, have had considerable implications for foreign or second language instruction. Numerous resources on the World Wide Web (WWW) offer language teachers considerable convenience and support in language teaching and learning, (i.e., English as a foreign language (EFL) and English as a second language (ESL) instruction). It is no wonder that more and more language teachers have integrated the Internet into the classroom during the last 10 years (Fischer, 1999). This fact has brought revolutionary reform to language teaching methodology in the sense that both teacher and technology roles play equally important roles in creating innovative language learning classrooms. Currently, in many EFL/ESL contexts, the integration of Internet technology into the classroom, for example, is seen as a central issue owing to pursuing interactive teaching practices (Parks et al, 2003; Yang, 2001). Consequently, many EFL teachers, for instance, are concerned about the efficient application of the Internet to help students engage in a meaningful and interactive learning environment (Koehler, Mishra, Hershey, & Peruski, 2004).

Similarly, the growing technological advancement and globalization have influenced EFL instruction in Saudi Arabia's higher education institutions. As a result, educational authorities in Saudi Arabia have tried to provide educational technology support in schools and colleges. For example, classrooms are fully equipped with Internet connections and multimedia facilities (i.e.,

projectors, computers, and videos). In spite of the accessibility of the Internet in most colleges, such as Yanbu Industrial College (YIC), the notion of implementing the Internet in the classroom to facilitate the teaching-learning process has been neglected. There are EFL teachers at YIC resisting the integration of the Internet technology into their classrooms. During my teaching experiences at YIC, I have observed that such teachers believe that the integration of technology into their classroom seems to weaken their roles as teachers. Teacher domination is believed to be the key to successful EFL instruction at YIC. Thus, most of the EFL teachers feel threatened that technology would replace their dominant roles as teachers; consequently, they will lose their authority and be unable to control the class.

I believe that as Baylor and Ritchie (2002, p. 398) argue, "regardless of the amount of technology and its sophistication, technology will not be used unless faculty members have the skills [and] knowledge." More important, their attitudes toward the integration of technology into college curricula affect whether they use the Internet in the classroom. Moreover, personal attitudes and willingness of EFL teachers are key factors in whether the Internet can be applied to the classroom at YIC because teachers serve as the key figures responsible for instructional innovations in the classrooms. Adopted from Rogers' theory of Diffusion of Innovations (1995), teachers' beliefs, attitudes, willingness, and concerns are indispensable to make significant changes for instructional innovation and creativity. In response to this notion, the current study is aimed at investigating the EFL teachers' beliefs, attitudes, willingness, and concerns towards the Internet-based EFL instruction, particularly at YIC.

The Study Background

Yanbu Industrial College (YIC), founded in 1989, is affiliated with the Royal Commission for Jubail and Yanbu in the Kingdom of Saudi Arabia (KSA). Its objectives are twofold: (1) to develop human resources and (2) to equip Saudi manpower with advanced technical education and training. It is an independent technical institute, and is administered by the Board of Directors of the Royal Commission for Jubial and Yanbu (Yanbu Industrial College, 2008).

YIC offers associate degrees and bachelor degrees for both science and art majors. It has the Center for English as a Foreign Language that offers courses on English for specific purposes (i.e., English for Business Communication and English for Technologies) and English for General Purposes (EGPs). The main goal of the center is to equip the incoming YIC students with the sufficient English skills that will help them to pursue their technical or vocational studies at YIC and later pursue a job that requires English skills in one of the Saudi's manufacturing companies (Yanbu Industrial College, 2008).

EFL Instruction at YIC

One of the distinctive features of YIC's EFL instruction is that unlike other educational institutions in KSA, English is the medium of instruction in content subjects/areas. Additionally, classrooms are fully equipped with multimedia facilities (i.e., computers and projectors connected with the Internet). However, most classrooms are teacher-dominant: traditional instructional methods and teacher-centered approaches prevail. What makes the situation worse is that EFL teachers strongly believe that teacher-dominated classrooms will guarantee success in learning English. It is assumed that in such classroom environments, students have little opportunity to learn their English using technology inside and outside the classrooms, and in turn this may affect their learning autonomy and language ownership. In short, EFL students at YIC do not seem to be prepared to be members of today's and future societies, literate in information technologies.

Significance of the study

Globalization and information technologies, by and large, are a sign of today's life and are likely to shift traditional instructional methods from a teacher-centered learning approach to a learner-

centered instructional approach by which learning interactivity and meaningfulness are reinforced (AL-Mekhlafi, 2004; Warschauer, 2000). To implement this reformed approach to EFL instruction, I do believe as Yang (2001) maintains, that Internet technology offers "a new learning environment and a wealth of pedagogic possibilities" (p. 156). This notion suggests that it is important for EFL teachers and administrators at YIC to become part technology-literate educators. For EFL students to successfully acquire and learn English, EFL teachers should provide students with broad learning opportunities to practice and own the language inside and outside the classrooms. In other words, as Yang (2001) argues, technological tools and resources available on the Internet offer possible opportunities to acquire authentic language use through multimodal channels (e.g., listening and speaking).

I do realize that the accessibility of the Internet technology is an asset for YIC, but convincing teachers to implement this technology in EFL classrooms seems to be difficult. Thus, this current study endeavors to examine EFL teachers' beliefs, attitudes, willingness, and concerns toward the implementation of Internet-based EFL instruction at YIC. The results of the study may complement the growing body of research on the use of Internet technology in EFL classrooms. More important, the results of the present study may be empirical evidence for making informed decisions about the implementation of Internet-enriched curricula at schools or colleges where the Internet facilities are available (e.g., YIC). Thus, examining teachers' beliefs, attitudes, willingness, and concerns about the integration of the Internet in EFL classroom helps to better understand how to attain the goal of integrating technology into the classrooms.

Operational Definitions of Key Terms

In order to provide readers with a clear understanding of the key terms in the present study, it is important to define the following five terms.

- Teachers' beliefs: personal opinions based on their experiences in using the Internet technology both inside and outside the classrooms.

- Teachers' attitudes: the way EFL teachers psychologically react toward the integration of the Internet in the classroom.

- Teachers' willingness: personal commitment and courage to try out teaching innovations (e.g., the use of Internet) in the classroom (Angers & Machtmes, 2004).

- Teachers' concerns: internal and external problems that EFL teachers might encounter when integrating the Internet into their classrooms.

- The integration of the Internet in the classroom: making pedagogical and curricular changes to incorporate Internet applications (e.g., browsing skills, search engines, site evaluation, and emails) into classrooms (Wetzel, 2002).

A Review of Literature

The Internet Use in EFL Instruction

Over the past decades, the use of Internet technologies as teaching and learning tools has been exponentially expanding into EFL instruction. This implies that the Internet technology serves as a mediating tool for technology-enhanced and student-centered instructional environments (Watson, 2006). This notion suggests that, with the advent of the Internet, "it has become possible and feasible for language teachers to make effective use of instructional materials, especially in teaching language and culture" (Chen, 2008, p. 1016). As Hubbard (2004) points out, the rapid expansion of the Internet into language instruction takes places due to three main reasons.

The first reason is that many Internet applications (i.e., asynchronous computer-mediated communication (ACMC) like electronic bulletin boards or e-mails) encourage interactive

language learning for both learners and teachers. Secondly, the tool and resources available on the Internet facilitate language learning and teaching; they provide rich learning resources for teachers and learners. The last reason is that, by implementing the Internet in the classroom, learners not only develop their language skills through interacting with different Internet applications, but they also function well on the Internet to explore varied language learning materials, which accommodate their learning needs, expectations, and goals. For example, through an electronic mail exchange, EFL learners can simply interact with each other, which in turn will help them overcome issues like (1) shyness, (2) peer pressure inside the classroom, and (3) a threatening language learning environment, which may appear in face-to-face communication with peers or teachers (Chan, 2008; Yang, 2001).

In short, the Internet applications allow language learners to be exposed to a real-life target language (English) and provide them with great opportunities to learn that language and acquire technological skills. More crucially, the Internet technology could serve as technological scaffolding, which complements teacher scaffolding inside and outside the classrooms.

The Importance of Using the Internet in EFL Classrooms

As the trend of language teaching has been transformed from structural views into communicative perspectives on language teaching and learning, by and large, the Internet can be implemented in EFL classrooms. Many researchers (e.g., Watson, 2006) believe that the Internet offers authentic materials-enriched sources for EFL instruction. Such sources can be perceived as a means of enhancing materials interactivity for EFL/ESL language learning. Using those sources, learners may be encouraged to use their relevant prior knowledge or experience, discourse, and existing language resources. Authentic materials-enriched sources, in turn, help create more stimulating and motivating language learning atmospheres. Previous studies (e.g., Warschauer, 1999; Yang, 2001) have investigated the effectiveness of Internet use in EFL classrooms. The findings show that learners were motivated to read and listen to Internet-based audio passages for hours because they did enjoy doing such learning tasks. In this way, they could manage their own learning goals and pace, thereby helping them foster their learning autonomy and its ownership and building a more learner-centered classroom. As a result, learners are engaged in authentic interactional situations and have the opportunity to make personal decisions about their own learning preferences.

In short, using the Internet in EFL classrooms provides language teachers with enormous benefits, as previously mentioned. This paradigm can be a cornerstone for further investigations into the benefits of the Internet in EFL classrooms and the integration of that technology into the classroom so as to examine more benefits of the Internet regarding how this technology facilitates EFL teaching and learning process.

EFL Teachers' Beliefs, Attitudes, Willingness, and Concerns toward the Use of the Internet in the Classroom

By and large, many researchers (e.g., Al-Mekhlafi, 2004; Chen, 2008; Ertmer, 1999) argue that if we decide to integrate technology into our EFL classrooms, it is important to consider such major factors as teachers' attitudes, beliefs, willingness, and concerns. Kersaint, Horton, Stohl, and Garofalo (2003) argue that teachers with positive attitudes toward technology feel more comfortable and confident in using a technology. They would like to include that technology into their teaching practices. Woodrow (1992) also maintains that a positive user attitude toward the new technology affects the success of educational reform. It is not surprising that there have been numerous studies on teachers' perceptions and attitudes towards the use of the Internet in EFL classrooms and the importance of teachers' roles, beliefs, and attitudes in introducing such a technology to the classroom. For instance, Al-Mekhlafi (2004) in his study examined 250 EFL secondary schools teachers' beliefs in the value of the Internet in language teaching, their

willingness to incorporate such a technology into their classrooms, and their concerns or problems in the application of Internet-based classrooms in the United Arab Emirates. The results of his study indicate that though most of the teachers were familiar with the Internet and had willingness to integrate that technology into their classrooms, the majority of the teachers did not use the Internet technology in their EFL classrooms due to the unavailability of the Internet facilities at schools. Only English teachers who had personal computers made use of the Internet at home.

Another findings of Al-Mekhlafi's study also showed that the teachers had some concerns such as (1) student-related concerns—most of the students might use the Internet for fun, not for learning activities; (2) teacher role-related concerns—the majority of the teachers worried that their roles would be replaced by the Internet; (3) administration-related concerns—most of the teachers believed that the school administration would limit the use of the Internet at school due to costs and students' misuse; (4) training-related concerns—the majority of the teachers felt there was the need for training on the use of the Internet for pedagogical purposes; and (5) culture appropriation-related concerns—most of the teachers were unwilling to integrate the Internet into the classroom owing to culturally inappropriate Internet-based materials. Those concerns are important for deciding whether the Internet should be incorporated into the classroom. However, more important, English teachers should weight the benefits of the Internet in the classroom.

Similarly, Chen (2008a) in his study investigated three issues: (1) the use of the Internet by 311 EFL teachers in Taiwanese higher education institutions, (2) the factors affecting the use of the Internet by the teachers, and (3) the participants' problems or concerns about integrating the Internet into their classrooms. The findings indicate that more than half of EFL teachers in Taiwan made use of the Internet facilities such as search engines, emails, chat messages, and online dictionaries. The participants used the Internet facilities for teaching such language skills as reading, listening, and writing because most of them had training on the application of the Internet technology into their classrooms.

Further, based on his findings (2008a), Chen argues that two factors like teacher training and institutional support have significant implications for teachers' positive attitudes towards the use of technology (i.e., the Internet) in the classroom. Teacher training in particular has great impact on technological integration (e.g., the Internet) in the classroom because the teachers will gain awareness of the benefits of the Internet technology for their students' learning resources. In his study, Chen found some impediments to the application of the Internet in the classroom that included limited time, feeling of uncertainty, lack of peer mentoring/cooperation, appropriateness of course content, and lack of planning for technology integration in the classroom. These findings corroborate with Chen's other findings in the same year (2008b). Chen concludes that teachers should be equipped not only with "technology knowledge, but also with the methods for connecting technology knowledge to pedagogical knowledge, content knowledge, and pedagogical content knowledge" (p. 1026). These ideas are compatible with Zhao's ideas (2003).

Thus, it can be said that previous research findings reveal that such factors as teachers' beliefs, attitudes, willingness, and concerns about the technology use affect the successful implementation of particular technologies (Albirini, 2006; Migliorino & Maiden, 2004). Another factor is that teachers with positive attitudes towards using the Internet have greater willingness to use the Internet in their classrooms. However, for teachers who get used to the traditional teacher-centered approach, uncertainty and fear may hinder them from using the Internet in the classroom (Fullan, 2001). More crucially, factors like lack of technological knowledge and skills could raise teachers' anxiety and lack of confidence; consequently, they may feel uneasy and reluctant to use technology in the classroom (Finley & Hartman, 2004). In other words, those psychological factors should be taken into account when technology is introduced in the classroom.

In essence, teachers' positive attitudes toward Internet technology are the keys, not only to enhancing Internet integration but also to avoiding teachers' resistance to the Internet use in EFL classrooms (e.g., Saudi's EFL teachers at YIC). Watson (1998) warns against the idea that ''the teacher is an empty vessel into which this externally defined innovation must be poured'' (p. 191). Therefore, the present study endeavors to examine EFL teachers' beliefs, attitudes, willingness, and concerns about using Internet technologies in EFL instruction at YIC. The present study is aimed at providing empirical evidence, which helps to better understand how Internet literacy plays crucial roles in facilitating EFL instruction as a whole. This empirical evidence provides the informed basis for how the Internet could contribute to learning interactivity between teachers and students and between students and students inside and outside the classrooms.

Theoretical Framework

A social constructivist perspective underlies the present study in which "teaching is a public, socially-constructed role, subject to the perceptions and expectations of learners, colleagues, schools and the community" (Roberts 1998 p. 309). The notion of social constructivism has formed pedagogical transformation in a sense that student-centred, collaborative task-oriented, and engaged learning substituted traditional instructions where passive learning and teacher centeredness had prevailed. This change in teaching and learning from teacher centeredness to student centeredness has matched the progress of instructive technology. Technology provides mediating tools that help to achieve the objectives of a social constructivist-based classroom. Technology should be viewed not only as a means for language learning but also as a tool for the development of both individual and society. From the social constructivist perspective, learners are perceived as learning actors who should manage their own learning, and the Internet is an arbitrating means for them to execute constructivist activities-- by offering students a wide range of learning opportunities, which enable them to construct and deconstruct knowledge and meaning through social interaction (Jonassen, Peck, & Wilson, 1999).

Research Questions

The purpose of the study is to investigate EFL teachers' beliefs, attitudes, willingness, and concerns toward the use of Internet technology in their classrooms at YIC. In order to examine such issues, the following research questions are formulated into:

1. How do EFL teachers at YIC perceive the integration of Internet technology in an EFL classroom?
2. To what extent do EFL teachers at YIC consider Internet and computer to be useful in their teaching and learning process?
3. To what extent will the teachers be willing to integrate the Internet in the classroom, and what concerns might they have for the practicability and feasibility of using the Internet in EFL classrooms?

Methods

Participants

The participants of the current small-scale study were all EFL teachers at YIC. These participants were randomly selected via faculty members' list of the YIC's Website. This Web was used to retrieve the participants' e-mail addresses and asked them whether they would participate in the current study. All of the participants were asked to fill out a questionnaire sent to them (N=13) with a cover letter explaining the purpose of the current study. Due to ethical issues, the participants were informed that the information they provided on the questionnaires would be

confidential and used for the purpose of this research only (see Appendix: Questionnaire). Five teachers only completed and returned the questionnaires. Thus, the total number of participants for the current study was five male EFL teachers with an average of 7-13 years of experiences in teaching EFL courses. It is worth noting that the assumption about selecting male participants for the current study is that males and females are segregated in the Saudi's educational system. For this reason, the researcher had access only to male participants. For another ethical purpose, all of the participants were under pseudonyms. For this reason, the participants were named as A, B, C, D, and E.

Instrument

The data for the present study was collected by means of a questionnaire developed to examine teacher' beliefs, attitudes, willingness, and concerns about the notion of the Internet use in their EFL classrooms. The questionnaire consisted of three components: (a) background information—the participants' educational backgrounds, teaching experiences, and experiences in using computer and the Internet; (b) a four-point Likert scale for measuring the participants' beliefs, attitudes, willingness, and concerns toward the notion of integrating the Internet into EFL classrooms; and (c) open-ended questions to gather richer data on the participants' beliefs, attitudes, willingness, and concerns toward the integration of the Internet into EFL instruction. It is also worth noting that in the Likert scale, the point "neutral option" was disregarded because the middle option of "Neither agree nor disagree" is not available. Another reason is that the unavailability of the option "neutral" was intended to encourage the participants to make a choice.

Data analysis

In the current study, the process of data analysis can be summed up into four core activities: (1) data coding by classifying the findings based on the questions; (2) data display by reexamining the findings for data reduction and verification; (3) data reduction by screening out the findings relevant to the research questions, and (4) conclusion drawing by looking at the entire findings for idea generalizations (Creswell, 2007). The researcher went through such activities back and forth to allow for an emergent, careful, and detailed data analysis. Thus, the qualitative data analysis using an interpretive framework was used in the current study in which theoretical and empirical accounts served as a basis for interpreting the data coded. Also, in the interpretive framework, empirical evidence is connected to relevant theories and previous studies in such a way that the findings are interpreted whether they support or complement the existing theories and previous empirical studies.

Findings and Discussions

Teachers' Experiences in Using Computer and the Internet

Although none of the participants made use of the Internet in their own classrooms due to large classes, all of the participants had personal computers and Internet access from 12-35 hours a week at home. They have been using the Internet for 3-12 years. This finding shows that all of the participants are familiar with the application of the Internet. The only concern is that they teach large classes due to school policies. This finding suggests the use of collaborative learning through group work might help the teachers integrate the Internet into the classroom.

All of the participants made use of the Internet for different reasons: (1) doing research, (2) reading for online news, (3) watching videos for fun, and (4) downloading supplementary materials for reading classes. Of the four reasons, three reasons could be related to teachers' instructional purposes. The first purpose of using the Internet seems to pertain to teacher professional development. For this purpose, the participant did not spell out what kind of research he was doing. However, this finding suggests that the Internet, a rich source of information, could

contribute to teacher professional development (Al-Mekhlafi, 2004). In short, EFL teachers might use the Internet as a facilitating tool for doing professional development.

The second purpose for using the Internet is to read online news. The participants suggested that online news could be a foundation for classroom tasks, and such materials could "prepare students to become life-long users of the language" (LeLoup & Ponterio, 2004, p. 6). More crucially, the participants added that online news is potentially used for reading materials because it is authentic as long as the news is written in English, and it is up-to-date information for students. Furthermore, online news materials could be an in-class discussion trigger for creating a more interactive classroom atmosphere.

The purpose of using the Internet for downloading supplementary materials for reading classes indicates that the Internet, indeed, provides rich resources for language learning activities. For pedagogical purposes, as Brandl (2002) emphasizes, Internet-based resources for reading activities should be based on the degree of teacher and student involvement in determining the content (choice and selection of topics and Internet-based materials), the scope of the learning environment (number of different sources: sites or links), and the learning processes and tasks (ways of exploring the reading materials. (p. 89).

These observations suggest that both teachers and students negotiate what sort of reading materials they have to read or use in the classroom.

Teachers' Beliefs, Attitudes, Willingness, and Concerns about the Use of the Internet in EFL Classrooms

Teachers' Beliefs in the Use of the Internet in EFL Classrooms. Teacher belief in the use of the Internet in EFL classrooms can be shown in the following table.

Table 1
Teachers' Beliefs in the Use of the Internet in EFL Classrooms

Question Items	Strongly Disagree (SD)	Disagree (D)	Agree (A)	Strongly Agree (SA)
Q1	1	2	0	2
Q2	0	3	0	2
Q3	0	2	1	2
Q4	0	0	1	4

As seen in Table 1, half of the participants believed that they would be innovative teachers without necessarily using the Internet in the classroom (Q1), but half of the participants had beliefs that the Internet could help them become innovative teachers. Regarding question 2, more than half of the participants did believe that the use of the Internet would meet their teaching goals. Pertaining to question 3, half of the participants had a belief that the Internet facilitated their teaching-learning process, but half of the participants did not believe that they felt comfortable with Internet in the classroom. Interestingly, when the participants were asked to whether the Internet-based instruction would change teachers' roles as authorities and sources of knowledge, they responded that their students might rely more on the Internet as a source of knowledge and scaffolding for them. This finding suggests that the participants would be afraid that their main roles as authority and source of knowledge would be replaced by the Internet intervention in the classroom.

Based on Table 1, as a whole, it could be said that some teachers felt uncertain of using the Internet in the classroom, but others felt confident that the Internet could facilitate their teaching-learning process. Nevertheless, most of the participants felt worried that the Internet roles would take precedence over their roles as authorities and source of knowledge in the classroom. This finding suggests that there should be training on how teachers play roles in Internet-based EFL instruction. When teachers believe that the Internet would not replace their role as teacher, but it would complement their roles in facilitating the teaching-learning process, such beliefs would enable the integration of the Internet in their EFL classrooms (Chen, 2008a).

Teachers' Attitudes toward the Use of the Internet in EFL Classrooms. Table 2 shows how the participants had different attitudes toward the integration of the Internet into EFL classrooms. Regarding question 5, more than half of the participants had a positive attitude toward the fact that using the Internet in the classroom offers more advantages than traditional classrooms without Internet support. Pertaining to questions 6, 7, and 8 respectively, most of the participants showed positive attitudes towards the idea that the Internet could facilitate the teaching-learning process. As a whole, teachers' attitudes toward the use of the Internet in EFL classrooms can be seen in the table below.

Table 2
Teachers' Attitudes toward the Use of the Internet in EFL Classrooms

Question Items	Strongly Disagree (SD)	Disagree (D)	Agree (A)	Strongly Agree (SA)
Q5	0	2	3	0
Q6	2	0	3	0
Q7	0	0	2	3
Q8	0	2	3	0

When the participants were asked an open-ended question to examine more in-depth information on their attitudes toward the integration of the Internet in the classroom, they provided a range of opinions. First, irrespective of time and place, the Internet allows teachers to communicate with their students inside and outside the classroom, as participant B pointed out. Participant C added that "the traditional 'book system' is boring and reduces the enthusiasm of the learner. To build students' motivation and maximize classroom interaction between students-students or teacher-students, there is the need for using technology (e.g., the Internet) in the classroom." It is true that Internet-based communications like threaded discussion boards, e-mails, and chats offer great opportunities for communicative and collaborative language learning tasks (Bonk & King, 1998). These technologies enable students to learn English outside the classroom and in turn help to promote their learning autonomy. Therefore, without constraints such as time and place, students have access to learning resources, the teacher, and interpersonal interaction with peers.

Participant D also expressed that the Internet technology would not only facilitate the teaching-learning process, but it would also reinforce in-class learning and provide real-life resources for class materials. Additionally, the Internet made classroom interactions more interesting, gave exposure to authentic language, and served as a tool for self-learning, which could meet learners' diverse learning styles.

Based on the participants' opinions about some benefits of the Internet in the classroom, it could be inferred that they had positive attitudes toward the use of the Internet in the classroom. Participant E said "To me, education without technology is like some food without spices." As Chen (2008a) points out, such attitudes may be affected by the teachers' experience in using the

Internet—teachers feel comfortable and confident that they have already had sufficient knowledge and skills about Internet resources. This notion is also supported by Ertmer, Addison, Lane, Ross, and Woods (1999) who pinpoint that teachers who are willing to use the Internet in the classroom may be influenced by the following factors:

- teacher excitement for the use of the Internet in the classroom,

- teacher competence in the application of Internet,

- teacher preparation for more interesting and interactive lessons for students, and

- greater and more flexible access to students who would like to share their learning difficulties or problems with teachers.

Teachers' Willingness toward Use of the Internet in EFL Classrooms. Table 3 shows the participants' willingness to integrate the Internet in the classroom

Table 3
Teachers' Willingness in the Use of the Internet in EFL Classrooms

Question Items	Strongly Disagree (SD)	Disagree (D)	Agree (A)	Strongly Agree (SA)
Q9	0	0	2	3
Q10	0	0	0	5
Q11	0	2	0	3
Q12	2	0	3	0

Based on the participants' responses to question items 9-12, generally, most of the participants would integrate the Internet in the classroom for a number of purposes, such as (1) to teach interactive listening and reading skills, (2) to design their teaching materials, (3) to enhance interactive classroom interactions, and (4) to help students improve their English skills and build/develop their learning autonomy. This finding was confirmed by the two participants' opinions about their willingness to integrate the Internet in the classroom, as listed below.

Participant D

I use the Internet for classroom materials design and supplementary materials. In our institution the textbooks are predetermined and, as a teacher, I do not have the chance to use other books; they are imposed. Therefore, drawing on the goals of the units of the institution's textbook, I turn to the Internet as well as other outside sources to provide my students with more authentic and focused materials as a way to enhance their learning. Also, the Internet is faster and easier to search.

Participant E

I always asked my students to refer to English website at their home and do presentations about any topic that interests them. I always download lesson plans and adopt them for my classroom.

Based on the three participants' opinions, it is obvious that the Internet allows the participants to enrich the language learning resources. Participant D expressed his concern about the imposition of the textbooks on his teaching practices. Because he had no choice, Participant D used the Internet as supplementary materials for students to provide them with more authentic and focused materials to enhance student English learning. Participant E tried to promote autonomous learning

by asking their students to use the Internet for materials for doing in-class presentations and discussions based on students' interests. These findings indicate that the teachers allowed the students the opportunity to make their own decisions about what to learn and share with the class. If this activity were organized by asking students to write reflective journals on the use of the Internet for their own learning, the teacher would know students' learning progress using the Internet in addition to formal assessment.

Teachers' Concerns about the Use of the Internet in EFL Classrooms. Teachers' concerns about the use of the Internet in the classroom can be seen in Table 4 below.

Table 4
Teachers' Concerns about the Use of the Internet in EFL Classrooms

Question Items	Strongly Disagree (SD)	Disagree (D)	Agree (A)	Strongly Agree (SA)
Q13	0	0	0	5
Q14	2	0	3	2
Q15	0	0	0	5
Q16	0	0	1	4

Table 4 shows that the participants' concerns about the use of the Internet the classroom relied upon institutional support (e.g., the availability of the Internet), sufficient training in the use of the Internet for EFL instruction, cultural appropriation, instructional time allotment, and class sizes, as reflected in question items 13-16. The findings confirm what Chen found in his study (2008b).

When the participants were asked further about possible problems of integrating the Internet in EFL classrooms, they provided a range of answers listed in Table 5 below.

Table 5
The Participants' Concerns about the Use of the Internet in the Classroom

Participants	Opinions
A	*A lack of teacher training on the use of the Internet, student lack of literacy in technology, and a lack of technology resources are serious problems at my institution.*
B	*I work in a place where the core material is somewhat obsolete. Therefore, the Internet proves to be an invaluable resource. I use it for both in-class and outside-classroom material. However, some tweaking is necessary in order to have the content be in keeping with the socio-cultural environment. Also, material found on the Internet, though ESL/ESP/EFL related, is not necessarily suitable for Arab learners.*
C	*Some teachers need to be trained in order to be up-to date.*
D	*Because not all of the EFL teachers or my colleagues are familiar with the Internet application in the classroom, I would suggest providing them with sufficient training.*
E	*Training on the use of the Internet both for teachers and students is a must.*

As most of the participants recognized the growing trend in the Internet use, the majority showed greater interest and were more willing to try it. Factors like lack of training on the use of the Internet, a lack of technology resources, cultural appropriateness, and imposition of traditional methods of instructional delivery could be possible internal and external impediments to the use of the Internet in the classroom.

Regarding the first possible problem, this finding suggests that there is a need for Internet training for both teachers and students so that they can search relevant materials online that match the syllabus or class objectives without wasting time. The training is also useful for evaluating sites because some sites might be culturally inappropriate and misleading. For this reason, teacher training is important for integration of the Internet into the classroom (Chen, 2008a).

Pertaining to the second problem, it is true that in many universities there may lack Internet resources. For other higher education institutions, lack of Internet resources might be an external barrier to the integration of the Internet in the classroom. Interestingly, although the Internet gives participant B, for example, a range of materials, he was concerned about the cultural appropriateness issue in which the materials should suit students' cultural background because some materials might be sensitive to Arab students' cultures (e.g., pornography, sex, or gambling). This finding corroborates with Al-Mekhlafi's study result (2004) that cultural appropriateness was a concern that teachers might have because some materials found on the Internet were culturally inappropriate. For this reason, selection of the Internet-based materials needs to be made. In this regard: teachers have the responsibility for monitoring students' Internet use in the classroom "through direct supervision or through censorship software program" (Al-Mekhlafi, 2004, p. 109).

Lastly, the imposition of traditional classroom formats by institutional management and administration may prevent teachers from trying out Internet-based EFL instruction. This finding suggests that policy makers and institutional authorities play crucial roles in deciding the implementation of Internet-based classrooms. In short, institutional leadership and support are important for the success of implementation of educational technologies (Epper, 2001).

Recommendations for Future Empirical Studies

In response to the findings, as previously discussed, there should be some future empirical studies that language teachers may conduct. To begin with, there is a need for examining students' or teachers' preferences toward Internet-based instruction in EFL contexts. This research would enrich the data on the benefits of the Internet in EFL classrooms. Additionally, there is the need for experimental research or comparative studies on the effectiveness of traditional EFL instruction and Internet-based instruction on students' success in English learning. Because English learning is hard to measure or has a broad definition, teachers may modify English learning into English skills like listening, speaking, reading, writing, vocabulary, grammar, and pronunciation. For example, future empirical studies might examine how web-based videos could help enhance EFL students' listening comprehension and vocabulary acquisition, or how online feedback through chats or emails could facilitate peer feedback inside and outside EFL writing classrooms.

Another important future research agenda is the study of students' attitudes towards learning English through websites. This issue is important because students serve as decision makers of their own learning so that Internet-based EFL instruction would be successful. In addition to examining students' attitudes toward the use of the Internet in EFL instruction, as Chen, (2008b) emphasizes, "more qualitative studies should be conducted to explore how language teachers in various curricular areas integrate the Internet into their instructional practices" (p. 1026). Lastly, ethnographic participant observations would be another method for closely examining teachers'

actual instructional strategies and their problems in integrating the Internet into classrooms, as Chen (2008b) suggests.

Conclusions and Pedagogical Implications for EFL Teaching and Learning

As found in the present study, most of the participants showed positive attitudes and a willingness to integrate the Internet into the classroom and viewed the Internet as a wonderful and rich source of information for teaching-learning purposes. The teachers' motivation, positive attitudes and willingness need to be accommodated by reinforcing conducive institutional atmospheres and collegial support for promoting integrated Internet-based EFL instruction (AL-Mekhlafi, 2004; Chen, 2008). In this respect, English teachers are aware of their roles as classroom innovators whose tasks are to provide interactive and up-to-date materials for their students and to maximize student-student and teacher-student interactions by considering these factors like level of language proficiency, literacy in the Internet, current needs for English learning, and learning task completion (Yang, 2001).

It is also vital to recognize that both the roles of teachers and the Internet should be considered equally important in which both complement one another in Internet-based EFL instruction. Therefore, language teachers should be aware of the fact that the Internet serves as a facilitating tool for them to design interactive and non-threatening EFL classrooms. From this perspective, incorporating the Internet into classrooms or college curricula is a must, but it needs careful planning and sustainable evaluation in order to achieve particular curricular objectives.

In short, the use of technology for school curricula needs substantial investments of time, financial support, equipment, personal commitment and courage in order to explore teaching innovation in the EFL classrooms (ISTE, as cited in Angers & Machtmes, 2005). Technology integration (i.e., the use of the Internet in the classroom) does not mean necessarily replacing teachers' roles as facilitators, guides, and resources, but it helps teachers facilitate the entire process of English teaching and learning. In other words, the use of the Internet should be viewed as a mediating tool for creating interactive EFL classrooms.

References

Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Computers & Education*, *47*, 373–398.

Al-Mekhlafi, A. (2004). The Internet and EFL teaching: The reactions of UAE secondary school English language teachers. *Journal of Language and Learning*, *2*(2), 88-113.

Angers, J., & Machtmes, K. (2005). An ethnographic case study of beliefs, context factors, and practices of teachers Integrating technology. *The Qualitative Report*, *10*, 771-794.

Baylor, A., & Ritchie, D. (2002). What factors facilitate teacher skill, teacher morale, and perceived student learning in technology-using classrooms? *Computers & Education*, *39*, 395–414.

Bonk, C. & King, K. (Eds.). (1998). *Electronic collaborators.* Mahwah, NJ: Lawrence Erlbaum.

Brandl, K. (2002). Integrating internet-based reading materials into the foreign language curriculum: From teacher-student-centered approaches. *Language Learning and Technology*, *6*, 87-107.

Chen, Y.L. (2008a). A mixed-method study of EFL teachers' Internet use in language instruction. *Teaching and Teacher Education, 24*, 1015–1028.

Chen, Y.L. (2008b). Modeling the determinants of Internet use. *Teaching and Teacher Education, 51*, 545–558.

Creswell, J. (2007). *Qualitative inquiry & research design: Choosing among five approaches*. Thousand Oaks, CA: Sage.

Epper, R. M. (2001). The new economy meets the ivory tower. In R. M. Epper & A. W. Bates (Eds.), *Teaching faculty how to use technology: Best practices from leading institutions* (pp. 1–18). Westport, CT: The American Council on Education, ORYX Press.

Ertmer, P. A. (1999). Addressing first- and second-order barriers to change: Strategies for technology integration. *Educational Technology Research and Development*, *47*(4), 47- 61.

Ertmer, P. A., Addison, P., Lane, M., Ross, E., & Woods, D. (1999). Examining teachers' beliefs about the role of technology in the elementary classroom. *Journal of Research on Computing in Education*, *32*(1), 54–72.

Fischer, R. (1999). Computer applications and research agendas: Another dimension in professional advancement. *CALICO Journal*, *16*, 559–571.

Fullan, M. (2001). The new meaning of educational change (3rd ed.). New York: Teachers College Press.

Groves, M., & Zemel, P. (2000). Instructional technology adoption in higher education: An action research case study. *International Journal of Instructional Media*, *27*(1), 57–65.

Hubbard, P. (2004) Learner training for effective use of CALL. In S. Fotos & C.M. Browne, *New perspectives on CALL for second language classrooms* (pp. 45-67). Mahwah, NJ: Lawrence Erlbaum.

Jonassen, D. H., Peck, K. L., & Wilson, B. G. (1999). *Learning with technology: A constructivist perspective*. Upper Saddle River, NJ: Prentice-Hall.

Kersaint, G., Horton, B., Stohl, H., & Garofalo, J. (2003). Technology beliefs and practices of mathematics education faculty. *Journal of Technology and Teacher Education*, *11*, 549–577.

Koehler, M. J., Mishra, P., Hershey, K., & Peruski, L. (2004). With a little help from your students: A new model for faculty development and online course design. *Journal of Technology and Teacher Education*, *12*(1), 25–55.

LeLoup, J. W., & Ponterio, R. (2004). Internet television news in the classroom-TF1: Improved features make Sites more useful. *Language Learning and Technology*, *8*(2), 3-6.

Migliorino, N. J., & Maiden, J. (2004). Educator attitudes toward electronic grading software. *Journal of Research on Technology in Education*, *36*, 193–212.

Parks, S. et al (2003). Crossing boundries: Multimedia and pedagogical innovation in high school class. *Language Learning and Technolo*gy, *7*(1), 28-45.

Roberts, J. (1998). *Language teacher education.* London: Arnold.

Rogers, E. M. (1995). *Diffusion of innovations* (4th ed.). New York: The Free Press.

Warschauer, M. & Healey, D (1998). Computer and Language learning: An overview. *Language Teaching, 32*, 57-71.

Warschauer, M. (2000). The changing global economy and the future of English teaching. *TESOL Quarterly, 34*, 511–535.

Warschauer, M. (1999). *Electronic literacies: Language, culture, and power in online education.* Mahwah, NJ: Erlbaum.

Watson, D. (2006). Understanding the relationship between ICT and education means exploring innovation and change. *Education and Information Technologies*, *11*, 199–216.

Watson, D. M. (1998). Blame the technocentric artifact! What research tells us about problems inhibiting teacher use of IT. In G. Marshall, & M. Ruohonen (Eds.), *Capacity building for IT in education in developing countries* (pp.185–192). London: Chapman & Hall.

Wetzel, D. (2002). A model for pedagogical and curricular transformation with technology. *Journal of Computing in Teacher Education, 18(2*), 43-49.

Woodrow, J. E. (1992). The influence of programming training on the computer literacy and attitudes of pre-service teachers. *Journal of Research on Computing in Education*, *25*, 200–219.

Yanbu Industrial College. (2008). *About YIC*. Retrieved September 30, 2008, from http://www.yic.edu.sa/WelcomeToYIC.html

Yang, S. C. (2001). Language learning on the Word Wide Web: An investigation of EFL learners' attitudes and perceptions. *Educational Computing Research*, *24*, 155– 181.

Zhao, Y. (2003). What teachers need to know about technology?: Framing the question. In Y. Zhao (Ed.), *What should teachers know about technology*?: Perspectives and practices (pp. 1–14). Greenwich, CT: Information Age Publishing.

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Appendix: Questionnaire

The purpose of this questionnaire is to examine your opinions and attitudes toward the application of Internet technologies into EFL classrooms at YIC. Please fill out this questionnaire as honestly as possible. Your answers will be kept absolutely confidential. Thank you very much for your time and cooperation.

Section 1: Information Background

Education and Experience

1. How many years of teaching experience do you have? _____years.

2. What is your highest educational background? Please select the most appropriate item. (Diploma__BA__MA__ Med__Post MA__Phd__).

3. What is your area of specialization in English? Please select the most appropriate item. (Literature___Translation___Applied Linguistics ___EFL___TESOL___)

Computer-Using Experience

1. Do you have a high-speed Internet connection and networked computer in your classroom?
   Yes ☐   No ☐

   If yes, proceed to the following questions.

   a. How often do you use the Internet in the classroom a week on average?

   _____per a week

   b. What do you use the internet in the classroom for?

   c. How long have you been using the internet in the classroom?

   _____months

2. Do you have a high-speed Internet connection and networked computer at home?
   Yes ☐   No ☐

   If yes, proceed to the following questions.

   a. How often do you use the Internet at home per week on average?

   _____ per a week

   b. If yes, what for do you use the internet at home?

   c. How long have you been using the internet at home?

   _____per week

3. Do you use the Internet for classroom materials design, supplementary classroom materials, or outside classroom assignments for your students? If yes, please briefly explain why and how such activities are implemented.

Section 2: Teachers' beliefs, attitudes, willingness and concerns toward the use of Internet in EFL classroom (Close-ended Questions using a Four-point Likert Scale)

Statements	Strongly disagree (SD)	Disagree (D)	Agree (A)	Strongly agree (SA)
Teacher Belief				
1. I would be an innovative teacher without using the Internet.				
2. The use of the Internet does not meet my teaching goals.				
3. The Internet makes me feel uncomfortable when I teach.				
4. Internet-based instruction will change teacher roles as authorities and sources of knowledge.				
Teacher Attitude				
5. Using Internet in EFL classroom offers more advantages than traditional classrooms.				
6. Computer and internet technology does help students learn English				
7. Using Internet technology in the classroom would make the subject matter more interesting and facilitate English learning.				
8. The Internet serves as a facilitating tool for numerous language skills learning activities.				
Teacher Willingness				
9. I will use the Internet for teaching listening and reading skills.				
10. I will use the Internet to design my teaching materials.				
11. If I had Internet access in the classroom, I would like to maximize the use of the internet for classroom activities				
12. I will use the Internet to help my students improve their English skills and build/develop their learning autonomy.				
Teacher Concern				
13. I would use the Internet if I receive my institutional support (e.g., the availability of the Internet in the classroom).				
14. Teachers need sufficient training on the use of the Internet for EFL learning and teaching.				
15. I would use the Internet where sites are culturally appropriate.				
16. I would make use of the Internet if it suits my instructional time allotment, class sizes, and sufficient equipment.				

Section 3: Open-ended Questions

1. How do you believe that the integration of the Internet into school curricula will facilitate the teaching-learning process?

2. What roles do the Internet play in EFL instruction in general?

3. If you are willing to integrate the Internet into the classroom, what kinds of activities will you implement?

4. What kinds of concerns will you have if you integrate the Internet into the classroom?

Thank you for your cooperation

Note: Some of the above questionnaire questions were adapted from the questionnaires developed by Al-Mekhlafi, (2004), Albirini, (2006), Chen (2008a), and Yang (2001).

Flexible Delivery Issues:
The Case of the University of the South Pacific

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Abstract

Flexible delivery has become an essential model for teaching and learning as its methods are closely aligned to the constructivist theories catering for diverse learners' needs and lifestyles. In the South Pacific, where islands are geographical scattered over the vast areas of the world's largest ocean, development, delivery, evaluation and communication of the flexibly delivered courses remain problematic.

This paper focuses on the problems, challenges and barriers of offering flexibly delivered courses in the Pacific from the context of the University of the South Pacific, a leading premier regional university serving 12 island nations in the Pacific. It explores the following problematic issues, (a) inflexible curriculum, (b) access to support services, (c) level of infrastructure, and (d) ICT developments, and proposes possible solutions to these issues.

Keywords: Flexible delivery, flexible learning, flexibly delivered course, distance and flexible learning, distance and flexible learners, University of the South Pacific, ICT.

Introduction

Flexible delivery of education has become pervasive augmenting the ever growing need of perpetual just in time and lifelong learning. Contrary to the traditional methods of learning and teaching, flexible delivery offers learners with a myriad of choices as to how they want their learning experiences to occur. These choices are often designed to cater for diverse learning styles, preferences and strategies. The term flexible delivery and flexible learning have been used interchangeably. George and Luke (1995) for example, describes flexible delivery "promoting deep approaches to learning by purposefully selecting forms of delivery which are multi-dimensional" (p. 2) whilst Nunan (1996) considers flexible delivery "to mean the same thing as increasing flexibility in learning". (p. 2). According to Norman and Littlejohn (2005), flexible delivery is used synonymously with other approaches including open learning, distance learning and e-learning. Since flexible delivery and learning has several permutations and interpretations, Casey and Wilson (2005) suggests a contextual definition can be derived from answering the questions of "who is asking? and for whom the delivery is flexible?" (p. 5). Furthermore, they described that the five main dimensions of measuring flexibility are "time, content, entry requirements, instructional approaches and resources, and delivery and logistics" (Casey & Wilson, 2005, p.6).

This paper considers flexible delivery as the vehicle for achieving flexible learning; self-directed learning anytime and anywhere. This paper focuses on the problems, challenges and barriers of offering flexibly delivered courses in the Pacific from the context of the University of the South Pacific, a leading premier regional university serving 12 island nations in the Pacific. It explores the following problematic issues, (a) inflexible curriculum, (b) access to support services, (c) level of infrastructure, and (d) ICT developments, and proposes possible solutions to these issues.

The University of the South Pacific and Distance and Flexible Education

The University of the South Pacific (USP) is a regional university founded in 1969 to serve twelve Pacific island nations (Cook Is., Fiji, Kiribati, Marshall Is., Nauru, Niue, Solomon Is., Tokelau, Tonga, Tuvalu, Vanautu and Samoa). It has 14 regional campuses around the Pacific. USP is regional in the core components of its organizational structure: financial, physical, academic, and political as the twelve Pacific island nations which are, as proprietors, exercise collective governance (Matthewson, 1994).

USP began offering distance education in 1971. In 2006, 340 of the USP's 763 courses were available through distance and flexible delivery mode, with an institutional goal of having all the courses offered through the distance and flexible delivery mode by 2010 (Evans & Hazelman, 2006). 42% of USP's 22,000 students are distance and flexible learning students spread across the 12 island nations (Whelan, 2008). USP uses a range of media such as print materials, online learning management systems (Moodle), audio/audiographics and video conferencing, audio/video tapes, CDROMS and DVDs for the delivery of distance and flexible courses. Print materials are widely used as the most robust form of delivery however there has been gradual increases in the use of online learning management systems (from 6 web enhanced courses in 2001 to about 70 courses in 2007).

The USP member island nations are geographically dispersed, culturally, linguistically and economically diverse, spanning across 33 million square kilometres and four time zones. The total population within this area is less than 1.5 million and is situated in countries which "range from groups of small coral atolls, to one island countries and volcanic groups of islands and within its four major ethnic groups, Melanesian, Micronesian, Polynesian and Indian, there are 265 distinct languages and 60 distinct cultures prevalent" (Matthewson, 1994).

Many island communities are rural, remote and sparsely populated with traditional societies blending the indigenous cultural norms with forces of modernisation and development (Rao, 2007). Delivery of flexible learning courses for this community poses its own problems, challenges and barriers that are unique in its nature.

Problems and Solutions

The paper will focus on 4 major problematic issues of flexible delivery in the Pacific, (a) inflexible curriculum, (b) access to support services, (c) level of infrastructure, and (d) ICT developments. For each issue, the paper tries to propose solutions that can be used or already in use by USP for its flexible delivery.

The first issue is the **inflexible curriculum**. There has been an emphasis on the part of the USP's distance and flexible delivery course development teams over the years to contextualise flexible delivery learning materials to suit the needs of the Pacific learners. However, the magnitude of the diversity and differences in the environment, 'culture, values, linguistics and language proficiencies' (Rao, 2007) among the Pacific distance learners has meant only so much can be done. English is either the second or third language for most of the Pacific learners but yet it remains the principle language of instruction in USP. There is also the problem of the differences in the socio-economic and socio-cultural activities among the twelve member nations. Of particular interest is the difference in the reception of curricula that have been designed for a non-specific, generic 'global' audience as compared to curricula with the learner's specific cultural context in mind, for example, each country has their own currency therefore it is highly disengaging and superficial to use just one country's currency in the course curriculum of flexibly delivered courses. This situation even further worsened when trying to use vocabularies, symbols, icons, images and examples which are irrelevant, or sacred or taboo in one island nation while it is 'normal' in other island nations.

Bringing flexibility in the curriculum (or at least fit the majority) is even more difficult due to the diverse educational systems and epistemologies prevalent in the twelve USP member countries. This has led to "individual differences in the cognitive style and instructional preferences (i.e their disposition towards particular aspects of the learning environment)" (Smith & Smith, 2004) among the Pacific learners. For instance, Gold, Swann & Chief (2002) describe Pacific learning style to be "learning by doing…learning in real life situations and understanding for specific contexts" and "reading and writing are difficult for Pacific island learners for whom print as a medium of information and instruction is culturally and relatively new."

In a study by Bolobola and Wah (cited in Wah & Tuisawau, 2001), it was found that a substantial percentage (43%) of women from Cook Islands who withdrew from their distance studies, cited "heavy course workload", "difficult course content" and "family commitments" as reasons for withdrawing. This questioned the flexibility of the USP distance courses and whether they take into account the demands of large extended families (a norm in Pacific island communities).

The inflexibility in the curriculum is also due to the fact that instructors are academics but not trained teachers who still largely believe that traditional education (face to face delivery) is ideal and considers flexible delivery as "a second best alternative". They still lack the pedagogical methodologies and experiences for effective and contextualised flexible delivery of education.

Working forward for a solution to deal with inflexible curriculum would require extensive planning and radical redesign of rudimentary course material production process for flexible delivery. For planning for learner autonomy, a learner profiler needs to be established so that the cohort of the learner needs and diversities can be addressed in respective flexible courses. Using blended delivery approach by including several delivery media in a flexible course would enable learners with cognitive based personalisation in learning. A course could include print components supported by audio/video components, however this would mean increase in cost and this would require more time for planning, preproduction and production given the fact that a new course in USP is developed within 8 months for flexible delivery. Furthermore, the diverse range of language skills must be factored into curriculum design. The use of locally-relevant learning materials, localized content and examples, local languages rather than English in the course would bring about more contextualised relevant curriculum. For example, Whelan (2008) survey found that localising the learning management system's interface into the first language (or second) would provide additional support for online learners. (p. 24).

This paper agrees with Hall (1996) that the change to a flexible learning multipoint/multimode philosophy should be accompanied by the transformation in the roles of "faculty, students, administrators, college campuses and many non-formal learning sites – new roles for distance and flexible education". (p. 31). USP needs to provide more training in educational design for flexible delivery to its academics so that course materials can be produced with sound pedagogies. USP also needs to conduct awareness workshops and training for these academics to promote the use of open educational resources (OER) such as MERLOT and OpenCourseWare.

The second issue is the **access to support services**. Although USP has 14 regional campuses and various centres/study-centres in the twelve USP member islands, some of the distance and flexible learners have been at disadvantage because they live in outer islands, have transportation and communication problems and thus have no or little access to support services available to them. Wah and Tuisawau (2001) reported that the lack of proper support system as one of the reasons for high failure rate of USP's distance and flexible students.

Finding quality trained local tutors for the larger campuses have been relatively easy, but for smaller campuses there are still difficulties. Evans and Hazelman (2006) further explain that even "maintaining the services of qualified local tutors can be problematic because of the temporary and part-time nature of the employment offered to them". And an added complication is that due

to cost issues, campuses need to have five or more students enrolled in order to ensure a local tutor for a distance or flexibly delivered course.

The university (USP) also offers video/audio conferencing and satellite tutorials for its distance and flexible learners. Since the main university campus is based in Suva (Fiji), thus all audio/video lectures and satellite tutorials are conducted in Fiji date and time. Therefore there is a tendency that learners living in different time zones have to adjust themselves according to Fiji date and time (which simply defeats the notions of anytime learning). For instance when a Monday morning lecture takes place in Fiji, it is still Sunday in Samoa and Cook Islands.

In a bid to improve the quality of the support services, USP have embarked on infrastructure developments across all its campuses, centres and study-centres. It is seeking to establish more centres in the outer islands. USP have also successfully implemented the "Success@USP" orientation project which bundles essential support services in a package that is handed out to all its distance and flexible learners as part of their course materials. The problem of accessing local tutors is anticipated to be solved through the mainstreaming of online course management systems so distance and flexible learners can have ready access to course tutors, instructors, tutorials and lectures. However, connectivity is another issue.

The third issue is the **level of infrastructure**. The varying levels and lack of infrastructure such as proper transportation, communication and electricity in the twelve USP member islands poses problems for flexible delivery in the region. Most of the Pacific island nations largely have "aid-dependent" or "aid-augmented" economics (Matthewson, 1994). Transportation systems between islands and countries range form canoes to 747s. The lack of proper roads in many parts of the Pacific islands means the distance and flexible learners have to travel far distances to access local support services at a USP campus or centre. This leads to learners having limited or no access to local support services. For instance, in Samoa, learners are faced with transportation problems when the bus stops services at 4.30pm and most classes are scheduled at 5pm. Communication systems among the twelve island nations vary from none to standard and to high-tech technologies. For example, while some USP campuses and centres enjoy live satellite tutorials, the communication infrastructure in Samoa has been such that the communication has been through high frequency (HF) radio.

Because of the frailties of the communication and transportation systems distance and flexible learners of USP are faced with problems such as: (a) problems in successful enrolments, (b) problems in accessing/receiving course materials on time, (c) problems with communicating and interacting with course instructors and fellow peers, (d) delays in feedbacks and results, and (e) problems in accessing relevant information and support services. On the other hand, the problem of infrastructure hinders USP in any efforts to deliver new and innovative practices in distance and flexible delivery such as the mainstreaming of online learning management systems.

One of the ways to work around the problem of the levels of infrastructure is for USP to push forward for more partnerships or "cross-sectoral mergers" (Wah & Tuisawau, 2001). It needs to involve more of corporate organisations, private enterprises, non governmental organizations and donor agencies to work towards the development of infrastructure across the region. For example, the university had work closely with Japan International Cooperation Agency (JICA) from 2001 to 2005 to use technology for the delivery and support of distance and flexible learning courses. JICA assisted USP in implementing an online course management system (WebCT), provided training in online instructional designing, donated computers to various regional campuses and centres and provided multimedia software and training for developing audio and video materials. Another example, USP's western campus in Fiji utilizes the science and chemistry labs of a secondary school for providing local tutorial services to its distance and flexible learners. More Initiatives of this nature are needed to provide flawless flexible delivery in the Pacific.

The fourth issue is **ICT developments in the Pacific**. While USP is planning to move towards online learning, the levels of ICT developments in the Pacific remain a problem and challenge. In a survey carried out by Whelan (2008) across the twelve USP member islands, he found the ten most common perceived challenges of educational ICT in the Pacific being "lack of adequate financing, lack of skilled personnel, poor access to infrastructure and ICT equipments, low awareness about the benefits of ICT, ineffective secondary infrastructure such as electricity and roads, low connectivity speeds and inadequate networks, difficulties in maintaining and repairing broken equipment, lack of ICT integration into the curriculum, lack of ICT culture and lack of trust and suspiciousness about ICT". (p. 15).

While USP have tried to maintain adequate levels of ICT developments across its regional campuses for distance and flexible learners, sustaining it remains a challenge. Finding funds for upgrading and updating equipments have been difficult. More computers have led to the issue of space shortages in the regional campuses. Maintaining software license is becoming expensive thus it becomes hard to acquire recent versions of software. For instance, computer labs on USP's main campus in Suva are still running Microsoft Office 2000. Connectivity speed in the regional campuses is low. Moreover, some campuses do not allow learners to access internet or have limited access to it. There is also lack of skills in using computer software and internet among the distance and flexible learners in the Pacific.

Proposing solutions for cross-regional homogonous ICT developments in the Pacific would be infeasible. Williams (2005) describes that "in terms of the rate of ICT development, Pacific island nations can be categorised into three groups; countries that are moving ahead with ICT development, countries which are planning and considering using ICT and countries which are doing nothing yet." Despite this, USP have taken a proactive role in improving the ICT literacy. In 2006, USP Fiji Western Campus had launched Partners in the Advancement of Children Education (PACE) community education programme. The programme which is aimed at bridging the digital divide prevalent in the Pacific, involved providing free of charge basic IT training to primary school students and their parents. In its first year of implementation the programme provided IT training to about 860 primary school students and about 680 parents. The programme was piloted in the western Fiji areas, but USP is planning to implement this programme across all of its 14 regional campuses.

According to the Whelan (2008) survey, cost and access to ICT was a "priority concern" and "efforts to address this issue would require systemic change, top-down policy support and financial support and planning". (p. 25). However, USP's BookCentre in conjunction with Telecom Fiji started a programme which allowed USP students to purchase a laptop for $1500 which could be paid from their superannuation scheme. Previously, purchasing of any kind through the superannuation scheme wasn't allowed. Over the last two years, USP's BookCentre have sold more than 2300 laptops (BookCentre Manager, personal communication, January 8 2008) and the demands are increasing. Regional initiatives such as the "development of SPIN network, facilitated by the Secretariat of the South Pacific are aimed at building a new high-speed internet infrastructure for the region" (Whelan, 2008) can greatly improve connectivity by increasing access speeds while lowering access cost. This can have important implications for flexible delivery in the Pacific, particularly if combined with the rollout of global initiatives like the One Laptop per Child (OLPC) project. Not only it will improve access but it also improves ICT and information literacy, and can help in creating the ICT culture in the Pacific.

The University has also started to promote the use of free and open source (FOSS) software and started it's own FOSS project which maintains a database of all free and open source software. The use of FOSS would eradicate the problems associated with licensing. The University itself is using the Moodle learning management systems, a FOSS for the delivery of its online courses and all computers in the campuses are also equipped with OpenOffice software.

Conclusion

Flexible delivery does make a difference. It makes differences to the academics, to the learners, to the management of the learning environment, and to the teaching and learning processes. These differences are usually encapsulated in the different ways of representing knowledge thus placing different information processing demands on learners. Problems arises when aspects of flexible delivery is unable to meet these demands.

Perhaps USP's generic experiences and problems of flexible delivery are similar to other educational institutions but the regionality and shared ownership of the university means that some problems encountered are unique. These problems include the inflexibility in the curriculum, problems of accessing the student support and varying levels of infrastructure and ICT development within the region. However, USP itself have taken some proactive steps in order to phase out these problems and move forward. This shows the important role and stature of flexible delivery at USP as it strives to be the premier educational institution in the region.

References

Casey, J. and Wilson, P. (2005). 'A practical guide to providing flexible learning in further and higher education', Retrieved 20 December, 2007 from http://www.enhancementthemes.ac.uk/documents/flexibleDelivery/FD_Flexible_Learning_JCaseyFINALWEB.pdf

Evans, J. & Hazelman, V. (2006), 'Hard digital realities: Teaching with technology in the Pacific Islands', *Proceedings of the fourth Pan Commonwealth Forum on Open Learning,* Commonwealth of Learning, Jamaica. Retrieved 29 November, 2007 from http://pcf4.dec.uwi.edu/viewpaper.php?=193

George, R. & Luke, R. (1995). 'The critical place of information literacy in the trend towards flexible delivery in higher education contexts', *Paper presented at the Learning for Life Conference* , Adelaide, 30 November – 1 December, 1995. Retrieved 3 December, 2007 from http://www.city.londonmet.ac.uk/delibrations/flex.learning/rigmor_fr.html

Gold, M., Swann, J., and Chief, I. (2002). 'Keeping it flexible: Integrating technology into distance education in the South Pacific', *Educational Technology and Society*, Vol. 5 (1), ISSN: 1436-4522. Retrieved 3 December, 2007 from http://www.ifets.info/journals/5_1/gold.html

Hall, W. (1996). 'The educational paradigm shift: Implications for ICDE and the distance learning community', *Open Praxis*, Vol 2, pp. 27-36.

Matthewson, C. (1994). 'Whose development, whose needs? Distance education practises and politics in the South Pacific', *Journal of Distance Education*, ISSN: 0830-0445.

Norman, C. and Littlejohn, A. (2005). 'Flexible delivery: A model for analysis and implementation of flexible delivery programme', Retrieved 3 February, 2008 from http://www.enhancementthemes.ac.uk/documents/flexibleDelivery/flexible_delivery_QAA_124.pdf

Nunan, T. (1996). 'Flexible delivery – what is it and why is it part of the current educational development?', *Paper presented at the Higher Educational Research and Development Society pf the Australasia Annual Conference*, Perth, 8-12 July, 1996. Retrieved 29 November, 2007 from http://www.londonmet.ac.uk/delibrations/flexible-learning/nunan.cfm

Rao, K. (2007). 'Distance learning in Micronesia: Participants' experiences in a virtual classroom using synchronous technologies', *Innovate*, Vol. 4 (1). Retrieved 29 November, 2007 from http://www.innovateonline.info/index.php?view=article&id=437

Smith, E. and Smith, P. (2004). 'Strategies for accommodating individuals' styles and preferences in flexible learning programmes', *British Journal of Educational Technology*, Vol. 35 (4), pp. 395-412.

Wah, R. and Tuisawau, P. (2001). 'Flexible delivery at University of the South Pacific: No mean feat', *Proceedings of the second Pan Commonwealth Forum on Open Learning,* Commonwealth of Learning, South Africa.

Whelan, R. (2008), 'Use of ICT in education and training in the South Pacific', *Distance Education*, Vol. 29 (1), pp. 53-70.

Williams, B. (2005). 'Pacific Island states', *Digital Review of Asia Pacific 2005-2006.*

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