The Effect of Using Smart Boards in Teaching English in Iraqi Primary Schools

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Abstract:

This study is a part of a continuous examination to assess students' perceptions concerning teaching English at the primary stage. This study aims to examine the students' perception towards Smart Board used in teaching English language in improving and incorporating the four skills of English language teaching. In such kind of setting, the instrument previously mentioned is applied as a teaching technique. The study employs a test that is carried out for students with participants of a total number of (120) in the sixth stage, selected from (6) primary schools (3) are private schools and (3) are public ones in Mosul city, Iraq. The findings showed students' preference of Smart Boards classes as compared to old-fashioned method of traditional oral teaching using white- board and a marker in teaching English language. Students as well showed an encouraging attitude towards such a mode of teaching. As a consequence, this study fits into earlier studies that are intended to locate the effectiveness of this technology within academia. The researcher recommends the need to initiate the same studies on higher educational levels to ascertain the efficacy of such a form of technology that contributes to the wholesome fruitful consequences.

Keywords: Smart Boards, Teaching, English, Primary School.

References:

Akbaş, O. & Pektas H.M. (2011) The effects of using an interactive whiteboard on the academic achievement of university students. *Asia-Pacific Forum on Science Learning and Teaching*, 12(2), 1–19.

Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Computers & Education, 47*(4), 373-398.

B. Ball, "Teaching and learning mathematics with an interactive whiteboard," Micromath, 19(1), 2003, pp. 4-6.

C.J. Bonk, and D.J. Cunningham, (1998). "Searching for learner-centered, constructivist, and sociocultural components of collaborative educational learning tools," in C. J. Bonk & K. S. Kim (Eds.), Electronic Collaborators: Learner-Centered Technologies for Literacy, Apprenticeship and Discourse*, 1998, pp. 25-50. New Jersey: Erlbaum.

Cockburn, T., & Matthew, A. (2006). Lecturing Law with PowerPoint: What is the point? *eLaw Journal: Murdoch University Electronic Journal of Law*, *13*(1), 113-140.

Cutrim Schmid, E. (2011). Video-Stimulated Reflection as a Professional Development Tool Interactive Whiteboard Research. European Association for Computer Assisted Language Learning, 23: 252-270.

Miller, D., Glover, D., & Averis, D. (2005, March). Presentation and pedagogy: the effective use of interactive whiteboards in mathematics lessons. In *Proceedings of the sixth British congress of mathematics education* (Vol. 30, pp. 105-112).

Ishtaiwa, F. F., & Shana, Z. (2011). The use of interactive whiteboard (IWB) by pre-service teachers to enhance Arabic language teaching and learning. *Learning and Teaching in Higher Education: Gulf Perspectives*, *8*(2), 17-34.

أثر استخدام السبورة الذكية في تدريس اللغة الإنجليزية في المدارس الابتدائية العراقية

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الملخص:

هذه الدراسة جزء من اختبار مستمر لتقييم تصورات الطلاب بما يتعلق بكيفية تدريس اللغة الإنجليزية في جميع أنحاء العالم في المرحلة الابتدائية. إذ تهدف الدراسة فحص تصور الطلاب تجاه السبورة الذكية المستعملة في تدريس اللغة الإنجليزية في تحسين ودمج المهارات الأربع لتدريس اللغة الإنجليزية. في مثل هذا النوع من الإعداد ، يتم تطبيق الأداة المذكورة مسبقًا كأسلوب تعليمي. توظف الدراسة اختباراً يتم إجراؤه على الطلاب بإجمالي عدد المشاركين (١٢٠) في المرحلة السادسة ، والمختارين من (٦) مدارس ابتدائية (٣) مدارس خاصة و (٣) مدارس حكومية في مدينة الموصل ، العراق. أظهرت النتائج تفضيل الطلاب لفصول السبورات الذكية مقارنة مع الطريقة القديمة للتدريس الشفهي التقليدي باستعمال السبورة البيضاء وعلامة في تدريس اللغة الإنجليزية. أظهر الطلاب أيضًا موقفًا مشجعًا تجاه مثل هذا الأسلوب في التدريس. نتيجة لذلك ، تتناسب هذه الدراسة مع الدراسات السابقة التي تستهدف تحديد فعالية هذه التكنولوجيا في الأوساط الأكاديمية. ويوصي الباحث بضرورة الشروع في الدراسات نفسها على مستويات التعليم العالي للتأكد من فاعلية مثل هذا الشكل من التكنولوجيا التي تسهم في النتائج المثمرة.

الكلمات المفتاحية: السبورات الذكية ، التدريس ، اللغة الإنجليزية ، المدرسة الابتدائية ، الموصل، العراق.

1. Introduction

Nowadays' new technologies have clearly increased the growing attitude towards the global village that could lead to a need for a worldwide *lingua franca* as well as an increased of emergence English, which has brought about a preference for a sole language for international communication. Since the process of learning-teaching of all languages has followed the stand-point of one language's cultures, the new technologies will be looked at as influential ways in learning a language. These technologies have the ability to meet the emerging challenges of the global civilization to be employed for the varied human necessities. The scene discloses the obviousness that English language teaching simply relies on the literary texts, which might not have the required appropriateness.

Basically, the use of technology in schools is meant to prepare learners/students to make both teaching and learning more likeable and enable them to build their own knowledge for exploring interest while learning what is offered for them to be learnt (Cuban, 2001). However, getting easy access to technology in the classroom does not mean to raise the use of technology in teaching and learning. Therefore, the available technology is a crucial point in technology use, through it is insufficient (Ertmer, Gopalakrishnan, & Ross, 2000; Kern, 2006).

Cuban, L. (2001). Oversold and underused: Computers in the classroom. Cambridge, MA: Harvard University Press.

Ertmer, P. A., Gopalakrishnan, S., & Ross, E. (2000, April). Technology-using teachers: Comparing perceptions of exemplary technology use to best practice. Paper presented at the meeting of the American Educational Research Association, New Orleans.

2. Literature Review

Colloquial language learning as a process makes use of Smart Boards as the axis of teacher-student can balance task requirements. They (Smart Boards) can visually as well support learners with the studying materials. Therefore, to prepare audial-visual materials and use them in courses can offer significantly real advantages as for time factor. Learners of a foreign language are enabled by their teachers to actively have the chance of real involvement in the whole process actively. Even learners can make use of the background pictures functioning or character adding that is taught using a Smart Board page. Another merit with this device, which is the ability to record learners' sounds and make interpretations. As for the Smart Board software, the gallery of

maps, pictures, graphics and sound files are all exist. Files can be searched and dragged-dropped to electronic page (Cutrim, 2011). Here, it can be said that teachers of a foreign language can use a Smart Board to effectively ease classroom interaction-communication and shorten the time-span of learning process.

The four skills of language learning-teaching (i.e. listening, speaking, writing and reading) can be facilitated depending on Smart Board. It can also ameliorate the productive capabilities on the part of the learners and at the meantime update versions of information. Such a step can be made with the help of the networking connection of smart board, which can be transferred in an easy and effective way.

Currently, the use of technology has made the English language classrooms smarter and this is obvious by the existence of document cameras, by which computer projection systems are dedicated as well as interactive whiteboards. The interactive whiteboard (IWB) can be defined as a big interactive show, by which a computer projector is connected. This technological system let users to create dynamic, interactive presentations. Moreover, such functions can be provided by MPP (i.e. Microsoft Power Point). By using it, colors can be added as well as images, sound and hyperlinks to further documents such as Web documents.

It has been recently stated that gaining knowledge about English language is regarded as a crucial factor, by which technology use in developing countries can be affected. Being the world's first spoken language, English language is seen as the language of technology and computer (Albirini, 2006) and this can be attributed according to Navdal (2007) the "instructions, messages, and internet texts are generally in some variant of the English language" (p. 1113)

Consequently, English language has gained a flourishing in terms of classroom teaching on a global level and in the Arab countries respectively. The current research is carried out at primary level in Mosul city – Iraq. It also involves (6) primary schools, (3) are public schools and (3) are private ones. The difference between the two lots is that the public schools are not equipped by such technology (i.e. smart board), while in the private ones, the technology of smart board is found. The period in which English language is taught in both sides of primary education is a full academic year that lasts for (9) months starting from September to May each year. English language has been taught as a basic subject just like Arabic language, math and so on.

The main objective of English language teaching is to improve learners' ability to use English language inside and outside the classroom. Learners can have the ability to learn how to use computer skillfully as well as skills of communications, in addition to (PE) (i.e. physical education). By the end of the academic year, this will help learners to get used to English language at the college level.

2.1 An Overview of Smart Boards

Many technologies are sustained by theories of learning support to give the children the chance of actively engaging in the process of learning (Bransford, et al. 1999). Smart board is regarded as one way of new technology, that grants teachers-students to have a lively interaction with content depending on the courseware developed by Smart Technologies. Smart board can have dual task that can be carried out using a computer. Besides, there are additional or extra features, which involve the use of fingers and pens. It is believed that when people interacted, they are enabled by the web to easily access to whatever type of information. Such technologies make it easy to the educators to enhance new teaching methods and continue with these technologies (Fuller, Kuhne & Frey, 2011).

Moreover, the set interactions included in the smart board involved drawing, marking and highlighting of any computer-based output, and teachers' lessons can be already made, saved and replayed again and again. It has been found by Swan et al. (2007) that both teachers and learners enjoy smart boards. Students' motivation is higher while actively engaging to learn as for whiteboards being in use. In addition to that, previous studies have shown that smart board lessons more student-centered a compared with those given using whiteboards. Teaching of teachers has been shifted suing the interaction form upon presentation form, which is relied heavily on content (Miller, et al., 2005; Swan et al. (2007).

More previous studies demonstrate in use enhances learners' achievement as it compares the pre- to post-test results between the control and experimental groups (F.J. Zittle, 2004; Dhindsa & Emran, 2008). It has been documented that the usage of smart boards in the learning-teaching process for example mathematics (Ball, , 2003; Higgins, 2010) literacy (Bonk & Cunningham, 1998; Martin, 2007), writing (Chang, 2001) and language (Ishtaiwa, & Shana, 2010) that interactive boards, science (Hennessy, et al., 2007; Yang & Wang, 2020) have achieved effective findings. It has also been documented that the logic in using smart boards is to increase learners'

achievement, and at the same time has caused schools across the United States to buy and install smart boards in classrooms to support learners' records on standardized tests.

In a study carried by Raja Maznah and Termit Kaur that has encouraged more interactive processes and participation in the classroom on the part of the learners and laid more emphasis on learning-teaching process. Termit and Abdul Rashid (2012) discovered that learners get enjoyment while using the touch screen because objects can be easily removed and moved on all sides of the board as well as questions can be answered and puzzles can be solved as well in the science lesson.

3. Teaching English as a Foreign Language in the Primary School

Recent years have witnessed the vast growth on the level of technologies employed in teaching for different educational level. Smart Board with its achieved significance especially foreign language teaching. As a tool-teaching-assisted, it sustains both learners' focus as well as taking part in the whole process of learning-teaching. A study has been conducted by Schmid (2011) in which smart board has a crucial role to set connections inside classroom conducted by teachers of foreign languages.

All the educational system as long as its components, such as the educational objectives differ, however their main interest was the common variation concerning methods of teaching as well as technology application. Moreover, they have proved their contribution to the entire scientific development along with the vast technological eruption, that is well-manifested within the educational process. The specification of such a manifestation is the use of multimedia technology for educational purposes.

The incredible development that has appeared in recent years can be touched on technological media, and the way it has been employed as a crucial tool in education, and one of such sides of the aforementioned technological development is smart board (Gosaibi, 2009). An appropriate lesson plan with teaching a foreign language has shown a countless significance while carrying it out effectively. In fact, learning combines a process both intentional and informally. According to Fuller, Kuhne &Frey (2011) "A learning process which is supported with visual materials is more effective and lasting" (p.1). It has been found that the wealthier the materials are during the process of teaching; it assists in raising learners' motivation.

In a study carried out by Smith et al. (2006), that aimed to decide how impactful a smart board is in increasing teacher-learner's interaction in reading skill. Therefore, for a time-span of two years, and for achieving the set objective, (184) classes has been observed by a group of primary schools' teachers. These teachers have been teaching by smart board and without it with the help of a computerized show-form. It has been discovered that smart board brought about some alterations in teacher-student's interaction.

4. Methods of Teaching Foreign Languages

Methods of teaching foreign languages (i.e. English) have been associated with adapting the learners' styles of learning, which respectively sounds related to the existing framework to modernize the educational process for the purpose of increasing the efficiency of training. As for learning styles, they are conventionally regarded as the most appropriate for a one's way by which information is studied and processed.

A growing increase of interest in individual differences in learning causes the emergence of constructivist pedagogy. This way of teaching emphasizes to create the suitable condition(s) for the independent formation of new knowledge among learners. To individualize learning styles – as an idea – can be traced back to Jung's theory of psychological types (Jung, 1971). Information technology with all its fast changes has effectively been applied effective in education and for all varied fields of life. It has also caused basic changes in classical environments of classroom(s) and method(s) of teaching. Such changes have been associated with computers, tablets, projectors, flash disks, mobile phones, digital cameras and video recorders. These newly used technologies have been entered the teaching environment and manifested their effect the entire educational umbrella. The last two decades have prevailed a massive innovation, which is the Smart Board that brings together, computer, projector, and touch screen electronic board (Akbaş & Pektaş, 2011).

5. Research Problem

While observing some classes that teach social sciences at Iraqi schools, it has been remarked that learners' often memorized information can be learnt without prior interaction with the subject itself. Having concluded that the lack of motivation to learn social sciences. Therefore, following or adopting newly invented technologies could solve the problem and make learning-

teaching process an entertainment. Thus, to set a better solution, the researcher intends to use smart board to find out to what is extent of it use as well as effect on learners' achievements in social studies generally and English language respectively on the primary education level.

6. Research Questions

The current research will try to answer the proposed questions as follows:

1. Will teaching English as a foreign language by the use of smart board assist in supporting learners to learn English better and easier?
2. What do learners identify concerning the use of smart board in English language classroom instruction at the primary stage?

7. Hypothesis

It is hypothesized that teaching English as a foreign language using smart boards can help learners at the primary level learn English better and easier.

8. Purpose of the Study

The opinion by both leaners and teachers is that smart board can be an effective tool in enhancing the learning of English language. This study aims at determining the efficiency of applying smart board class. In addition to that, the researcher has been specialized in the field of teaching English as a second/foreign language and has thoroughly thought concerning conveying the best-formed classroom instruction and confirmed the usefulness of smart board as a technique of efficiency to achieve the goals pictured in the curriculum the context of Arab English language learners' needs.

9. The Setting of English Language Classroom

The equipment of each classroom is a set of interactive smart board and projector. Teachers are given a laptop each. The English curriculum involves the English for Iraq Series, which is a set of Student's Book and Activity Book as well as Teachers' Book. Teachers are required to integrate the four skills while teaching process takes place. All three books are scanned and converted to PDF files. Then, they are placed in PPT format so they can be easily presented for learners. Slides were prepared to shed light to encompass all the requirements of teaching such as grammar, vocabulary, reading, listening and writing. As a teaching procedure, it is firmly

followed the methodologies and approaches proposed in assigned book(s) and teacher's book as well. Audio material is also inserted in the slides with relevant exercises. In addition to animated material that is used to sustain learners' interest. Every time teaching occurs, a certain and appropriate point of the lesson to be shown on the screen and gives learners a chance to read and comprehend the assigned tasks, exercises etc. Normally, each unit can be covered by (25) to (30) slides that were prepared previously. To have slides prepare, it is not away from difficulty due to lack of experience on the part of the teachers and at times it may cost hours to be well-prepared. Factors of encouragement and consolation for these tasks can be fruitful for teachers as they represent their opportunity to widen their perspectives and prospects on what the process of teaching requires teachers to go through and how learners can interact accordingly. Both teachers and learners will be effective inside the classroom and teachers will practice managing classroom through interest and enthusiasm.

10. Significance of the Research

As set and studied by previous researches, to investigate the effectiveness of smart board in the English language teaching process has yet been imperfect. Generally speaking, in the area of education, there have been many studies carried out to determine the positive sides of smart board. In Mosul city – Iraq, it is a recently shown that the application of such technology in its primary stages. This means that no previous studies have been conducted in the previously mentioned area. Therefore, it is expected that this study will have a better contribution to the previously done evaluations of the supporters of smart board and to the upgrading and usefulness of English classroom instruction at the primary stage.

11. Methodology

For the purpose of answering the set questions of the current study, the study employed a test that was conducted on the total number of the study's sample (120) students who attended English lessons with Smart Board for the first term of the academic year 2021-2022. This procedure intended to examine these students' perceptions concerning the pedagogical use of Smart Board in English language teaching. This procedure as well was carried out to ensure that sample of the study read, understand the statements and respond accordingly. Moreover, at the of the above-mentioned term, final results – of two classes – show the same level. The first of them shows that Smart Board was used and the other is concerned with the classical oral presentation

with teacher writing on the board. The analysis confirmed the efficacy of Smart Board as compared to classical oral presentation with teacher's use of traditional whiteboard with markers. In addition, the related literature on the topic was approved the findings of this study.

12. The Participants

Participants of the study were (120) students taken from (6) schools, (3) of them were private and (3) others were public of learners in the sixth primary grade who are studying English at the primary level of education, Mosul City, Iraq. The exposure procedure was conducted on the participants to be familiar with Smart Board presentation during the first academic term of the 2021-2022 of their yearly studying. This step was done to discover these students' perceptions concerning the effect of using Smart Board while studying. The selection of these primary group learners was of great importance to the study. The details are shown in Table (1) in the appendices.

13. Discussion

The learner clearly and regularly took the test to show that the traditional classroom teaching is not preferable as compared with Smart Board. This preference of Smart Board sounded positive as it facilitated an accessible learning and better performance at tests. The findings of the current study go in line with the findings of previously conducted studies of (Cockburn and Matthew, 2006) and (Savoy et al., 2009).

Thus, it is obvious that Smart Board can improve the efficiency of English language classroom instruction. Smart Board approves its success while applied as a form of advancement in technology. This technology is finely welcomed by learners due to its enhancing and enriching of the English language teaching. As well, attending a lesson with Smart Board appeared to be of much interest as it thoroughly attracts their attention.

Furthermore, these students have tracked and comprehended lessons given by Smart Board with fair class involvement. This device – Smart Board – has inspired the students' thinking. Therefore, students believe that these presentations used the class-time efficiently as well as effectively made use of learning materials. In particular, students regarded the aspect of review on Smart Board are more valuable. As a result, it is obvious that Smart Board is seen as an

essential means by which English language is both learned and taught. To add, Smart Board is enhancing the efficacy of teachers' presentations as it highlights the main points of the lesson's material. It also displays pictures, graphs, charts and diagrams. Teachers' aim within Smart Board is to set up a sense of communication to effectively deliver suitable messages. As a time restriction, appropriateness and relevance of resources were based on the learners' perceptions for investigating the effectiveness of Smart Board on student learning.

14. Conclusion

In the current study, the participants' response suggested that nearly all the learners positively reacted concerning the use of Smart Board in the setting of English language learning and teaching. Most importantly, it is expected that this research could make learners and teacher be aware towards Smart Board as an effective means in English classroom as well as among teachers of English language. The way learners prefer learning and comprehending their needs plays a main role in English language learning and teaching in a context of globalization. Such a context has resulted from the advent of English as a worldwide language. Therefore, teachers are not able to disregard educational technology. This in turn does not mean that they (teachers) should depend completely on that kind of technology. On the contrary, they may integrate technology use as a manner to make procedures within the classroom vary for learners to be encouraged and motivated.

Based on the previous discussion above, nearly all the students prefer technology over traditional methods of teaching. This is so, because students can use it (technology) from within their homes. Modern technology of teaching make the environment inside the classroom more interactive and accessible. It also facilitates the way the students keep the information for a longer time. This brings about to improve the students' outputs, and to increase self-learning. It is as well adds to raise the students 'achievement. Nowadays, students have no preference for the lectured lessons as the class is controlled and dominated by the teacher. Learning is preferred while entertainment goes on, which will enable students to take an active role inside the classroom. Smart Board is a significant invention, which could suit the varied grades within the circle of primary schooling.

1. Description and Percentages

School	N	Minimum	Maximum	Mean	Std. Deviation	%
School 1	20	57.00	100.00	85.4500	12.01961	%85.45
School 2	20	75.00	100.00	91.0500	8.35700	%91.05
School 3	20	54.00	100.00	84.5000	16.05418	%84.5
School 4	20	34.00	93.00	64.5000	16.64648	%64.5
School 5	20	40.00	100.00	74.2000	21.47851	%74.2
School 6	20	44.00	100.00	85.6000	17.21811	%85.6
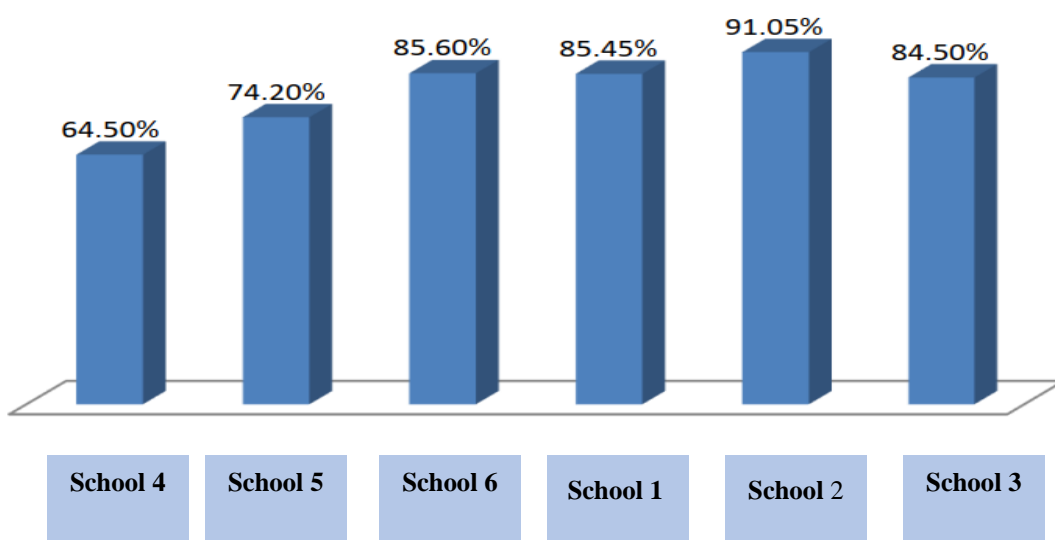
2. Differences among Private Schools

School	N	Mean	Std. Deviation
School 1	20	85.4500	12.01961
School 2	20	91.0500	8.35700
School 3	20	84.5000	16.05418

S.O.V	Sum of Squares	df	Mean Square	F.	Sig.
Between groups	4461. 733	2	2230. 867	6.	0.003**

Within groups	19663. 000	57	344. 965	467	
Total	24124. 733	59			

3. Differences among Public Schools

School	N	Mean	Std. deviation
School 1	20	64. 5000	16. 64648
School 2	20	74. 2000	21. 47851
School 3	20	85.6000	17.21811

S.O.V	Sum of Squares	df	Mean Square	F.	Sig.
Between groups	501.100	2	250.550		
Within groups	8968.900	57	157.349	1.592	0.212
Total	9470.000	59			

4. Differences among Public Schools

School	N	Mean	Std. Deviation
School 1	20	85.4500	12.01961
School 2	20	91.0500	8.35700
School 3	20	84.5000	16.05418
School 4	20	64.5000	16.64648
School 5	20	74.2000	21.47581
School 6	20	85.6000	17.21811

S.O.V	Sum of Squares	df	Mean Square	F.	Sig.
Between groups	9452.467	5	1890.943		
Within groups	28631.900	114	251.157	7.527	0.000*
Total	38084.367	119			

References

Akbaş, O. & Pektas H.M. (2011) The effects of using an interactive whiteboard on the academic achievement of university students. *Asia-Pacific Forum on Science Learning and Teaching*, 12(2), 1–19.

Albirini, A. (2006). Teachers' attitudes toward information and communication technologies: The case of Syrian EFL teachers. *Computers & Education, 47*(4), 373-398.

B. Ball, "Teaching and learning mathematics with an interactive whiteboard," Micromath, 19(1), 2003, pp. 4-6.

C.J. Bonk, and D.J. Cunningham, (1998). "Searching for learner-centered, constructivist, and sociocultural components of collaborative educational learning tools," in C. J. Bonk & K. S. Kim (Eds.), Electronic Collaborators: Learner-Centered Technologies for Literacy, Apprenticeship and Discourse, 1998, pp. 25-50. New Jersey: Erlbaum.

Cockburn, T., & Matthew, A. (2006). Lecturing Law with PowerPoint: What is the point? *eLaw Journal: Murdoch University Electronic Journal of Law*, *13*(1), 113-140.

Cutrim Schmid, E. (2011). Video-Stimulated Reflection as a Professional Development Tool Interactive Whiteboard Research. European Association for Computer Assisted Language Learning, 23: 252-270.

Miller, D., Glover, D., & Averis, D. (2005, March). Presentation and pedagogy: the effective use of interactive whiteboards in mathematics lessons. In *Proceedings of the sixth British congress of mathematics education* (Vol. 30, pp. 105-112).

Ishtaiwa, F. F., & Shana, Z. (2011). The use of interactive whiteboard (IWB) by pre-service teachers to enhance Arabic language teaching and learning. *Learning and Teaching in Higher Education: Gulf Perspectives*, *8*(2), 17-34.

Zittle, F. (2004). Enhancing Native American mathematics learning: The use of Smart board-generated virtual manipulatives for conceptual understanding. In *EdMedia+ Innovate Learning* (pp. 5512-5515). Association for the Advancement of Computing in Education (AACE).

Fuller, R.G., Kuhne, G.W., & Frey, B.A. (2011). Distinctive Distance Education Design: Models for Differentiated Instruction. Information Science Reference. Hershey, New York.

Gosaibi, S. (2009). *Effective use of interactive whiteboard in addressing some learning difficulties for students with special needs.*

Dhindsa, H. S., & Emran, S. H. (2006). Use of the interactive whiteboard in constructivist teaching for higher student achievement. *METSMaC 2006*, 175-188.

Bransford, J. D., Brown, A. L., & Cocking, R. R. (1999). How people learn: Brain, mind, experience, and school (pp. xiv-xv). *Washington, DC: National Academy Press. ED*, *436*, 276.

Jung, C. G. (1971). *Psychological Types. Collected Works of C. G. Jung. 6* (translated by A. Gerhard, & R.F. C. Hull). Princeton University Press.

Swan, K., Kratcoski, A., van 't Hooft, M., Campbell, D., & Miller, D. (2007). Technology support for whole group engagement: A pilot study. *International Journal on Advanced Technologies for Learning*, *4*(2), 68-73.

Singh, T. K. R., & Mohamed, A. R. (2012). Secondary students' perspectives on the use of the Interactive Whiteboard for teaching and learning of Science in Malaysia. *Journal of education and Practice*, *3*(7), 9-15.

Yang, K. T., & Wang, T. H. (2012). Interactive whiteboard: Effective interactive teaching strategy designs for biology teaching. *E-Learning-Engineering, on-job training and interactive teaching*, 139-156.

L.H. Chang "Learning to teach Moral Education", Paper presented at Association of Moral Education Conference: Excellence in Moral Education," Vancouver, November, 2001, pp. 24-27.

Navdal, F. (2007). Home-PC usage and achievement in English. *Computers & Education, 49*(4), 1112-121.

Hennessy, S., Deaney, R., Ruthven, K., & Winterbottom, M. (2007). Pedagogical strategies for using the interactive whiteboard to foster learner participation in school science. *Learning, media and technology*, *32*(3), 283-301.

Martin, S. (2007). Interactive whiteboards and talking books: A new approach to teaching children to write? *Literacy*, *41*(1), 26-34.

Higgins, S. E. (2010). The impact of interactive whiteboards on classroom interaction and learning in primary schools in the UK. In *Interactive whiteboards for education: theory, research and practice* (pp. 86-101). IGI Global.

Savoy, A., Proctor, R. W., & Salvendy, G. (2009). Information retention from PowerPoint™ and traditional lectures. *Computers & Education*, *52*(4), 858-867.

Smith et al. (2006). The impact of interactive whiteboards on teacher-pupil interaction in the national literacy and numeracy strategies. *British Educational Research Journal, 32*(3), 443-457.