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The Effect of the Use of Interactive Multimedia towards Form Two Technical Living Skills Students

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Abstract

This study seeks to identify the effect of the use of the interactive multimedia in learning and facilitation towards the form 2 students in technical Living Skills subject in the district of Kubang pasu, Kedah. The study adopts the purposive sampling to select the study sample. The study sample comprises of four groups of interactive (80 people) and four conventional groups (80 people). This study adopts the mixed method to gather the data. For the quantitative method, the questionnaire forms were distributed to160 persons as the sample. Meanwhile for the qualitative method, the interview method is used to six samples. Data were analysed to get the findings using the software named " *Statistical Package of the Social Sciences (SPSS)*". An analysis was done using the descriptive statistics method in the context of the study variable which is based on the demography of race, gender and computer ownership. The inferential statistics involve the t-test, MANOVA test and Pearson Correlation test. The study findings show that there is a significant difference towards the level of knowledge, motivation and interaction between the treatment and the control group. Other than that, there is a significant impact between the groups towards the variables of multimedia knowledge and interaction. Last but not least, there is a significant relationship between knowledge and motivation, knowledge and interaction and interaction and motivation. There are two themes yielded from the interview analysis which are the reasons behind students being more interested in learning if teacher uses interactive multimedia materials during the learning and facilitation process. The second theme is the impact if teacher uses the interactive multimedia materials during the process of learning and facilitation. The conclusion from the study demonstrates that the use of interactive multimedia materials in learning and facilitation towards Form Two students studying Technical Living Skills has brought an impact to their knowledge, motivation and interaction. The study implication shows that the use of interactive multimedia materials in learning and facilitation of the students has increased their learning and facilitation.

Keywords: Living Skills, Multimedia Knowledge, Motivation, Interaction

1. Introduction

Information and Communication Technology is an important element in helping to materialise the achievement of the goals intended for the Education Development Master Plan (PIPP) 2006-2010. The Ministry of Education Malaysia (KPM), in the effort towards developing the school and elevating its status has stressed on the government's initiative in developing multimedia in education. The preparation and the implementation enlisted cover the aspects of infrastructure, substance and human energy to produce quality education for all. Among the implementation of the KPM is the multimedia literacy for all students to develop slills in using the multimedia, prioritising the role and function as a teaching and learning tool and stress on the use of the multimedia to increase productivity, efficacy and effectiveness of the management system. (KPM 2007).

In the effort to bridge the digital gap between the location, teacher and student, the use of the multimedia is expanded not only in schools, but also at the pre-school level. Various approaches, strategy and technique that are appropriate with the children's interest and ability are used to achieve the learning outcome in the pre-school education curriculum. Effective learning from childhood will form a strong learning foundation to help them continue their studies at a higher level (Sharifah Nor 2003). The use of the multimedia in education must focus on the process of applying the tool using the appropriate principle, method and technique in teaching and learning.

The computer not only stores the information with high capacity but it can even measure children's development fast and effectively. Various software used is also able to add to children's knowledge give meaningful experiences, develop children's skills in knowledge fields like Science and Mathematics (Abdul Halim 2008). The potential of the multimedia as a tool that can help in the learning and facilitation (PdPc) has become more important and increased drastically in the education system today. These days, school students are more interested in using the multimedia, surf the Internet to access information and have their own websites by registering in *myspace*, *friendster*, *blogspot*, *facebook* and so on. The phenomena as such have become a trend among students (Liaw Huang & Chen 2007). Students' interest in using the multimedia has to be taken advantage by the teachers and parents by guiding the students and children to use it wisely and correctly.

One challenge prevalent in the education system in Malaysia is to shift the paradigm of the teachers towards the latest change of the PdPc method using the computer and the multimedia facility as an alternative approach. Teachers have to learn new ideas and teaching aids that are interesting to motivate the interest and exude an appeal in the education curriculum learning process (Liew 2007; Sharifah Nor 2010). Teachers nowadays are more knowledgeable and sensitive to the preparation using the multimedia in the process of teaching and learning. According to Fisher (2003), in western countries, the increase in the multimedia integration in the classrooms is encouraging for the past three decades. In the rapid expansion of the era of multimedia, teachers need to focus on two main fields. The first field involves the learning of using technology where teachers are exposed to various skills of how to use the multimedia in terms of personal management, or professional aspect. Teachers undergo the process of learning the multimedia the same as they learn it in school.

This multimedia efficiency is known as multimedia literacy covering the knowledge about the basic concept and multimedia operations. The aspects contained in the multimedia literacy include the basic concept of multimedia, the use of the computer, the processing of words, electronic platform, database, file management, document production, performance, also information and communication (Norton & Wiburg 2003). The second field focuses on the use of the multimedia in the PdPc process, which is how to use the multimedia effectively in PdPc. The use of the multimedia in PdPc means using the multimedia systematically, in a planned and an appropriate manner to increase the efficacy of the process and the effectiveness of the PdPc. Teachers are exposed to various methods of how the multimedia is used as a medium to access the information from the Internet, study a phenomenon through simulations or looking at the demonstration of an event, help students carry out their learning tasks like producing essays, sketch pictures and so on (Maier & Warren 2002; Jonassen 2003).

According to Parker (2008) in his study, he finds that teaching using multimedia increases the interest and attention of the students, encourage feedback, offer intellectual learning experiences, help literacy development and high-level thinking skills among students. Thus, the pedagogical changes using multimedia are essential in the effort to produce the PdPc process to become more attractive and effective (Mohd. Arif dan Rosnaini 2002; Fauziah Ahmad 2006).

2. Study Objective

Consistent with the study problem discussed, the objective of this study is to identify the effect of the use of the interactive multimedia in the students' learning and facilitation towards the knowledge, constructivism and interaction. The objectives of the study are based on the constructivism theory (Jean Piaget, 1976).

The objective of this study are as follows:

a) To identify the difference between the multimedia knowledge level and computer ownership in the process of learning and facilitation of Form Two Technical Living Skills in the district of Kubang Pasu, Kedah;
b) To identify the difference between the motivation level and computer ownership in the process of learning and facilitation of Form Two Technical Living Skills in the district of Kubang Pasu, Kedah; and
c) To identify the difference between the motivation level and computer ownership in the process of learning and facilitation of Form Two Technical Living Skills in the district of Kubang Pasu, Kedah

Study Questions

The questions raised from the study are as follows:

a) Is there any difference between the multimedia knowledge level and the process of learning and facilitation of Form Two Technical Living Skills students in the district of Kubang Pasu, Kedah?
b) Is there any difference between the motivation level and the computer ownership of Form Two Technical Living Skills students in the district of Kubang Pasu, Kedah?
c) Is there any difference between the interaction level and the computer ownership of Form Two Technical Living Skills students in the district of Kubang Pasu, Kedah?

3. Study Design

3.1 Sample

There are 160 form two students studying Technical Living Skills at secondary schools in the district of Kubang Pasu, Kedah. 80 are in the control group and 80 more are in the treatment group.

3.2 Procedure

This study is an experimental study using the quasi-experiment design (Creswell, 2009). The design is selected because it uses sample from a selected group of students based on the existing group. The process began with the control group being given questionnaire forms after completing a 60-minute learning session using a conventional method of learning and facilitation. Afterwards, the treatment process was given to the students using interactive multimedia materials in the class for five minutes of the learning session, which takes place for 60 minutes every session. All students were given the questionnaire forms before the first session and after the fifth session to know the level of multimedia knowledge, the motivation and interaction after the learning and facilitation session using the interactive multimedia approach. Interviews with the students were also done in the library to know the effects of using interactive multimedia materials.

4. Data Analysis

These data are analysed using the SPSS version 20.

4.1 Hypothesis: There is No Difference Between The Level of Knowledge and Students' Computer Ownership

The t-test analysis outcome for both the pre-and post-tests of the conventional and multimedia groups towards the difference between the multimedia knowledge level and students' computer ownership is given in Tables 1, 2, 3 and 4 below.

Table 1:
The T-test of the Pre-Test for the Level of Knowledge According to the Students' Computer Ownership

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	66	2.90	0.71	0.193	158	0.661
No	94	2.47	0.64	0.193	131	0.661

Referring to Table 1, the t-test outcome for the pre-test finds that $t_{(158)}=1.93$, $p > 0.05$. The result shows that the null hypothesis is accepted because there is no difference between the multimedia knowledge level and students' computer ownership. The finding shows that there is no significant difference between the mean score for the level of multimedia knowledge of the students who have computers (Mean = 2.90, s.d = 0.71) with the mean score for the level of knowledge of multimedia students who do not have any computer (Mean = 2.47, s.d = .64). Thus, the level of knowledge of multimedia students who have a computer is higher than the ones who do not have the computer among the Form Two Living Skills students of a secondary school in the district of Kubang Pasu, Kedah.

Table 2:
The T-test for the Level of Knowledge According to the Students' Computer Ownership

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	66	3.32	0.67	2.65	158	0.106
No	94	2.92	0.81	2.65	153	0.106

Referring to Table 2, the t-test outcome for the post-test finds that $t_{(158)}$=2.65, p > 0.05. The result shows that the null hypothesis is accepted because there is no difference between the multimedia knowledge level and students' computer ownership. The finding shows that there is no significant difference between the mean score for the level of multimedia knowledge of the students who have computers (Mean = 3.32, s.d = 0.67) with the mean score for the level of knowledge of multimedia students who do not have any computer (Mean = 2.92, s.d = 0.81). Thus, the level of knowledge of multimedia students who have a computer is higher than the ones who do not have the computer among the Form Two Living Skills students of a secondary school in the district of Kubang Pasu, Kedah.

Table 3:
The T-test for the Level of Knowledge According to the Students' Computer Ownership (Conventional Group Post Test)

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	33	3.04	0.65	0.050	78	0.824
No	47	2.37	0.60	0.050	64	0.824

Referring to Table 3, the t-test outcome for the post-test finds that $t_{(78)}$ = 0.050, p > 0.05. The result shows that the null hypothesis is accepted because there is no difference between the multimedia knowledge level and students' computer ownership. The finding shows that there is no significant difference between the mean score for the level of multimedia knowledge of the students who have computers (conventional group) (Mean = 3.04, s.d= .65) with the mean score for the level of knowledge of multimedia students who do not have any computer (Mean = 2.37, s.d = 0.60). Thus, the level of knowledge of multimedia students who have a computer is higher than the ones who do not have the computer among the Form Two Living Skills students of a secondary school in the district of Kubang Pasu, Kedah.

Table 4:
The T-Test Level of Knowledge of Multimedia Students by Computer Ownership (Multimedia Group- Post Test)

Gender	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Male	33	2.75	0.74	0.354	78	0.554
Female	47	2.57	0.67	0.354	65	0.554

Referring to Table 4, the outcome for t-test for the post-test suggests that $t_{(78)}$ = 0.354, p > 0.05. This result demonstrates that the null hypothesis is accepted because there is no difference between the level of multimedia knowledge and students' computer ownership.

The finding shows that there is no significant difference between the mean score of the level of knowledge of multimedia students who have a computer (multimedia group) (Mean = 2.75, s.d = 0.74) with a mean score of the level of knowledge of multimedia students who have no computer (Mean = 2.57, s.d = 0.67). Thus, the level of knowledge of the multimedia students who have the computer is higher than those without the computer.

4.2 Hypothesis: There is No Difference between The Level of Motivation and Students' Computer Ownership

The analysis outcome for the t-test for the pre and posttests also the post-test for both the conventional and multimedia groups towards the difference in the level of motivation and student ownership is given in Tables 5, 6, 7 and 8 below.

Table 5:
The T-Test for the Pre-Test of the Students' Motivation Level by Students' Computer Ownership

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	66	2.54	0.51	0.26	158	0.873
No	94	2.34	0.55	0.26	146	0.873

Referring to Table 4.5 the outcome of the t-test for the pre-test finds that $t_{(158)} = 0.026$, $p > 0.05$. This result shows that the null hypothesis is accepted because there is no difference in the level of motivation and students' computer ownership. The finding shows that there is no significant difference between the mean score of the motivation level of students who do have a computer (Mean = 2.54, s.d = 0.51) and the mean score of students who do not have a computer (Mean = 2.34, s.d = 0.55). Thus, looking at the selected Form Two students in this particular school, the motivation level of students who own a computer is higher than that of the students who do not own a computer.

Table 6:
The T-Test for the Post-Test of Students' Motivation Level by Computer Ownership

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	66	3.35	0.87	1.13	158	0.290
No	94	3.13	0.96	1.13	145	0.290

Referring to Table 6 the outcome for the t-test for the post-test finds that $t_{(158)} = 1.13$, $p > 0.05$. This result shows that the null hypothesis is accepted because there is no difference in the level of motivation and students' computer ownership. The finding also shows that there is no significant difference between the mean score of students' motivation level and that for students with no computer (Mean = 3.34, s.d = 0.87) with the mean score of students' motivation level for those not owning a computer (Mean = 3.13, s.d = 0.96). Thus, the motivation level of students with a computer is higher than those without a computer.

Table 7:
The T-Test 0f the Motivation Level of Students by Their Computer Ownership (Conventional Group Post Test)

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	33	2.58	0.54	0.689	78	0.409
No	47	2.31	0.52	0.689	66	0.409

In reference to Table 7, the outcome of the t-test for the post-test finds that $t_{(78)}$ = 0.689, p > 0.05. This result shows that the null hypothesis is accepted because there is no difference in the level of motivation and students' computer ownership It is also shown that there no significant difference between the mean score of the computer-owning students' motivation level (conventional group) (Mean = 2.58, s.d = 0.54) and the mean score of the motivation level of those without the computer (Mean = 2.31, s.d = 0.52). Thus, students' motivation level (those owning a computer) is higher than that for students who do not have a computer.

Table 8:
The T-Test of the Motivation Level by Students' Computer Ownership (Multimedia Group Post-Test)

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	33	2.50	0.47	0.265	78	0.265
No	47	2.37	0.58	0.265	76	0.265

Based on Table 8, the outcome from the t-test for the post-test finds that $t_{(78)}$ = 0.265, p > 0.05. This result shows that the null hypothesis is accepted because there is no difference in the level of motivation and students' computer ownership. The finding shows that there is no significant difference between the mean score of the motivation level of students who do have a computer (multimedia group) (Mean = 2.50, s.d = 0.47) and that for students without a computer (Mean = 2.37, s.d = 0.58). Thus, students' motivation level (those owning a computer) is higher than that for students who do not have a computer.

4.3 Hypothesis: There is No Difference Between Interaction Level and Students' Computer Ownership

The analysis outcome for the t-test for both pre- and post-tests and the post-test of the conventional group and the multimedia group towards the difference between the interaction level and students' computer ownership is given in Tables 9 , 10, 11 and 12 below.

Table 9:
T-Test for Pre-Test Of Students' Interaction Level by Students' Computer Ownership

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	66	3.13	0.94	4.71	158	0.031
No	94	2.30	0.87	4.71	144	0.031

Looking at Table 9, the outcome from the t-test for the pre-test finds that $t_{(158)} = 4.71$, $p < 0.05$. This result shows that the null hypothesis is rejected because there is a difference in the level of interaction and students' computer ownership. The finding shows that there is a significant difference between the mean score of the interaction level of students who do have a computer (Mean = 3.13, s.d = 0.94) and for those not having a computer (Mean = 2.30, s.d = 0.87). Thus, students' motivation level (those owning a computer) is higher than that for students who do not have a computer in this particular school in the District of Kubang Pasu, Kedah.

Table 10:
T-Test for Pre-Test of Students' Interaction Level by Students' Computer Ownership

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	66	3.47	0.73	0.028	158	0.868
No	94	2.34	0.76	0.028	144	0.868

Looking at Table 10, the outcome from the t-test for the post-test finds that $t_{(158)} = 0.28$, $p > 0.05$. This result shows that the null hypothesis is accepted because there is no difference in the level of interaction and students' computer ownership. The finding shows that there is no significant difference between the mean score of the interaction level of students who do have a computer (Mean = 3.47, s.d = 0.73) and that for students who have no computer (Min = 2.34, s.d = 0.76). Thus, for the Form Two Living Skills students at this school, the interaction level of students with a computer is higher than those without a computer.

Table 11:
The T-Test of the interaction Level of Students by Their Computer Ownership (Conventional Group Post-Test)

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	33	3.55	0.65	1.13	78	0.290
No	47	2.00	0.60	1.13	65	0.290

Looking at Table 11, the outcome from the t-test for the post-test finds that $t_{(78)} = 1.13$, $p > 0.05$. This result shows that the null hypothesis is accepted because there is no difference in the level of interaction and students' computer ownership. The finding shows that there is no significant difference between the mean score of the interaction level of students who do have a computer (conventional Group) (Mean = 3.55, s.d = 0.65) and that for students who have no computer (Mean = 2.00, s.d = 0.60). Thus, for the Form Two Living Skills students at this school, the interaction level of students with a computer is higher than those without a computer.

Table 12:
The T-Test of the Interaction Level by Students' Computer Ownership (Multimedia Group Post-Test

Ownership	Number (N)	Mean	Std. Deviations	T value	Degree of freedom	Sig. (p)
Yes	33	2.71	0.99	0.018	78	0.895
No	47	2.59	0.99	0.018	68	0.895

Referring to Table 12 the outcome from the t-test for the post-test reveals that $t_{(78)}$ = .018, $p > 0.05$. This shows that the null hypothesis is accepted as there is no difference between the level of interaction and students' computer ownership. The finding shows that there is no significant difference between the mean score of level of interaction of students with a computer (multimedia group) (Mean = 2.71, s.d = 0.99) and the score mean of the interaction level of students without the computer (Mean = 2.59, s.d = 0.99). Thus, for the Form Two Living Skills (technical) students, the interaction level for students with a computer is higher than their friends who do not have a computer.

5. Discussion

The analysis outcome of the t-test of the multimedia students' level of knowledge according to students' computer ownership (Post-Test multimedia Group) shows that there is no difference between the level of multimedia knowledge and students' computer ownership. The level of knowledge of the multimedia students who have computers is higher than the level of knowledge of multimedia students who do not have a computer. The study finding is also consistent with the study where it finds that students find it easier to understand History subject and are more interested to learn the subject.

The analysis outcome of the-test of the motivation level by computer ownership (Post-Test Multimedia Group) shows that there is no difference between the motivation level and students' computer ownership. Students' level of motivation is higher (those with computers) than the motivation level of students without them. The study finding agrees with the study done by Saifullizam Puteh, Mohd Zairulniza Jaludin & Ahmad Rizal Madar (2005) where in this study, the use of the EW computer simulation in the learning of Electrical Technology 1 has encouraged students' motivation. When students are motivated in their learning, it will influence students' performance as well.

The T-test analysis outcome of the interaction level by computer ownership (Post-test Multimedia group) shows that there is no difference in the interaction level and students' computer ownership. The interaction level of students who have computers is higher than that of students who have no computer. Based on the study by Abdul Jalil and Bahtiar (2005), it also finds that learning constructively in guiding students to write guided essays has left a very effective and significant impact to students because learning a language is an ongoing process and it requires teacher's attention since language mastery is also a main social process. This situation is consistent with this study because it is found that the constructivism approach has opened up an opportunity to students to learn in groups when doing every activity assigned to them.

6. Conclusion

The study findings have shown that the use of multimedia materials in the process of learning and facilitation is more effective compared to the process of learning and facilitation in a conventional method. Thus, educators have to make an innovation in presenting their respective teaching style to achieve pedagogical change in today's world of education.

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