

ORIGINAL ARTICLE



TEACHERS' PERCEPTION ABOUT FACTORS INFLUENCING ICT INTEGRATION IN TEACHING AND LEARNING AND STUDENTS' INTEREST IN LESSON

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Abstract

Technology is known as part of tools in society and technology in education is the foundation for countries to improve students' academic interests at K-12 schools. The research is to explore the teachers' perception about factors Influencing ICT Integration in teaching and learning and students' interest in lesson. The purpose of this study is to overview on the secondary school teacher's perceptions on the practices of ICT usage in teaching and learning and the level of students' interest in lesson. Better curriculum will be developed based on the teaching and learning using ICT. These researches were conducted in Selangor by using quantitative research method which is distributing questionnaire. The total respondent of teachers of this study is 150 teachers, who are teaching in secondary schools in the Klang district. Survey questionnaire was used as a main tool for data collecting. The results of the analysis show that there is a significant relationship between teachers' ICT integration in teaching and learning and students' ICT integration in learning, with the significant level of 0.01.

Keywords: Information and Communication Technologies (ICT), Teaching and Learning Process, Teacher ICT Integration, School Base ICT Integration Environment, Students' Interest in Lesson

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Introduction

The usage of ICT systems in school is to enhance the teaching and learning process. The importance of ICT in education particularly its immense potential, is to transform the ways of teaching which is carried out in the classroom and to enhance their collaborative learning skills. Specifically, Becker (2019)⁵ examined whether computers are compatible with the requirements in teaching, where he illustrated the evolution of ICT in education from skill-oriented subject learning to be a part of the instructional method. The usage of ICT is more important for students to stimulate their social skills and self-reliance to achieve an active teaching and learning environment (Ghavifekr et al., 2014)¹⁰. According to a study by Bilbao-Osorio & Pedró (2009)⁶, they mentioned the two factors of ICT usage which are enhance the students' interest in teaching and learning processes, development and competence. As a teacher he or she can see students' behavior improved by showing interest in lessons, stay focused on the lesson and make them explore more in ICT tools. An educator can generate creative teaching approaches for students to make them stay focused and show interest in the lesson. Teacher should be wise in utilizing ICT systems in classroom.

There are two categories of ICT usage which are ICT for education and ICT in education as they develop better teaching and learning process. From the study by Inan & Lowther (2010)¹⁴ which emphasized that teachers' character and perceptions influence in ICT integration in classrooms. ICT systems have been used widely in classroom during teaching and learning session and its gives good impact on students' interest in the lesson. It can be concluded that teachers believe that ICT technology really influence teaching and learning practices. As a designer of lessons, teachers should wisely use ICT systems in school and integrates ICT systems to make the particular subject interesting (Arumugam Raman, 2013)³. In addition, Pollak and Reeves (2009)²⁰ impact learners' achievements in their work when it can be a very good use of ICT, this can give students a good learning interest and motivation, to give teachers and students more opportunities to communicate, to get students feedback to improve their teaching methods. There is positive belief on ICT implementation that could see students' interest in lesson and ICT systems are used appropriately to complement teachers' pedagogical content as mentioned by Kala, S. S. (2013)¹⁶.

The studies enhance the understanding of the factors influencing teachers' integration of ICT in teaching and learning and students' interest in lesson. Teachers ought to be able to transfer knowledge, attitude, behavior, and skill to their students through learning strategies and patterns that are suitable for the demands and developments of the 21st century. Professional teachers always use creative and innovative ways in delivering knowledge, skill, and even attitude to students, which includes creativity in using learning media.

Full using the benefits of information and communication technology of, the ability to make use of ICT in teaching as a teaching tool in the understanding of the use of ICT policy draws on instruction to master a series of assessment paradigm which makes use of ICT to let teaching and students learning ability improve. Students with the proper understanding of ICT skills, they

will easier to face future challenges (Grimus, 2000)¹². For example, in the teaching process, teachers use slides and videos to give us an account of a very complex theory, compared to the usual traditional teaching, student performance will become more active, Bransford, Brown, and Cocking (2000)⁴ consider that students' competencies to face current globalization will develop according to learning the ICT. ICT can help students to develop their skills, in the same time encouraging their motivation to study and enriching their knowledge also their life skills (Grabe, 2007)¹¹. If only the introduction of technology in teaching, it will not have a huge role in teaching. The teacher involved Jones and Preece (2006)¹⁵ argue that teachers use tool attitude especially refers to the faith, in the ICT practice is very significant.

Conceptual Framework of Study

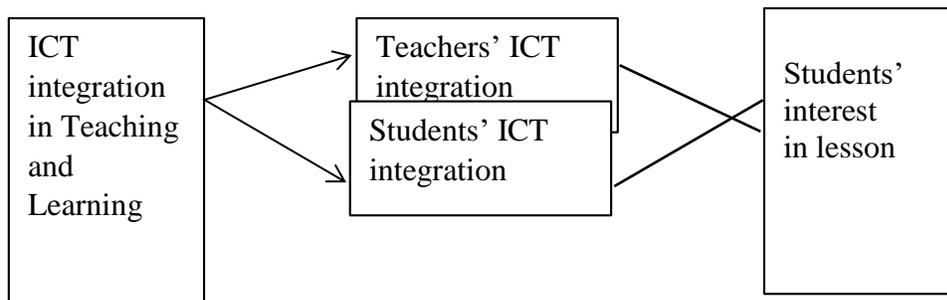


Figure 1 Proposed Conceptual Framework of ICT Integration in Teaching and Learning and Students' interest in lesson

The framework shows the Input, Process and Output process of ICT Integration in Teaching and Learning and Students' interest in the lesson. The study framework is to attempt in determining the teaching and learning process through teachers and students enriching students' interest in the lesson. There is a connection between these three levels. In the first stage, shows in the input stage, whereby the contextual influences through the process of teaching and learning. This teaching and learning method of stimulates the teachers' capability in the process stage and students' ICT integration. Thus, the created intension on ICT integration by teachers is the main variable that supports the focus of the framework such as skills, knowledge, competency and integration. Furthermore, in intension on ICT integration by students mainly focus in competency, integration as well as perceived ease of use and determines their actual use of ICT. The proposed framework has guided this research in investigating teachers' perception about the factors that influencing in teaching and learning process and students' interest in lesson.

However, the studies show the method of application with the use of teachers' ICT integration and students'. In the last stage, the output process shows that the students interest in the lesson which shows some effective improvement in the students' interest. Coleman, Gibson, Cotten, Howell-Moroney and Stringer (2016)⁷ claim that with the use if ICT in teaching transform the whole education environment which closely connect with teacher –centered and learner centered. Furthermore, the teaching and learning process creates a very interactive and engaging

environment with the use of ICT in education. Keengwe, Onchwari and Wachira (2008)¹⁷ claimed that the usage of ICT application in education which combine with text, graphics, video, animation and audio in teaching and learning ensures a very productive, reliable, motivating the interest of lesson for students.

This is the description of the one-time training is not enough, which leads to they are short of experience and teacher skills. A small number of teachers use a wide range of ICT resources, self-confidence, confidence is limited, affecting the way of lessons learned. At the same time studies show that teachers' subject knowledge of the impact of ICT use, the first point is the teacher training, the second point is the professional development, these two points are very important factors on the successful use of ICT.

Salomon and Ben-Zvi (2006)²³ argued that ICT was regarded as offer the instruments for the achievement of construction of learning, and it is also for it means that there are many opportunities to study and practice teaching in the process of people's socialization and it is would demand innovation psychological opinions as well and it is a slow process in the growth of the student's ability. Besides, ICT also was considered as tactics to realize and promote the novel instructive of the information society and to enhance learning and instruction as well (Cuban, Kirkpatrick & Peck, 2001; OECD, 2004; Voogt & Pelgrum, 2005)⁸. Organization for economic cooperation and development and Gbenga (2006)⁹ studies have found that ICT is capable of promoting educational potential. The traditional teacher training is very simple, and that there are no great achievements and to improve the teachers' ICT skills if you want success to ICT effective use of teaching to.

Methodology

Research design guides the researchers towards obtaining information and data relating to the topic of the study. This study is based on quantitative descriptive. Throughout this study, the descriptive study provides sample information about the scenario as well as the current situation happens at a particular time. A set of the questionnaire is developed which has 4 points Likert scale approach. Likert Scale approach is a concept that evaluates and measures the respondent's feedback towards subjective and objective criteria. It is used to assess an individual expression on how much they agree or disagree with a particular statement. It is a scaling method in which the questionnaire develops and employs a negative to positive scale which given a chance and space to the respondent to reflect the most criteria which are similar to them. The research used quantitative method. This method has been widely used in various fields of research and based on information collected in connection with the behavior. Research design guides the researchers towards obtaining information and data relating to the topic of the study. Throughout this study, descriptive study provides sample information about the scenario as well as the current situation which happened at a particular time. Population studies involving involved secondary schools in the Klang district zones with the total of 45 schools with total which involved 3800 teachers.

Descriptive Statistics starts descriptive methods used in the study because it can give an overview of data information directly and clearly. Descriptive statistics are used in section A, B, and C to the percentage, mean and frequency for each domain. Section A is demographic information, section B is a teacher's integration of ICT in teaching and learning, section C is student ICT integration in teaching and learning. **Inferential statistics** are used to determine the relationship between two variables by using Pearson Correlation. The number of the chosen schools are 10 with the number of samples of 150 respondents. To meet the ethical review, the name of the school involved are not stated. The reason the researchers chose the ten schools is to get a balanced number of data and facilitate the collection of data with a smaller share of questions for each chosen school. Purposive sampling is used and it is a sampling procedure where a group of subjects having certain characteristics are interested to be studied. In this study, data analysis involves the use of statistical methods of descriptive and inferential statistics.

Table 1

Demographic background of respondents

Factors	Frequency	Percent
Race		
Malay	73	48.7%
Chinese	61	40.7%
Indian	16	10.7%
Gender		
Male	60	40.0%
Female	90	60.0%
Working Experience		
1 to 3 year	19	12.7%
4 to 6 year	53	35.3%
More than 9 years	78	52.0%
Qualification		
Diploma	2	1.3%
Degree	117	78.0%
Master	24	16.0%
PhD	7	4.7%
Total	150	100%

To confirm data validity, the validity of the research data was first examined. Table 1 shows that the Malays are the largest, significantly higher than the Chinese and Indian among 150 teachers, which is 73 are Malays, 61 are Chinese, 16 are Indian. Indian is the least among other

ances of teachers which means the Chinese and Malay teachers are accounted for the major part in the Klang districts. Table 1 shows the Klang districts surveyed teachers, where female is more than male, 90 are women, 60 men, women accounted for 60 % and men accounted for 40% of the total. In addition, this table 1 shows that most of the teachers are experienced more than 9 years with 9 years' experience is 78%. In conclusion, most of the teachers have many years of teaching experience and their experience is valid after years of practice. Moreover, 117 teachers are degree holders followed by 24 teachers. This shows that most of the teachers' education levels are high and their knowledge base is reliable.

Findings and Discussion

This chapter mainly is separated into 2 sections, with quantitative data analysis. The statistical analysis of the questionnaires was carried out through SPSS, frequencies and percentages for each item reflecting factors influencing teachers' ICT Integration in teaching and learning, management ICT Integration in teaching and learning. This study concentrates on factors influencing teachers' ICT Integration in teaching and learning in terms of teachers and management in high schools in the Klang district. 150 respondents who gave their feedback are teachers who are teaching in schools in Klang.

Teachers ICT Integration in Teaching and Learning

Table 2:

Teachers ICT Skills and Knowledge

Items	SD (%)	D (%)	A (%)	SA (%)	Mean	S.D
1. All teachers should conduct their lessons by using ICT.	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
2. All teachers should conduct their lessons by using videos.	0 (0)	0 (0)	100 (66.7)	50 (33.3)	3.33	.47
3. All teachers should create their own blogs to help students in their homework.	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
4. All teachers should use computer presentation software to teach their lesson.	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
5. A teacher should give a small test after teaching with the use of ICT system.	0 (0)	0 (0)	150 (100.0)	0 (0)	3.00	.00

6.	All teachers should be trained in ICT skills for teaching purposes.	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
7.	Browse/search the internet to collect information to prepare lessons	0 (0)	0 (0)	100 (66.7)	50 (33.3)	3.33	.47

1=Strongly Disagree , 2=Disagree,3=Agree,4=Strongly Agree

The data analysis on Teachers' ICT Skills and Knowledge which look into the importance of ICT usage, frequent use of ICT and the attitudes towards ICT use among the teachers. From table 2, it shows that most teachers agreed that lessons should be conducted by using ICT, creating blogs to help students do their homework, teachers should use computer presentation software to conduct their lesson and most teachers feel that they should be trained to acquire the skills and knowledge of ICT. The mean shows 3.67 with .47 of standard deviation.

Table 3:

Teachers ICT Competency

Items	SD (%)	D (%)	A (%)	SA (%)	Mean	S.D
8. Browse/search the internet to collect information to prepare lessons	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
9. Use applications to prepare presentations for lessons	0 (0)	0 (0)	100 (66.7)	50 (33.3)	3.33	.47
10. Create your own digital learning materials for students	0 (0)	0 (0)	100 (66.7)	50 (33.3)	3.33	.47
11. Use ICT to provide feedback and/or assess students' learning	0 (0)	0 (0)	100 (66.7)	50 (33.3)	3.33	.47
12. Evaluate digital learning resources in the subject(s) you teach	0 (0)	0 (0)	81 (54.0)	69 (46.0)	3.46	.47
13. Download/upload/browse material from a learning platform	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
14. Look for online professional development opportunities	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47

1=Strongly Disagree , 2=Disagree,3=Agree,4=Strongly Agree

Table 3 shows that most teachers agreed to use the internet to find information to prepare their lessons and use application to present their lessons. After finding the suitable material online teachers agree that they will modify the materials that suit to their students' ability. Most teachers agree that ICT provides feedback and it is used to assess students. 66.7% teachers strongly agree that they download materials from leaning platform and search for professional development program online.

Students ICT Integration In Teaching And Learning

Table 4:

Students Competency in ICT Integration

Items	SD (%)	D (%)	A (%)	SA (%)	Mean	S.D
15. As a student I am familiar with the ICT systems in school.	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
16. Students can obtain all information through the ICT systems	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
17. I am awake when a teacher uses ICT in teaching my class.	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
18. I am able to answer all questions when a teacher teaches using ICT.	0 (0)	0 (0)	100 (66.7)	50 (33.3)	3.33	.47
19. I can understand better and easily with the use of ICT when reviewing a lesson.	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
20. I hate teachers who lack skills in using ICT in my class.	94 (62.7)	50 (33.3)	6 (4.0)	0 (0)	1.41	.57
21. I am motivated to learn when a teacher uses ICT system in teaching	0 (0)	0 (0)	77 (51.3)	73 (48.7)	3.49	.50

1=Strongly Disagree , 2=Disagree,3=Agree,4=Strongly Agree

From table 4 we can see that 66.7 % respondent strongly agreed with item 15, item 16,item 17,item 18,while the others choose to agree with the item are 33.3% for the similar items. The data for item 20 shows that teacher would not be hated by students if they lack ICT skills. Only 6.0% of the respondents hate teachers who lack skills in using ICT in my class. Meanwhile, 62%

respondents do not hate teachers who lack skills in using ICT in class. Generally, the data indicates that ICT integration has positive impact towards students' competency.

Table 5:

ICT Integration and Students interest in lesson

Items	SD (%)	D (%)	A (%)	SA (%)	Mean	S.D
22. Students academic progress through ICT integration	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
23. Usage of ICT in school benefits for student	0 (0)	0 (0)	100 (66.7)	50 (33.3)	3.33	.47
24. ICT integration make interest on the lesson	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
25. ICTs are to be utilized to improve educational quality as measured by most standardized tests; few such gains are to be expected.	0 (0)	0 (0)	50 (33.3)	100 (66.7)	3.67	.47
26. Positive impacts of ICTs on student learning	0 (0)	0 (0)	100 (66.7)	50 (33.3)	3.33	.47
27. The usage ICTs motivate students	0 (0)	0 (0)	100 (66.7)	50 (33.3)	3.33	.47
28. Positive impact more likely when linked to pedagogy	0 (0)	0 (0)	0 (0)	150 (100.0)	4.00	.00

1=Strongly Disagree , 2=Disagree,3=Agree,4=Strongly Agree

From table 5 , item 22, item 24 and item 25 have the same frequency and percentage. The teachers who strongly agree with these items are 66.7% and 33.3% choose to agree as their respond for these item. There are 66.7% respondents opt to agree with item 23, item 26, item 27. While 33.3% choose to agree with these items. All respondents, represent 100% respondents, choose to strongly agree with item 21. The data from the table indicates that there are positive impacts of the ICT integration towards students' academic improvement.

The relationship between the two domains are determined by using inferential statistics. The Pearson Correlation is used to determine the strength of the relationship by interpreting the value of coefficients. The value of coefficients is as the table below;

Table 6:

Pearson Correlation Coefficients value for all domains.

	Teachers ICT integration in teaching and learning	Students ICT integration in and learning
Teachers' ICT integration in teaching and learning	1	.79
Students' ICT integration in learning	.79	1

Correlation is significant 0.01 level (2-tailed)

The relationship between Teachers' ICT integration in teaching and learning with students' ICT integration in teaching and learning. Teachers' ICT integration in teaching and learning is positively correlated with students' ICT integration in teaching and learning. It has strong relationship by obtaining the value of $r=0.79$. The more teacher integrates ICT in teaching and learning results in more students integrate ICT in teaching and learning.

Discussion

The item analysis shows clear explanation based on the results of item analysis. The study was guided by two parts of research questions. This section addresses the questions by summarizing the key results by providing interpretations of the results. This study shows the process of teaching and learning with the use of ICT systems that improvise in students' interest on lesson (Yusuf, M. O., 2005)²⁴. The survey form was designed to see the perceptions of teachers based on teaching and learning that shows students' interest on the lesson. The study was conducted with the population of 150 teachers around the Klang districts. The instrument is the survey questionnaires. Questionnaires were distributed to teachers who are working around the Klang districts and distributed by hand in the staff room. From the research study, the researcher would like to make some suggestions to certain parties for future research. The suggestions are meant for the future researcher and related parties. The related parties are teachers, students, and school curriculum planners and developers.

- Conduct interesting lessons with the use of ICT tools.

The result showed that teachers' perceptions and competencies are the important factors for their professional growth. Also, researchers (Aslan & Zhu, 2017)² found that ICT confidence and ICT competence related to teachers' integration of ICT into their teaching. The study is actually used (Noor UL Amin, S. 2000)¹⁹, about a student's interest on the lesson, also confirmed the ICT systems of innovation and change, this change can be through encouragement by teachers and students, by practicing using ICT better. The results of the study show that ICT can improve students' interest in lesson, and can meet the needs of teachers and students in teaching. (Rosemary

Deaney, Kenneth Roth and Sarah Hennessy, 2003)²² adhere to the display, the school can meet the students' learning needs through the development of curriculum.

Another study, (price, 2006)²¹ believes that technology can be a strong impact on education. Practical results are very clear to demonstrate that ICT can be used in educational systems. Based on the research conducted, there are some studies that should be recommended for future studies. The study was restricted to secondary schools in Selangor only. Therefore, to strengthen the research it is hoped that this study can preferably be extended to secondary schools from different states. Moreover, the number of questionnaires for each aspect can be added to further enhance the reliability and validity of the findings.

Conclusion

From the results of these studies, through the analysis, this study shows that in the whole process of teaching, ICT is able to help the students to progress in their studies. These data show the academic level of students is able to improve effectively, which requires a reasonable use of ICT. Most of the responses indicate that ICT as learning media is often applied for students in the process of understanding the material (Hidayati, 2016)¹³, not for teacher-student collaboration as well. However, adopting ICT usage on students' attitude, competency, skills and to provide motivation to learn and progress in their academic excellence. 21st-century education focuses on three main components, namely technological knowledge, pedagogical knowledge and content or curriculum knowledge and evaluation. Teaching and learning in the 21st century have features that are different from past education. The purpose of learning in the 21st century is to produce high-productivity students, skilled in communication, high-level thinking skills as well as skilled in the use of information and communication technology (ICT). These findings contribute to the discussion on teachers as part of the educational change and the implications of effective teacher professional development activities. The results are in line with a research findings by Macho (2005)¹⁸ that proved using ICT in education would enhance students' learning. However, most of teachers in this study agree that ICT helps to improve classroom management as students are well-behaved and more focused. Moreover, this study proved that students learn more effectively with the use of ICT as lesson designed are more engaging and interesting. When used appropriately, ICTs help in expanding access to education through faster information distribution and availability anytime and anywhere (Aktaruzzaman et al., 2011)¹. It is recommended that future professional development activities on educational use of ICT should focus on the long-term involvement of teachers on the grassroots level and convey the benefits of the use of ICT.

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