A COMPARATIVE STUDY OF TEACHERS' KNOWLEDGE OF COMMON ICT SOFTWARE, THEIR PERCEPTIONS TOWARDS USING ICT AND THEIR PERCEIVED SELF-CONFIDENCE IN INTEGRATING ICT IN THEIR CLASSES ACCORDING TO GENDER IN TWO INTERNATIONAL SCHOOLS IN THAILAND

Harpreet Kaur Gandhi[1]

Richard Lynch[2]

Abstract: This study aimed to determine teachers' knowledge of common ICT software, their perceptions towards using ICT and their perceived self-confidence in integrating ICT in their classes according to gender in two international schools in Thailand in 2015. Students in Thailand and globally need to be able to cope well with the demands of the 21st century skills and ICTs are an important element of curricula worldwide. Therefore, the researcher wanted to determine if the male or the female teachers were more skilled in ICT to be able to pass on the knowledge to their students. An online questionnaire was used as a primary data collection instrument. The questionnaire measured the three variables of interest: knowledge of common ICT software, perceptions of ICT use, and perceived self-confidence in integrating ICT in their classes. The study respondents were teachers working in two international schools in Bangkok, Thailand. A total of 145 teachers (84 male and 81 female) were targeted with the online questionnaire. Ninety-seven teachers responded out of which 49 were male and 48 were female. The study found that both male and female teachers had high knowledge of common ICT software. However, the male teachers had more positive perceptions of ICT and higher perceived self-confidence in integrating ICT into their classes as compared to the female teachers. Recommendations For both practice and future research are provided.

Keywords: Knowledge, Common ICT Software, Perceptions, Integration, ICT, Self-Confidence, Gender.

Introduction

People throughout the world have identified and understood the importance of using Information Communication Technology (ICTs) - for example, computers and computer software - to improve the educational system (Almekhlafi & Almeqdadi,

[1] M.Ed. Candidate in Curriculum and Instruction, Graduate School of Education, Assumption University, Thailand.
sonu_4@hotmail.com

[2] Ph.D., Assistant Professor, Graduate School of Education, Assumption University, Thailand.
richardlynch2002@yahoo.com

2010; Kozama & Anderson, 2002). A great deal has been invested in incorporating technologies into schools to better enhance the learning and teaching environment. According to Almekhlafi and Almeqdadi (2010), technology is a growing part of any society today and thus of every country's effort to implement the usage of technology into the schools to improve the students' performance at K-12 schools and to achieve the 21st century learning skills. When there is a scarcity of educational resources, ICT can provide a medium and a path that bypasses the bottleneck of textbooks production, distribution and updating (UNESCO, 2014b).

George (as cited in Kotrlik & Redmann, 2005) pointed out that, using technology can help students to perform better by promoting innovative approaches to both teaching and learning that take place in the classroom. The teachers and adequate computer facilities in an educational system are the most crucial factors for a successful integration and implementation of technology (Cuban as cited in Adediran, 2011). As teachers the most fundamental people in any school environment, the role of teachers in the integration and usage of technology is very important and every reform that takes place in the educational setting should always take into consideration the teachers' knowledge, skills, beliefs and attitudes. The teachers' beliefs and attitudes play a fundamental role because they portray the way the teachers themselves deal with the usage of ICT in their classrooms. It is now recognized that the successful implementation of ICTs in schools, defined by the teachers' attitudes and satisfaction towards ICTs and student learning, does not automatically improve educational quality (Hennessy, 2010).

The use of ICT in a school classroom is very necessary in order to provide enriching opportunities to students in an information age (Bingimlas, 2009). According to UNESCO (2014a), ICT should reach people of all ages and groups. The focus is on teachers because they are the ones that can facilitate and expand learning opportunities for all.

The researcher works in one of the member schools of International School Association of Thailand (ISAT) and she has witnessed a high quality education environment. Also, the researcher's friend works in another member school of the ISAT. Seeing the vision and learning environment in these schools, the researcher was interested to carry out research in one of the most important aspects of 21st century learning. Therefore, the researcher was keen to determine the teachers' knowledge of common ICT software, their perceptions towards using ICT and their perceived self-confidence in integrating ICT in their classes in two international schools in Thailand. As gender difference in the ICT sector has raised much interest, the researcher wanted compare the teachers' knowledge of common ICT software, their perceptions towards using ICT and their perceived self-confidence in integrating ICT in their classes according to gender.

Literature Review

The following section discusses about the importance of teachers' ICT knowledge, importance of teachers' perceptions towards using ICT, importance of teachers' confidence towards integrating ICT and the role of gender and technology.

Importance of Teachers' ICT Knowledge

Volman and Eck (as cited in Singh & Chan, 2014) believed that using ICT in teaching and learning builds an effective learning environment, thus transforming the overall teaching and learning process, where, the students deal with knowledge actively, in a self-directed and constructive way. The educational system faces irrelevance if teachers do not mend the gap between how the way the students live and learn (Partnership for 21st Century Skills, 2002). With the fast rate of change in students' lives outside the school, the schools are struggling to keep pace with the change. The students will be spending their time multitasking in a technology driven world. Therefore, the students must be equipped and ready to face those environments. Teachers' preparation is a crucial factor for the successful integration of ICT into teaching and learning processes (Singh & Chan, 2014). Therefore, to be able to meet the demands of the 21st century (Partnership for 21st Century Skills, 2002), it is important to have knowledge in other areas not just in core subjects. . Kirschner and Wopereis (2003) believed that teachers should be well equipped with the knowledge that they need to be able to impart knowledge to students successfully.

According to UNESCO (2004), teachers' pedagogical approaches are determined by their knowledge of their own subject. Some teachers may opt to integrate ICT to teach and suit they lesson while the others merely choose to use different resources to present the students work without having any direct link to the lesson taught. There is a direct effect of using ICT on students when the teachers use their knowledge of the subject and how the students understand the subject (UNESCO, 2004).

Importance of Teachers' Perceptions towards Using ICT

Donelly (2010, as cited in Sànchez, Marcos, Gonzàlez, & GuanLin, 2012) commented that teachers' beliefs and perceptions towards ICT should be understood before setting off to train them because teachers are the ones who will establish the use of ICT in the classrooms. Kandasamy and Shah (2013), and Tabata and Johnsrud (as cited in Kusano et al., 2013) believed it is necessary for the teachers' to have a positive perception towards ICT which in return, prove as an advantage in the implementation of ICT. They also believed that the teachers' positive perception towards ICT will help them to improve their skills and would allow them to impart the knowledge to students easier. A study conducted by Chen (2012) revealed that teachers had moderate to high computer phobia and low computer self-efficacy. Additionally, the study also showed that the teachers who frequently used computers had lower computer phobia. Computer anxiety is also a barrier in the integration of ICT.

Importance of Teachers' Confidence towards Integrating ICT

As reported by Kumar and Kumar (as cited in Singh & Chan, 2014), the lack of experience and training is one of the reason that the teachers do not want to use technology to teach. Furthermore, the teachers start to develop negative perception towards ICT and thus, they are less confident to use it. Voogt (as cited in Kusano et al., 2013) found that teachers who tend to integrate ICT into their classes have a lot more confidence in using their technology skills and they would focus more on

student-centered approach. Simultaneously, they would be more active and would engage themselves more in professional development and would collaborate with more with colleagues as compared to teachers who do not very often engage themselves in using technology.

Gender and technology. Markauskaite (2005) believed that with the introduction of ICT into the education system gender inequalities were created. In the last 20 years, the role of ICT has tremendously changed. Technology now has become part of our everyday life and an important aspect of learning. The gender gap in computer has interested many computer and social scholars (Shashaani & Khalili, 2001). The issue and debate regarding the gender differences in ICT started since the 1980s (Ariffin, 2005; Wong & Hanafi, 2007). They pointed that early studies discovered that computer experience has an important role in narrowing gender gap while some other studies showed that these experiences might be gender-based.

Theoretical Framework

The theoretical framework of this study was based on the 2008 study of Papanastasiou and Angeli. Today, in the period of transition technologies are being integrated in the schools. So it is important as teachers are the major stakeholder in the schools and they should accept this integration and its value, so that it will lead to successful integration of ICTs.

As noted by Cuban (as cited in Papanastasiou & Angeli, 2008), the role of the teachers in the integration of technology in schools is very important and teachers' knowledge, skills, beliefs and attitudes should be considered when there is any educational reform. Cuban discussed that the new technologies will motivate the students to work harder, to want to gain more knowledge and skills and will push them to go to school and take part in schooling (Cuban, 2012). Therefore, the students who are engaged in learning will gain higher grades. Secondly, when students are given opportunities to work with these new technologies, they will be prepared to enter an information-driven labor market. Thirdly, these high tech devices will wipe out gap in accessing knowledge that exists between the rich and the poor. He further adds that the traditional teaching will be transformed with the use of laptops and computers (Cuban, 2012).

Fullan (as cited in Papanastasiou & Angeli, 2008), empathized that the mindset such as pedagogical assumptions and beliefs are a key factor to any educational change. Fullan (2006) stated that the teachers themselves needed to build their professional knowledge if they are going to help the students to build skills and competencies to create knowledge. Veen (1993), showed that the schools can do whatever they can to encourage the usage of ICT but the actual take-up largely depends on the teachers' personal feelings, skills and attitudes towards it.

Method

Population and Sample

The sample group of this study was 165 teachers, 111 teachers from School 1 and 54 teachers from School 2. Both these schools were private international schools situated in Bangkok, Thailand that use ICT and smart boards in their schools (See Table 1).

Table 1: The Number of Teachers for This Study

	School 1	School 2	Total
Male teacher	57	27	84
Female teacher	54	27	81
Total	111	54	165

Instrument

For this study, a questionnaire was used as a primary data collection instrument. The questionnaire is a validated survey instrument developed by Papanastasiou and Angeli (2008).

The original questionnaire consisted of 6 sections: the demographics of the teachers; the teachers' knowledge of computer software; the teachers' frequency of software use for personal purposes; the teachers' attitudes towards integrating ICT into their lessons; the teachers' self-confidence in integrating ICT, and the school climate and support.

As the researcher wanted to find out the teachers' ICT knowledge of ICT software, their attitude towards using ICT and self-confidence in integrating ICT in their teaching and learning in schools, the full original questionnaire was not used. The researcher included the constructs that were the focus of this research.

The adapted questionnaire consisted of 4 sections. Section 1 focused on teachers' demographics: age, gender, years of teaching experience, educational background, number of computers in the classroom, grade taught, personal ownership of a computer, and participation in ICT professional development training. Section 2 focused on teachers' knowledge of common ICT software. Section 3 focused on teachers' perceptions towards using ICT in three dimensions: computer anxiety; teachers' beliefs about the value of computers in learning; computer as an agent of change. Section 4 focused on teachers' perceived self-confidence in integrating ICT in their classes.

Section two of the questionnaire used a Likert-type scale 1-5 where the teachers were given options: "1" I cannot use it, "2" I can use it to a small extent, "3" I can use it satisfactorily, "4" I can use it well and "5" I can use it very well. Table 2 provides the interpretation and scale of section two of the questionnaire. Similarly the third and fourth sections of the questionnaire used a 5 point Likert-type scale where the teachers chose from "1" completely disagree, "2" disagree, "3" neutral, "4" agree and "5" completely agree. Table 3 provides the interpretation and scale of the third and fourth sections of the questionnaire.

Table 2: Interpretation and Scale of Teachers' Knowledge of Common ICT Software

Agreement Level	Scale	Interpretation
I can use it very well	4.51 – 5.00	Very High
I can use it well	3.51 – 4.50	High
I can use it satisfactorily	2.51 – 3.50	Moderate
I can use it to a small extent	1.51 – 2.50	Low
I cannot use it	1.00 – 1.50	Very Low

Table 3: Interpretation and Scale of Teachers' Perceptions towards Using ICT and Their Perceived Self-Confidence in Integrating ICT in Their Classes

Agreement Level	Scale	Interpretation
Completely agree	4.51 – 5.00	Very Positive
Agree	3.51 – 4.50	Positive
Neutral	2.51 – 3.50	Neutral
Disagree	1.51 – 2.50	Negative
Completely disagree	1.00 – 1.50	Very Negative

Validity and Reliability

The questionnaire used in this study was adapted from a validated questionnaire by Papanastasiou and Angeli (2008). Since the questionnaire was comprised of different sections that were incomparable with each other and had different measurement scales, Papanastasiou and Angeli performed factor analysis separately for each section of the questionnaire**.** Based on the factor analysis of the constructs (knowledge, perceptions and self-confidence), the construct validity was determined to be acceptable. In terms of reliability, Table 4 presents Papanastasiou and Angeli's (2008) and this study's alpha values.

Table 4: Alpha Value of Teachers' Knowledge of Common ICT Software, Their Perceptions towards Using Computers and Their Self-Confidence in Integrating ICT

Variables	Number of items for each component	Papanastasiou and Angeli's Alpha Value	Current Study Alpha Value
Knowledge of common ICT Software	8	.90	.86
ICT Perception	15		
Sub-scales			
- computer Anxiety	5	.82	.73
- teachers' beliefs about the value of the computer	7	.76	.68
- computer as an agent of change	3	.59	.77
Perceived Self-Confidence is Integrating ICT	8	.89	.83

Procedure

The researcher developed an online questionnaire which was adapted from Papanastasiou and Angeli's questionnaire using Google form. The researcher emailed the adapted questionnaire to the teachers after the researcher obtained the necessary permission to collect the data from the head of school. The distribution of the questionnaire link through email was sent in May/June 2015. A total of 165 online surveys were sent out of which 97 (male = 49, female =48) were answered yielding a response rate of 58.8%.

Findings

The main study variables were analyzed descriptively through means and standard deviations and inferentially through t-testing. They were interpreted as indicated in Tables 2 and 3 above.

Table 5 shows the mean, standard deviation and interpretation of the teachers' knowledge of common ICT software.

Table 5: Teachers' Knowledge of Common ICT Software

Item	M	S.D.	Interpretation
1. Word Processing (e.g., Word)	4.44	.74	High
2. Databases (e.g., Access)	2.89	1.26	Moderate
3. Spreadsheets (e.g., Excel)	3.65	1.11	High
4. Graphics (e.g, Paint)	3.08	1.24	Moderate
5. Presentation Software (eg., PowerPoint)	4.18	.97	High
6. Internet	4.53	.66	Very High
7. Email	4.50	.64	High
8. Publishing Software (eg., Publisher)	3.19	1.29	Moderate
Total (Knowledge of Common ICT Software)	3.82	.72	High

According to the findings, the only item that the teachers had *Very High* knowledge of was item 6. The items that the teachers had *High* knowledge of were items 1, 3, 5 and 7. The items that the teachers had *Moderate* knowledge of were items 2, 4 and 8. The question item 2 *Databases* had the lowest mean, which showed that the teachers did not have good knowledge on the usage of databases.

Part three of the questionnaire was used to determine the teachers' perceptions towards using ICT which was divided into teachers' perceptions towards using ICT (ICT Anxiety), teachers' perceptions towards using ICT (Teachers' Beliefs About the Value of ICT) and teachers' perceptions towards using ICT (ICT as an Agent of Change). The items ranged from *Completely disagree* to *Completely agree*. Also, note that the interpretations are taken from Table 3 shown above.

Teachers' perceptions towards using ICT (ICT Anxiety) section was comprised of 5 items in a 5-point Likert-scale. Table 6 shows the mean, standard deviation and interpretation of the teachers' perceptions towards using ICT (ICT Anxiety).

Table 6: Teachers' Perceptions towards Using ICT (ICT Anxiety)

Item	M	S.D.	Interpretation
9. I feel comfortable with the idea of the computer as a tool in teaching and learning.	4.47	.69	Positive
10. The use of computers in teaching and learning stresses me out.	4.13	1.11	Positive
11. If something goes wrong I will not know how to fix it.	3.36	1.10	Neutral
12. The idea of using a computer in teaching and learning makes me skeptical.	4.10	1.02	Positive
14. The use of computers in teaching and learning scares me.	4.42	.90	Positive
Total Teachers' Perceptions Towards Using ICT (ICT Anxiety)	4.10	.68	Positive

According to the findings, the only item that showed the teachers' *Neutral* perceptions towards using ICT was *If something goes wrong I will not know how to fix it*. The other items measuring this variable all showed that the teachers' had *Positive* perceptions, rendering an overall positive interpretation.

Teachers' perceptions towards using ICT (Teachers' Beliefs about the Value of ICT) was measured by 7 items. Table 7 shows the mean, standard deviation and interpretation for this variable.

Table 7: Teachers' Perceptions towards Using ICT (Teachers' Beliefs about the Value of ICT)

Item	M	S.D.	Interpretation
13. The use of the computer as a learning tool excites me.	4.05	.92	Positive
18. I can do what the computer can do equally as well.	2.45	1.10	Negative
19. The computer is not conductive to student learning because it is not easy to use.	4.37	.67	Positive
20. The computer helps students understand concepts in more effective ways.	3.93	.83	Positive
21. The computer helps students learn because it allows them to express their thinking in better and different ways.	3.80	.90	Positive
22. The computer helps teachers to teach in more effective ways.	4.18	.78	Positive
23. The computer is not conductive to good teaching because it creates technical problems.	3.96	.45	Positive
Total Teachers' Perceptions Towards Using ICT (Teachers' Beliefs About the Value of ICT)	3.82	.51	Positive

The only item that showed the teachers' *Negative* perceptions towards using ICT was *I can do what the computer can do equally as well*. All of the other items relating to this variable indicated *Positive* perceptions, rendering an overall positive interpretation. ,

Teachers' perceptions towards using ICT (ICT as an Agent of Change) were measured by 3 items. Table 8 shows the mean, standard deviation and interpretation of this variable.

Table 8: Teachers' Perceptions towards Using ICT (ICT as an Agent of Change)

Item	M	S.D.	Interpretation
15. The computer is a valuable tool for teachers.	4.60	.61	Very Positive
16. The computer will change the way I teach.	3.88	.96	Positive
17. The computer will change the way students learn in my classes.	3.95	.94	Positive
Total Teachers' Perceptions Towards Using ICT (ICT as an Agent of Change)	4.14	.70	Positive

The only item that indicated *Very Positive* perceptions towards using ICT was *The computer is a valuable tool for teachers*. The other items all showed *Positive* perceptions, rendering an overall positive interpretation.

Table 9 shows the mean, standard deviation and interpretation of the teachers' perceptions towards using ICT as a whole.

Table 9: Teachers' Perceptions Towards Using ICT

Item	M	S.D.	Interpretation
ICT Anxiety	4.10	.68	Positive
Teachers' beliefs about the value of ICT	3.82	.51	Positive
ICT as an agent of change	4.14	.70	Positive
Total (Perceptions towards using ICT)	3.98	.45	Positive

The teachers' total Perceptions towards using ICT was *Positive.*

Part four of the questionnaire measured the teachers' perceived self-confidence in integrating ICT in their classes. It was comprised of 8 items in a 5-point Likert-scale. The items ranged from *Completely disagree* to *Completely agree*. Also, note that the interpretations are taken from Table 3 above. Table 10 shows the mean, standard deviation and interpretation of the teachers' perceived self-confidence in integrating ICT in their classes.

Table 10: Teachers' Perceived Self-Confidence in Integrating ICT in Their Classes

Item	Mean	S.D.	Interpretation
24. I can select appropriate software to use in my teaching.	3.96	.96	Positive
25. I can use PowerPoint in my class.	4.51	.78	Positive
26. I can design technology-enhanced learning activities for my students.	3.66	1.16	Positive
27. I can use email to communicate with my students.	4.43	.83	Positive
28. I can teach my students to select appropriate software to use in their projects.	3.82	1.04	Positive
29. I can teach my students how to make their own web pages.	2.61	1.40	Neutral
30. I can use the Internet in my lessons to meet certain learning goals.	4.23	.78	Positive
31. I believe the computer can help students understand concepts more easily.	4.14	.82	Positive
Total (Perceived Self-confidence in Integrating ICT in Classes)	3.92	.67	Positive

According to the findings, the only item that showed the teachers' *Neutral* perceptions integrating ICT in their classes was item 29. The other items all showed *Positive* perceptions, rendering an overall positive interpretation.

The purpose of the study was to compare the teachers' knowledge of common ICT software, their perceptions towards using ICT and their perceived self-confidence in integrating ICT in their classes according to gender. Table 11 shows the mean, standard deviation, and t-test results (2-tailed) of the teachers' knowledge of ICT software according to gender.

Table 11: t-test for Teachers' Knowledge of Common ICT Software According to Gender

Gender	n	M	S.D.	*df*	t	Sig. (2-tailed)
Male	49	3.89	.70139	95	.993	.323
Female	48	3.74	.74106			

The data were analyzed by independent sample t-test. As shown in Table 12, the probability significance was .323, which was greater than .05; thus, the research hypothesis was rejected, i.e., there was no significant difference in the level of teachers' knowledge of common ICT software according to gender.

Table 12 shows the mean, standard deviation, and t-test results (2-tailed) of the teachers' perceptions towards using ICT according to gender.

Table 12: t-test for Teachers' Perceptions towards Using ICT According to Gender

Gender	n	M	S.D.	*df*	t	Sig. (2-tailed)
Male	49	4.1333	.44804	95	3.645	.000
Female	48	3.8181	.40206			

The data were analyzed by independent sample t-test. As shown in Table 13, the probability significance was .000, which is less than .05; thus, the research hypothesis was accepted. This means that there was a significant difference in the level of teachers' perceptions towards using ICT according to gender.

Table 13 shows the mean, standard deviation, and t-test results (2-tailed) of the teachers' perceived self-confidence in integrating ICT in their classes according to gender.

Table 13: t-test for Teachers' Perceived Self-Confidence in Integrating ICT in Their Classes According to Gender

Gender	n	M	S.D.	*df*	t	Sig. (2-tailed)
Male	49	4.1378	.71637	95	3.410	.001
Female	48	3.6979	.53955			

The data were analyzed by independent sample t-test. As shown in Table 14, the probability significance was .001, which is less than .05; thus, the research hypothesis was accepted. This means that there was a significant difference in the level of teachers' perceived self-confidence in integrating ICT in their classes according to gender.

The main findings of this study are presented in Tables 14 and 15 below:

Table 14: Summary of Teachers' Knowledge of Common ICT Knowledge, Teachers' Perceptions Towards Using ICT and Teachers' Perceived Self-Confidence in Integrating ICT in Their Classes

Variable	Interpretation
Teachers' Knowledge of Common ICT Knowledge	High
Teachers' Perceptions Towards Using ICT	Positive
Teachers' Perceived Self-Confidence in Integrating ICT in Their Classes	Positive

Table 15: Summary of t-testing for Teachers' Knowledge of Common ICT Knowledge, Teachers' Perceptions towards Using ICT and Teachers' Perceived Self-Confidence in Integrating ICT in Their Classes According to Gender

Variable	Interpretation
Teachers' Knowledge of Common ICT Knowledge	There was no significant difference in the level of teachers' knowledge of common ICT software according to gender.
Teachers' Perceptions Towards Using ICT	There was a significant difference in the level of teachers' perceptions towards using ICT according to gender.
Teachers' Perceived Self-Confidence in Integrating ICT in Their Classes	There was a significant difference in the level of teachers' perceived self-confidence in integrating ICT in their classes according to gender.

Discussion

This study provided an understanding of the sample teachers' knowledge of common ICT software, their perception towards using ICT and their perceived self-confidence in integrating ICT in their classes. The results of the findings were high and positive overall. The discussion below will be arranged according to each of the main study variables.

Teachers' Knowledge of Common ICT Software

This study found that the teachers' knowledge of common ICT software was high. The comparison according to gender found no significant difference.

The schools in this study are well recognized and the findings explain that these teachers have had good training and development in the areas of ICT. Also, the Ministry of Education of Thailand has kept ICT as part of the core of the education system, which shows that ICT is well supported in Thai education. The findings also support that the schools in this study have a wide range of ICT equipment and they fully support using ICT in teaching and learning. Thus, this shows that the teachers are well supported to gain sufficient knowledge to teach the students.

Consequently, the teachers had good knowledge of the common ICT software used to teach their students effectively. This meant that they could make their classes more enthusiastic, fun, challenging and insightful at the same time. The teachers would be able to conduct their classes with minimal to no issues of how to handle or use a certain software. Markauskaite (2005), also found in his study that trainee teachers, male and female both, had considerable knowledge of ICT.

Singh and Chan (2014) stated that teachers' preparation was indeed very important for the successful integration of ICT into teaching and learning. Teachers need to know how to apply their knowledge, how to think critically, generating new ideas, solving problems and making decisions and they need to keep up with the demands of the 21st century skills (Partnership for 21st Century Skills, 2002). Kirschner and Wopereis (2003) believed that teachers should be well equipped with the knowledge that they need to be able to impart knowledge to students successfully. The teachers' pedagogical approaches are determined by their knowledge of their

own subject and having a relevant knowledge is very important for the teachers (UNESCO, 2004).

Teachers' Perceptions towards Using ICT

The teachers' perceptions towards using ICT were positive overall. However, a comparison according to gender found a significant difference in the teachers' perceptions towards using ICT where it was found that the male teachers had more positive perceptions towards using ICT. While comparing the male and female teachers' perceptions towards using ICT, the results found that the male teachers had more positive perceptions than the female teachers. This meant that they were more willing and open to use ICT in their classes as compared to female teachers. The male teachers in the researcher's school were more interested in using ICT in teaching compared to the female. This result was consistent with the findings of Yau and Cheng (2012) and Broos (2005, as cited in Wong & Hanafi, 2007). The results were in contrast to the findings of Ariffin (2005) and Elsaadani (2012) where they found no significant differences between the male and female teachers' perceptions towards using ICT.

The positive attitudes of the male and female teachers will also motivate the students to learn and not fear using the ICT. As the schools in this study give a lot of importance to the ICT environment both for teaching and learning, the teachers should also be willing and positive enough to be able to contribute to the school mission and learning environment effectively. The study found that the teachers' perceptions towards ICT was positive, indicative of the fact that they were supported by the school administrations to develop themselves professionally. As discussed above, teachers have positive perceptions towards ICT only if they have strong knowledge in it and are well supported by the schools. One of the findings of this study showed that the teachers have high knowledge of common ICT software which in turn contributed to the positive attitudes towards using it.

This study found the same results as the study by Sànchez, Marcos, Gonzàlez, and GuanLin (2012) who found that the in-service teachers had positive attitudes towards using ICT. The findings are also consistent with the findings of (Yu and Yang,as cited by Sànchez, Marcos, Gonzàlez, & GuanLin, 2012) and Kusano et al. (2013).

While comparing the male and female teachers' perceptions towards using ICT, the results found that the male teachers had more positive attitudes than the female teachers. This means that they were more willing and open to use ICT in their classes as compared to female teachers. Most of the male teachers in the sample use are more open to using ICT to teach and are more enthusiastic about integrating new application and programs to enhance better teaching and learning environment.

This result was consistent with the findings of Yau and Cheng (2012). The results were in contrast to the findings of Ariffin (2005) where Ariffin found no significant differences between the male and female teachers' attitudes towards using ICT. The positive perceptions of the male and female teachers also meant the teachers were equipped with adequate experience and opportunities regarding ICT importance and usage.

Teachers are the most powerful tool a school has; they can bring about change and reform in the ICT system in schools. Kandasamy and Shah (2013) and Tabata and Johnsrud (as cited in Kusano et al., 2013) believed it is necessary for the teachers' to have a positive attitude towards ICT so that the implementation of ICT becomes easy and proves to be an advantage. They also believed that with positive attitudes the teachers could impart their knowledge to the students more effectively. Watt (1980, as cited in Papanastasiou & Angeli, 2008) believed that the teachers' attitudes play an important role in dealing with ICT in the classrooms. Veen (1993) believed that an effective implementation of ICT can only be positive if the users have positive attitudes towards using it.

Teachers' Perceived Self-Confidence in Integrating ICT in Their Classes

This study found out that the teachers' overall perceived self-confidence in integrating ICT in their classes was *Positive*. However, a comparison according to gender found a significant difference in the teachers' perceived self-confidence in integrating ICT in their classes where it was found that the male teachers had more positive perceived self-confidence in integrating ICT in their classes than the female teachers did.

This meant that the male teachers were more willing to use ICT, as they were confident with what they were doing and using. This could possibly mean that they had more professional development in using ICT than the female teachers. Also, male teachers are more open and enthusiastic to use gadgets and ICT personally or professionally that gives them the confidence to use ICT in teaching.

The findings are consistent with the study conducted by Shashaani and Khalili (2001) where they found that the females expressed having low confidence in using computers. Findings by Yau and Cheng (2012), Markauskaite (2005) and Goktas, Yildirim, & Yildirim (2009) found that male teachers had more confidence using computers. The study was in contrast with the findings of Ariffin (2005) who found that the female teachers had more confidence in using ICT compared to male teachers.

Voogt (as cited in Kusano et al., 2013) found that teachers who tend to integrate ICT into their classes have a lot more confidence in using their technology skills. As reported by Kumar and Kumar (as cited in Singh & Chan, 2014), lack of confidence in using ICT has been linked with having negative attitudes towards using computers.

The previous sections presented the procedures and the main findings of the study. Following are the recommendations.

Recommendations

Based on the study, the following recommendations were offered for the teachers, administrators and future researchers.

For Teachers

The teachers can use this information to know their strengths and weaknesses in a particular area so that they can strengthen it. The findings of this study suggests that the teachers both male and female have high knowledge on overall software, but some of the software such as databases which had the lowest score could be improved. The

teachers, thus, will be able to learn and make improvements where necessary and continue to strengthen their areas they are comfortable with.

For Administrators

This study can be useful for the administrators working in the school so that they can reflect on the strengths and weaknesses of the teachers working in the school. As the administrators are very important for the school operations, they can use this information to plan training targeting groups or individual teachers. With this information, they can come up with different professional development sessions for the teachers to attend and bring back the knowledge and train other teachers and students. They can organize training sessions in the school monthly or every term where teachers come together to discuss and train each other. However, an expert from outside the school can also visit teachers every term to teach and discuss with the teachers new ideas and pedagogy that has been proved successful in other school or other countries.

For Future Researchers

As many of the previous studies and this study found differences between male and female teachers' perceptions towards using ICT and their perceived self-confidence in integrating ICT in their classes, future researchers can study teachers from more than two schools to collect more population and see if the difference between male and female teachers' perceptions and self-confidence differ. Also the future researches can study the relationship between teachers' professional development opportunities and their ICT knowledge, perceptions and self-confidence.

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