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Comparison between university undergraduates and school teachers' perceptions on the role of information technology in teaching and learning in Morogoro municipality

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Abstract

This study determined the perceptions of undergraduates (University teacher trainees) and school teachers on the use of information technology in Teaching and learning in Morogoro municipal. Questionnaire was used to collect data from 216 undergraduates who were pursuing Bachelor of Science with Education courses at Sokoine University of Agriculture and 160 school teachers. Data were analyzed by using Statistical Package for the Social Sciences (SPSS) whereby chi-square test statistic was applied. It was observed that there is greater number of undergraduates than school teachers who responded that, using IT in teaching raises enjoyment, save time, motivates learners and that text book is easily used than using IT. However, the percentage of teachers who thought that IT improves the school administration was higher than that of undergraduates. Also, both male and female teachers and undergraduates have nearly similar perceptions on the role of IT in simplifying teachers' role in the classroom.

Keywords: information technology; undergraduates; school teachers; teaching; perceptions

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1. Introduction

The strong economy of any country, developed or developing depends substantially on the level and quality of the education it provides to its workforce (McCarney, 2004). Education reform is occurring throughout the world and one of the tenets of the reform is the introduction and integration of ICT in the education system (Jhurree, 2005). Information and Technology (IT) has entered the world of learning. Example, development of the Internet, nowadays there is possibility of delivering educational materials in electronic form to anyone, anywhere, and at any time. With development in educational technology comes the promise that educational resources in electronic formats can change the ways in which we teach and learn (ADL, 2003).

According to Tanzania national ICT policy as supported by education and training policy, information and technology introduce new opportunity to support education and to improve the quality of education in different areas (URT, 2014). The ministry of education believes that integration of ICT and education in teaching and learning process, administration and management promote development of education goals and objective. Therefore, in August 2005 the government of the United of Republic of Tanzania introduced ICT in teacher collages aiming at improving the quality of the pre-service and in-service teachers on the use of ICT. The government established uses of ICT in secondary schools (information and computer studies ICS) and curriculum for ICT in primary and pre-primary education (URT, 2007); this simulated changing of curriculum.

However, these curricular reforms may not necessarily bring out positive results for the developing societies as lack of clear understanding on the impacts of the IT in learning and economical constrains has been the major challenge (Mahumbwe & Kira, 2015). In addition, there is slower change in lesson plan in order to fit the use of Information Technology in the classroom. For instance, Van Driel et al. (2001) argued that the reform efforts failure is caused by top-down approach that fails to incorporate stakeholders' knowledge and attitude into consideration. This is by considering the observation that the success of technology use in the educational settings largely depends on teachers attitudes toward technology use (Albirini, 2006; Baylor & Ritchie, 2002). Another observation testifies that teacher's perception is a strong indicator of planning, instructional decisions and classroom practices (Bandura, 1986). These observations give the reason why efficient ways to prepare teachers for including Information Technology in their everyday teaching activities has been given priority by many researchers worldwide (Lang, 2000; Niemi, 2003). This conclusion implies that teachers' perceptions influence their classroom practice and that understanding the teachers' perception on the effect of using Information Technology can provide insight for its successful incorporation in education systems in Tanzania. Also, if the university context where teachers are trained is so different compared to that of secondary schools, so are likely to be the perceptions of university student teachers and secondary school students on the use of IT in teaching and learning. Therefore understanding such differences in perception is important in planning for in-service or pre-service programs for IT use in schools.

1.1 Problem statement

Rapid growth and improvement in information technology have led to the diffusion of the technology in society. In the case of education sector, studies in controlled environments suggest that the use of technology under the right circumstances improves educational outcomes, and many educators believe that a new pedagogy that incorporates technology is necessary to prepare students for working in the information age (Gulbahar & Guven, 2008). In recent years, education stakeholders have directed initiatives toward the preparation of teachers in order to enable them to integrate IT in their everyday practice. This is because perceptions and skills in relation to information technology use have been universally recognized as an important factor in the success of

the technology integration in a community. For this reason, many Universities in the country such as Sokoine University of agriculture in 2001 introduced degree programmers that include IT in their curriculum aiming at enhancing teachers' skills in IT and hence develop positive perception in the use of IT. Likewise, the information technology infrastructure in schools has been improving by introduction of computers. But there is no research that has evaluated stakeholders' perceptions as a basis for the success of these efforts in achieving the targeted goals. This is by considering the observation that growth of information technology may sometimes lead to negative consequences in student's academic progress under certain circumstances (DeLoach, 2015).

1.2 Research Objective

The general objective of this study was to determine perceptions of University undergraduates and school teachers about the effect of using information technology on teaching and learning.

1.3 Specific Objectives

- To determine the school teachers' perception about the role of information technology in teaching and learning.
- To determine undergraduates' perception about the role of information technology in teaching and learning.
- To determine if there is any significant difference in perception between school teachers and undergraduates about the role of using information technology in teaching and learning.

1.4 Research Hypothesis

- Both school teachers and undergraduates have positive perception regarding the use of information technology on students' academic achievement.
- There is no significant difference in perception between school teachers and undergraduates on the role of using IT in teaching and learning.

2. Literature Review

The application of Information and Technology (IT) has been emphasized in various sectors such as corporative business, the industry and in education sectors (Allen, 2011; Sofiane & Ali, 2015). Considering the education sector, Silvin-Kachala (1998) in New York, explained that, students when are in technology rich environment experience positive effects on achievement in all major subject areas. In addition, their attitudes toward learning and their own self-concept are improved consistently when computers were used for instruction. This implies that use of IT lowers students' learning stress. Research shows that as learning stress decreases students' self-efficacy increases (Montebon, 2016).

A study conducted in Australia shows that teachers use different types of IT tools in teaching and learning such as laptop, overhead projectors and data projector, they help them not only to improve their skills in teaching, recording student grade, check school timetable but also as a support in administration (Eady & Lockyer, 2013). However, for this to be effective teachers need to have positive perception. This is the reason why research shows that IT does not have an educational value in itself (Tezci, 2009). The educational technology process should begin with the identification of an educational problem and deciding what students, teachers or schools want to achieve, not with the existence of technology (Neyland, 2011; Tezci, 2009). For example, a study conducted in Europe noted that teachers have a positive perception about using IT in education to increase skills and knowledge in teaching such that IT helps them to make effective use of computer applications in teaching, assessment and administration (Cakir & Yildirim, 2013).

Both positive perception and availability of the technology are significant in the effective use of the technology. This can be demonstrated by a study conducted in Saud Arabia in 2008 where it was observed that only two percent of teachers accessed the internet during lessons. The author indicated that teachers and students have limited or no access to computer laboratories and to highly technical equipment such as digital microscopes, digital cameras, laptop computers, and scanners making it difficult for ICT to be used in science education. As a result computers could only be used for writing documents and designing presentations (Almaghlouth, 2008).

For instance, a study done by sampling different regions in the country found that although the use of IT improves teachers and students thinking and reasoning teachers did not use them effectively because of lack of training on computer application as a method of teaching and absence of many IT tools in schools (Kambagha, 2008). But a study conducted in Dar es salaam Tanzania by Mwalongo (2011), found that many teachers use IT tools in preparation of notes, in teaching, making student result record, and receiving quick feedback assessment from students.

Another study by Ndibalema (2014), conducted in Dodoma Tanzania show that IT use by teachers focused more on the social aspects as teachers use email to share information. This study supports Kira and Mahumbwe (2015)'s observation in Dar es salaam secondary schools that though there are teachers who use computers to prepare teaching and learning materials there is little application of the internet facility in these schools to develop classroom pedagogy. Since, teachers' classroom practice is associated with their perceptions (Albirini, 2006), there is a possibility that perceptions of university pre-service teachers and those of in-service teachers in secondary schools are not the same because changes in classroom technologies correlate to changes in other educational factors as well (Lim et al., 2013).

For instance, changes in the infrastructure system to accommodate teaching and learning using IT facilities at Sokoine University of Agriculture may not match which the changes in secondary schools as Adeogun (2003) in Nigeria found that, the use of IT in teaching, learning and research activities in university made easily to the students to perform their work, many students understand computer application as a method of teaching and learning that helps them long retention, and improvement in examination performance. But secondary school teachers' perceptions regarding IT use may also change with time especially if there are professional development programs. Professional development can have an impact on teachers' attitudes and beliefs towards IT, and provide them with the knowledge and skills needed to employ IT in teaching and learning practices (Hew & Brush, 2007). Therefore, one may predict a difference in perception between in-service and pre-service teachers on the use of IT in general, but where is likely to be a significant difference in perception when specific IT facilities are under consideration needs an investigation.

3. Methodology

3.1 Research Design and Approach

A surve**y** research design was used in this study. It was possible to survey large number of participants within a short time and describes the perceptions of participants by using questionnaire.

3.2 Target Population

The target population consisted undergraduates from Sokoine University of Agriculture and school teachers from secondary schools in Morogoro municipality.

3.3 Sample Size and Sampling Technique

The sample size in this study comprised 216 undergraduates who were pursuing education courses at Sokoine University of agriculture (University teacher trainees) and 160 school teachers in the selected schools in

Morogoro municipality. Education undergraduates were considered because the intention was to compare undergraduates and school teachers; also, gender distribution was considered. Therefore, the undergraduates were 108 males and 108 females whereas the school teachers were 80 males and 80 females from Kihonda, Kilakala, Morogoro and Mjimpya secondary schools.

Morogoro region was randomly selected from other regions in the country. Also, random sampling method was employed in selecting secondary schools; where 4 wards were randomly selected from 29 wards in Morogoro municipality. Moreover, one school from each ward was randomly selected and from each school 40 teachers was purposively selected (5 biology, 5 mathematics, 5 history, 5 chemistry, 5 physics, 5 civics, 5 geography and 5 English teachers), gender balance was considered by including both male and female teachers. Therefore from the 4 schools 160 teachers were selected. All 6 education degree programs at Sokoine University of Agriculture were involved in this study. A total of 216 undergraduates pursuing education degree programme were selected for this study because they learn about the use of IT in education process and they are expected to apply that knowledge and skills when teaching in secondary schools. Thus, From Each academic year of 6 different education programs from Sokoine University of agriculture 12 students were randomly selected.

3.4 Data Collection

The questionnaires were distributed among selected undergraduates of the Sokoine university of Agriculture and school teachers in Morogoro municipal. The questionnaire items were consisted of closed questions because they were objective giving specific information. Closed questions were easy to administer, easily coded and analyzed to allow comparisons and quantification, and they were more likely to produce fully filled questionnaires while avoiding irrelevant responses (Sarantakos, 2007).

3.5 Validity and Reliability of the Study

A pilot study was carried out before data collection in a degree program different from the sampled one in order to determine validity and reliability. Information obtained from pilot study helped to identify ambiguities in the questionnaires and modify them to reflect the objectives of the study. Pilot study was conducted twice at an interval of two weeks that used the same sample and instrument producing two sets of scores. These sets of scores were used to calculate reliability correlation coefficient which determines stability of the results over a period of time. The reliability coefficient was found to be 0.81 which is above 0.80; the value above which the data collection instrument is often considered sufficiently reliable to make decisions about individuals based on their observed scores (Fleiss, 1981).

3.6 Data Analysis

The questionnaire responses were coded, edited, named and then items were entered into the Statistical Package for the Social Sciences (SPSS). Then all scores of teachers and undergraduates were converted to percentages in order to generate meaningful comparisons and facilitate the interpretation of results. The chi-square test was used to compare the number of school teachers and undergraduates.

4. Findings

4.1 Teachers and Students Uses of IT Tools

The results in table 1 revealed that majority of school teachers and undergraduates use IT tools irrespective of their gender. It was noted that more undergraduate 142 (65.74%) than school teachers 62 (38.78%) use projectors. In addition, higher number of students 216(100%) than teachers 144 (90%) use computers whereas telephones were used by majority of students and teachers. However, the lowest number of both students and teachers use power point and digital camera. Data in table 1 also show that the number of male students who

used projector is greater than that of females for both school teachers and the undergraduates. The same applies for the case of using digital camera if their percentages are considered. However, the number of females who used computer or power point in presentations is greater than that of males for both school teachers and the undergraduates. Although large proportion of undergraduates (99%) than secondary school teachers (87.5%) has personal computers, 70% of undergraduates and school teachers used internet devices and telephone. Also only 61% of undergraduates and 50% of school students have access to internet at home.

Table 1

Number of Teachers and Students who Use or Own IT Resources

IT resources and respondents		Gender		Chi-square tests
		Male	Female	
Projector	School teachers	32(40%)	30(37.5%)	13.490, df=1, p=000<0.05
	Undergraduates	78(72%)	64(59.2%)	
Computer	School teachers	66(80)%	78(97%)	11.280, df=1, p=001<0.05
	Undergraduates	108(100%)	108(100%)	
Internet device	School teachers	56(70%)	78(97%)	20.611, df=1, p=000<.05
	Undergraduates	108(100%)	104(96%)	
Telephone	School teachers	76(95.5%)	78(97.5%)	095, df=1, p=1.000>0.05
	Undergraduates	104(96%)	100((92.5%)	
Digital camera	School teachers	36(45%)	40(25%)	027, df=1, p=884>0.05
	Undergraduates	56(51.85%)	44(43%)	
Power pointer	School teachers	24(30%)	28(35%)	2.747, df=1, p=131>0.05
	Undergraduates	44(40%)	52(48%)	
Own computer	School teachers	78(97%)	62(77.5%)	11.176, df=1, p=001<0.05
	Undergraduates	108(100%)	106(98%)	
Access Internet	School teachers	40(50%)	40(50%)	2.307, df=1, p=159>0.05
	Undergraduates	74(68.5%)	58(53.7%)	

Source: Field data (2015)

Analysis of the findings by Chi-square test shows that there is no significant difference between school teachers and undergraduates in using IT resources such as, telephone, digital camera and power point but there is a significant difference between school teachers and undergraduates in the use of projector 13.490, df=1, p=000<0.05, internet 20.611, df=1, p=000<0.05 and computer 11.280, df=1, p=001<0.05 (See Table 1).

4.2 Comparison between the Use of Textbooks and IT

The participants also responded to a question intending to compare the influence of text books and IT usage on students' academic achievement. The findings in table 2 demonstrate that greater number of undergraduates 72(32%) than school teachers 58(36%) believed that text books have deep coverage of topic than IT. However, higher number of undergraduates 198(91.6%) than school teachers 116(72 %,) responded that using IT is easier to get information than text books. Furthermore, more undergraduates 198(91.66%) than school teachers 122(76%) said that using IT sources helps students and teachers to get quick information than text books.

It was also found that more undergraduates 182(84%) than school teachers 112(70%) responded that using IT provides more information than using text books. Likewise, More undergraduates 64(40%) than school teachers 56(35%) agreed that using textbook sources is easier to get assignment than using IT. Greater number of undergraduates than school teachers responded that, using IT in teaching raises enjoyment, save time, motivates learners and it is easier to use a textbook than IT (See Table 2).

Table 2

How Teachers and Students Compare the Use of IT Resources and Textbooks

Uses	Respondents	Gender		Chi-square tests
		Male	Female	
Textbooks have deep coverage of topic than IT	School teachers	28 (35%)	30(37.5%)	554, df=2,
	Undergraduates	38 (35%)	32(29.6%)	*p*=758>0.05
Using IT is easier to get information than Textbooks	School teachers	66(82%)	50(62.5%)	2.327, df=2,
	Undergraduates	104(96%)	94(87%)	*p*=002>0.05
Using IT helps students and teachers to get quick information than Textbooks	School teachers	68 (85%)	54(67%)	12.556, df=2,
	Undergraduates	102 (94%)	96(88.8%)	*p*=002>0.05
Using IT provides more information than using Textbooks	School teachers	60(75%)	52(65%)	9.826, df=2,
	Undergraduates	94(87%)	88 (81%)	*p*=007>0.05
Using textbooks sources is easier for students to get assignment than using IT	School teachers	28(35%)	28(35%)	2.679, df=2,
	Undergraduates	42(38.8%)	22(20%)	*p*=265>0.05
Using IT in teaching raises enjoyment than using Textbooks	School teachers	74(92%)	56(70%)	633, df=2,
	Undergraduates	72(66.6%)	94(87%)	*p*=729>0.05
Using IT can Save time than using Textbooks	School teachers	62(77.5%)	54(67.5%)	10.061, df=2,
	Undergraduates	84(77.7%)	94 (87%)	p=007>0.05
Using Textbooks is a leisure than using IT	School teachers	14(17.5%)	24(30%)	24.676, df=2,
	Undergraduates	8(7%)	14(12.9%)	*p*=000<0.05
Using IT can motivate learners than using a Textbooks	School teachers	62(77.5%)	62 (77.5%)	300, df=2,
	Undergraduates	86(79.6%)	86(79.6%)	*p*=861>0.05

Source: Field data (2015)

Chi-square test statistic values in Table 2 show that there is no significant difference in the number of responses between school teachers and undergraduates on the role of IT and textbooks in learning except that there is a significant difference between school teachers and undergraduates on the item that using textbooks is a leisure than using IT, 24.676, df=2, *p*=000<0.05.

4.3 The Role of IT in Improving Students' Academic Achievement

Teachers and students were asked to indicate their perception about using IT tools on students' academic performance. The results in Table 3 show that more undergraduates than school teachers agreed that IT improves teaching and learning and stimulates students' creativity in learning. Moreover, they both agreed that IT helps students to work with one another in class and improve students' academic performance. To some extent there is no much difference between male and female undergraduates and teachers in their perceptions on the role of IT in improving the academic performance. However, the percentage of female school teachers and undergraduates was higher compared with that of males for both school teachers and undergraduates regarding the item that IT informs the teachers about the surrounding context and improves social behavior of students and teachers.

Table 3

School Teachers and Undergraduates' Responses about the Role of IT on Students' Academic Achievement

Uses	Occupation	Gender		Chi-square tests
		Male	Female	
IT tools can improve teaching and learning	School teachers	70(87.5%)	50 (62.5%)	8.491, df=2, *p*=014>0.05
	Undergraduates	98(90.7%)	98(90.7%)	

Table 3 … continued

IT stimulates the student creativity in learning	School teachers Undergraduates	58 (72.5)% 96 (88.8%)	52(65%) 104 (96%)	17.106, df=2, p=000<0.05
IT helps students work with one another in class	School teachers Undergraduates	46 (57.5%) 58 (53.7%)	40 (50%) 68 (62.9%)	8.401, df=2, p=015>0.05
IT improve the academic performances of students	School teachers Undergraduates	34(42%) 74 (68.5%)	38 (47.5%) 66 (61%)	9.586, df=2, p=008>0.05
IT informs the teachers about the surrounding context	School teachers Undergraduates	36(45%) 48(44.4%)	52(65%) 62(57%)	332, df=2, p=847>0.05
IT improves social behavior of students and teachers	School teachers Undergraduates	26(32%) 48(44%)	48(60%) 64(59%)	2.885, df=2, p=240>0.05

Source: Field data (2015)

However, chi-square test analysis showed that there is no significant difference between teacher and students about whether IT improves the academic performances of students or not. But there is a significant difference in their responses regarding the use of IT to stimulate students' creativity in learning 17.106, df=2, p=000<0.05.

4.4 The Role of IT in Simplifying Teachers' Role in the Classroom

Teachers and students were asked to indicate their perceptions about the use of IT in simplifying teachers' activities. The results in Table 4 reveal that the higher percentage of undergraduates agreed that IT improves teaching methodology, class management and helps teachers in setting examinations. However, the percentage of teachers who thought that IT improves the school administration was higher than that of undergraduates. Moreover, Data in Table 4 show that both male and female teachers and undergraduates have nearly similar perceptions on the role of IT in simplifying teachers' role in the classroom.

Table 4

Teachers and Students' Responses on the Role of IT in Simplifying Teachers' Work in the Classroom

Perception	Occupation	Sex		**Chi-square tests**
		Male	Female	
IT helps teachers to improve teaching methodology	School teachers Undergraduates	46(57.5%) 76 (70%)	42(52.5%) 88 (81%)	12.433, df=2, p=002>0.05
IT can help teachers in setting examinations	School teachers Undergraduates	62 (77.5%) 76 (70%)	48(60%) 54(87%)	2.884, df=2, p=236>0.05
IT can improve school administration	School teachers Undergraduates	50(62.5%) 56(51.85%)	50(62.5%) 64(59%)	5.697, df=2, p=058>0.05
IT can improve class management	School teachers Undergraduates	44 (55%) 38(36%)	48(60%) 62 (57%)	10.749, df=2, p=005>0.05
IT can be used to provide feedback to students	School teachers Undergraduates	36(45%) 78 (72%)	42(52.5%) 92(85%)	19.537, df=2, p=000<0.05

Source: Field data (2015)

Chi-square test analysis in Table 4 shows that there is no significant difference between the teachers and students about the use of IT tools in improving teaching methodology, setting examinations, school administration, and class management. However, there is a significant difference between teachers and students about the role of IT in providing feedback to students 19.537, df=2, p=000<0.05.

4.5 Negative Effects for Use of IT to Both School Teachers and Undergraduates

Despite the fact that respondents accepted that there is positive contribution of the IT in the students' achievement, still they showed some concerns on the negative effects of the information technology in the achievement of students. Data in Table 5 show considerable proportions of both school teachers and the undergraduates students who agreed that the use of information technology affects moral values, retards a relationship between students and teachers, wastes teachers and students time, destroy teachers' moral and ethics, cannot improve quality of exams and that it reduces student's interaction with one another and their teachers. It was also observed that higher percentage of female compared to male school teachers and undergraduates believe that the use of IT reduces communication relationship between teacher and student and destroy morals and ethic of teachers. It seems that both male and female school teachers and undergraduates have nearly similar perception on the item that IT destroys moral values of students, wastes teachers and students time, reduces students interaction with one another and that, use of IT cannot improve quality of examinations.

Table 5

School Teachers and Undergraduates' Responses on the Negative Effects of IT Use

Perception	Occupation	Gender		Chi-square tests
		Male	Female	
IT destroys moral values of students	School teachers	42 (52.5%)	44 (55%)	8.315, df=2, p=016>0.05
	Undergraduates	76 (70%)	72(66.6%)	
IT reduces relationship between teachers and students	School teachers	20 (25%)	32(40%)	6.294, df=2, p=043>0.05
	Undergraduates	18 (33%)	23 (42.5%)	
IT wastes teachers and students time	School teachers	22(27.5%)	42(52.5%)	4.596, df=2, p=100>0.05
	Undergraduates	48(44%)	44 (40.7%)	
IT destroys morals and ethic of teachers	School teachers	24(30%)	44 (55%)	1.5 94, df=2, p=451>0.05
	Undergraduates	24(22%)	50(46%)	
IT use cannot improve quality of exams	School teachers	10 (12.5%)	36(45%)	18.991, df=2, p=000<0.05
	Undergraduates	34(31%)	28(25.9%)	
IT reduce students interaction with one another	School teachers	24(30%)	28(35%)	3.211, df=2, p=201>0.05
	Undergraduates	40 (40.7%)	42(38.88%)	

Source: Field data (2015)

Chi-square test statistic values in Table 5 show that there is no significant difference between school teachers and undergraduates on the way IT tools destroy moral values of students, reduce communication relationship, waste teachers and students time, destroy morals and ethic of teachers and reduce students' interaction with one another. There is a significant difference between school teachers and undergraduates on the use of IT to improve quality of exams 18.991, df=2, p=000<0.05.

5. Discussion

The chi-test results show that there is no difference between undergraduates and school teachers in owning personal computer and access to internet at home. Both undergraduates and school teachers own computes but they have limited internet access at their homes. This may be a result of *poor* infrastructures and high costs associated with *internet* services (Van Driel et al., 2001). This suggests that computer is in a huge demand irrespective of whether there is access or no access to internet. It can also be clearly seen that gender is not a barrier to own computers. This observation could be associated with an increase in the demand for the use of computers for different purposes. For example it has been observed that IT is a valuable supporting tool for administration and teachers can use IT to write student reports, to record student grades, check student lists and check school timetables and notices (Cowie et al., 2008). However, it is a surprise for the increase in the interest

to own computers for school teachers and undergraduates without associating with the increase in the access to internet at homes. The use of projectors, digital camera and power pointers seems to be a challenge to both university students and school teachers. However, majority of both undergraduates and school teachers use telephone, internet and computers. From the findings in table 1 about 50% of both undergraduates and school teachers do not have access to internet at their home and results in table 2 majority of them use internet. This observation suggests that the demand to internet is high but the access at their homes is limited. Furthermore, the results in this section indicate that the access of internet at their home may be improved through the use of telephone since majority of both school teachers and undergraduates use telephone irrespective of their gender.

To some extent, majority of school teachers and undergraduates believe that IT can contribute significantly to the student's achievement. This may be grounded on the fact that the use of the IT in learning may be associated with different entertainments such as music and animations that may increase student's interest in learning. The integration of IT into subject teaching; help students to think critically, to reason, and motivate them to advance in leaning (Becta, 2006). On the other hand, their perception on the negative effects of the IT to students is rather contradicting. While more than 50% of both groups believe that IT destroys moral values of students, the other 50% in most cases believe that the IT may not have negative effects in some aspects as seen in Table 5. These findings suggest that both school teachers and undergraduates have positive perceptions on the use of IT to enhance student's achievement. This conclusion can be supported further by the findings in Table 3 where both school teachers and undergraduates irrespective of their gender agreed that IT has more advantages compared to the use of text books. The observation is in line with study by Cowie et al. (2008) that information technology use in management, teaching and learning activities such as lesson planning and preparation and the use of laptop enable student to seek lesson materials and teacher to share notes through CD and Email.

6. Conclusion

To large extent, both undergraduates and school teachers irrespective of their gender have positive perceptions on the use of IT to improve students' academic achievement. Nonetheless, there are still some undergraduates and school teachers who believe that IT may have negative impacts to students learning. Also, both male and female undergraduates and school teachers used IT resources considerably such as computer, power pointer, telephone and digital camera. In addition, both undergraduates and school teachers agreed that the use of IT has more advantages compared to the use of text book, because it helps them in teaching and learning activities. Furthermore, both undergraduates and school teachers own computer but they have limited internet access at home. However, there were a greater number of undergraduates than school teachers who could identify bigger number of roles for IT in teaching and learning than school teachers but administrative roles of IT could be identified by greater number of school teachers than undergraduates. This study has created an avenue for further investigations to understand the reasons behind some of the observed negative perceptions of undergraduates and school teachers on the use of IT in improving student's academic achievement.

6.1 Recommendations

- The ministry of education should have a plan that further improves the knowledge and skills of secondary school teachers and undergraduates in enhancing teaching and learning activities by using IT resources.
- The ministry of education should provide IT resources such as laptop, internet access, digital camera, projectors for all teachers and undergraduates to encourage them to use IT tools.
- The school teachers and undergraduates should be encouraged to be up to date and match with the ongoing growth of technology and also have a sustainable means of enriching their knowledge about IT.
- The government should improve IT supporting infrastructure like electricity to make IT work

effectively in universities and schools as means of improving teaching and learning.

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