

# **PhD Viva Voce Presentation**

**By**

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**TOPIC: INNOVATION IN TEACHING AND LEARNING: AN  
INVESTIGATION OF PEDAGOGICAL USE OF ICT IN  
SECOND-CYCLE INSTITUTIONS**

# Purpose of the Study

The study investigated teachers' and students' pedagogical uses of ICTs in the second-cycle schools, their attitudes toward the use of ICT, and the factors that relate to their pedagogical uses of technology.

# RESEARCH PROBLEM

## (1) The Background/Basis:

- **The Research Problem Settings:**

Globally, countries see the integration of ICTs into education as a means to modernize educational systems to meet the 21<sup>st</sup> century work place demands for information literates. As part of the Government of Ghana's commitment to a comprehensive ICT programme in education sector and other sectors in the country, a National ICT Policy and Plan Development Committee was set up in 2002 to formulate ICT policy referred to as Information and Communication Technology for Accelerated Development (ICT4AD) (Ministry of Education, 2003).

# RESEARCH PROBLEM CONT

- In furtherance to ICT4AD, the Government of Ghana set up a committee to review the whole educational system and recommend ways to integrate ICTs in Ghanaian education. Working under the theme “Meeting the challenges of education in the twenty-first century” the committee recommended educational reforms that would integrate ICTs into the education system. Specifically, the adoption of this report in September 2007 requires that ICT be integrated into teaching and learning across the educational levels and also introduce ICT as a discipline in basic and Senior High Schools (SHS).
- As a follow up to this document, MoE (2009) conducted a research under the theme “e-Readiness Assessment of second-cycle institutions in Ghana” to “examine and establish the extent to which ICTs are being exploited and deployed to facilitate education and training efforts within the country” (MoE, 2009, p. 22). There is therefore the need for an on-going formative evaluation of the implementation of these policies, hence this study.

# RESEARCH PROBLEM CONT

- **The Prior Research Efforts:**
- Eccles et al. (1983); Wigfield (1994); Wigfield and Eccles (2000); and Feather (1982) proposed an expectancy-value model of motivation. Wozney et al. (2006) used expectancy-value theory to explain the relative importance of expectancy, value and cost variables.
- Previous works (Grabe & Grabe, 2008; Askar & Usluel, 2003; Trotter, 1997) suggests that ICT has not been appreciably integrated into teaching and learning activities .
- Furthermore, though there is much information on the availability of ICT and the way they are being implemented in advanced nations, there is little information in the literature on the use of ICT among students in schools in Africa in general (Beukes-Amiss and Chiware (2007)).

# RESEARCH PROBLEM CONT

## (2) The Research Gaps:

- Eccles et al. (1983); Wigfield (1994); Wigfield and Eccles (2000); and Feather (1982) proposed an expectancy-value model of motivation. Wozney et al. (2006) used expectancy-value theory to explain the relative importance of expectancy, value and cost variables. Their study was limited to teachers' perceptions of the implementation of ICT. Wozney et al. did not investigate students' perceptions in this regard and other contextual factors that relate to pedagogical uses of ICT.
- Ainley et al. (2008) found that “there is currently little understanding of the way in which ICT is used in schools and classrooms around the world” (p. 76). They conclude more study is needed to investigate how educators facilitate the use of ICTs in schools. Furthermore, there is little information in the literature on the use of ICT among students in schools in Africa in general (Beukes-Amiss and Chiware, 2007).

# RESEARCH PROBLEM CONT

**(3) Why Address Research Gap:** Addressing the gap is important because it will throw more light on pedagogical integration of ICTs.

# SIGNIFICANCE OF THE STUDY

## ❖ Practice and Policy

- Research Finding 1: The study found that teachers' pedagogical use of ICT was scarce. Also, teachers' pedagogical use of ICT did not differ in school type. But, their pedagogical use differed in school location.
- Implications (Practice): Educational technology standards should be set up to guide teachers in ICT integration activities.
- Implications (Policy): Institutional policy on professional development programs and ICT integration into teaching should be put in place in line with the national ICT in education policy.
- Research Finding 2: Students use ICT to a limited extent. Also, students' pedagogical use of ICT differed in school type and school location.
- Implications (Practice): This finding may imply that the curriculum does not encourage the use of ICT, teachers instructional practices may not include the use of ICT or students' learning styles and needs may not be factored into the integration of ICTs in schools. For students' effective use of ICT for learning in public and private as well as rural and urban settings efforts should be made to address the inequities in availability and access to ICTs.
- Implications (Policy): In fashioning the on going ICT in education policy, the curriculum, student-centred instructional practices and strategies should be aligned with students' learning styles and needs and instructional technology.

# SIGNIFICANCE OF THE STUDY CONT

## ❖ Practice and Policy cont

- Research Finding 3: Teachers' attitudes toward ICT integration did not differ by gender, school type and location.
- Implications (Practice): This finding may imply that teachers approach to ICT integration is the same because of the newness of ICT integration in the educational system and inadequate teachers' knowledge and skill in pedagogical use of ICTs. GES should take steps to address these issues.
- Implications (Policy): The national ICT in education policy should include a program of in-service training that includes pedagogical integration of ICTs.
- Research Findings 4: Differences in students attitudes towards use of ICT for learning were in favour of male students, public schools and urban schools.
- Implications (Practice): The implication is that the male students, public schools and urban schools have more access to available ICTs than the female, private, rural schools. Therefore, steps should be take to address this inequities
- Implications (Policy): GES policies governing the schools should not be cultural biases against the female students. Policy on equitable distribution of infrastructure and equipment to all schools irrespective of their type and location should be step up.

# SIGNIFICANCE OF THE STUDY CONT

## ❖ Practice and Policy cont

- Research Finding 5: Teachers and students perceived ICT competence, access, leadership support and self-efficacy as factors that enhance pedagogical use of ICT.
- Research Finding 6: In linear combination, leadership support, competence, training, expectation and cost significantly accounted for the variance of teachers' pedagogical use of ICT. Further, competence, leadership support, self-efficacy and access accounted for the variance of students' use of ICT for learning. However individually, leadership support strongly related to teachers pedagogical use of ICT, while Competence strongly related to students' use of ICT for learning
- Implications 5 and 6 (Practice): School management should provide support in terms of provision of ICTs, training of teachers in pedagogical integration of ICTs. An open hours should be extended to out of class times and the weekends to enhance students access to computing facilities.
- Implications 5 and 6 (Policy): Even though Government has the policy of providing ICT facilities in all schools and is in the process of developing an ICT in education policy, efforts should be made to bridge the disconnect between policy and implementation by devising effective strategies to address imbalances in the provision of ICT infrastructures and equipment in all schools.

# SIGNIFICANCE OF THE STUDY CONT

## ❖ Theoretical

- Research Finding 1: The study found that teachers' pedagogical use of ICT was scarce. Teachers' pedagogical use of ICT did not differ in school type. But, their pedagogical use differed in school location.
- Research Finding 2: Students use ICT to a limited extent. Also, students' pedagogical use of ICT differed in school type and school location in favour of public and urban, respectively.
- Implications 1 and 2: Teachers' pedagogical practices and strategies may not be in line with the constructivist theory of learning which encourages learning with ICTs.
- Research Finding 3: Teachers' attitudes toward ICT integration did not differ by gender, school type and location.
- Implications: This finding based on the expectancy value theory has thrown more light on teachers' attitudes toward pedagogical use of ICT.
- Research Finding 4: Differences in students attitudes towards use of ICT for learning were in favour of male students, public schools and urban schools.
- Implications: This finding based on the expectancy value theory has thrown more light on students' attitudes toward pedagogical use of ICT.

# LITERATURE REVIEW

- Eccles et al. (1983); Wigfield (1994); Wigfield and Eccles (2000); and Feather (1982) proposed an expectancy-value model of motivation. Though Eccles and colleagues proposed the expectancy-value theory, but the theory does not explain the relative significance of three constructs: expectancy, value and cost.
- Wozney et al. (2006) moved a little further to use expectancy-value theory to explain the relative importance of expectancy, value and cost variables. However, the study was limited to teachers' perceptions of the implementation of ICT. This study did consider teachers and students attitudes toward the use of ICT for teaching and learning.

# LITERATURE REVIEW CONT

- Ainley et al. (2008) found that “there is currently little understanding of the way in which ICT is used in schools and classrooms around the world” (p. 76). They conclude more study is needed to investigate how educators use ICT in schools.
- In a related study, Sarfo and Ansong-Gyimah (2011) found that the students have access to mobile phone, computer or internet. They concluded that factors such as gender and geographical location of the students (i.e. urban, semi-urban and rural) need investigation in future study. Additionally, the study did not mention teachers’ and students’ attitudes toward technology use.
- Though, there is much information on the availability of ICT and the way they are being implemented in advanced nations, there is little information in the literature on the use of ICT among students in schools in Africa in general (Beukes-Amis and Chiware (2007).

# LITERATURE REVIEW CONT.

- Gibson (2002) claim that there is the need to consider technological, individual, organizational, and institutional factors when examining ICT integration.
- Demiraslan and Usluel (2008) found that institutional support played a vital role in assisting educators to use ICT in their teaching.
- Research evidence from some countries in Europe showed that the integration of ICT did not get adequate institutional assistance (European Schoolnet, 2006).

# LITERATURE REVIEW CONT.

- Sarfo and Ansong-Gyimah (2011) stated that factors such as gender should be considered in future research
- Therefore, it is obvious from previous works that an understanding of personal and institutional characteristics that influence teachers' and students' integration of ICT into teaching and learning is relevant.

# LITERATURE REVIEW CONT.

- The literature reviewed has shown that little attention has been paid to the way ICT is used to support teaching and learning process, specifically in developing countries.
- Moreover, the relative significance of the constructs: expectancy, value and cost has received little consideration.
- Also, these studies have revealed that personal and institutional characteristics should be investigated with regards to ICT integration.
- Again, previous works have ignored geographical locations of schools with regards to ICT integration.
- These gaps have been addressed by investigating pedagogical uses of ICT in second-cycle institutions.

# THE RESEARCH METHODOLOGY

## DATA COLLECTION

The study used both quantitative and qualitative methods to address the research problem.

### **Quantitative:**

- Provides valid scientific answers, resulting in action and changes being generated and taken place (Melia, 1982).
- Helps establish the causality of the impact of given variables on project outcomes.
- However, in quantitative research study, the issues of identities, perceptions and beliefs of the participants cannot be meaningfully reduced to numbers or adequately understood without reference to the immediate context in which they live.
- **How it was Used:**
- Survey method was used to collect data from respondents because they are cost effective, efficient and concise (Gall et al., 2009).
- The questionnaires were self administered. This method was chosen to increase the return rate (Chen, 2010).

# RESEARCH METHODOLOGY CONT.

## **Qualitative**

- Qualitative research is conducted to provide a researcher with in-depth understanding and detail to study the subject of interest.
- Helps the researcher to empower the participants to share ideas (Patton, 2002)
- However, since the population to study is small in number, it is highly problematic to generalize the research findings on a wider population.

## **How Used**

- Focus group interview was used to further explore some issues not answered by the questionnaire data.
- Member checking technique was used to determine the validity of the study.
- The tape recorded interviews were transcribed and then sorted and classified into identifying themes

# RESEARCH METHODOLOGY CONT.

## SAMPLING PLAN

### Teachers

- The population of the study was 850 participants from 24 public and private secondary schools.
- 650 out of the target population of 850 participants accepted to participate in the survey representing 76.5% return rate.
- The schools were selected based on student-computer ratio (Pelgrum, 2001; MoE, 2009).
- Gay et al. (2009) criteria was used to select the sample for the quantitative study.
- Simple random sampling was used to select the 850 participants.

# RESEARCH METHODOLOGY CONT.

## SAMPLING PLAN

### Students

- The population was 4500 participants from 24 public and private secondary schools.
- 4350 out of the target population of 4500 participants accepted to participate in the survey representing 96.7% return rate.
- With regards to qualitative study, a purposeful sampling procedure was used to select both teachers and students for the focus group interviews.
- The population comprises six teachers and six students. (Kitzinger, 1995) .
- The criteria used to select the teachers and the students were their responses to the survey questions.

# RESEARCH METHODOLOGY CONT.

## Data Analysis

Research Question	Analysis Method	Reasons
<b>Question 1:</b> How is ICT used by teachers to support student-centred learning in secondary schools based on school type and school location?	Descriptive statistics and Factorial ANOVA	The 'main effect' for each independent variable can be tested .  Also an 'interaction effect' can be explored.
<b>Question 2:</b> How is ICT used by students to support learning in secondary schools based on school type and school location?	Descriptive statistics and Factorial ANOVA	
<b>Question 3:</b> What are teachers' perceived values, expectations and costs associated with pedagogical use of ICT in teaching based on gender, school type and school location?	Descriptive statistics and MANOVA	MANOVA protects against type I error due to multiple tests of correlated dependent variables.
<b>Question 4:</b> What are students' perceived values, expectations and costs associated with pedagogical use of ICT in teaching based on gender, school type and school location?	Descriptive statistics and MANOVA	However, it is more complex set of procedures and has a number of assumptions that must be met.
<b>Question 5:</b> How do teachers and students perceive ICT enhancers as factors for teaching and learning?	Descriptive statistics	Easier to work with, interpret and discuss. Forms the basis for more advanced statistics . Further, it is used to address specific research question.
<b>Question 6:</b> How do the perceived ICT enhancers relate in combination and individually, to teachers' and students' pedagogical use of ICT?	Pearson correlation and Multiple regression	Provides an information about a model as a whole and the relative contribution of each variable that make up the model.

# PRESENTATION AND ANALYSIS

- **Research Questions**
- **Question 1:** How is ICT used by teachers to support student-centred learning in secondary schools based on school type and school location?
- **Question 2:** How is ICT used by students to support learning in secondary schools based on school type and school location?
- **Question 3:** What are teachers' perceived values, expectations and costs associated with pedagogical use of ICT in teaching based on gender, school type and school location?
- **Question 4:** What are students' perceived values, expectations and costs associated with pedagogical use of ICT in learning based on gender, school type and school location?
- **Question 5:** How do teachers and students perceive ICT enhancers as factors for teaching and learning?
- **Question 6:** How do the perceived ICT enhancing factors relate in combination and individually, to teachers' and students' pedagogical use of ICT?

# PRESENTATION AND ANALYSIS CONT.

## Key Statistical Results

- **Teachers**
- The study revealed that teachers' pedagogical use of ICT was low.
- Interaction between school type and school location was statistically significant with students' pedagogical use of ICT ( $F(2, 367) = 10.078, p < .001$ ).
- Also, school location was statistically significant,  $F(2, 367) = 13.255, p < .001$
- Teachers showed no significant differences in attitudes toward pedagogical use of ICT with regards to gender, school type and location.
- Training ( $r = .51, p < .01$ ) and leadership support ( $r = .55, p < .01$ ) strongly related to ICT usage.
- leadership support ( $\beta = .38, p = .000$ ), competence ( $\beta = .27, p = .000$ ), and training ( $\beta = .23, p = .000$ ) contributed significantly to ICT usage.
- Self-efficacy ( $\beta = -.07, p = .154$ ), access to computers ( $\beta = .02, p = .638$ ) and value ( $\beta = .05, p = .227$ ) did not contribute significantly to ICT usage.

# PRESENTATION AND ANALYSIS CONT.

- **Students**
- The study revealed that students' pedagogical use of ICT was low.
- Interaction between school type and school location was statistically significant with students' pedagogical use of ICT ( $F(2, 3374) = 9.779, p < .001$ ).
- Also, school location was statistically significant,  $F(2, 3374) = 40.916, p < .001$ .
- Students showed significant differences in attitudes toward pedagogical use of ICT with regards to gender ( $F[3, 3376] = 15.602, p = .000$ ), school type ( $F[3, 3376] = 19.989, p = .000$ ) and location ( $F[6, 6750] = 4.837, p = .000$ ).

# PRESENTATION AND ANALYSIS CONT.

- Competence ( $r = .44$ ,  $p < .01$ ), leadership support ( $r = .31$ ,  $p < .01$ ), self-efficacy ( $r = .38$ ,  $p < .01$ ) and access to computers ( $r = .46$ ,  $p < .01$ ) moderately correlated to students' ICT usage.
- Competence ( $\beta = .25$ ,  $p = .000$ ), access ( $\beta = .22$ ,  $p = .000$ ), leadership support ( $\beta = .16$ ,  $t = 9.22$ ,  $p = .000$ ) and self-efficacy ( $\beta = .13$ ,  $t = 7.282$ ,  $p = .000$ ). contributed significantly to ICT usage.

# DISCUSSIONS OF THE RESULTS

Research Objective	Research Question	Research Findings
1. To explore the extent of teachers' and students' use of ICT based on school type and location	<p><b>Question 1:</b> How is ICT used by teachers to support student-centred learning in secondary schools based on school type and school location?</p> <p><b>Question 2:</b> How is ICT used by students to support learning in secondary schools based on school type and school location?</p>	<p>1. The study found that teachers' pedagogical use of ICT was scarce (page 104). Teachers' pedagogical use of ICT did not differ in school type. But, their pedagogical use differed in school location</p> <p>2. Students use ICT to a limited extent. Students' use of ICT differed in school type and school location</p>
2. To investigate the attitudes of teachers' and students' use of ICT in teaching and learning process using expectancy-value model	<p><b>Question 3:</b> What are teachers' perceived values, expectations and costs associated with pedagogical use of ICT in teaching based on gender, school type and school location?</p> <p><b>Question 4:</b> What are students' perceived values, expectations and costs associated with pedagogical use of ICT in teaching based on gender, school type and school location?</p>	<p>3. Teachers' attitudes toward ICT integration did not differ by gender, school type and location.</p> <p>4. Differences in students' attitudes towards use of ICT for learning were in favour of male students, public schools and urban schools.</p>
3. To examine the relationship among factors and pedagogical use of ICT by teachers and students.	<p><b>Question 5:</b> How teachers and students perceive ICT enhancers as factors for teaching and learning?</p>	<p>5. Teachers and students perceived Competence, access, leadership support and self-efficacy as factors that enhance pedagogical use of ICT.</p>
4. To determine the relative importance of these factors in promoting pedagogical integration of ICT.	<p><b>Question 6:</b> How do the perceived ICT enhancers relate in combination and individually, to teachers' and students' pedagogical use of ICT?</p>	<p>6. In linear combination, leadership support, competence, training, expectation and cost significantly accounted for the variance of teachers' pedagogical use of ICT. Further, competence, leadership support, self-efficacy and access accounted for the variance of students' use of ICT for learning. However individually, leadership support strongly related to teachers pedagogical use of ICT, while Competence strongly related to students' use of ICT for</p>

# DISCUSSIONS OF THE RESULTS CONT.

**Our findings relates to the following Research Works:**

## **Findings 1:**

- Dawan et al. (2009) found that private school teachers use ICT more than public school teachers. (**contradicted**).
- Yuan (2006) found differences in teachers' use of ICT with regards to school location. (**confirmed**)

## **Findings 2:**

- Asaolu and Fashanu (2012) revealed that private school students use ICT more than public school students. (**contradicted**).
- Pei-Yu (2013) found that students' preference and expectation to technology integration did not differ between urban rural schools. ( **contradicted**)

## **Finding 3:**

- Tezci (2011) found no gender differences in teachers' attitudes toward use of ICT. (**confirmed**)
- Pei-Yu (2013) found no differences in attitude between urban and rural school teachers. (**confirmed**)

# DISCUSSIONS OF THE RESULTS CONT.

**Our findings relates to the following Research Works:**

## **Finding 4:**

- Cooper (2006) found that male students have more positive attitudes towards the use of ICT more than female students. (**confirmed**).
- Kubiatio (2010) found differences in computer attitudes among students living in towns, cities and villages. (**confirmed**).

## **Finding 5:**

- Wikan et al (2010), Teck & Lai (2011), Dexter (2008) and Albirini (2006) found that ICT competence, leadership support, self-efficacy, access are important for integration of ICT. (**confirmed**)

## **Finding 6:**

- Dexter (2008) found that leadership in school is a significant predictor of teachers' and students' ICT use. (**confirmed**).
- Shuster and Pearl (2011) found that students' ICT competencies relate to their successful use of ICT. (**confirmed**)

# DISCUSSIONS OF THE RESULTS CONT

Research Findings	Practical Implications	Policy Implications	Theoretical Implications
1.The study found that teachers’ pedagogical use of ICT was scarce. Teachers’ pedagogical use of ICT did not differ in school type. But, their pedagogical use differed in 1 school location	Educational technology standards should be set up to guide teachers in ICT integration activities	Institutional policy on professional development programs and CT integration into teaching should be put in place. in line with the national ICT in education policy. Policy to promote ICT in schools should be set up.	Teachers’ pedagogical practices and strategies may not be in line with the constructivist theory of learning which encourages learning with ICTs.
2. Students use ICT to a limited extent. Students’ use of ICT differ in school type and school location	This finding may imply that the curriculum does not encourage the use of ICT, teachers instructional practices may not include the use of ICT or students’ learning styles and needs may not be factored into the integration of ICTs in schools . For students effective use of ICT for learning in public and private as well as rural and urban settings efforts should be made to address the inequities in availability and access to ICTs.	In fashioning the on going ICT in education policy, the curriculum, student-centred instructional practices and strategies should be aligned with students’ learning styles and needs and instructional technology.	
3. Teachers’ attitudes toward ICT integration did not differ by gender, school type and location.	Teachers approach to ICT integration is the same because of the newness of ICT integration in the educational system and inadequate teachers’ knowledge and skill in pedagogical use of ICTs. CES should take steps to	The national ICT in education policy should include a program of in-service training that includes pedagogical integration of ICTs.	This finding based on the expectancy value theory has thrown more light on teachers’ attitudes toward pedagogical use of ICT

# DISCUSSIONS OF THE RESULTS CONT

Research Findings	Practical Implications	Policy Implications	Theoretical Implications
<p>4. Differences in students attitudes towards use of ICT for learning were in favour of male students, public schools and urban schools.</p>	<p>The implication is that the male students, public schools and urban schools have more access to available ICTs than the female, private, rural schools. Therefore, steps should be take to address this inequities.</p>	<p>GES policies governing the schools should not be cultural biases against the female students. Policy on equitable distribution of infrastructure and equipment to all schools irrespective of their type and location.</p>	<p>This finding based on the expectancy value theory has thrown more light on students' attitudes toward pedagogical use of ICT</p>
<p>5. Teachers and students perceived ICT Competence ,access, leadership support and self-efficacy as factors that enhance pedagogical use of ICT.</p>	<p>School management should provide support in terms of provision of ICTs, training of teachers in pedagogical integration of ICTs. An open hours should be extended to out of class times and the weekends to enhance students access to computing facilities.</p>	<p>Even though Government has the policy of providing ICT facilities in all schools and is in the process of developing an ICT in education policy, efforts should be made to bridge the disconnect between policy and implementation by devising effective strategies to address imbalances in the provision of ICT infrastructures and equipment in all schools..</p>	
<p>6. In linear combination, leadership support , competence, training, expectation and cost significantly accounted for the variance of teachers' pedagogical use of ICT. Further, competence, leadership support, self-efficacy and access accounted for the variance of students' use of ICT for learning. However individually, leadership support</p>			

# CONCLUSIONS AND SUMMARY

Research Objective	Research Finding	Research Implication
1. To explore the extent of teachers' and students' use of ICT based on school type and location	<p>1. The study found that teachers' pedagogical use of ICT was scarce. Teachers' pedagogical use of ICT did not differ in school type. But, their pedagogical use differed in school location.</p> <p>2. Students use ICT to a limited extent. Students' use of ICT differed in school type and school location.</p>	<p><b>Theory:</b> Teachers' pedagogical practices and strategies may not be in line with the constructivist theory of learning which encourages learning with ICTs.</p>
2. To investigate the attitudes of teachers' and students' use of ICT in teaching and learning process using expectancy-value model	3. Teachers' attitudes toward ICT integration did not differ by gender, school type and location.	<p><b>Theory:</b> This finding based on the expectancy value theory has thrown more light on teachers' attitudes toward pedagogical use of ICT</p>
	4. Differences in students attitudes towards use of ICT for learning were in favour of male students, public schools and urban schools.	<p><b>Policy:</b> GES policies governing the schools should not be cultural biases against the female students. Policy on equitable distribution of infrastructure and equipment to all schools irrespective of their type and location.</p>
3. To examine the relationship among factors and pedagogical use of ICT by teachers and students.	5. Teachers and students perceived ICT Competence, access, leadership support and self-efficacy as factors that enhance pedagogical use of ICT.	<p><b>Practice:</b> School management should provide support in terms of provision of ICTs, training of teachers in pedagogical integration of ICTs. An open hours should be extend to out of class times and the weekends to enhance students access to computing facilities.</p>
4. To determine the relative importance of these factors in promoting pedagogical integration of ICT.	6. Leadership support contributed most to variation of teachers' pedagogical use of ICT while ICT Competencies contributed most to the variation of students' use of ICT for learning..	

# CONCLUSIONS & SUMMARY CONT.

The gaps in knowledge have been filled by the study as follows :

- The Finding of this study revealed that beyond the expectancy-value theory involving expectancy, value and cost as factors, there are other contextual conditions that relate to pedagogical uses of ICT. This throws more light on factors that relate to how teachers and students use ICT for teaching and learning.
- The study also revealed that teachers and students use ICT to a limited extent in the following ways: use internet for searching for information, use ICT to complete assignment, communicate and collaborate with peers. The study shows that this uses of ICT by students vary in terms of school type (public and private) and location (urban, semi-urban and rural) in favour of public and urban schools.



THANK YOU