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The influence of the home learning environment on middle school students' use of ICT at school

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Abstract

The increasing use of information and communication technology (ICT) in schools has been largely explored in relation to how students' use ICT at school. In addition students' lives and experiences with technology beyond school have also begun to be explored. However, the nexus between the two is still an underdeveloped research area. Anecdotally we know that technology use either at home or at school affects the other. This paper reports on a contemporary case study-using structural equation modeling (SEM) - of students' ICT use for school and home and their self-perceived competence with technology across the domains of home and school. The study found that students who learn to use certain forms of technology at home bring that "home learning" to school and vice versa. From an educational perspective teachers should therefore not be underestimating the value of the technologies that students are using at home for pleasure for use in the classroom. Furthermore the study found that schools played a major role in enhancing students' confidence around using ICT whilst the home environment provided opportunities to practice with that technology and facilitate technology-enhanced communication. Both the home and school domains enhanced the students' ICT skills and had the effect of making the student a more independent learner and user of technology.

Keywords

structural equation modeling; educational technology; middle school students, technology confidence

Introduction

Educational leaders, governments and teachers have for more than three decades in Australia promoted the desirability for students to have ready access to various forms of information and communication technology (ICT) for study. The now demised Federal Government $2 Billion *Digital Revolution* (Coorey, 2007; DETYA, 2000) provided access to all Australian secondary students (Grades 9-12) with access to a computer on a 1:1 basis. Moving forward to 2015 and many schools have struggled with how to replace the government supported technology now that public finding is no longer available, and "just" perhaps schools are still unsure of the place of technology in student learning.

In order to understand the role and function of ICT within schools the type of technology and how it is used needs to be understood. The literature and findings from the current study of middle school students (grade 9) use of technology indicates that the use of ICT in Australian schools is not a daily occurrence; nor is it transformative. In particular the literature and the current study reinforces the need for a number of ICT inhibitors to be overcome before the potential for ICT to transform teaching and students' learning can be realised. The technology school literature often refer to *technology competency*, often called digital literacy (see Cole & Pullen, 2010; Pullen & Cole, 2010; Pullen, Baguley & Gitaski, 2010). Digital literacy entails individuals being able to use the available technology to full-fill or complete a task such as editing a Word document or using Skype to communicate with a peer. As such ICT competencies are concerned with the ability of an ICT competent individual being able to see information, analyse problems and being able to communicate using a variety of technologies (UNESCO, 2008).

Technologies are used in different ways at home as compared to school, even if that purpose is educational (Facer & Kent, 2004), and some forms of technology may be more suitable for home use than school ones (Beckman, Bennett & Locker, 2014a; Hasebrink, 2014; JF, Pullen & Swabey, 2014). Whilst some advocates of technology have cited the disparity of available technologies in the home versus what is available at school (Harris, Straker & Pollock, 2013) for Australian children at least government statics reveal that 91% of Australian households with children had a home computer and of that 86% also had Internet access. These statistics dispel the school: home technology gap in that technology in the form of computers are widely available and accessible to Australian middle school students.

Findings from the 2012 European Commissions Survey of School: ICT in education (Wastiau, Blamire, Kearney, Quittre, Van de Gaer & Monsuer, 2103) which surveyed 190,000 elementary (primary school) and junior secondary (high school) school students and teachers found that ICT use in schools was increasing, however it was not at the same levels as home access to technology. Whilst not stating it perhaps the European Commission's school ICT report may be indicating a disconnect between students use and access of technology between school and home. This technology disconnect was found by Kolikant (2012) in his interviews with secondary school students. Kolikant found that secondary school aged students were ambivalent in their use of school-based technology. This ambivalence was found to be due to students not viewing the use of technology as particularly related to their current or future studies.

Reports from the OECD (2004, 2005, 2012) portray that student access to technology at home and school has been increasing over time. The 2004 PISA findings reported that whilst computers are becoming more available in school the extent to which they are used daily "remains disappointing" (OECD, 2004, p. 1). The 2005 OECD report stated that "in most OECD countries and in some partner countries in the PISA 2003 survey, the great majority of 15-year-old students have ready access to computers, at home and at school" (p. 30), but, "even though access to computers is more universal at school

than at home, 15-year-old students use their computers at home more frequently" (OECD, 2005, p. 34). Moving forward to 2012 and schools and homes have more access to technology, specifically computers, but their use is still not a daily occurrence in schools. What the 2009 and 2012 PISA findings reveal is that student confidence in using technology for learning and social purposes has increased over time.

Student access to technology at school has not been questioned with current findings suggesting that access to technology at school leads to greater learning gains (Delen & Bulut, 2011; Voogt, Knezek, Cox, Knezek & Brummelhuis, 2013). However, what is lesser known is how technology use at home affects technology use at school. A contemporary study by Hinostroza, Matamala, Labbe, Claro and Cabello (2015) found that students who used technology at home developed a greater technology skill set that could be used in other areas of their lives where technology was used. Similarly, Hatlevik and Christophersen (2013) concluded that students with home access to technology developed better digital literacy or digital competencies than those students with less home access to technology.

Leading educational-technology researchers have concluded that ICT use in schools has had at best a moderate impact (Hammond, 2013; Wastia et al., 2013). Whilst other researchers have showed that students prefer to use technology at home and school which they are familiar with (Li, Snow & White, 2014) and like to use that technology if it allows socialisation (Beckman, Bennett & Lockyer, 2014b; JF, Swabey & Pullen, 2014). Research into student's home-to-school learning is represented by a growing body of literature (Bulfin & North, 2007; Lee, 2007; Selwyn, 2012) examining the relationship between home and school learning practices. Building on the previous notion of a technology-disconnect or the notion that students are such native users of technologies they struggle to connect with commonly used technologies at school.

Given the importance of technology for learning, this study adopts a case study approach using sophisticated multi-dimensional statistics to explore how 120 middle school students' at six Australian schools used, and perceived their competency with technology across the domains of home and school.

Research question

The study is concerned with: *how students were using technology at home and school and what technology skills were learnt within each of those two domains (home versus school)*. In examining this question structural equation modeling (SEM) was used to explore the relationship between technology use at home and school. For a more detailed explanation of SEM refer to Keith (2014).

Methods

Participants

A questionnaire (survey) was administered to 120 middle school students (grade 9) from 6 schools in Victoria (*n*=4) and Tasmania (*n*=2) Australia, during one of their regular technology classes by their class teacher. All six schools were chosen as the researcher was known to the school through his university duties. All of the schools could be considered to be small as their total student populations (Grade 7 to 10) were below 200. The total grade 9 student population for all the schools was 150 meaning that the *Students' Survey* captured 80% of the total grade 9 cohort. The reason that 20% of students did not participate were non-parental consent (*n*=15), school absence (*n*=8) and students performing another school task at the survey delivery time (*n*=7). It was also noted that each of the six schools had a higher proportion of students who were female despite all six schools being co-educational, no reasons could be found for this gender in-balance.

The Survey and technology selection

The Students' survey (see Appendix 1) was primarily based on Meredyth's et al. (1999) *Real Time Study* with modifications based upon what technologies were available to students at the six selected schools. For example at all six schools students in grade 9 undertook a commerce unit which introduced them to business technology hardware and software such as fax machines and video conferencing (i.e. Skype). In addition each school had a compulsory technology subject in grade 9; this subject could also be called computer studies. In the technology subject students learnt to use network computer conferencing (i.e. Lync or Chat) and produced their own educational software such as Web quests and interactive whiteboard games. Each of the six schools used mobile short messaging service (SMS) to transmit important information to parents and students. The mobile communication technology allowed students to use their mobile phones, particularly smartphones, to communicate back to the school. A decision was made not to look more broadly at social networks as only three of the schools had started using social media in 2012 (e.g. Facebook) and one school openly discouraged students from using Wikipedia or Facebook whilst at school.

Prior to the *Students' Survey* being administered it was pilot tested in a different school, that had a similar cohort and technology mix, to (a) obtain evidence of content validity of the survey, (b) assess how clear and comprehensive the survey questions are to students, and (c) consider and incorporate student and teachers suggestions for improving the quality of the survey. The pilot testing group was asked to judge the representativeness of the chosen set of items, the ease of understanding questions, the format of the items, and wording. As a result of the pilot testing slight variations in survey question wording were made and a glossary of key ICT terms (definitions) was given in the survey introduction.

Results

This study aimed to explore the technology use and self-reported competency of middle school students at school and at home. The reliability of the *Student Survey*, measured by Cronbach Alpha, was 0.85 which was above acceptable limits (Malhotra, Hall, Shaw, & Crisp, 1996; Nunnally, 1978). These results were not unexpected given the survey instrument was stringently pilot tested before the full study commenced. Meaningful results and their interpretation are shown below. The results are presented in a "lay person" manner, with little statistical explanation, in order to make the results as meaningful as possible for teachers.

Student responses to survey

A total of 120 students were surveyed. Of these, 2/3 (n =81) of participants were girls. All students reported using ICT at school and approximately 93% (n =112) reported using a technology application or device outside school. In terms of students' access and use of technology at school and home all 120 students indicated that they had access to an internet connected computer at school and home. Students' were also asked how often they used the various forms of technology ranging from daily to never at home and at school, as shown in Figure 1.

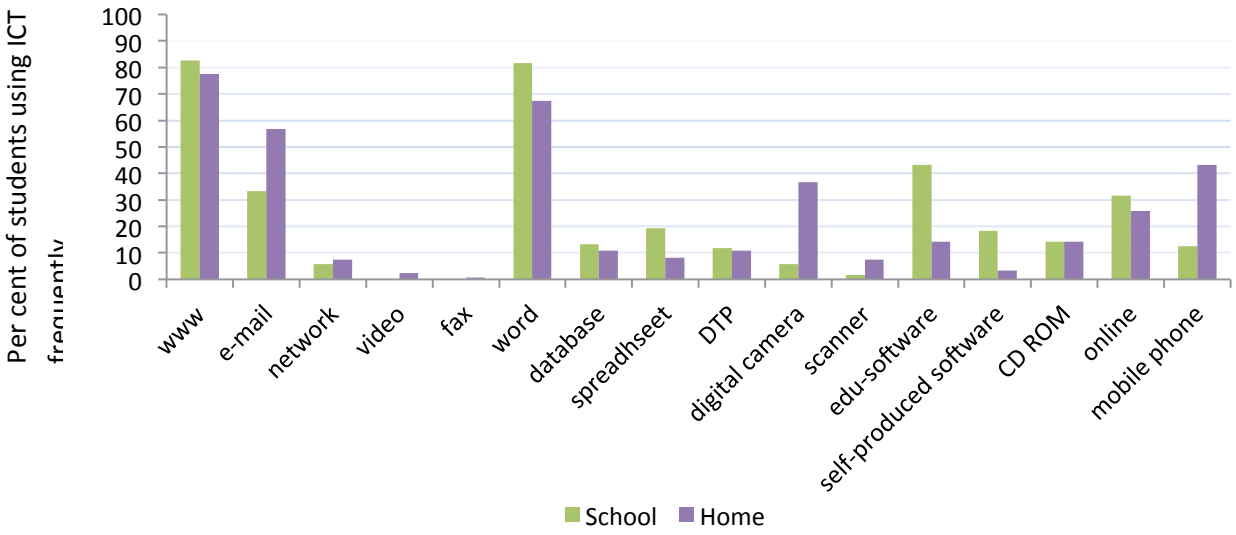

Figure 1 Percentage of students using a selection of ICT tools at school and outside of school (N=120)

To further understand students' technology use they were asked to assess their level of competence in terms of use of the ICT tools. Table 1 indicates the means and standard deviations for students overall self-reported technology competency for each of the technology tools using a four-point scale: don't know (score=1), not competent

(score=2), competent (score=3), and very competent (score=4). Items in this Table are arranged in order of question presentation in the student survey.

Table 1.

Means and standard deviations for student ICT tool competency (N=120)

Technology	*Mean*	*Std. Deviation*
WWW (online)*	3.15	0.80
email	2.95	1.18
Network computer conferencing	1.06	0.98
Video conferencing	1.10	1.03
Fax	1.28	1.13
Word-processing	3.24	0.88
Databases	1.49	1.22
Spreadsheets	1.90	1.36
Desk Top Publishing	1.64	1.26
Digital camera	3.03	1.21
Digital scanner	1.70	1.31
Digital video camera	2.27	1.31
Using CD-ROMs for assignments	2.50	1.27
Using CD-ROMs for entertainment	3.48	0.68
SMS messages on mobile phone	2.70	1.50

*WWW and online collapsed into one item due to similarity of item being measured

Given the study's interest in examining associations between the use of technology and technology skills, the extent to which these 15 technology tools clustered meaningfully was examined via exploratory and confirmatory factor analytic procedures (Pallant, 2001). Understanding the percentage of students using different forms of ICT and their self-reported competency level for those forms of technology provides a '*benchmark'* of their performance.

As indicated in Table 2, the exploratory factor analysis of the technology skill items produced a researcher derived three-factor solution with seven items related to

Presentation tools (Factor 1), six items related to *Communication tools* (Factor 2) and two items related to *Productivity tools* (Factor 3).

Table 2.
Pattern matrix for students 15 technology skill items (N=120) demonstrating a three factor solution

Items	1 (Presentation)	2 (Communication)	3 (Productivity)
Desk-top publishing	.79		
Video conferencing	.76		
Network computer conferencing	.65		
Databases	.63		.52
Digital scanner	.63	.26	
Using CD/DVD for assignments	.51		
Fax	.47		.27
Digital camera		.72	
Email		.69	.56
SMS messages on mobile phone	.30	.66	
Digital video camera	.57	.62	
WWW (online)		.57	.43
Spreadsheets	.55		.70
Word-processing			.67
Using CD/DVD for entertainment		.54	

Based on the students' survey data and explorative factor analysis procedures (see Schreiber, Nora, Stage, Barlow, & King, 2006) a Confirmatory Factor Analysis (CFA) (see Byrne, 2010; Kaplan, 2000 for procedural details) was undertaken. In Figure 2 the rectangles are the obtained item responses from each of the participants, often called the observed factors, while the eclipse are the residual or error value associated with how well the item relates to the factor. The curved double arrow lines represent correlation, while the straight arrows are the pathways, in CFA these pathways go from the factor to the item (see Arbuckle, 2008; Ullman, 2001, for a more detailed explanation).

In Figure 2 the strength of the pathways that form the factors are shown on the arrows and the residual (error) values are recoded to the right of each rectangle. As reported, the fit of the three factor structure to the use and self-reported competency data sets is

very good and the pathway measures are very satisfactory, thus confirming that the internal structures generated using explorative factor analyses procedure are stable.

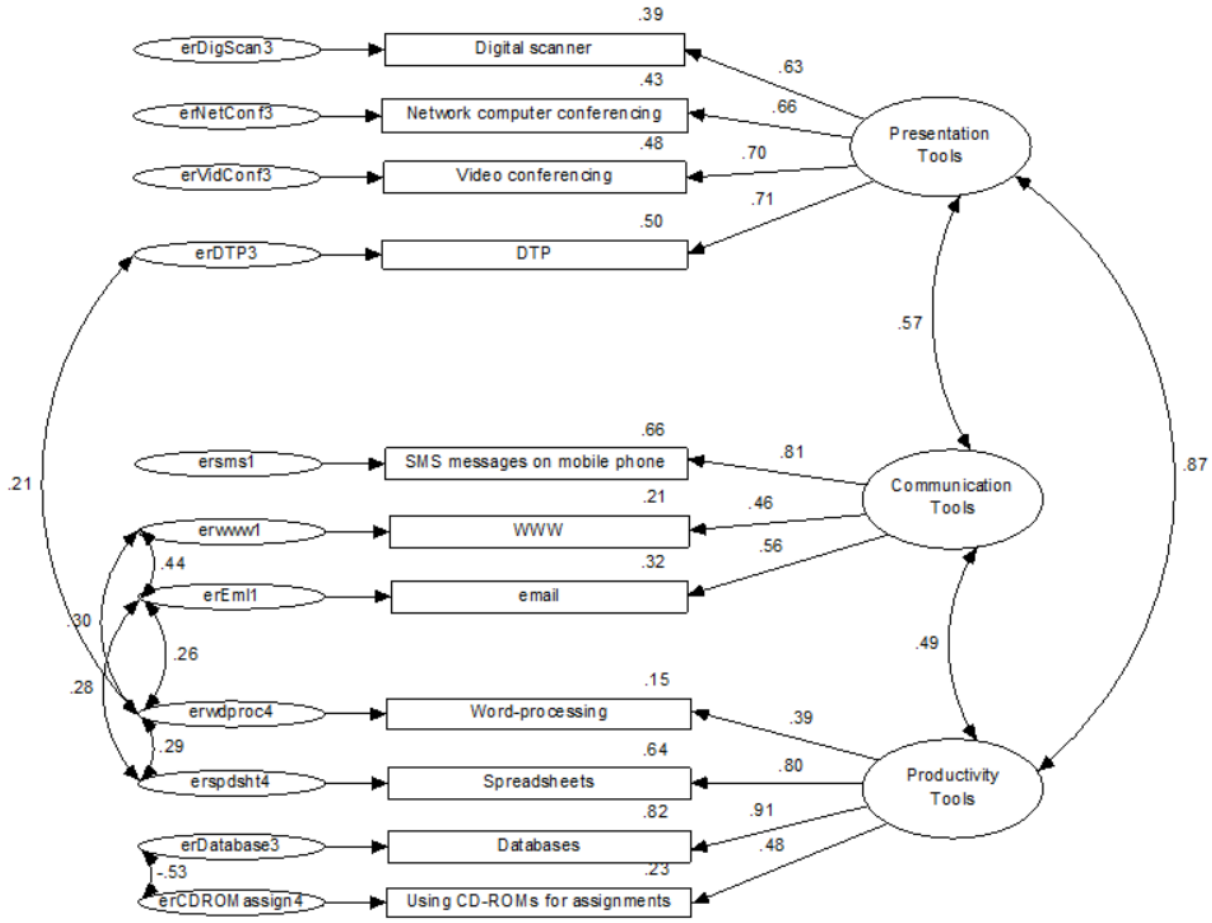

Figure 2 Three-factor confirmatory factor solution for students' technology skills.

The various measures of goodness of fit for this 3 factor CFA model were all very acceptable, with the overall chi-square (χ^2) statistic being non-significant, GFI (Goodness-of-Fit Index), in excess of 0.90, being that the closer to 1.0 the better the correlation amongst the data points and the more representationally accurate the model is. These measures all indicated that a CFA approach was an appropriate statistical technique to use. For example, the chi-square was non-significant with a value χ^2 =28.14; the nominal fit index (NFI) was 0.94 giving the CFA model a probability level of 0.74, indicating a good fit between the model and the observed data. This indicated that the three-factor CFA solution presents an acceptable model of students' ICT use and self-perceived ICT competency, with the three-factor solution of *presentation*, *communication* and *production*.

Home and school influences on students' ICT competency

A core issue in the current research was the influence that both home and school have on students' ICT development and which factors are more developed out of school (i.e.

at home). While a correlation can be of assistance in understanding this concern it is unable to identify the direct or pathway between factors. Given that the students' survey data contained items that investigated home and school usage of the different types of ICT, and students' perceptions of their ICT competencies across each of the ICT tools it is possible to develop a model to identify the pathways from home ICT usage and learning and from school ICT usage and learning and investigate how these home and school settings interact and most importantly how they influence students' level of competencies in regards to ICT. To date no such model has been attempted or found within the established research literature, because of a lack of valid information on how to classify the different ICT tools available.

Given that the factor analysis reported above identified that the students' ICT tools can be validly grouped into three factors (1) *Presentational*, (2) *Communication* and (3) *Productivity* and the survey data provides information on each or these three factors in relationship to home, school and competency then a pathway model can be developed to clarify which ICT students' competencies are more influenced by home usage and learning and which ICT students' competencies are more influenced by school usage and learning. It is also possible from the student data set available to identify the interactions between home and school. The student data set contains information on the students' age and out of school use of ICT and was considered as "logical influences on students' ICT competencies development". The critical question being investigated then became what influences students' competencies to use presentation ICT (i.e. desk-top publishing), communication ICT (i.e. e-mail) and productivity ICT (i.e. word processing). This model, referred to as Structural Equation Modeling (SEM) (See Hoyle, 1995; Jodie, 2000; Kaplan, 2000; Schumacker & Lomax, 2004; Shipley, 2000; Statsoft, 2008; Ullman, 2001) is shown as Figure 3.

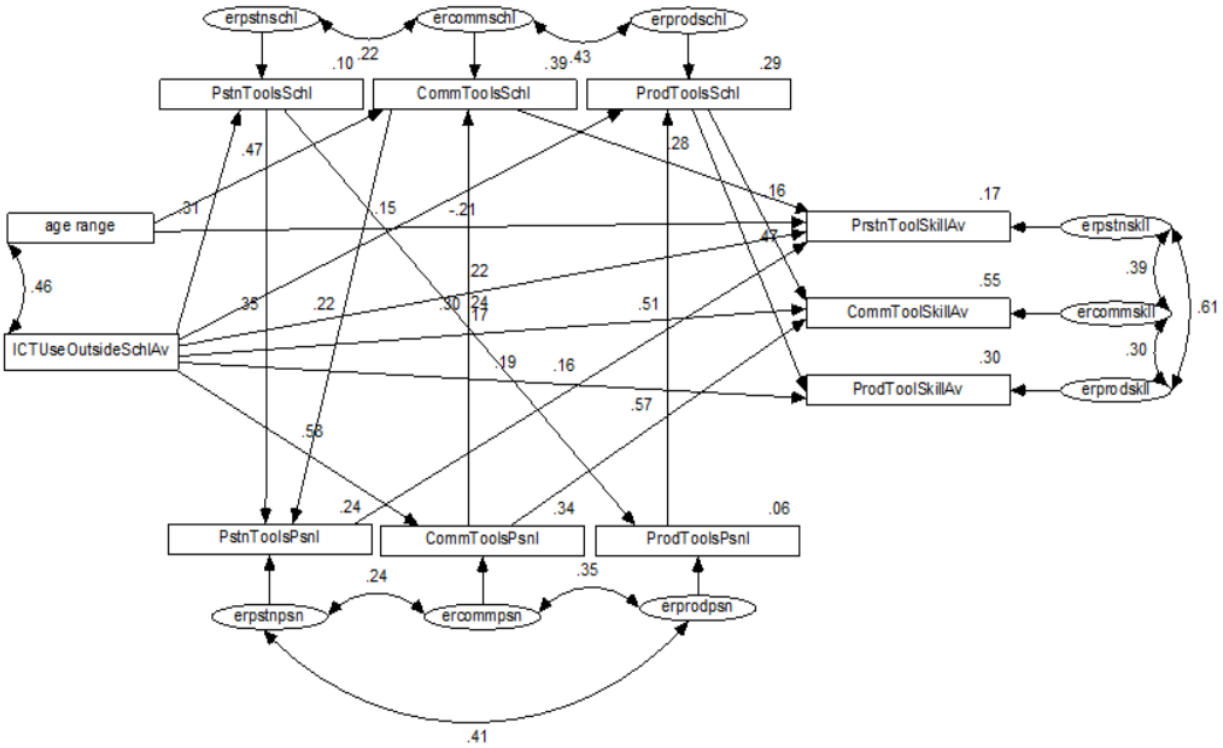

Figure 3 SEM for variables influencing students' competency in presentation, communication and production skills.

Figure 3 Key: The top rectangles represent school use and bottom one's personal use e.g. of Presentation tools such as digital scanners (PstnToolsSchl), use of communication tools such as internet (CommToolsschl) and Productivity tools (ProdToolsSchl) such as word processing. Right hand-side rectangles represent self-reported technology skills level with Presentation tools, Communication tools and Productivity tools.

To further clarify comprehension as to which are the significant interactive pathways a "stripped down" version of the model only showing the most significant pathways is demonstrated in Figure 4.

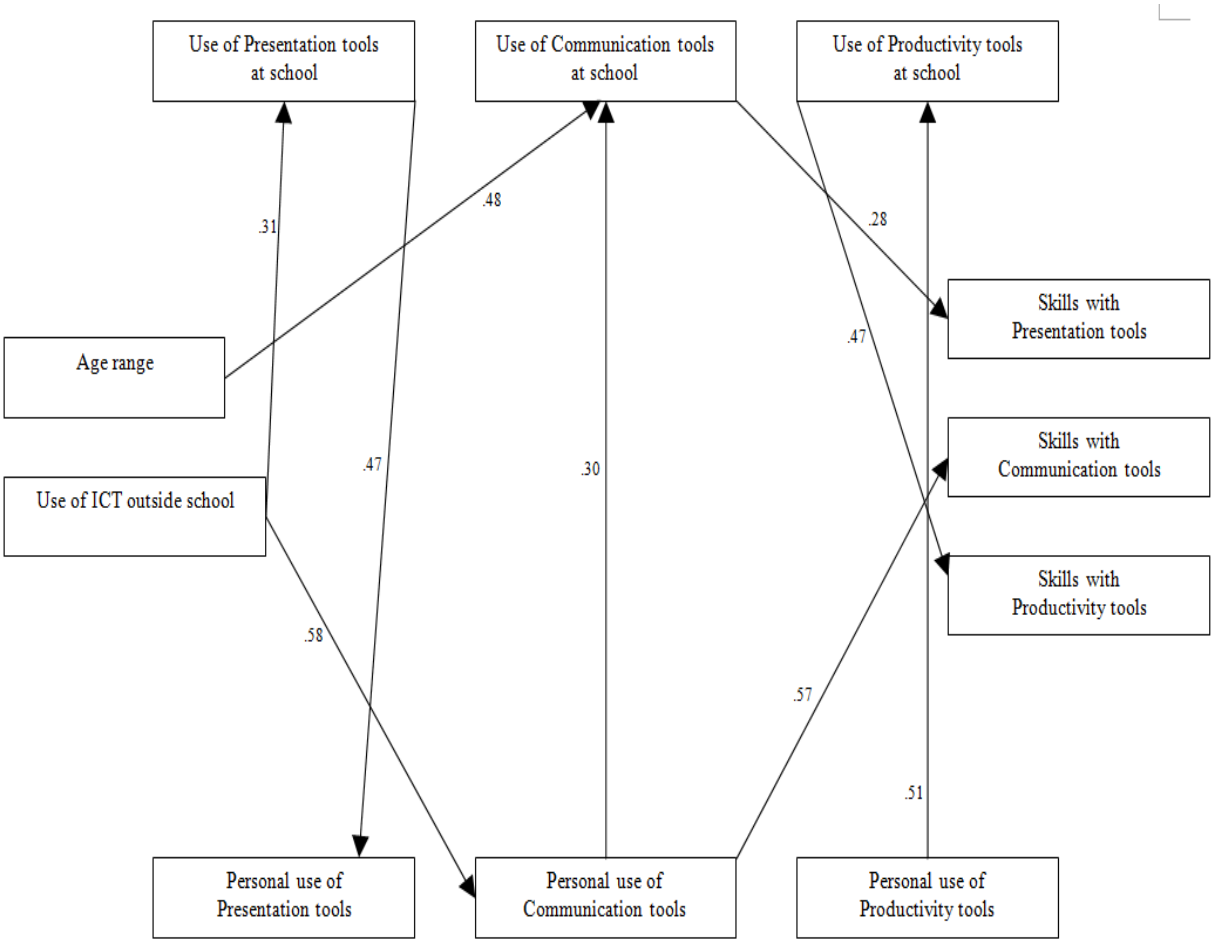

Figure 4 "Stripped down" version of the ICT model showing the most significant pathways

Discussions

In answering the study's research question of "*how students were using technology at home and school and what technology skills were learnt within each of those two domains (home versus school)"* the current study used exploratory and confirmatory factor analysis to underpin subsequent pathway analysis to produce a structural equation model (SEM) which had a Goodness-of-Fit Index of 0.95, indicating a sound and robust model. The structural equation model, as demonstrated in Figures 3 and 4 indicated that students learnt to use presentation tools such as digital scanners, desk top publishing and web conferencing technologies at school and then used this school based application knowledge to use those technologies outside of school for personal uses.

Whilst the findings of this study are not necessarily generalizable to the whole population of schools or students', this study does provide a more in-depth understanding of the processes, experiences, and perspectives of students' in using technology between home and school. The use of SEM provides a model for others to

use to study other cohorts or much larger cohorts to test the generalizability of the model developed in Figure 4.

The tested model Figures 3 and 4 indicates that students' learn to use *Presentation Tools*, such as digital scanners, web conferencing facilities (e.g. Skype) and desk top publishing software at school and then transfer this application knowledge to the use of similar technology in their personal lives. Conversely students' use and knowledge of how to apply *Communication Tools*, such as mobile phones, the Internet and email; together with *Productivity Tools* such as word processors, spread sheets, databases and CD/DVDs occurs in their personal lives with subsequent use and knowledge transferred to their use of similar technology at school. Of note however, is that students' self-reported skill level with these technologies is more influenced by their usage of the technology at school, as compared to their home use of that technology, given that two out of the three categories of technology skill level is directly influenced by the use of that technology at school. That is both home and school influence students' level of ICT competency development but school is more influential on technology skill competency.

Further examination of Figures 3 and 4 reveals that students who use ICT outside school are more likely (positively associated) to use *presentation* and *productivity* tools at school, as well as using *communication* tools at school and outside of it. Furthermore, outside school use of ICT is positively associated with student competency or skill level in their use of *presentation* tools, *communication* tools, and *productivity* tools at school and outside of it.

These direct pathways are supplemented by further associations between *presentation* tool use at school and *presentation* tool use outside of school; an association between *presentation* tool use at school and outside school usage of *productivity* tools, where these in turn are either directly or indirectly associated with skills in the use of *presentation* and *productivity* tools.

The model demonstrates that high levels or frequency of tool use has a positive influence on students' ICT competency. That is the more experienced students are with ICT the more competent they become in its use. Furthermore schools could 'take advantage' or maximise on students' home use of technology such as *communication* and *productivity* tools by using them more in the classroom, especially if they maximise on students existing skills sets and desire for social interaction with others through technology (JF, Swabey & Pullen, 2014).

In terms of previous research findings the current study found that whilst technology use at school may still be disappointing it was at levels greater than that found by others in particular Wastiau, Blamire, Kearney, Quittre, Van de Gaer & Monsuer, (2013) and PISA results from 2005-2009 (OECD, 2005, 2012). This indicates that schools have been finding ways to better utilise the vast expenditure on technology provision. This said the technology-disconnect (Kolikant, 2012) was still present with students utilising

technology at home more frequently and in more varied ways than they were in school. This disconnect may be a result of differing technologies being available in the schools as compared to the home (Harris, Straker & Pollock, 2013). However the current study did find that despite this technology-disconnect students were brining technology-based learning and skills from the home environment to use at school and vice versa. In effect technology based learning was being transferred from the home to school and vice versa. Similar learning from home-to-school was found by Delen & Bulut (2011) and Voogt, Knezek, Cox, Knezek & Brummelhuis (2013). Current study findings however have modelled what technologies were being used where and where that transferred learning was occurring (see Figure 4) and so have expanded upon these earlier studies.

A key finding of this research that was identified using structural equation modeling was that there was a iterative interaction between ICT and home and school use, particularly in terms of ICT that is used for producing an assessable assignment or an output that is linked to the students' writing of text, use of visual and digital media and multiliteracies, seeking new information, and using software to solve problems. Schools played a major role in enhancing students' confidence about ICT while home provide opportunities to practice with that technology and facilitate communication. Both home and school enhanced students' ICT skills and had the effect of making the student a more independent learner and user of ICT. This finding has application in how teachers consider teaching ICT and integrating it into the students learning experiences. It also identified technology as having a major role in motivating students to engage with learning and to connect with others and their wider digital environment. In other words, school is where the expectations and purposes for ICT are introduced and homes are where the skills are developed and practices (honed) for a majority of technologies.

Limitations

As with any investigation, this study has several limitations that bear discussion. Whilst this study was across six schools the sample size was relatively small being 120 students in total. As such the findings provide a snap shot or a case study view. Hence further studies need to have a much larger sample size to make the findings more representational. This study was designed to be primarily exploratory in nature. Although a comprehensive set of factors was examined, it is not known whether these results will generalize to other school communities. This said the study findings did produce a useable model in terms of a structural equation model.

However, it is possible that the structure investigated here is unusual and this would need to be further investigated and tested. Even so, this study represents a starting point; further studies utilizing a variety of models should be conducted and with students' of differing ages and grade levels. A further limitation is that SEM is not, a statistical panacea. It cannot be used to prove that a model is correct and it cannot compensate for a poorly designed study. It is for this reason further studies using SEM in the field of technology and education are required. However, it is hoped that this paper will provide

educational researchers with a better understanding of the issues and procedures in adopting the structural equation modeling techniques.

Another limitation that needs acknowledging is the selection of technologies that were investigated. As discussed in the Survey Design section the technologies investigated were those which the participating schools used. Likewise current popular Web 2.0 technologies such as Facebook were not uniformly used in the six schools at that time- and so were not examined in the current paper. Another study would need to investigate contemporary technologies and remove those forms of technology which have been superseded.

Conclusion

The findings from the *students' survey* revealed that they had access to a range of technologies both at home and at school, however the use of those technologies was not a daily occurrence in either domain. This finding was surprising given that each of these students had access to a computer at home and at school. The findings do reveal that students who used ICT tools for personal communication, such as using email at home, and used presentation tools, i.e. PowerPoint, were not only more confident technology users but also tended to be more frequent users of technology at school. Indeed the structural equation modeling has shown that these home developed technology skills can be transferred to the school environment. This finding indicates that teachers and schools can and perhaps should be maximising students existing home based technology skill sets within the classroom.

As demonstrated in Figure 4 students' use of *presentation* tools, such as digital scanners, computer and web-based conferencing (i.e. Skype) and desktop publishing (DTP) was influenced by the level of teachers' instructions provided on these applications. That is, teachers who taught about ICT and allowed their students to work with those technologies in a school context directly influenced the students' out of school use of that technology. In this context what students are learning in school in terms of ICT is being applied in and transferring to their out of class behaviours. The structural equation model (Figure 4) supports the argument that teachers are influential in students' ICT development and that students are learning how to use those technologies within the school environment and subsequently applying and adapting that knowledge from school into a wider social context and into their personal lives.

There is also a feedback pathway from the home back to the school in that students' use and confidence gained at home with using *productivity* tools, such as word processing, spread sheets, databases and using CDs/DVDs is subsequently transferred back into the students' performance with ICT technologies at school. In part this more impendent and extension work with technology in the home illustrates the motivational power of ICT to engage students and for students to transfer this engagement to a different setting be it in the classroom, in the community, or in the home.

The home also provides students with opportunities in terms of time and out of school peer interactions to practice with and to gain confidence with *communication* tools, such as mobile phones and emails and exploring the World Wide Web. These activities report more personal usage than school usage and their confidence with these forms of technology are transferring from the personal usage domain to the school domain. This is not that unexpected because home use of word processing skills and research skills associated with the World Wide Web while introduced in the classroom are often practiced and extended in a home setting as they facilitate the students' abilities to do homework and school assignments and also increases the likelihood that the student will become a more independent learner.

The current study has gone some way to providing schools and education authorities with some of the reasons why students' use ICT. For instance the student structural equation model, Figures 3 and 4, indicated that students do learn to use some forms of ICT at school (Presentation Tools) and that they also bring what they know about others forms of technology (Communication Tools and Productivity Tools) from their home lives to school. Further the student SEM (Figure 4) indicated that using ICT at school resulted in higher levels of student technology confidence and skills than purely learning to use the technology at home.

In summary, based on the structural equation modeling there was a iterative interaction between ICT and home and school use, particularly in terms of ICT that is used for producing an assessable assignment or an output that is linked to the students' writing of text, use of visual, digital media, and multiliteracies (see Cole & Pullen, 2010; Pullen & Cole, 2010; Pullen, Gitsaki & Baguley, 2010), seeking new information, and using software to solve problems. Schools played a major role in enhancing students' confidence about ICT whilst the home environment provides opportunities to practice with that technology and facilitate communication using a range of ICT tools. Both the home and school domains enhanced the students' ICT skill and had the effect of making the student a more independent learner and user of technology.

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Appendix 1

Note survey style compressed to suit journal and instructions removed.

Section 1 – About you

1: I am a ……?

Girl ☐ Boy ☐

2: My age is …..? (in whole years)

13 ☐ 14 ☐ 15 ☐

3: Are you in Grade 9

Yes ☐ No ☐

4: I was born in Australia

Yes ☐ No ☐

5: I am Aboriginal and/or Torres Strait Islander

Yes ☐ No ☐

6: My family and/or I speak a language other than English at home

Yes ☐ Please write your language here …….. No ☐

Section 2 – Using technology

7: Do you use a computer outside of school?

☐ Yes ……go to question 8

☐ No ……..go to question 9

8: Where do you use a computer outside of school? (Cross all that apply):

☐ At home ☐ Library

☐ Youth or drop-in centre ☐ Community centre

☐ Online access centre ☐ Sports centre

☐ Internet cafe ☐ Other (name) ……..

9: Outside of school how many hours per week do you spend using the following technology devices? (Cross only one box for how long you spend using each device for)

	Less than 1 hour	1-2 hours	-3 ours	More than hours	don't do is
Using ICT for entertainment	☐	☐	☐	☐	☐
Using ICT for school related activities (such as homework or internet research)	☐	☐	☐	☐	☐
Using a mobile phone for entertainment	☐	☐	☐	☐	☐
Using a mobile phone for school related activities (such as phoning/SMSing a friend for assignment help)	☐	☐	☐	☐	☐

10: What other forms of technology have you used outside school in the last week? (Cross all that apply):

☐ Television ☐ Video camera

☐ Mobile phone ☐ Game player (such as Nintendo/PS/Game boy)

☐ CD/DVD player ☐ PDA

☐ Digital camera ☐ Smart phone

☐ Other (please name)……

11: Do you believe that you have enough involvement in how technology is used for teaching and learning at your school? (Additional comments about your involvement or how you would like to be involved would be appreciated)

Yes ☐ No ☐

Comments:

12: How often do you use the following technology resources in each of the contexts – school uses or personal? (SEE Definitions page). The code is as follows: **D = Daily W = Weekly M = Monthly T = Termly N = Never**

Please cross only one box for each question and category.

	School	**Personal**

	D	W	M	T	N	D	W	M	T	N
Internet and World Wide Web (WWW)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
E-mail	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Network computer conferencing (e.g. First Class; Net Meeting)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Video conferencing (e.g. Skype)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Fax	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Word-processing	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Databases	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Spreadsheets	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Desk Top Publishing (DTP)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Digital camera	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Digital scanner	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Educational software packages (externally produced such as Heinemann Science)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Educational software packages (internally produced such as Webquests)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
CD-DVD information sources (e.g. Encarta)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
On-line information sources (e.g. ERIC or Google)	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐
Using a mobile phone to send and receive text (SMS) messages	☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

Section 3 –Technology skills

13. How would you describe your level of ICT competence in the following contexts? If you do not use the technology leave the question blank:

	My skill level			
	Don't know	Not competent	Competent	Very competent
Internet and World Wide Web (WWW)	☐	☐	☐	☐
E-mail	☐	☐	☐	☐
Network computer conferencing (e.g. First Class; Net Meeting)	☐	☐	☐	☐
Video conferencing (e.g. Skype)	☐	☐	☐	☐
Fax	Don't know	Not competent	Competent	Very competent
Word-processing	☐	☐	☐	☐
Databases	☐	☐	☐	☐
Spreadsheets	☐	☐	☐	☐
Desk Top Publishing (DTP)	☐	☐	☐	☐
Digital camera	☐	☐	☐	☐
Digital scanner	☐	☐	☐	☐
Educational software packages (externally produced such as Heinemann Science)	☐	☐	☐	☐
Educational software packages (internally produced such as Webquests)	☐	☐	☐	☐

CD-DVD information sources (e.g. Encarta)	☐	☐	☐	☐
On-line information sources (e.g. ERIC or Google)	☐	☐	☐	☐
Using a mobile phone to send and receive text (SMS) messages	☐	☐	☐	☐
Internet and World Wide Web (WWW)	☐	☐	☐	☐

Section 4 – Using technology my future predications

14: Please write down a few sentences about how you think technology will be used in classrooms in the year 2020.