

TEACHERS' PERCEPTIONS OF TECHNOLOGY USE IN SCHOOLS

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ABSTRACT

This study surveyed 103 professional K-12 educators representing rural and urban independent school districts in north central Texas concerning educational technology perceptions and its use in their classrooms. Descriptive statistics were utilized to describe participants' responses to survey items. A chi-squared cross tabulation (3X3) table was used to determine dependence/independence relationship between teachers' self-perception of their use of technology in the classroom and their reported years of experience using educational technology. Teachers who reported over 10 years of experience with educational technology were significantly more likely to have a positive perception of their ability to use technology in their classroom while teachers with 1-5 years of experience more likely reported a poor self-perception of their ability to use technology in the classroom. Teachers ranked managerial uses versus instructional uses as the most prevalent use of technology in their individual classrooms. Thus, a disconnect between teachers' ideas of instructional technology and its uses may exist and warrants further research.

Keywords: Teachers, Perceptions, Technology, Instructional uses, Experience, Educational Technology and Survey Research.

INTRODUCTION

Since 1980s, computers and other technology devices have been touted as the new revolution for classroom instruction. Today, even in very rural public schools, computers are seen and used routinely in classrooms for a myriad of purposes both instructional and managerial as well as for entertainment. It seems, however, that the bright promise that technology would provide a revolutionary innovation for teachers in terms of classroom instruction has not been realized (Howley & Howley, 2008; Levan & Wadmany, 2008; Li, 2007). Underutilization of technology in the classroom has been associated with issues of convenience, infra-structure planning, and technological literacy (Baek, Jung, & Kim, 2008; Cuban, 2001; Johnson, 2008; Levin & Wadmany, 2008; Smerdon, Cronen, Lanahan, Anderson, Jannotti, & Angeles, 2000). For example, Baek et al. (2008) found teachers with more years of experience tended to respond involuntarily to external pressures when incorporating technology in the classroom (e.g. district requirements, principal's directives) while less experienced teachers voluntarily used technology from intrinsic instructional decision processes (e.g., *A teacher may use PowerPoint to create a game for the class to*

play because it seemed more efficient). Sugar, Crawley, and Fine (2004) postulated that veteran teachers were less likely to have the necessary training to incorporate technology with students learning outcomes and/or felt the use of technology as *just one more thing to do* that was unrelated to the course content or the students' skill acquisition (Sugar, Crawley, & Fine, 2004). Another study, conducted with 332 high school English teachers, suggested that the participants primarily used their technology resources for personal communication or study and/or gathering information rather than for classroom instruction (Yang & Huang, 2008). Overall, the research suggests that teachers' perceptions about the use of technology as a means of innovative and effective classroom instruction directly impact what types of technology they use, how often and for what purposes (ChanLin, Hong, Horng, Chang & Chu, 2006; Howley & Howley, 2008; Levan & Wadmany, 2008; Li, 2007).

1. The Study

Teacher attitudes and beliefs concerning technology and instructional decision making may be one influential factor impacting technology's use in the classroom (Kinzer, Cammack, Labbo, Teale, & Sanny, 2006). The following study sought answers to the following questions:

(a) What are teachers' perceptions regarding technology and its use in their classrooms? and (b) Are teachers using instructional technology primarily for innovative and creative classroom instruction? The following study surveyed a select group of professional educators regarding their perceptions about technology in general and its use in their classrooms.

1.1 Method

The subjects were a group of professional educators whose districts are part of the Effective Schools Project (ESP) at Tarleton State University. The ESP provides professional development opportunities for teachers and administrators in approximately 70 public school districts in the Tarleton service areas. There were two groups of participants. One group of 40 responded to the survey at an ESP meeting while the other group of 63 received the survey electronically via WebSurveyor (See Appendix A).

1.2 Participants

The total participant sample consisted of 103 professional educators representing rural and urban independent school districts in north central Texas. This population interested researchers since this was the primary area for Tarleton State University's pre-service teachers to receive residency and internship classroom experiences. Infusion initiatives regarding technology use and instruction within diverse educational settings in Texas, and north central Texas in particular, have been a primary concern for Texan educators since the late twentieth century (Hensley, Opp, & Rivers, 1996). Educators surveyed represented three main divisions within public schools: Elementary/ K-4 (n=65), Intermediate or Junior High / 5-8 (n=22), and High School / 9-12 (n=16). The education levels reported varied from 75%(77) with baccalaureate degrees, 22%(23) with master degrees, and 3%(3) with associate degrees. Teachers serving rural school and urban districts represented 56%(58) and 44%(45), respectively.

2. Data Analysis

Descriptive statistics were utilized to describe participants' responses to survey items (See Appendix A). Therefore, percentages and frequency counts were reported for survey items 3-7 and 9. A chi-squared cross

tabulation (3X3) table was used to determine dependence/independence relationship between teachers' self-perception of their use of technology in the classroom. Teachers' responses to survey items 10 and 2 were analyzed using the chi-squared examination (See Appendix A). Items 2 and 10 related to the respondents' perception of themselves as technology users and their years of experience with educational technology. Pearson's chi-squared statistic (X^2) and Cramer's V (ϕ_c) effect size measure were reported.

3. Results

The participants' responses for survey items 3-7 were counted and tabulated into percentages using the total responses for the strongly agree and agree (SAA) categories, because the researchers were interested in the teachers' ability to access and use technology in their classrooms.

The following represented the content of SAA items analyzed:

1. I use technology (computers) routinely as part of classroom instruction, 86.4%.
2. I have access to download free instructional software such as Photo Story 3 from Microsoft, 69.9%.
3. I have access to search the Internet for instructional software and/or other topics related to instruction, 92.2%.
4. I have access to download streaming videos from the internet related to classroom instruction, 90.2%.
5. I believe teachers should have full access to the Internet. 86.4%

The final SSA item concerned teachers' beliefs about students' access to the Internet. The majority of the teachers' responses, 73%, indicated that they did not believe students should have full access to the Internet.

Item 9 on the survey concerned teachers' primary use of technology. The respondents were asked to prioritize their use of technology in the classroom according to the following list. The teachers were asked to number the list from 1-5 with 1 representing their primary use of technology in their classroom. The percentages below

represent the teachers' primary use of technology.

- Instructional delivery (e.g., PowerPoints): 16%
- Research (Internet resources): 19%
- Student Drill & Practice and or free time: 14%
- E-mail: 22%
- Paperwork (IEPs, Grades, Reports, Lesson Plans): 29%

Teachers' self-perception responses to survey, Item 10, regarding their use of technology for instruction ranged from Excellent/33(32%), Adequate/29(28%), to Poor/41(40%). The responses to this particular item varied according to the teachers' reported years of experience with educational technology (*i.e.*, 1-5 years, 6-10 years, and 10+ years) [see Table 1]. Based on the three technology experience categories, the teachers rated their use of technology in the classroom respectively, as excellent 7 (7%), 5(5%), and 21(20%), adequate 13(12%), 5(5%), and 11(11%) and poor 16(16%), 12(12%), and 13(12%). These differences between the teacher's years of experience with educational technology and their perceptions of themselves as effective technology users were statistically significant, $\chi^2(4, N = 103) = 9.385, p \leq .05, \phi_c = .21$. The moderate effect size .21 (Rea & Parker, p. 203) suggested 21% of the variance in teachers' self-perception of their use of technology in the classroom could be accounted for by the reported number of years using educational technology. Teachers who reported over 10 years of experience with educational technology were more likely to have a positive perception of their ability to use technology in their classroom while teachers with 1-5 years of experience, more likely reported a poor self-

perception of their ability to use technology in the classroom.

Discussion and Conclusion

School districts throughout the United States have invested a great deal of money and resources to equip public school classrooms with computers as well as access to other technology such as Smart Boards, Elmos, and digital projectors. Additionally, many schools have provided Internet access for students and teachers. Teachers' perceptions about technology in general and their effectiveness as technology users directly impacts the type of and amount of technology used in their classrooms (ChanLin, Hong, Horng, Chang & Chu, 2006). The data from the present study suggested that teachers with more experience with educational technology perceived themselves as more effective technology users. The majority respondents reported that they routinely used technology for classroom instruction, however, when asked specifically how they used technology they reported the following; e-mail and paperwork (IEP, grades, etc.) were chosen as their top two priorities (51%), while instructional purposes (16%) and research (19%) were chosen less often. This finding suggests a disconnect between some teachers' perceptions about what constitutes instructional use of technology. They appeared to view any use of classroom computers as instructional.

Another interesting finding from the data indicated that the majority of the respondents did not believe their students should have full access to the Internet. This finding may be explained by teachers' comments concerning this item. One teacher commented that "full access means ability or capability of the system (network), however, it does not mean the right to go to every site". Another stated, "it [full access] should be monitored for safety, but should be available". The latter statement reflects a protectionist belief that may pervade the school culture and influence decisions regarding technology use. Future research concerning protectionist beliefs and technology practice is needed.

In conclusion, the present study supports the findings of

SI 10: Overall I would rate my use of technology as....:

	Excellent	Adequate	Poor	Total
	Count	Count	Count	Count
1-5 years	7	13	16	36
6-10 years	5	5	12	22
10+ years	21	11	13	45

SI 2: Years of Experience using Educational Technology.

Note. SI=Survey Item (See Appendix A).

Table 1. Survey Items Comparison of 103 Teachers' Self-perception of Ability to Use Technology by Years of Experience Using Educational Technology

other studies, specifically, that teachers are using technology routinely in their classrooms (ChanLin, Hong, Horng, Chang & Chu, 2006; Howley & Howley, 2008; Levan & Wadmany, 2008; Li, 2007; Sugar, Crawley, & Fine, 2004), but not specifically for innovative instruction. The respondents in this study perceived themselves as effective technology users, especially, if they had more experience with technology, however, they still primarily used technology for managerial rather than instructional or research purposes. Therefore, it seems, as with other studies, that the promise of technology as a means to enhance best instructional practice has not been fulfilled. Although technology is changing and continues to change, the merging of best instructional practices with technology tools is critical and, therefore, merits further research (Gentry, 2006). Future research should look at the quality of training teachers receive in merging technology with classroom instruction and student learning outcomes.

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RESEARCH PAPERS

Appendix A: Survey Questionnaire

Please tell us your school district. _____

Campus: _____

Grade Level(s) taught: _____

Subjects taught: _____

1. What is your educational background? (circle one)

a) BS/BA, b) M.Ed., c) Ph.D., d) Other _____

2. Years of experience using educational technology. (circle one~below)

a) 1-5 b) 6-10 c) 10+

3. I use technology (computers) routinely as part of classroom instruction. (circle one~below)

a) Strongly Agree b) Agree c) Neutral d) Disagree
e) Strongly Disagree

4. I have access to download free instructional software such as Photo Story 3 from Microsoft. (circle one~below)

a) Strongly Agree b) Agree c) Neutral d) Disagree
e) Strongly Disagree

5. I have access to search the Internet for instructional software and/or other topics related to instruction. (circle one~below)

a) Strongly Agree b) Agree c) Neutral d) Disagree
e) Strongly Disagree

6. I have access to download streaming videos from the internet related to classroom instruction. (circle one~below)

a) Strongly Agree b) Agree c) Neutral d) Disagree
e) Strongly Disagree

7. I believe teachers should have full access to the Internet. (circle one~below)

a) Strongly Agree b) Agree c) Neutral d) Disagree
e) Strongly Disagree

8. I believe all students should have full access to the Internet. (circle one~below)

a) Strongly Agree b) Agree c) Neutral d) Disagree
e) Strongly Disagree

9. I use technology primarily for (please rate the following, 1 to 5, 1 being the most used and 5 the least used)

a) Instructional delivery (PowerPoints): _____

b) Research (Internet resources): _____

c) Student Drill & Practice and or free time: _____

d) Email: _____

e) Paperwork (IEPs, Grades, Reports, Lesson Plans): _____

10. Overall I would rate my use of technology by as (circle one~below):

a) Excellent b) Adequate c) Poor

11. I am provided technology training mainly via (circle one~below):

a) Technology department (in house)

b) Education Service Center

c) Private Consultants

d) Others: _____

12. If teachers receive training, it is (circle one~below):

a) annual b) biannual c) semester

Other: _____

Please explain your philosophy concerning teachers and students use of technology in the classroom...

THE END~THANK YOU (PLEASE GIVE THIS TO A TSU FACULTY MEMBER)

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