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Preparing Middle School Students for the Twenty-First Century: How do Teachers
Integrate Assistive Technology as a Student Tool?

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Abstract

This survey explores middle school teacher perspectives on the integration of technology and assistive technology in classrooms. An electronic survey will be created and an e-mail invitation will be circulated to all middle school Language Arts and Special Education teachers in a small urban district. Questions developed by adapting items from 2 previous surveys will be examined to determine relationships and perception patterns for years experience and types of student groups served. Open ended questions will allow descriptions of benefits, challenges, and effective management, organizational, and motivational strategies to be shared with and inspire other teachers to accept and encourage the use of assistive technology as a legitimate tool for students with illegible handwriting, unconventional spelling, and difficulties with revising.

As a precursor to providing one-to-one computing for high school students, in the school year 2003-04, a small urban district on the East Coast of the United States welcomed the 21st century by providing laptop computers for every ninth grade student enrolled in their high school program. Surveys of high school teachers and students in the district were conducted in 2004 and 2005 to get an idea of the resulting technology use and habits that could be found in district high school classrooms (Dawson, 2006). These surveys investigated teacher opinions about technology use and about experiences with classroom implementation of technology. Among the successful reports in the 2004 teacher survey was the statement, "I can get my students to write when they have the use of their laptops. They produce a lot more than they would normally with paper and pencil. I can do writing on a daily basis since every student has access to a computer every day" (Dawson, p. 33). The survey also indicated that teachers felt technology was slightly more beneficial for high achieving students than for struggling students, which was similar to teacher and student surveys conducted by Li (2007), who found that teachers may use technology with "strong students" but are less likely to see benefits of allowing students with weaknesses to use technology. "The students cry out loud for the more frequent use of technology and the adoption of more current technology in schools. ... Their teachers, on the other hand, are far less enthusiastic." (Li, p.391).

The district mentioned above was also evaluated by an independent evaluator, the METIRI Group (2007), to assess technology integration through a series of observations, interviews, focus groups, classroom walkthroughs, and surveys. In the introduction the METIRI Group listed eight typical reasons they have found to have a negative effect on high-level use of technology in schools. One of those reasons is "Teacher and administrator reticence to adopt or support new practices" (p.1). Later in the report the METIRI Group mentioned the teachers'

recognition of their need for “more classroom management and organizational strategies when using technology” (p. 14).

Although the research focused on the use of technology with high school students, no research could be found that targeted the use of assistive technology in middle schools therefore, this survey will investigate teacher perceptions of and experiences with the use of assistive technology at the middle school level. The specific questions under investigation are:

1. What is the perception of technology and assistive technology as a classroom tool for writing by middle school language arts and special-education teachers?
2. Does the number of years of experience affect the perceptions about using technology in the classroom?
3. How do the perceptions of teachers who deal with different specific groups of students compare? (General Education, Talented and Gifted and Honors, Special Education, and English Language Learners)
4. What are some of the benefits/challenges teachers have experienced while integrating technology?
5. What are some classroom management, motivational, and organizational strategies that teachers have found to be helpful with the integration of technology in their classrooms?

Method

Participants

Application for research will be submitted to George Mason’s Human Subjects Research Board (HSRB) and to the Monitoring and Evaluation Department of the local school district. Approximately 86 middle school language arts teachers and special education teachers in the district will be targeted to participate in this study. These teachers are the group of focus because

they will be the primary teachers using a new assistive technology software program that is being introduced in the school district. Identifying and addressing teachers' reservations, challenges, ideas, strategy suggestions, and attitudes may facilitate adoption and enhance the effective use of the assistive technology.

Data Sources

The data source will be a survey with closed and open ended questions. It will be created using survey application, survey.ssg.gmu.edu. Of the 21 questions, 14 were adapted from the two previous surveys that were answered by high school teachers. The answers will be compared with the results from those two surveys. The questions focus on demographics, personal disposition towards technology and assistive technology, classroom use of technology, challenges, and strategies. Several sample questions follow.

- Which of these statements best describes your feelings about using technology?
 - I avoid using technology as much as possible.
 - I use technology a lot but it's just a tool for me, not a hobby.
 - I enjoy working with technology and learning new ways to use it.
 - I often help my friends with their technology problems and I like showing them how to use technology in different ways.
- How important is having access to technology for your students' education?
- Please Describe Successes and/or challenges you have experienced with using technology.
- Here are some ways I integrate the computer as a student tool into my class.

Materials

The materials used will be the electronic survey with questions developed from two previous surveys, an e-mail invitation, a postcard reminder, and an e-mail thank you and reminder.

Procedure

An e-mail will be sent to all language arts and special education middle school teachers in the district. A link, <http://survey.ssg.gmu.edu/survey/entry.jsp?id=1238580829139>, will be included along with a survey explanation and the assurance that responses are anonymous. After a week and a half a postcard will be sent reminding the teachers about the survey. Two weeks later a second reminder will be sent with the link to the survey and the message that the survey will be closed shortly. The survey will be open for approximately four weeks.

Once a participant clicks on the link, the informed consent pops up describing the research procedures, benefits, confidentiality, and the voluntary nature of the survey. The participant will indicate consent and answers by clicking radio buttons and typing longer answers in provided boxes. After the last question there is a button to submit responses. The responses are collected without names to provide confidentiality.

Data Analysis

Analysis of the data will begin with descriptive statistics to present summaries. Cronbach's alpha statistic will be used as a reliability assessment of the survey's internal consistency. The survey scores of the general education and special education teachers will be compared between using t-tests. The variables will be examined to determine relationships, patterns, and frequencies. The mean will be determined for the attitude scales, and experience. A Pearson-Product Moment Correlation (PPMC) will be used to determine relationship significant differences between the teachers with different numbers of years of experience and between teachers instructing different groups of students, such as general education, talented and

gifted/honors, special education, and English language learners using the 'family-wise' error rate, with an alpha of $p < .01$.

For the 9 open ended questions, a more qualitative approach will be used. To analyze the data, the constant comparison method will be utilized. Using open coding initial themes will be identified and put into categories. The emergence of more precise themes will be followed by organization and consolidation.

Results

Anticipated Results

Although it is anticipated that special education teachers will be more familiar with assistive technology, perhaps some of the less experienced teachers will be more familiar with personal use of technology and therefore will be more likely to integrate its use throughout the day. Many of the established teachers have preferred teaching styles and strategies that do not include technology. Less experienced teachers who may have grown up with technology may feel more comfortable with technology and may have found effective strategies and methods for integration. Two out of the three studies had questions referring to the use of technology with different specific groups of students. Both studies mentioned a slight perception that teachers tend to think that technology is more beneficial for advanced rather than struggling students. Since the studies are all fairly recent, this study may have a similar finding.

The real hope of this process is to find teachers who have been successful integrating technology and/or assistive technology who will be willing to share successful strategies that other teachers could adopt. Along with identifying and describing benefits and challenges to technology integration, the findings may be used to inspire other teachers to add technology integration to their teaching repertoire in order to prepare more students for the 21st century!

References

- Dawson, M. E., D'Alois, L. A., Rockoff, D., Reid, B., & Alston, R. (2006). Formative evaluation of the technology integration in 2004-05. (Available from Alexandria City Public Schools, Monitoring and Evaluation Services. 2000 N. Beauregard, Alexandria, VA 22311).
- Li, Q. (2007). Student and teacher views about technology: A tale of two cities? *Journal of Research on Technology in Education*, 39, 467-478.
- METIRI Group. (2007). Alexandria city public schools high school technology integration project. Culver City, CA. (Available from Alexandria City Public Schools, Monitoring and Evaluation Services. 2000 N. Beauregard, Alexandria, VA 22311).