Improving Test Preparation for Students with Special Needs: Web-based Tutorial, Student Charting, and a Text Reader

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Abstract: Obstacles to the classroom implementation of the fourth grade Math component of Louisiana's web-based testing tutorial were addressed in this informal pilot. Technology integration improved standardized test preparation for students with special needs. Supplemental test preparation sessions give the benefits of (a) increased familiarity with testing terminology and format, (b) a less stressful environment to practice skills aligned with standards, and (c) a review of grade level content covered throughout the year. Structured, independent charting encouraged student participation and ownership of progress. Students with test read aloud accommodations participated independently with the addition of a text reader capable of reading web pages. A high potential was observed for partnering text readers and independent progress monitoring with the state's web-based tutorial to improve accessibility and utility for all students. This system also increased exposure to alternative, computerized testing environments.

Introduction

Every year many special education students participate in high-stakes, statewide testing. Although these students may have struggled throughout the year to meet grade level performance, they are expected to achieve the same levels of proficiency as other students in end of year testing. Statewide testing does not recognize progress—only proficiency. Promotion can depend solely on end of year testing performance, and proficiency can be missed by only a few points. This author believes special education students often need greater access and more frequent exposure to test preparation because of several factors, such as anxiety, changes in routine on test days, and greater difficulty in adapting and becoming comfortable with testing environments. Test preparation is especially crucial in years of high stakes, state testing. Supplemental test preparation experiences assist students by (a) familiarizing them with testing terminology and format, (b) providing a less stressful environment for the practice of testing content, and (c) reviewing grade level material covered throughout the year.

The work presented here describes the development and informal pilot of a system to improve test preparation for special education students. Obstacles to implementing Louisiana's web-based practice test and tutorial program (i.e., LAPass) for students with special needs are described from a clinical perspective. A goal was to consistently expose students to computerized, grade level Math assessment content in short, daily sessions throughout the year.

The National Council of Teachers of Math (2009) advocated for the use of technology to improve student learning. Math content is especially compatible with technology-assisted instruction, and the use of Math software in preparing students for statewide testing has been researched (Deubel, 2001). In a study of the use of software in preparing 9th grade students for the Ohio Ninth Grade Proficiency Test, Deubel (2001) found:

> Barriers to using technology (including lack of access to available computers in labs, no computers or not enough computers in classrooms, old or outdated computers, and poor or nonexistent software) were the primary reasons for not using software. Special education teachers commented that available software was not suitable for their students' ability levels. (p. 8)

In this system of technology-assisted standardized test preparation, computer and internet access were available. Additional software or teacher training was not required because the tutorial was web-based and designed for student use. Additionally, the text to reader software was available free of charge on the web and easily downloaded. LAPass offers standards' aligned testing content for multiple grade levels. An alternative procedure was developed in this test preparation system for students performing far below grade level and participating in alternative state assessment. Math computation charting sheets, rather than LAPass sections, were coupled with another website offering structured addition, subtraction, multiplication, and division drills (i.e., Oswego City School District, 2002).

LAPass

Standards aligned, web-based testing tutorials develop those information and communication skills needed by students in a knowledge society (Menard, 2010), and many states offer online test preparation. The Louisiana Department of Education (nd) sponsors LAPass, which is available free of charge on the World Wide Web to all Louisiana public school students. A generic password is given to register for the program. After answering a few prompts, a login ID and new password are created. The system banks students' scores automatically, and a list of scores by testing section for each student can be viewed. The test is structured sequentially—skills are not randomly placed. More advanced grade level skills are in later sections. Each testing section is labeled and contains approximately 12 items. Immediate feedback is available for most content (excluding some writing and high school sections). The program is considered tutorial because it provides a limited number of prompts or tips when a wrong answer is selected. This gives a learning benefit. LAPass offers the benefits of standards' aligned content by grade level, immediate feedback, bankable scores, and exposure to a computerized testing environment.

Classroom observations noted LAPass was seldom used by students with special needs, even though these students were likely to have a greater need for test preparation and improving the testing performance of this sub-population would impact school performance scores. When students were pre-registered in the program and appropriate computer and internet availability

ensured, access for students with special needs did not improve. Teachers reported it could take a special education student three hours or more to complete the practice test just once and there was not that much extra time in the instructional day. The Individualized Education Program (IEP) accommodations of test read aloud and extra time can limit access to programs such as LAPass for special education students.

Independent Student Progress Charting

  In response to teacher comments about the tutorial taking too long to complete, structured student monitoring charts were developed (Figure 1). Structuring and self-monitoring are instructional strategies for students with special needs (Kasper-Ferguson & Moxley, 2002; Joseph & Konrad, 2009). Intrinsic rewards are gained when students chart their own scores and take ownership of their progress. These progress monitoring tools allowed students to complete a section of the test in 10-20 minutes, rather than the entire test in hours. Depending on results, students could either take the section again or move on to the following section in the next session. An objective was to incorporate short test preparation sessions into the daily classroom routine. Progress monitoring charts list headings for each section of the fourth grade Math test across the page (Figure 1). Boxes for session dates are below each section. Students were asked to record their score and date for each session. When 90% or above in a section was achieved, students moved to the next section in the following session. (The accuracy of charting is easily checked if students always login with their registered id because the program banks scores.)

Name: _____				4th Grade Math Louisiana Pass			
Calculator 1	Non-calculator 1	Math Problem 1A	Math Problem 1B	Calculator 2	Non-calculator 2	Math Problem 2A	Math Problem 2B
Date \ Score	Date \ Score	Date \ Score	Date \ Score	Date \ Score	Date \ Score	Date \ Score	Date \ Score
\	\	\	\	\	\	\	\
\	\	\	\	\	\	\	\

Figure 1: Independent Student Progress Charting

  Progress monitoring tools are versatile and adaptable. A practical procedure for special education classrooms may be to keep charts in individual student folders placed in a holder near the computer center. With this method of structuring, students can move to test preparation independently when other assignments are completed. Alternative, whole class charting sheets were available for teachers with a large number of students. With whole class charting, students' names are listed in a row down the page, with sections of the test across the page. When a student scores 90% or above on a section, the teacher simply marks a check for that student under the section *passed*. Teacher charted whole class monitoring does not give all the benefits of independent student charting, but it does provide a quick view of class performance by state tested Math skill. A glance at results helps a teacher determine where the class may need more instruction as a whole and where individual students may need focused, small group instruction.

Teachers who were very familiar with the format of LAPass and the grade level curriculum suggested assigning sections of the web-based test as they connected to daily and weekly lesson objectives. This application gave teachers another lesson assessment method that was accessible for all students, while also offering the benefits of skills' review and computer integrated instruction. A concern was that when LAPass was not used this way, students might not be practice testing to skills currently taught. However, end of year standardized state tests cover grade level skills taught throughout the year. If lesson planning and instruction is aligned to state grade level standards and covers the width of the grade level curriculum, the content of instruction and the content of the practice test intersect at some point. Students benefit by reviewing skills taught throughout the year with either structuring method.

Teachers were asked to give a coupon certificate to students when they *passed* a section (Figure 2). The LAPass website address was pre-printed on coupons, and space was allowed for students to write their login id, password, and name of section completed. Teachers were asked to send coupons home as positive reinforcers that also kept parents informed of required testing skills and student progress. If students had a home computer, coupons provided a home learning activity— the mastered section could be practiced again at home. This procedure addressed parental concerns that completing LAPass took too long and that their child did not know testing content. Some teachers suggested having students trade in three LAPass coupons for a positive behavior support *buck* or other classroom incentive. Structured charting and incentive coupons did not improve usability for all students.

Figure 2: Coupon Incentive

Louisiana Pass
http://www.louisianapass.org/

Math Level: _____

ID: _____

Password: _____

Text Reading Software

Teachers today are expected to plan and instruct daily to standards for all students on the regular statewide assessment track, while also accommodating for individual learners. Teachers questioned how they could sit at the computer and read the test aloud to an individual student while continuing to teach the rest of the class. The addition of headphones and free text reading software eliminated this barrier. Text readers offer students with test read aloud accommodations independence.

The interactive component of LAPass could not be used with the commercial text reader typically available in special education classrooms because it did not read web pages. When first developing this system, LAPass web pages were printed, and then scanned and read by the available text reader —a reader with a noticeably improved voice quality. Copying all of LAPass

webpages proved to be overly burdensome. Another challenge was the inability to anticipate what mistake a student would make and what prompt LAPass would give. Without a text reader that could read web pages, the interactive component of LAPass for students who needed test read aloud was lost. One improvement made by the Louisiana Department of Education to a few sections of LAPass was the availability of a text reader directly from the web page. However, this was an all or nothing process—if a student needed one word read he/she would have to listen to the entire program read. Observations showed some students with disabilities, such as Autism, were annoyed by this feature and would *tune out* and become less engaged. Naturalreader gave students the choice and responsibility of highlighting which words, passages, or pages they needed read, requiring more active participation.

Naturalreader is text to speech software produced by Naturalsoft (2010). A version of Naturalreader is available for free download (Naturalsoft, 2010). The free version is not a trial version. Naturalreader converts text files, MS word files, MS Internet Explorer web pages, Adobe PDF files, and Emails to speech. The ability of this software to read web pages made it ideal for use with LAPass. Other features of the free text reader made it specifically appropriate for use with special education students, including speed, voice, and volume controls. A frequent criticism of the accommodation of test read aloud is that students will never learn how to read if everything is always read for them. As noted, unlike other text readers, Naturalreader requires students to choose how much of the text they needed read by highlighting, and converting text to speech was not an all or nothing accommodation. Students often needed only a word or two read, and the software alleviated the common situation of a teacher stopping classroom instruction to go to the computer to read a word to a student. Allowing learners to choose the word(s) they needed read by highlighting promoted independence, rather than supported dependence. The free version of the software offers a limited selection of voices. Paid versions offer a wider selection of less synthesized, more natural sounding voices. Choosing what voice to use in what situation can be interesting. Teachers hypothesized that students with behavior problems were more attentive to the lower pitched male voice.

Overview and Discussion

With minimal effort towards downloading software, establishing a progress monitoring system, and teaching the system to students, students with special needs could independently complete practice test sessions. Steps to implementing this system of technology-assisted test preparation are shown on Getting Started (Figure 3). The first step is to decide on an implementation method and prepare progress-monitoring charts in student folders (or whole class method). Registering students for the web-program and downloading text to speech software are next steps. Students should be taught how to use the software, as well as the system of housekeeping, such as where to keep folders and login id information. Success of classroom implementation depends on consistency and scheduling. A classroom teacher knows her students and schedule best, and how to incorporate test preparation time during the instructional day will vary. Whichever schedule is developed, students should have test preparation time in their daily schedule throughout the year.

This system utilized technology to accommodate for special needs in standardized testing preparation. Partnering with the state web-based tutorial program ensured test preparation was directly aligned with end of year assessment content. Implementation fidelity, student use, or

student testing results were not collected or analyzed in this informal pilot. The system was simply made available to teachers, and improvements were made along the way in response to observations and teacher feedback. It is the view of this author that implementing short, daily test preparation sessions aligned to standards, as in the system described here, can improve proficiency on end of year state testing for students with special needs. More frequent participation with LAPass by special education students was observed with the use of this system.

This informal pilot described a development and implementation process for improving test preparation through the use of a web-based tutorial, student charting, and a text reader—a methodology of accommodating for special needs applicable to other computer facilitated testing and learning environments (Figure 3). Success of the informal pilot indicates the need for a formal study on web-based, test preparation programs utilizing text reading software and individual student charting vs. traditional classroom test preparation methods. A recommendation is made to investigate the benefits of this system in a broader study with multiple grade levels and content areas.

The mobility of the system described here was a significant practical advantage. It can be used in general education, special education, and home settings. Where a computer and internet connection are available, with only the cost of copying charting sheets, students continue to be exposed to end of year standardized testing skills. Continuity of exposure to grade level skills is especially appreciated in situations of teacher or student absences.
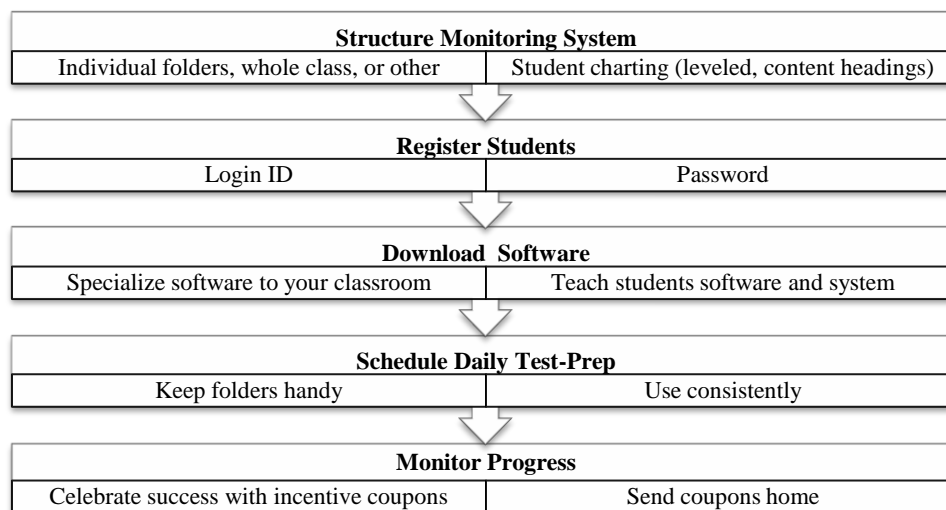
Structure Monitoring System	
Individual folders, whole class, or other	Student charting (leveled, content headings)

Register Students	
Login ID	Password

Download Software	
Specialize software to your classroom	Teach students software and system

Schedule Daily Test-Prep	
Keep folders handy	Use consistently

Monitor Progress	
Celebrate success with incentive coupons	Send coupons home

Figure 3. Getting Started

References

Deubel, P. (2001). The effectiveness of mathematics software for Ohio proficiency test preparation. *Journal of Research on Computing in Education*, 33 (5), 1-12.

Joseph, L., & Konrad, M. (2009). Have students self-manage their academic performance. *Intervention in School & Clinic*, 44 (4), 246-249.

Kasper-Ferguson, S., & Moxley, R.A. (2002). Developing a writing package with students' graphing of fluency. *Education and Treatment of Children*, 25, 249–267.

Louisiana Department of Education (nd). *Pass*. Retrieved from http://www.louisianapass.org/

Menard, L. (2010). Louisiana pass, independent student progress monitoring, and text reading software in the special education classroom. Paper presented at the 2010 Louisiana Education Research Association meeting.

Menard, L. (2010). *The changing life cycle of America's youth: A test of Arnett's theory of emerging adulthood.* Available from ProQuest Dissertations and Theses database. (UMI No. 3410656)

National Council of Teachers of Math. (2009). *Executive summary: Principles and standards for school mathematics*. Retrieved from http://www.nctm.org/uploadedFiles/Math_Standards/12752_exec_pssm.pdf

Naturalsoft. (2010). *Naturalreader 10.0*. Retrieved from http://www.naturalreaders.com/

Oswego City School District (2002). *Math magician games*. Retrieved from http://resources.oswego.org/games/mathmagician/cathymath.html

Acknowledgements