Nearpod and the Impact on Progress Monitoring

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Abstract

Progress monitoring is a practice used to determine students' academic performance, measure their degree of improvement, and assess the efficacy of instruction (Center on Response to Intervention, n.d.). It is the one method of assessment that instructors can promptly give, interpret results, and alter instruction to maintain and promote sufficient improvement of reading skills. Consequently, teachers who consistently implement progress-monitoring instruments improve student achievement and are more apt to modify instruction to meet the needs of their students (Santi & Vaughn, 2007). The purpose of this quasi-experimental study was to determine whether the Nearpod app, an interactive technology application, served as an effective method to monitor students' progress and check for understanding during instruction. The participants consisted of two teacher candidates in their final term of their clinical experience practicum. Both student teachers taught at a Title 1 school in Tustin, California. The school demographics consisted of 49% socioeconomically disadvantaged students and 26.4% English learners. The experimental group student teacher used Nearpod to check for understanding and perform progress monitoring in a 2/3-combination grade classroom comprised of 31 students. In the control group setting, the other student teacher in a 3rd grade classroom of 32 students did not use Nearpod for progress monitoring. Instead, she used traditional progress monitoring methods during instruction. The results of the study indicated that the use of the Nearpod app (student responder) improved student engagement and whole group assessment in a single lesson

Introduction

Progress Monitoring

According to the Center on Response to Intervention (n.d.), progress monitoring is a practice used to determine students' academic performance, measure their degree of improvement, and assess the efficacy of instruction. It differs from conventional assessment practices in that it tends to hone in on students' performance on a small number of key skills utilizing frequent and brief analyses. In doing so, it enables teachers to detect particular areas for intervention (Luckner & Bowen, 2010). Such practices require a careful selection of tools "with consideration for cultural and linguistic responsiveness and recognition of students' strengths" (Center on Response to Intervention at American Institutes for Research, n.d., para. 1). Indeed, teachers across the country are often required to utilize some form of progress monitoring in their classrooms (Santi & Vaughn, 2007, p. 535). It is the one method of assessment that instructors can promptly give, interpret results, and alter instruction to maintain and promote sufficient improvement of reading skills. Teachers who consistently implement progress-monitoring instruments improve student achievement and are more apt to modify instruction to meet the needs of their students (Santi & Vaughn, 2007, p. 536).

Technology

As per a recent study (Armstrong, 2014), although many middle school students report using electronic devices, few students actually report using them at school. This is an unfortunate statistic considering the number of students who claim they learn better with the aid of technology. Research indicates that students who read using tablets demonstrate increased motivation, attention, and gains in reading skills (McClanahan, Williams, Kennedy, & Tate, 2012; Siegle, 2012). Indeed, "utilizing tablets, smartphones and whiteboards to encourage students to explore the Internet as a legitimate resource and to collaborate with other students or teachers can engage their students in ways that lectures and textbooks do not" (Armstrong, 2014, p. 41). Additionally, technology skills are but one of the many elements deemed critical to students' mastery of 21st century skills. Students must be able to interact with real world information, tools, and professionals they will meet in school, in their careers, and in life. Moreover, to operate in the 21st century, students must be able to create, evaluate, and use information, media, and technology (P21 Partnership for 21st Century Learning, n.d.).

Technology is not only transforming the way students learn, but it is also changing the traditional role of the teacher from that of a purveyor of information to one of a facilitator of learning and exploration. Furthermore, the ISTE Standards and the Common Core emphasize the use of technology as a tool for moving past "lower-order thinking skills, such as rote memorization, to focus energies on research and media literacy, creativity, collaboration, problem solving, and critical thinking" (ISTE, n.d., para. 3). Teachers are to personalize learning experiences to address students' varied needs and learning styles utilizing technological resources and tools. In doing so, they are to provide students with "multiple and varied formative and summative assessments aligned with content and technology standards, and use resulting data to inform learning and teaching (ISTE, n.d., Standard 2 c/d). Technology can help teachers integrate progress monitoring easily into everyday practices. Online tools and mobile technology can assist educators organize and collect data that will facilitate analyzing information and make it more significant (Burns, 2015).

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Motivation

Motivation is the energy that drives behavior toward a goal. Specific factors affecting motivation and learning in classrooms include task, authority, recognition, grouping, evaluation, and time (Pintrich & Schunk, 2002). For example, teachers may design tasks to make learning interesting, varied and challenging, thereby promoting mastery goal orientation in students. In addition, allowing students some control over learning activities, recognizing their accomplishments and efforts, and monitoring and assessing individual progress and mastery also promotes "motivated learning" (p. 257). The primary responsibility of educators then is to recognize and provide the conditions necessary to foster motivation and intellectual growth. First and foremost, they should use the existing physical and social surroundings to create the most valuable learning experiences (Dewey, 1938).

Nearpod

Nearpod is a free app that "enables teachers to use their tablet to manage content on their students' mobile devices" ("Play.Google.com," n.d., p. 1). This app is designed to work with most systems, Android and IOs, and its platform is secure. Teachers can download presentations; assess students individually or as a whole group, utilize additional interactive features from the Internet, and create their own presentations (Nearpod.com, n.d.). What is more, teachers may assess students' comprehension immediately with this app and vary instruction accordingly. Hence, the use of such technology encompasses many of the dimensions associated with motivation and learning, the Common Core, ISTE standards, and P21 thinking skills. Nearpod is a fairly new app (2012), hence there is little research, thus far, on instructional benefits; however, the studies available show promise (Delacruz, 2014).

Purpose of Study

The purpose of this quasi-experimental study was to determine whether the Nearpod app, an interactive technology application, served as an effective method to monitor students' progress and check for understanding during instruction. Furthermore, this study was designed to measure the effectiveness of the Nearpod application in designing instructional tasks to increase student participation, provide ongoing assessment, and ultimately impact motivation and learning.

Research Questions

1. How effective is the Nearpod app in collecting formative data during instruction?

2. To what extent does the Nearpod app increase student participation and motivation?

3. How successful are student teachers able to analyze the Nearpod data results to modify instruction?

Method

The participants consisted of two teacher candidates in their final term of their clinical experience practicum. Both student teachers taught at a Title 1 school in Tustin, California. The school demographics consisted of 49% socioeconomically disadvantaged students and 26.4% English Learners. The experimental group student teacher used Nearpod to check for understanding and perform progress monitoring, in the form of pre-, formative, and post-assessment practices, in a 2/3-combination grade classroom comprised of 31 students. In the control group setting, the other student teacher in a 3rd grade classroom of 32 students in did not use Nearpod for progress monitoring. Instead, she used traditional progress monitoring methods during instruction. The methods used for progress monitoring included think-pair-share, thumbs up/thumbs down, brainstorming maps, and calling on students randomly using name sticks. Data were gathered through:

1. Pre- and post-videotaped lessons;

2. In-person observations of teaching in a classroom setting;

3. Printed reports showing data of the frequency of student participation during the lesson and final scores on quizzes;

4. Student teacher written reflections of the learning outcomes;

5. Conferences with the student teachers.

Results

The results of the study indicated that the use of the Nearpod app (student responder) improved student engagement and whole group assessment in a single lesson (See Table 1).

To the contrary, students who participated in lessons without the use of Nearpod participated less at major points throughout the lesson (See Table 2).

Discussion and Implications

The discussion section will focus on answering the research questions.

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How effective is the Nearpod app in collecting formative data during instruction?

The experimental group student teacher was able to assess the students throughout the lesson with Nearpod by answering questions embedded in the lesson. The questions were varied to encourage not only recalling facts or details (true/false, yes/no, fill-in the blank), but to develop critical thinking skills (open-ended questions) and creativity through drawings (polls). Students were engaged throughout all lessons and were responsible for their own learning. Nearpod reports provided feedback on student learning which were formal and informal. The teacher candidate displayed the report results in graph and chart form to show how well students responded to questions. What the reports don't show are the reasons for lack of student participation. Based on classroom observations and video reviews of the lessons taught indicate that students would respond to questions, but forget to hit the <send> button to record a response. At times, there were connectivity issues where students were kicked out of the program and had to login again using a different browser.

The control group student teacher checked for understanding of student learning during instruction using traditional methods such as think-pair-share, calling on students using random selection with name sticks, and including a multiple-choice quiz. While these checking for understanding strategies are appropriate to gather information about student learning, the control student teacher failed to ensure that all students are engaged and responsible for their own learning.

To what extent does the Nearpod app increase student participation and motivation?

The experimental group teacher candidate designed her lessons with Nearpod as part of science units of study in the grade level curriculum. She presented content in a variety of ways to meet the needs of all students in the classroom. Nearpod is designed to allow the inclusion of a variety of media making the learning comprehensible and engaging for students. Student participation remained high throughout each portion of the Nearpod lessons, as evidenced in the earlier tables. Students were motivated using the iPad as a technology tool to respond to questions. Students remained on task knowing that they were held accountable for their participation and also, they didn't have the option to move ahead or stay behind in the lesson since the presentation is controlled and monitored by the teacher.

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Table 1
Science Lessons Using Nearpod Grades 2 and 3

Question	*Data Collection*	*Results*
1. What makes an animal a mammal? (videotaped lesson)	Pre-Assessment: Poll-draw (favorite animal)	100% participation
Input: Power point, video, pictures	Formative Assessment: Quizzes-yes/no questions	80% participation
	Final Assessment: Open-ended questions and responses	67% correct answers
2. What makes soil? (classroom observation)	Pre-Assessment: Poll-draw (soil)	90% participation
Input: Video, diagrams/charts. Pictures	Formative: Poll-yes/no question Fill in the blank Open-ended question responses	72% participation
	Final Assessment" Name 3 things learned	84% correct answers
3. Which arthropods do you find most interesting?	Pre-assessment: Multiple-choice response	84% participation
Input: Power point, video, pictures	Formative Assessment: Name 1 fact from video T/F responses	71% correct answers on quizzes

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The control group teacher candidate designed lessons that are aligned with Common Core Standards for the third grade curriculum in Mathematics and English Language Arts. She provided students with instructional and interactive videos to present the content, electronic presentation tools, and modeled her expectations for partner and individual work. She was aware of student activity, but did not make adjustments to meet the needs of students who were struggling or needed additional challenge. The think-pair-share strategy was the most effective method for the student teacher to engage students as all students responded to the same question all at once. With the other checking for understanding strategies, only volunteer students or students who were called on randomly communicated their understanding. As a result, student participation significantly decreased after the pre-assessment portions of the lessons.

How successful are student teachers able to analyze the Nearpod data results to modify instruction?

The experimental group teacher candidate was able to reflect upon the strengths and weaknesses of her teach-

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Table 2
Lessons without the use of Nearpod-Grade 3

Question	*Data Collection*	*Results*
1. Solving two-digit multiplication problems (in-class observation)	Pre-Assessment: Asks questions about multiplication	1% of students volunteered to answer questions
Input: Khan Academy video lesson Models making real-life connections	Formative Assessment: Think-pair-share Partner work for guided practice in math practice book Student teacher walks around the room	100% participation
	Final Assessment: Students complete problems in math practice book Exit ticket	80% correct answers
2. Pre-Writing Lesson (live-video observation)	Pre-Assessment: Think-pair-share, components of writing a story summary Used name sticks to call on students to respond	100% participation
Input: Provided example writing sample Used rubric to communicate expectations	Formative Assessment: Graphic organizer to brainstorm questions Asks if anyone has questions	50% participation
	Final Assessment: No time allowed for final assessment	No results reported
3. Comparative and Superlative Adjectives (live-video observation)	Pre-Assessment: Think-pair-share meaning of adjective	100% participation
Input: Interactive video on the Smartboard Models on doc viewer	Formative Assessment: Think-pair-share examples of comparative and superlative adjectives—uses name sticks Multiple-choice quiz on Smartboard—uses name sticks	2% participation
	Final Assessment: Answers questions on worksheet	75% correct answers

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ing strategies and make adjustments for future instruction. After teaching the lessons with Nearpod, she would generate reports to analyze student responses looking for trends for the high percentage of incorrect responses as well as correct responses. In her reflections, she would note if there were particular students consistently making errors due to lack of effort or understanding. She was able to identify any question presented to students that were not eliciting desired responses. She determined if the question might need to be revised due to the question being too easy or if she needed to provide further instruction or explanation of the content for students to be successful at meeting the learning outcomes. The open-ended questions presented the most challenge for students. Therefore, the teacher candidate provided extra practice for the students to respond to open-ended questions successfully.

The control group student teacher did make improvement with future instruction through reflection and lesson debriefing. She improved lesson pacing to allow her to complete all components of instruction and used student work sample data to reflect upon the effectiveness of teaching and student learning outcomes.

Conclusion

This project is relevant and important to the field of teacher education because it allows candidates to practice how to effectively improve student learning in the classroom. The data showed that the candidate, who utilized the Nearpod app for progress monitoring, developed the skills to obtain accurate information and to determine to what extent the students met lesson objectives. The benefit of using Nearpod for the teacher candidate was the access to free published multimedia lessons from experienced educators that were used in her classroom or modified to meet her instructional needs. She demonstrated improvement in her teaching practices by following an example Nearpod lesson plan format. The teacher candidate's confidence increased with the success she had with student learning so much that she continued to use Nearpod regularly. In addition, this candidate referred to the data in written reflections, thus evidencing her ability to use technology to gather and utilize information to inform future instruction. Students remained attentive and participatory throughout the Nearpod lessons, a necessary component of learning (Schunk, 2008). Moreover, they were motivated to continue with the lessons live or for homework outside of class.

References

Armstrong, A. (2014, January). Technology in the classroom: It's not a matter of if, but when and how. *The Education Digest*, 39-46.

Burns, M. (2015, December 14). Empowering teachers with tech-friendly formative assessment tools. *Edutopia*. Retrieved from http//www.edutopia.org/blog/tech-friendly-formative-assessment

Center on Response to Intervention at American Institutes for Research. (n.d.). http://www.rti4success.org/essential-components-rti/progress-monitoring

Delacruz, S. (2014, September/October). *TechTrends, 58*(5), 63-70. Retrieved from http://dx.doi.org/

Dewey, J. (1938). *Experience and education*. New York: Simon & Schuster.

ISTE. (n.d.). http://www.iste.org/standards/standards-in-action/common-core

Luckner, J. L., & Bowen, S. K. (2010). Teachers' use and perceptions of progress monitoring. *American Annals of the Deaf, 155*, 397-406. http://dx.doi.org/10.1353/aad.2010.0031

McClanahan, B., Williams, K., Kennedy, E., & Tate, S. (2012, May/June). *TechTrends, 56*(3), 20-27.

Nearpod. (n.d.). Retrieved from https://play.google.com/store/apps/details?id=com.panareadigital.Nearpod&hl=en

Nearpod.com. (n.d.). http://www.nearpod.com/

P21 Partnership for 21st Century Learning. (n.d.). http://www.p21.org/our-work/p21-

Pintrich, P. R., & Schunk, D. (2002). *Motivation in education: Theory, research, and applications* (2nd ed.). Upper Saddle River, NJ: Prentice Hall.

Santi, K., & Vaughn, S. (2007, May 22). Progress monitoring: An integral part of instruction. *Reading and Writing, 20*(6), 535-537. http://dx.doi.org/10.1007/s11145-007-9053-2

Schunk, D. H. (2008). Cognitive information processing theory. In *Learning theories: An educational perspective* (5th ed., pp. 141-182). Retrieved from http://dx.doi.org/

Siegle, D. (2012, April 1). Embracing e-books: Increasing students' motivation to read and write. *Gifted Child Today, 35*(2), 137-143. http://dx.doi.org/10.1177/1076217511436089