

Nearpod to Engage 7th Grade Science Students

Jason Sirard

Department of Instructional Technology, Kennesaw State University

ITEC 7500: Capstone Experience & Portfolio

Dr. Tiffany Roman

May 2022

Nearpod to Engage 7th Grade Science Students

Introduction

My Capstone Project originated from a need to raise student achievement of Economically Disadvantaged (ED), Students with Disabilities (SWD), and English Learners (EL) at Teasley Middle School (TMS). The data I analyzed showed these subgroups underperformed in comparison with other subgroups and were not meeting the goals of the TMS' School Improvement Plan (SIP). Formative assessments are meant to be used to inform the teacher of the progress each learner has made toward the target. Formative assessments also help students self-report their understanding of the content. This capstone project uses Nearpod to focus on the first three levels of Bloom's Taxonomy and formatively assess students more frequently to raise achievement scores in Science for ED, SWD, and EL at TMS.

According to the College and Career Ready Performance Index (CCRPI) for TMS the percent of each subgroup scoring below proficient on the GA Milestones for Science are ED - 74.82%, SWD - 89.06%, and ELL - 89.67%. This capstone focused on the use of Nearpod with my students in my seventh-grade science classes during the school year 2021-2022. My classes consist of a diverse group of students with all subgroups represented in regular and advanced classes. Nearpod was chosen because of the ability to integrate many different forms of content delivery both in a face-to-face classroom as well as a digital classroom. The digital ability was important because the capstone project was executed during the Covid-19 pandemic. Many students could be digital for an extended time. Nearpod has built in formative tools that allowed me to engage students and assess students formatively many times in a single lesson with timely feedback. For students to

achieve students must be engaged and there must be ample formative assessments for students to self-monitor. According to Jiao (2015) “students benefit from timely and supportive feedback that enables them to evaluate the quality of their own work; from another perspective it requires students’ engagement in learning” (p. 9).

Over the course of this Capstone Report I will show how Nearpod supported increasing student achievement by focusing on Bloom’s Taxonomy’s first three levels (Knowledge, Comprehension, and Application) and formatively assessing frequently with the student able to respond to the feedback for the continuation of the lesson. Teachers will be able to understand why Nearpod was chosen to raise student achievement scores.

Description of Capstone Experience

I chose to do my capstone experience in all four of my seventh-grade science classes during the 2021-2022 school year. I taught an advanced level, two push in co-taught, and regular education classes. All classes include minority populations, including Spanish and African American. Many of my students, however, are white. In both co-taught classes, I have an ESOL student that is a level one newcomer. In all other classes, my ESOL students have tested out of ESOL and are monitored. All ESOL that I teach are Spanish. My second-period push in co-taught class is 70% girls. My fifth-period co-taught is almost the complete opposite at 66% boys. Of the IEP students I teach, eight of the eleven are boys. My other classes are almost 50% boys and girls. In my advanced class, there are six students labeled as gifted.

It is important to understand what Nearpod is and the reason I chose Nearpod to increase student achievement of the students I teach. Nearpod is an interactive classroom tool to engage students. Nearpod can take normal slides and add interactive activities teachers can use as formative assessments. Students can interact and submit responses through any mobile device

or laptop. Nearpod can also be embedded into a Learning Management System (LMS). Nearpod can be student-led where the student moves at their own pace or teacher-led where the teacher controls when the slides change. These abilities make it the perfect tool to engage face-to-face and digital classrooms, both of which I had during this capstone experience.

To begin my capstone experience I introduced my students to Nearpod and showed the students how the data gathered would be used to help raise individual achievement scores. Students did the Nearpod with me leading (Teacher Led) and were shown how using Student Paced the Nearpod could be completed at home on Canvas (LMS) when absent. The Nearpod tools were mirrored to the tools the students would see during the lesson's contained in this capstone: matching, fill in the blank, Climb to the Top, and a summative quiz. Climb to the Top is an interactive question game that further engages students while applying what was learned. The students ranked the tools, and this data was shown to reinforce the clarity of using those tools later.

To build on this clarity the first lesson of the year I used Microsoft PowerPoint. The lesson mirrored what a traditional lesson in Teasley looked like among 7th Grade Science Teachers: cloze notes, questions on paper, and a 3-2-1 ticket out the door. The second lesson was presented using Nearpod and had tasks and activities built in. Once the students had completed both, the students were surveyed for information on how PowerPoint compared to Nearpod and what was preferred about each. The results were presented, and the overwhelming response was the students preferred Nearpod. The buy in from my students was set to use Nearpod for the lessons and complete my capstone experience.

The second part of the capstone I taught three lessons: Cell Organelles, Photosynthesis, and Cellular Respiration. Nearpod was the method for delivering the lesson

and assessing the student continuously through the lesson formatively using the activities and tools in Nearpod. At the end of each lesson students were assessed and achievement scores were documented and compared. Scoring outcome goals were 80% of the learners will score proficient (70-89) or exceeding (90-100) and show greater achievement than students taught using traditional methods. The data was collected and compared to the other 7th grade science teacher's data during PLC meetings. The other 7th grade science teachers were still utilizing Microsoft PowerPoint.

The third part of my capstone was to view recordings of the classes when the lessons were being conducted. This was to ensure that the lesson results were more accurate and trusted as I moved through the capstone experience. The students were also surveyed after each lesson to gain insight of how the lesson went from the students' perspective and how the lesson could be improved. Both sets of information were used to prepare the next lesson after it.

Implementation

The project was implemented without any issue. All parts of the capstone experience went as planned throughout. The change that I did not expect as quickly was other teachers asking for tutelage on Nearpod. After my first lesson on Cell Organelles my students advocated for their other teachers to use Nearpod more. This allowed me to share my results to a wider audience. My capstone still stayed as planned though in 7th grade science with my subject peers staying traditional.

Project Outcomes

The outcome of this capstone was a success. By the end of my capstone experience, 83% of my students were proficient or exceeding. The highest percent for another teacher

was 79% for the unit. This teacher however has two advanced classes, one push in co-taught, and a regular ed class. While the overall achievement goal was met EL students still scored lower than other subgroups. In looking at the data and my students' dynamics more closely, I believe this is due to a few EL students having a learning disability as well.

Barriers Encountered

The project went as planned but some barriers did exist for some students. Absenteeism of some students led to rushed make-up attempts. Internet access at home is not equal amongst SWD, ED, and EL populations which were the three targeted subgroups of the capstone experience. TMS does offer Kajeets (mobile hotspots), but families must request one. Not all families know about Kajeets or how to request getting one. As a result, there was a lack of checking Canvas when absent that led to some students not seeing the achievement gains of other students. Another barrier was student mindset. The purpose of Nearpod remained, but students became complacent toward the end of the capstone experience. Some students began to view the Nearpod activities as just another thing to do instead of the tool used to assess the learning that occurred. To overcome this barrier, I began adding areas for students to record the responses to the formative activities. This change however came after the completion of the capstone experience. These were the barriers I experienced but in comparison to when I used traditional PowerPoint presentations these barriers were either on par or less impactful.

Follow-Up

The exciting opportunity that arose from this capstone is I will be leading a Professional Development on the use of Nearpod titled "Allow more opportunities for your students to respond." This will be a multiple part training. The first section will be during

the School Leadership Meeting followed by a Professional Development (PD) meeting during post planning and 2022-2023 preplanning. The PD meetings will be one hour long and will be per subject. I will show each subject area how Nearpod can be used to raise student achievement in that content area: Math, Science, English, and Social Studies. I am also working with the other seventh grade science teachers to develop other Nearpods for other units and integrating Nearpod more in the 2022-2023 school year. I want to expand its use at TMS. I believe Nearpod is how TMS can reach the achievement goals outlined in the SIP plan.

Discussion and Reflection

By completing this capstone project, I learned that having data to support the use of different things is vitally important for other teachers and decision makers to accept the change. At the time I was completing the capstone many facilitators inquired about my continuous use of Nearpod and more specifically using so many of the features Nearpod offers. Many teachers stated that when using Nearpod PowerPoints are converted, and a quiz might be added at the end. Focusing on my objective I would be enthusiastic about Nearpod while explain to those teachers why the other tools were so beneficial.

I presented information to them and my students in an optimistic way to encourage growth and success. As a hopeful future technology specialist, I wanted my capstone to represent me as the technology facilitator and the teacher using the new technology. My research would be the training received and the execution of using Nearpod would be the role of the teacher. When classes would not be fully engaged, I had to be positive and continue to believe Nearpod and the formative tools would help my students grow.

I saw that students love and desire to use technology to learn. According to Tarbutton (2018) “Technology has been a bridge between engaged students and positive classroom environment” (p.5). My teaching was better as I also enjoyed using and seeing my students use technology to learn and grow versus using it as only a replacement medium. Since I had so much fun using Nearpod and seeing the progress and success my students had, I have continued using Nearpod and expanded how many tools I use in lessons. Analyzing what this capstone did for my own teaching is simple. The capstone excited me, encouraged me, and motivated me to use technology and try new ways of using technology. Nearpod is a tool that has made me a better teacher and contributes to my further growth using technology to engage my students and help them grow to higher capabilities with Bloom’s and DOK levels.

When I started the capstone and went through its planning, I thought this experience would be simple and effective. While I saw improvements that said it was effective it was not as simple as I thought. Gaining feedback from the students and watching the recordings took more time than I originally thought. This however was a good thing. I was able to learn so much about my class and my disposition in the class each time. At the end of the capstone, I rewatched all the videos. I noticed that the time between taking notes or getting information was longer in parts and shorter in others. There was a definite difference in the engagement and scores on the formatives when I was a longer period. Engagement and scores were lower. When designing learnings on Nearpod in the future I will make sure that timing is adequate for the content but in five to seven minutes a formative activity follows. I was also pleased to see a different outcome than what I expected. I did not think that all students would be more engaged. I assumed the student

that always seems to be disengaged would continue to be even with Nearpod. Once I decided to change my positioning and the students seating direction this changed. All students were engaged, and it showed me that what I was doing may have more of an impact on the student not being engaged then the student has on themselves.

Standards

The first standard addressed in this capstone was PSC Standard 2.1: Content Standards and Student Technology Standards. To complete this capstone, I had to design Nearpods to implement in my class. The purpose was to enhance the learning experience of the students by integrating technology to learn the content. Each Nearpod designed focused on individual learning targets of the content. By using Nearpod as the technology source I was able to empower the students by giving them continuous feedback from multiple formative assessments that “helps them build higher order thinking and creativity skills while constructing knowledge” (Jaiswal, 2020, p. 145). The students can correct a misconception if feedback is given quickly and effectively as soon as the misconception is seen.

By choosing Nearpod I met PSC Standard 2.7 Assessment. I designed the Nearpod lessons to have three formative checks. The formative checks were done using the tools Nearpod has to engage learners in fun and different ways. I used draw, matching, Time to Climb, and other active formative assessments to enhance the learning experience of the learner. Using Nearpod to deliver content and formatively assess the students I was able to pace my lessons better and meet the needs of my learners whether an individual needed to be helped or enriched. Formative assessments given in a way to get the data back quickly, according to Smith and Mader (2016) “can guide choice of lessons and learning materials as well as discussions with students or parents. With timely feedback, the teacher can adjust the pace, identify students who

need extra support, and offer enrichment” (p. 8). The students were given instant feedback and knew immediately where help was needed and what content was mastered.

Being at a one-to-one school always sounds great to other teachers who are not, but it is not always the best and gives plenty of times to show evidence of PSC Standard 3.5. Through this capstone I had to troubleshoot and come up with many solutions to technology issues that arose. Some videos would not play in the Nearpod, so I had to have them ready to play on other tabs and have them embedded in Canvas for at home students to access. Any time I had a Nearpod I embedded the student led Nearpod, but I also put the access code. For unknown reasons the Nearpod would sometimes not work on Canvas for some students, but could go directly to Nearpod and use the access code. The number one issue that always arises with computers is charging. I positioned many power extenders around the room. Only a few students had to move to charge, and could go to the laptop bar. A main reason I chose Nearpod was that the formative tools were part of Nearpod and therefore would have little chance of having difficulties. All troubleshooting was on the TMS side.

PSC Standard 6.2 was shown at different stages on this capstone. At the beginning on the capstone, I showed my students different Nearpods and gathered student feedback on which tools were enjoyed the most. These tools were the ones I used in my Nearpods when I designed them. Each time a capstone lesson was done I used the “Record Classroom” at TMS. This room has a camera to record, and I would watch the recording to view my students’ engagement but also my disposition while teaching the lesson. After doing this the first time I noticed I stayed near the front of the room. I was able to change this the next time and become more mobile. I also noticed two students who were off task. I decided the next time to have the students face the back of the

room, so their computer screens faced me. This ensured I could effectively facilitate a technology-enhance lesson where all students stayed engaged.

Recommendations

Any educator considering using Nearpod should first familiarize themselves with all the activities and tools Nearpod has. Teachers should be mindful that using Nearpod to simply show a PowerPoint will be less engaging as Nearpod will not have the transitions a PowerPoint has. Be sure before using a PowerPoint on Nearpod to remove any overlapping material that transitions in. When Nearpod uploads the PowerPoint, each slide will convert to a PDF page. Be sure to include fun activities that give reliable data. The draw function for example can have students draw and label while giving useful and timely data. The students will be engaged, and the teacher will know the students in need of more help and the students that have mastered the content. A teacher searching for a blended classroom tool, a way to present a PBL lesson, a simple daily lesson, has students in both face-to-face and digital or just one or the other, or a teacher that just wants to spark content delivery that is meaningful and engaging should try using Nearpod and the formative assessments it offers. A teacher will see their students' achievement increase, and students will be able to perform at higher levels of thinking on Bloom's Taxonomy.

References

- Cherokee County School District. (2020). Teasley Middle School: About Teasley Middle School. <https://www.cherokeek12.net/teasleyms/Content2/teasleyms-about>
- Jaiswal, P. (2020). Integrating educational technologies to augment learners' academic achievements. *International Journal of Emerging Technologies in learning*, 15 (2), 145-159. <https://doi.org/10.3991/ijet.v15i02.11809>
- Jiao, H. (2015). Enhancing students' engagement in learning through a formative e-assessment tool that motivates students to take action on feedback. *Australasian Journal of Engineering Education*, 20 (1), 9-18. <https://dx.doi.org/10.7158/D13-002.2015.20.1>
- Smith, B. & Mader, J. (2016). Using web tools to support learning. *Science Teacher*, 83 (3), 8. <https://www.questia.com/library/journal/1G1-503309499/science-2-0-april-may-2016-using-web-tools-to-support>
- Governor's Office of Student Achievement. (2020). *Georgia School Grades Report: Teasley Middle School*. <https://schoolgrades.georgia.gov/teasley-middle-school>
- Tarbutton, T. (2018). Leveraging 21st Century learning and technology to create caring diverse classroom cultures. *Multicultural Education*. 25 (2), 4-6. <https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=EJ1181567>