Improving the Effectiveness of Digital Educational Tools in Increasing Student Achievement and Reducing Achievement Gaps

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Vignettes from Highly-rated Instructional Sessions with e-Reader Use in Dallas Independent School District (Observed in Spring 2016)

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Our analysis performed with data from 102 observations of student e-Reader use in Dallas Independent School District in the Spring of 2016 revealed common attributes of highly-rated instructional sessions that we outline below. In addition, we present rich descriptions of some of the most highly rated sessions to illustrate these attributes in practice.

Common attributes of highly-rated sessions:

- Instruction is blended—instructor, technology and students have constant, constructive interactions
- Lessons have a clear sequence and structure (often including time management strategies) that enables the instructor to move students seamlessly from one activity to another while managing student technology access
- Lessons are multi-modal in terms of activities, instructional approaches (and how the technology is used) and assessment
- Students engage with each other as well as the instructor in discussing the lessons
- Instructor monitors student progress and responds to student individual needs in using the technology and assesses their understanding of the lessons
- Instructor employs effective strategies for behavioral control in the classroom and sets clear expectations and provides explicit instructions for guiding students' work with the technology
- Teacher has developed strategies for engaging students in technology management, e.g., designating e-Reader leaders and processes for careful handling of the technology

Exemplars

The six exemplars show below were selected by first computing the average ratings of the 102 observed sessions (across all observed elements) and ranking observed sessions from highest to lowest average rating. The six sessions shown below were selected from among the top ten highest rated sessions to show a range of instructional strategies/approaches in using the e-Readers and to provide sufficient detail for illustration of these strategies.

Exemplar 1:

The teacher is using her laptop and a projector to share a video regarding adaptations (functional vs. behavioral) so that students can complete a chart about ecosystems. The teacher and students are all connected wirelessly. Each student has a e-Reader at their desk and the teacher provides clear behavioral expectations regarding the use of the e-Readers. The teacher asks students to brainstorm adaptations and reasons for those adaptations prior to watching the video. The students have been working on a chart for the past few days categorizing adaptations. The teacher has a clear sequence of structure within the lesson and seamless transitions when they are discussing content. She asks students to add on to other's answers to increase rigor. "Someone tell me what an adaptation is?" The teacher is projecting an overhead on the whiteboard and writing what the students say. Student: "A trait that helps living things survive." Teacher: "Does anyone want to add on to that?" Student: "Traits that help living things survive in its environment." They discuss cacti and trees and their adaptations. Teacher: "Everyone turn your e-Readers on real quick. You should be on your home screen. Swipe up and press your circle." All students are participating 100%. She directs them to turn towards a chart on the side of the room that says "Adaptations" at the top and then is divided into animals and plants. Structural adaptations: first row, behavioral and functional adaptions: bottom row. Teacher: "Why does a cactus have thorns? Turn and talk to a neighbor." 1 minute activity. She is very clear and explicit and efficient with time. Teacher asks for an animal adaptation. Student says: "Camel." They discuss the camel's water adaptations. The teacher draws a picture of the camel in the top left quadrant of the chart. She explains they are going to learn that not all camels are made equally, but this one is adapted for water. Teacher: "Take 1 minute and turn and talk to your neighbor about what other animals have structures that help them." All have their own e-Readers and all students do what is asked of them. Student: "skunk". Teacher: "How is the skunk built that helps it survive? What is it about their parts that help them do what they do? Today we are going to look at the function. It is a behavior? Does the skunk have its tail up and spraying all day? No, it does it when?" Student: "When it's in danger." Teacher: "That's a behavior. It's how they behave or the way the act. For the next 15 minutes, you are going to use your Think Central with your partner to learn more about behavior." The teacher varied how she assessed and provided content and discussions making the lesson multimodal. Students listen, think critically, apply, problem solve, and evaluate.

Exemplar 2:

At the start of the observation, all of the students had their e-Readers in hand. The teacher gave them a writing assignment and timed their work. They were writing a story on their e-Readers. When the timer (bell) went off, they turned in their assignment on the e-Reader. The students also rated how they felt about their work on the assignment when they turned it in. The students were then immediately instructed to go to the Whiteboard application. The teacher had a "Kindle leader" help another student who was struggling to download the application. The teacher then projected a lesson on the screen. Students wrote responses to questions in the lesson on their Whiteboard (on the e-Reader); they had to choose a response to indicate which piece of evidence supported a particular inference. The students then shared their answers and the

teacher tallied the responses on the screen. The teacher led a discussion with the students about the correct and incorrect responses. The students then erased their Whiteboards and went on to the next question. When a student figured out an easier way to clear the Whiteboards on the e-Readers, the teacher called on that student to demonstrate its use to the class. She seemed to be very effective in using students within the class to help each other with the e-Readers. This continued for the remainder of the observation period. The instructor led the students through multiple activities using the e-Readers, continuously motivating and monitoring the students, and also helping them to learn from each other in using the devices. The instructor appeared to seamlessly move students from one active use of the device to another while keeping the full attention of the students.

Exemplar 3:

There is a U shaped table directly in front of the overhead. One boy and three girls are sitting at the table. Three girls are sitting at a table by the door using laptops. One male student is standing and using a laptop on a rolling cart. Seven students have desks facing the back wall of windows; they are all using laptops and working independently. Instructor is facilitating small group instruction with three girls while the other students work independently. The instructor accommodates students at the table who are struggling with the content, using manipulatives to help them understand the content (a flashlight to represent the phases of the sun a day, sticky notes on the table, etc.). He is projecting the questions from their packet. He talks them through each answer choice to determine where the sun should be in the problem. Other students appear to be doing a variety of things on their laptops, not one specific program. A timer went off: "1,2,3, close your books and your computer. I am going to give you your DOL." He logs in to All In Learning on the projector. Learning objectives listed on the board: I will demonstrate that the earth rotates on its axis once every 24 hours causing the day and night cycle and the apparent movement of the sun across the sky. [DOL- given 5 questions on the rotation of the earth, I will answer at least 4 correctly. Math- LO – I will calculate area, perimeter, and volume as it relates to real world problems.] Instructor: "Once you finish you can get your clicker and finish working on your STEM scope." The DOL projected on the board shows a globe and says readiness assessment. Students have to calculate based on the earth's rotation what time of day it is for five different parts of the globe. Students read a question on a piece of paper and then use the clicker to submit their response. At the top of the screen, as students submit a response, their number changes color. The teacher counts down from five before he closes the question. 73% got question three right, 60% got question four right. He goes over the question that a majority of the students missed. He discusses what is causing it to look like the sun is moving. Students have to clarify revolutions or rotations. The teacher walks about the room modeling the movements with a small earth.

Exemplar 4:

The instructor serves as an active, instructional leader and facilitator in the largely blended lesson. The class (per teacher handout) is working on e-Readers to do research on animals and

their adaptations to fill in details in a classroom worksheet. The teacher's handout on the exercise is as follows: "The Future of my Animal? Is your animal threatened? Endangered? Extinct? Why?" Teacher discusses an example of an Indian dancing frog. Teacher asks students to put e-Reader down while she is talking, and she asks them to understand the adaptation for their habitat and what the animal might need to survive. Teacher is walking around the students, guiding them to search via search function, not images function. Students sound excited regarding the animal research. Teacher kneels at a student's desk to review work and discuss her research. Teacher speaks softly in Spanish probing the student regarding her animal and its features. Class continues with research and teacher continues asking students about adaptations. The interaction between the students, technology, and teacher appeared to be highly constructive. The teacher also provided (using class dojo) a documented rewards and consequences system for the students. She also provided students with a timer to give them guidance on their activity, time management, and instrumental background music as a reward for class silence and participation during the reading period. The technology was used largely for knowledge retrieval and application.

Exemplar 5:

Students log into their e-Reader and then have to log in to Kahoot and enter an access code for each question they answer. The teacher is working with a student to explain the log in process in Spanish. Seven students are standing up to get help from the teacher regarding logging in. The teacher developed the questions through the Kahoot program/app and projected them onto the white board. Students then answered on their e-Reader. The students and teacher extensively discussed each question and the answers in both Spanish and English, and it appeared to be of appropriate rigor because she was able to provide other thought questions for them to ponder. This appeared to take the place of a test, and the students said they loved the format. The teacher adapted on the spot with helping the students develop their responses to the questions. She also didn't move on if a student didn't know the answer. The teacher then gave directions in Spanish telling them they needed to log out of the page and line up to charge e-Readers. One students helped for each side of the COW plugs. Students put them in, connected them, and went back to their seats.

Exemplar 6:

At the start of the observation, students are finishing with stations, i.e., varied with book/e-Reader reading, learning games and Achieve3000 on computers. Lesson continues in a format of introduction, guided examples, then guided practice with the students to prepare for them to work independently. Paired work allowed for students to help each other and talk through the task. The teacher shows students how to scan a QR code to verify if their answer was correct. At the e-Reader station, students are making Venn diagrams on paper based on the passage they read on their e-Reader. Teacher provides instructions on the QR scanner and an upcoming activity on inferences. Students write the assigned colors on a strip of paper to prepare for the activity. Students get out e-Readers; teacher reminds students how to refresh if they have

problems. Students bring up a page that has text bubbles, which looks like an uploaded worksheet. Students read one bubble aloud (choral reading) as a group. The teacher asks students about clues and inferences. The teacher releases students to work in pairs or groups of three around the room and gives them reminders for expectations. Students choose partners and work together.