A New Look at Zone of Proximal Development: Self-regulated Learning with Mobile Devices

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Focus and Objective

The challenges with mobile devices are

- how learners use mobile devices to enhance learning and
- how educators implement and manage mobile device use.

This presentation will address findings from students’ experiences in using mobile devices as extra support in their Zone of Proximal Development and implications for educators and learners.
We must not take away the learning tool

(Dowd, H. & Green, P., 2016. Classroom Management in the Digital Age p. XVI)

If a student is to complete a writing assignment in class using paper and pencil, but instead writes a note to a friend, doodles, or creates a projectile -

• Do we take the paper and pencil away from the student for rest of period due to misuse of the tools?
  • No, we deal with the inappropriate behavior and have the student get back on task using the tools appropriately.

Today, while using mobile devices the challenges are the same; students may choose to use the device for non-academic purposes.

• The best strategy to reduce misbehavior is creating a learning environment where the greatest need or desire is to use the mobile device for academic purposes to complete the engaging task at hand.
Integrating Technology

Reimagining Classrooms: Teachers as Learners and Students as Leaders Kayla Delzer | TEDxFargo
Student learning & mobile devices

An integral part of 21st century learning for students includes the daily use of mobile devices.

- The challenges with mobile devices, full of their interactive interfaces, is how do students personally use the mobile devices to enhance learning and how do teachers implement and manage mobile device use?
  - “What cognitive processes occurred as students constructed meaning of how mobile devices enhance learning as self-reported by the students?”
  - “How and when did the students decide the features and tools that were effective to use to enhance their learning?”
Phenomenological Research & Conceptual Framework - Constructionism

- Phenomenology is the reflection on the “lived experience” of humans as they make meaning of their world (Groenewald, 2004; Holloway, 1997).

- Crotty (1998) defines constructionism as building meaning of everything around us. We construct meaning through our interpretations of the world we experience.

- Tools and features on mobile devices do not enhance academic learning alone, but the meaning or significance of what the tools and features can do for students is constructed when the tools and features are manipulated by the students to meet their unique learning needs.
Theoretical framework – Self-regulated Learning & Multiple Intelligences

• SRL is the cognitive process which individuals monitor when actively learning (Zimmerman, 1990).
• The theory of MI states that students’ minds are organized in an optimal way for processing of information, and creating ideas, then demonstration of these ideas and knowledge are analyzed through various intelligences within the mind (Gardner, 2011).
• During SRL students direct their learning through their multiple intelligence strengths to enhance their academic learning (Gardner & Davis, 2013).
SRL, MI and ZPD

• Students’ ability to self-regulate their learning by exploring, selecting, analyzing, and evaluating what cognitive processes and resources will enhance their academic learning is applied when discovering and deciphering which tools and features to use on mobile devices.

• Zone of proximal development (ZPD) – (Vygotsky & Kozulin, 2011), took Piaget’s (Inhelder & Piaget, 1958) stages of mental development for students, which progressed from concrete to formal, and demonstrated through studies that there was a zone between what students’ current actual level of development was and where they could aspire to with guidance from peers or adults.
Think about:

• On your mobile device, what tools or features do you use to assist you in learning and life activities?
  
  • How could mobile devices help your ZPD?

• How could students use their mobile devices in your classroom to support their personal learning styles and needs?
  
  • How could mobile devices help your students’ ZPD?
Research questions

• The primary research question was
  • “How did middle school students decipher which features and tools on mobile devices should be selected and used to enhance their academic learning?”

• Secondary questions, supporting the study were:
  • “What cognitive processes occurred as students constructed meaning of how mobile devices enhance learning as self-reported by the students?”
  • “How and when did the students decide the features and tools that were effective to use to enhance their learning?”
Eight main themes appeared from the coding of the data.

Participants use tools and features on their devices because:

- save time
- easier
- need help
- check for clarification
- collaborate with others
- assist with the composition, editing, and creating
- assist with retaining information (such as notes, agenda items, thoughts/ideas)
- they can focus and concentration
Emerging Themes Summarized as Findings

• Use mobile devices based on the tools and features that meet perceived needs to accomplish the academic task.

• To enhance their learning from various levels based on their needs and knowledge of how the tools and features on the devices could help them.

• Learners use the mobile devices as an L + MD
Key Finding – Learner plus Mobile Device

Findings from examined lived experiences of learners’ revealed a gained understanding of how learners are using mobile devices as that extra support in their ZPD.

• What does this mean for educators?

• What does this mean for students?
Enhancing Academic Learning through the use of Technology

- Technology tools
  - See map of tools

- Strategies
  - Trial and error
  - Look at things differently
  - Can except doing things differently
  - Curious
  - Asks questions
  - Finds what works for self
  - Chunking
  - Tracking effective and ineffective strategies
  - Focus on the “point” or bottom line
  - Transfer new concept to known concept
  - Retrieval of background knowledge

- Growth mindset
  - Attitude
  - Determination
  - Patience with oneself
  - Self reflection
  - Emotional intelligence
  - Can learn from failure
  - Drive
  - Curious
  - No excuses

- Finding "Flow"
Teaching Strategies - Dr. Janet Doud
How and When -

How and when students decide to select the tools and features on mobile devices is a culmination of the students’ self-regulation of their learning needs in connection with the tools and features that support their personal MI, thus optimizing the way students process information, create ideas, and then demonstrate their ideas and knowledge.
L + MD

- The learner, through SRL and MI, identifies what is already a known concept through his funds and prior knowledge and assesses the need to determine the unknown concept.

- Next, the learner deciphers and selects tools and features on a mobile device that will help him move from the unknown concept to connect to his known concept through ZPD.

- The mobile device provides the manipulatives or extra support of a peer or knowledge from a credible adult to enhance the student’s learning.
New concept or term - Phenomenological
L + MD to support ZPD

• “What cognitive processes occurred as students constructed meaning of how mobile devices enhanced learning as self-reported by the students?”

• Learners use the mobile devices as a L + MD, meaning that the features/tools on the mobile devices or the ability to use the device to connect to others (parents, friends, teachers, or others through social media, scholarly persons’ sites and so on) provide learners the extra support to work in the ZPD, which would not be possible on their own.
New understanding of students achieving ZPD

• When learners (L) are asked to determine a new concept or define a new word, some may turn to a classmate for insight in their learning.

• Now many learners (L) reach for their mobile device (MD) and search, thus moving from connection with one other person to potentially millions through the internet network of students, educators, professionals, and experts in their fields from all over the world—all of whom have their own life experiences to share with the student.
Jan shared, “I’ll try the math problem first on the paper and if I can’t get it, I’ll get the Math App out.”

Sam used the camera, Instagram, or Snapchat to communicate with peers, to answers, or to get help on assignments.

Others use voice to text, invert colors, enlarge text/images, or have the text read aloud.
Now what - implications for practice

- Study provides educators with information that has been missing about how to effectively integrate technology in learning practices (Ertmer et al., 2012).

- Many teachers understand the theories of SRL, MI, and ZPD and implement them in their pedagogy.

- Study provides a new understanding of how students through SRL and MI decipher and select known tools and features that will enhance their academic learning by acting as an additional support to increase their ZPD.
The recommendations for action

• Teachers model SRL & MI allowing students use mobile devices freely in the classroom to assist with learning

• Teachers provide awareness of multiple tool and feature options on mobile devices that could support students’ learning needs

• Teachers implement the concept of L + MD with students and how L+MD ties in with ZPD.
Learner, plus peer or manipulative, now . . .

Brainstorming -

Learner +
Mobile Device
Awareness and training needed

- Some students are making these connections, and others appear to be limited by the lack knowledge about how the tools and features could help them.

- Students used the mobile devices to enhance their learning from various levels based on their needs and knowledge of how the tools and features on the devices could help them.

- More awareness and training is needed to develop a mindset with educators to explore and implement teaching strategies that promote and train students to use and fine tune their metacognitive processes as self-regulated learners as it applies to use of their mobile devices.
**BYOD Guidelines**

**Every day**
- Devices such as laptops, smart phones, e-readers, and tablets should be used to enhance learning in the school setting.
- Individual classroom teachers determine how/when devices may be used.
- Device should always be set to "silent" or "vibrate" during class time.

**Red day**
- Any day with a sub
- No use allowed
- I see or hear it, I take it.

**Yellow day**
- Face down on desk unless in use
- Only instructional activities designated by teacher

**Green day**
- Free use of devices within district policy guidelines
- Texting and social media permitted

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**Headphones Off—World on!**

*During instruction, discussion, reading, & group time.*

**Do Not text in class!**

**It's a Mobile World!**

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**Plug It In**

**Put It Away!**

**Red Light**

**Green Light**
Questions

• “What issues are holding teachers back from students using mobile devices freely for purposes of enhancing academic learning?”

• “What are the teacher perceived needs in order to create a learning environment in which students apply self-regulated learning to use their mobile devices to enhance academic learning?”
An educator’s role is to empower students’ learning – being a tech expert is not required!

- Educators’ need to be comfortable with not having all the technology answers.
- There will be different students in the classroom who will have knowledge/answers for the different technology questions which may arise.
- Students do need the coaching and guidance with self-regulated learning as they are allowed to explore tools and features to enhance their academic learning.
- Educators can facilitate the exploration discussions with the various tools and features which can be used to enhance academic learning.

(Dowd, H. & Green, P., 2016. Classroom Management in the Digital Age.)
Engaging the learner – finding “flow”

• “A state in which people are so involved in an activity that nothing else seems to matter experience is so enjoyable that people will continue to do it even at great cost for the sheer sake of doing it” (M. Csikszentmihalyi, 1990. Flow. Harper and Row)

• Students’ individualized learning came from their SRL and personal MI strengths in combination with self-motivation to learn almost anything by their desire and effort to keep after something that interested them (Dietrich, 2012; Papa, 2014; Pintrich, 2004; Ramdass & Zimmerman, 2011).

• Students were great at figuring out how to solve problems and also at dealing with new questions or problems to solve as they enjoyed the challenge (Csikszentmihalyi, 2014).

• Their problem solving strategies were developed and refined through experiences of success as well as failures. It was a combination of the failures and successes that helped students to be persistent and motivated to continue to have a better understanding of their own learning techniques (Brophy, 2013; Dweck, 2006).
Understanding L+MD

• “How does a learning environment in which teachers allow students to freely use their mobile devices to enhance their academic learning differ from a learning environment where mobile device use is restricted to teacher-led use (where all students use the same tools and features the same), and which is better for L+MD to take place to enhance student academic learning?”

• “How do educators help students balance between using mobile devices as “L + MD” to enhance their ZPD and students’ choice to collaborate in person, face-to-face to achieve increased ZPD?”
Conclusions

• Across multiple disciplines students make the decision to use a mobile device, and through various SRL processes, determine the tool or feature that would enhance learning for them based on their MI and learning needs at that time.

• The greatest discovery from my research was the way learners selected tools and features on the mobile device to increase the ZPD by becoming an extended support, just like a peer, teacher, or parent could be to them. In the ZPD concept, the manipulative, peer, or adult had become the mobile device.
This month, how will you and/or your students be allowed to use their mobile devices to personally support their learning?

• What self-regulated learning guidance may be needed?

• Could brainstorming with students about ways mobile devices can support ZPD be helpful?

• How could implementing the concept of L + MD with students and how L+MD ties in with ZPD be helpful?
For additional information or training:

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- ProQuest - 2016 Dissertation: A Phenomenological Study of Middle School Students’ Self-regulated Learning with Mobile Devices

- Emporia State University
  - IT 714 Teaching and Learning with Mobile Devices
    - Summer Online course
Thank You