## Major Theories Behind Research Theme

1. Adoption & Retention
2. Curriculum Mapping Expeditionary Learning
3. The Teaching Environment

### Software Adoption & Retention

*“Access to equipment and software seldom led to widespread teacher and student use. Most teachers were occasional users or nonusers. When they used computers for classroom work, more often than not their use sustained rather than altered existing patterns of teaching practice.” (Cuban, Kirkpatrick, & Peck, 2001, p. 813).*

Innovation Diffusion Theory

The innovation diffusion theory process asks the user if there is a beneﬁt of considering this innovation as being better over the current idea it replaced.

* What qualities make an innovation spread successfully
* The Importance of peer-peer conversations and peer networks
* Understanding the needs of different user segments (teacher, administrator, external)
* Why should Monarch Teachers want to use an online curriculum mapping tool over existing methods?

Robinson (2009) does a good job summarizing Diffusion of Innovations. “Instead of focusing on persuading individuals to change, it sees change as being primarily about the evolution or “reinvention” of products and behaviors so they become better fits for the needs of individuals and groups.”

1. Relative advantage (Making everyone’s job easier).
2. Compatibility with existing values and practices (Prior research to existing monarch practices).
3. Simplicity and ease of use -> Usability & Workflow (below).
4. Trailability – Prototyping, Agile methods, keeping stakeholders involved during development.
5. Observable results – “The easier it is for individuals to see the results of an innovation,
6. the more likely they are to adopt it.”

Usability and Workflow (Motivations for Use)

*“While the average school day in America may last from 7-8 hours, the real work day for many teachers begins before the sun rises and ends well into the evening, as lessons are prepared, papers and tests are graded, and parents are contacted.” Hart (2011).*

* Ease of Use – See “Facilitating Learning” below. Put simply, if it isn’t easy to use, it won’t be adopted.
* User Interface – Should provide a familiar environment, where virtual tasks can be carried out just as easily, if not more efficiently than current tasks. (paper-based lesson planning, etc.)
* Workflow / Task Efficiency – Consideration of most important tasks, clear indicators and feedback, see Human Cognition below. Dashboard consideration.
* Environmental Considerations -

### Curriculum Mapping for Expeditionary Learning

Curriculum mapping is a process of documenting lessons, activities and assessment methods used within different grade levels and classes within an educational institution. English (1980) describes the importance of curriculum mapping in terms of revealing to staff and administration “what is actually being taught, how long it is being taught, and the match between what is being taught and the district’s testing program.”

Background – What a Curriculum Map is:

1. address the total education of the students in a building
2. create a "word snapshot" of the educational activities of every classroom within a building or district
3. capture the content, skills, and assessments taught or administered by every teacher within a school building or district
4. organize this information into an easily accessed visual that presents a timeline of instruction by teacher and course

West-Christy, J. (2003).

Need to highlight the benefits curriculum mapping brings to the school. How does curriculum mapping help the educational process and the students?

Backwards Design

* Identify desired results
  + What should students know and be able to do? (Common Core)
  + What content is worthy of understanding?
  + What enduring understandings are desired?
* Determine acceptable evidence
  + How will we know students have achieved the desired results?
  + What will we accept as evidence of student understanding and proficiency?
  + “think about a unit of course in terms of the collected assessment evidence needed to document and validate the desired learning has been achieved, not simply as content to be covered or as a series of learning activities.” 🡪 Teacher to think as assessor during design stage.
* Plan learning experiences
  + Most appropriate instructional activities.
  + What enabling knowledge and skills will students need in order to perform effectively and achieve desired results?
  + What activities will equip students with the needed knowledge and skills?
  + What will need to be taught and coached, and how should it best be taught, in light of performance goals?
  + What material and resources are best suited to accomplish these goals?

Wiggins, G., & P., McTighe, A. (2005).

Expeditionary Learning – Current Process

* Designing of curriculum in terms of Expeditions instead of Semesters or Semester Sections:
  + Expedition – contains lesson plans for courses related to the overall expedition
  + Lesson Plans are created by teachers on a weekly basis
  + Administration involved with aligning expedition outcomes to common core

### The Teaching Environment

School Environment

* Current Task Management – Contextual Inquiry needed to determine current processes.
* Analysis of Challenges - short-term and long-term objectives to improve curriculum and educational goals for the institution.
* Day to day challenges – Large class sizes, varied performance levels, minimal resources
* Barriers to using technology in current environment – noisy, distractions – see “Attention” below.

Human Cognition

* Attention
  + Top-down attention addresses what the user wants to concentrate on.
  + Bottom-up attention, sometimes referred to as involuntary can be described as a process that is not driven by the user but by whatever thing in their environment that is ‘most salient, or obviously compelling.’ Gallagher (2010).
* Memory
  + An effective way of improving memory is to simply limit the amount of information to be processed.
* Facilitating Learning & Motivation Connection
  + Baddeley et al (2009) discusses learning in terms of various key elements that are important to consider for effective comprehension and retention of information. One of these important elements includes motivation, which they point out determines the amount of time and degree of attention devoted to the material to be learned.
* Human centered design for teacher workflow.
  + Research dashboard-like appliances that address the above cognition concerns.

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