

**Mind Mapping the Curricular Planning Process for Florida School Based Agricultural  
Education Teachers**

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### **Introduction/need for research**

The process of planning instruction is an important skill for teachers to have. Teaching utilizes a unique mixture of using a teacher's own knowledge and resources available to plan instruction. Teachers then use the knowledge and resources to guide students toward educational goals to transform the classroom and students into a more desired state. (Brown, 2009). Pedagogical design capacity (PDC) explains the relationship between instructional resources, teacher resources, and subsequent instruction in the classroom (Brown, 2009, Knight-Bardsley & McNeil, 2016). Teachers use different resources depending on knowledge, skill, and commitments (Brown & Edelson, 2003). The more we understand how teachers plan for instruction, the better insight we can provide support for the planning process.

While all teachers must consider curriculum, standards, objectives, and benchmarks, school-based agriculture education (SBAE) teachers must also account for FFA schedules, local agriculture industry needs, and land labs (Phipps et al. 2008). PDC is an important consideration for SBAE teachers and those creating resources. Standardized resources do not exist across the state or nation, and the goals and roles of each agriculture education program and teacher are different (Torres, et al. 2007).

### **Conceptual Framework**

This research utilizes pedagogical design capacity (PDC) as a conceptual framework, which explains a teacher's ability to use resources to craft instruction for the classroom (Brown, 2009). PDC examines how teachers mobilize the tools they have around them (curricular resources) and their personal knowledge and beliefs (teacher resources). Curricular resources include items like physical items and procedures, while teacher resources include subject matter knowledge and beliefs. Classroom instruction is the planned learning events that come because of the confluence of these resources.

### **Methodology**

This study utilized mental modeling techniques to examine how a convenient sample of Florida SBAE teachers planned instruction. Mental modeling techniques determine how people cognitively structure information presented. These methods are not used to hold predictive power but rather explore how a set group think about a concept. An effective mental model will define the mental space, use an "imagine if" scenario, focus on items related to the context, and use follow-up questions (Kearney, 2015). Florida SBAE teachers who attended chapter officer leadership training were invited to participate in the mental modeling. In total, 50 SBAE teachers participated. Teachers were given a prompt that read:

Imagine another agriculture teacher asked you to explain your process for planning instruction for any course you teach. They are interested in how you develop key learning experiences for students including assignments/projects/teaching methods/materials. They are also interested in how you document your plan for instruction. Think about the specific things you would talk about and the words you would use as you share your process with them.

Teachers were given 38 cards relating to planning for instruction and were asked to sort and categorize the cards based on how they would answer the prompt. Once all cards were received,

the data was analyzed by the Anthropac software (Borgatti, 1992) to develop composite maps of the mental models of the group based on hierarchical clustering analysis (Kearney, 2015). The results were processed using the Conceptual Content Cognitive Mapping (3CM) (Kearney, 2015). The arrangement of the cards presents a visual representation of participants' thoughts relating to planning instruction. Mental modeling is a versatile technique that supports high-level and detailed communication decisions. The richness of the data means that small sample sizes (<10) can provide a large amount of data (Kearney, 2015). The map produced indicates how closely related participants perceive the various items in the activity.

**Results/findings**

Six categories of concepts were found including curriculum guides, methods, resources, student prior experience, and considerations and context. In the resource category, we found curricular resources, teaching tools, and textbook. Because these three

items were so closely related, it seems as though teachers may consider every item used in their classroom as curricular resources and teaching tools.

The category of considerations and context is specific to SBAE teachers and the items found in it are also an important part of the planning process. SBAE teachers must consider the context of time of the year and FFA schedule during the planning process.

A notable theme was found in the items not included in categories. These items were professional development, cornerstone tasks, and teaching philosophy. While teachers may use these items to plan instruction, the software did not include them in the categories listed.

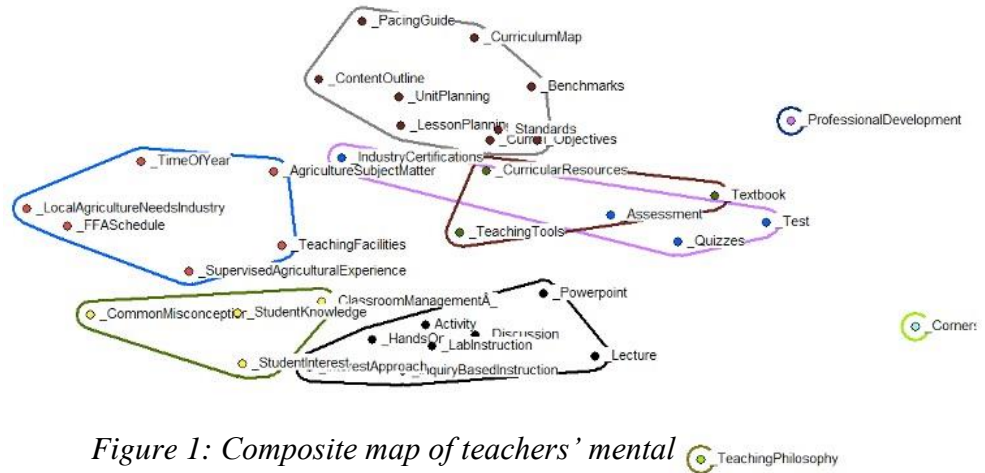


Figure 1: Composite map of teachers' mental model of planning instruction.

**Conclusions/Implications/recommendations/ impact on profession**

Findings from this study are confined to the participants of the study. While the results cannot be generalized to all SBAE teachers, this research does serve as groundwork for future research for those who look to improve and provide support for the teacher planning process.

**Planning instruction**

Teachers plan instruction based on their own instructional goals. This data shows what teachers think about in relation to other aspects of planning. Teachers interact with curricular resources and teacher resources. This data paints a picture of how the interactions take place and how those items are related. Curricular designers should use this data to determine specific designs and how those impact a teachers' PDC.

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