

RURAL AGRICULTURE TEACHERS' COMPREHENSION AND IMPLEMENTATION OF
SELF-REGULATION

by

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Abstract

This qualitative study investigated four rural Kansas high school agriculture teachers' comprehension and implementation of self-regulation strategies in their own professional growth and in their instructional practice. Each participant was interviewed three times, using symbolic interactionism as the methodological framework and the Seidman technique of interviewing. The participants included two males and two females, each one having between five and 20 years of teaching experience. Three questions guided this study: (1) how do rural Kansas high school agriculture teachers make meaning of self-regulation and the processes needed to facilitate self-regulation, (2) in what ways do teachers self-regulate for their own professional growth purposes, and (3) what strategies do teachers use to foster self-regulation in their students?

Findings suggest while participants described utilizing strategies that are associated with self-regulated learning, they have an incomplete understanding of self-regulated learning and they most closely associated it with effort and motivation. The perceived incomplete understanding may be attributable in part to a lack of formal training in metacognitive processes. Nevertheless, when participants perceived value in professional development, they described consciously using self-regulated learning strategies such as seeking assistance, self-evaluation, and self-monitoring, which all indicate participants utilize components of self-regulation to grow professionally. However, even though participants described utilizing all three phases of self-regulation processes to affect growth in their own careers, there was a disconnect when participants described how they try to facilitate these processes within their students. Participants often described attempting to foster growth in self-regulation among students by targeting motivation-oriented behaviors, instead of targeting the underlying cognitive ability to utilize self-regulation processes.

Implications for practice are presented, including the possible need for further education concerning self-regulated learning in order to produce pedagogical content knowledge in self-regulation processes. Instruction connecting the three phases of the self-regulation model could assist agricultural educators with forming a more complete understanding of self-regulated learning. Recommendations for future research are discussed including investigating effective teaching strategies for delivering self-regulation instruction to teachers, as well as investigating the possible impact self-regulation instruction has on various attributes of teachers and students, such as self-efficacy and career orientation.

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Dedication

To my wife, Melissa; my parents, Donnie and Mary; and my family.

Chapter 1 - Introduction

Statement of the Problem

Agriculture is an ever-evolving industry that is facing new problems every day, new employees will likely need problem solving capabilities upon their hiring. As a part of Career and Technical Education (CTE) in America, agricultural education has a need to prepare students not just for post-secondary academic pursuits but for the workforce as well. It is likely students entering the agriculture workforce will need critical thinking skills, and agricultural education potentially has the ability to facilitate these needed skills. Self-regulation may be an avenue to help students develop thinking skills, as Kuiper (2002) suggested self-regulation strategy use can foster critical thinking and problem solving skills.

Prior research makes a compelling argument for the usefulness of self-regulation strategies in secondary education. Agricultural education, with its broad scope of curriculum, could potentially offer many opportunities to incorporate self-regulation strategies into its instruction. While the research on self-regulation in other classroom settings abounds (Bercher, 2012; Cleary et al., 2008; Hughes et al., 2002; Munby et al., 2007; Zimmerman & Martinez-Pons, 1986), there has been little research done in agricultural education on this metacognitive strategy.

Purpose of the Study

The purpose of this study is to investigate four rural Kansas high school agriculture teachers' comprehension and implementation of self-regulation strategies in their own professional growth and in their instructional practice.

The specific research questions for this study are:

1. How do rural Kansas high school agriculture teachers make meaning of self-regulation and the processes needed to facilitate self-regulation?
2. In what ways do teachers self-regulate for their own professional growth purposes?
3. What strategies do teachers use to foster self-regulation in their students?

Introduction

Self-regulation is considered to be a component of metacognition, which has been defined as being “The awareness of and knowledge about one’s own thinking” (Zimmerman, 2002, p. 65). Zimmerman & Martinez-Pons (1986) suggested students are self-regulated learners when they are active in the learning process by planning, organizing, and self-evaluating. In a 2002 article, Zimmerman suggested research has shown self-regulatory processes lead to success in school, but few teachers ask students to self-evaluate their work or assess their beliefs about learning, which results in students who are not prepared to learn on their own. Furthermore, research has not been conducted on whether agricultural educators employ self-regulation strategies in their instruction. Using a guide of 15 strategies they attribute to self-regulated learning, Zimmerman & Martinez-Pons (1986) found that higher achieving students reported using more self-regulated strategies than lower achieving students.

Researchers have examined self-regulation processes in students with disabilities (Hughes et al., 2002) and general education classes (Zimmerman & Martinez-Pons, 1986; Zimmerman & Martinez-Pons, 1988) and have suggested that self-regulation is a key component of student success. However, in a 2012 study with 28 teachers Seraphin, Philippoff, Kaupp, & Vallin found it was common for both new and established teachers to be unfamiliar with metacognitive strategies. The same study suggested that both younger and older science teachers could benefit from professional development focused on metacognitive science inquiry.

Agricultural education could be considered closely related to science education, and agriculture teachers could also benefit from these opportunities.

The importance of self-regulation has been well documented (Hughes et al., 2002; Zimmerman & Martinez-Pons, 1986; Zimmerman, 2002), and the need for teachers to educate students about these strategies established, but as of now research done in high school agricultural education programs to determine whether agriculture teachers incorporate these strategies into their instruction has not been found. Agricultural education programs are unique in that they contain many components, including student leadership, experiential learning, and project based learning. This uniqueness provides significant opportunities for teachers to incorporate self-regulation strategies into their instruction.

Cleary, Platten, & Nelson (2008) suggested that even though schools value the evaluation of students' self-regulation processing, these processing skills are rarely evaluated by school personnel in a comprehensive manner. The value of self-regulation strategies to co-operative education classes was explored in a 2007 study in which three students participating in a work-based education program were provided instruction on metacognitive questioning to enhance their workplace learning (Munby et al., 2007). While the students' employers saw benefits from the instruction, and expressed a need for the metacognitive instruction for their employees, the researchers concluded the students' teachers lacked understanding of the metacognitive instruction.

Albeit in a limited sample, the workplace educational context of the Munby et al. (2007) study could potentially be applied to agricultural education, which is also a career and technical education program. In a 2009 study, Harms, King, & Francis also saw a need for research to be conducted on "students' metacognitive processes while in an agricultural learning environment"

(p. 192) in order to better suit the learning needs of agricultural students. While these two articles are limited in scope, the case can be made for the need of metacognitive instruction in career and technical education environments - as well as more research to be done on such instruction in agricultural settings.

Self-regulation and other metacognitive strategies have been explored in the professional realm within education (Seraphin et al., 2012) and other fields (Kuiper, 2002). Seraphin et al. (2012) found it was common for both novice and veteran teachers to be unfamiliar with metacognitive strategies, but the researchers suggested both of these groups benefitted from metacognitive instruction. Kuiper (2002) postulated nursing students could utilize self-regulation strategy instruction as a way to increase their critical thinking skills and thereby making their transition into the professional world easier.

Several researchers (Bercher, 2012; Cleary et al., 2008; Nota, Soresi, & Zimmerman, 2004; Zimmerman & Martinez-Pons, 1986; Zimmerman & Martinez-Pons, 1988) have suggested self-regulation is an important component of student success in all types of educational settings, not just in general education classrooms. Data gathered from this study may shed light on the use of self-regulation strategies by agriculture teachers for their own professional development purposes and their use of self-regulation strategies in their instruction. As a Career and Technical Education (CTE) program agricultural education plays a role in preparing the agriculture workforce, and the need for metacognitive training has already been suggested by employers in previous research.

Shulman (1987) discussed teaching knowledge, research, and pedagogical intricacies and how the teaching profession and policy makers have attempted to codify, or explain, effective teaching. Actions of policy makers have formed the thought that “teaching requires basic skills,

content knowledge, and general pedagogical skills” (p. 6) which Shulman argued has trivialized teaching while ignoring its complexities. Shulman contended research on teaching is often oversimplified in order to achieve a desired, generalizable method of practice. Of great note to this study, Shulman (1987) identified several areas of knowledge bases for teachers, one of which was the “wisdom of practice” (p. 11). Wisdom of practice, he proposed, was the least codified of all the knowledge bases of teaching. Shulman explained this category as the “wisdom of practice itself” (p. 11) or the “maxims that guide...the practice of able teachers” (p. 11).

Shulman’s (1987) article can be an important component of research in educational practices. Researching powerful teaching methods can create codified representations of pedagogical wisdom of successful teachers while attempting to keep the intricacies of the teachers’ accounts intact within the research. With evidence supporting the value of self-regulation strategy use by students, further research on self-regulation has the potential to contribute to the pedagogical wisdom of the CTE field.

Limitations

Semi-structured, in depth interview is a successful technique for understanding the depth of an answer to a question and for gaining deep insight into the feelings behind that answer in order to reconstruct the participant’s viewpoint (Flick, 2009). The small sample size and non-randomized selection of participants does prohibit generalizing findings to all secondary agricultural teachers in Kansas, hence other limitations may apply, such as the following:

1. A potential drawback to symbolic interactionism is the possible neglecting of hierarchies (Bhattacharya, 2007), since symbolic interactionism seeks to perceive the world as the participant perceives it, whereas other philosophical views seek out the possible hierarchical power struggles. Considering the field of education has a hierarchical

structuring, this could potentially be a contributing factor in the topic of self-regulation that goes unexplored. A teacher's willingness to implement new strategies may be impacted by their perceived sense of autonomy in the classroom (or lack thereof), but they may not recognize this as a factor or may not be willing to discuss it.

2. Understandings gained in the study are self-reported by the teachers in the interviews, which may cause disparity between what is reported and what it actually carried out in instruction or personal reflection.
3. Student receptiveness to instruction incorporating self-regulation strategies may impact amount of emphasis teachers place on this instruction.
4. Class size will vary for the participants, which may impact the instructional strategies employed in those classes.
5. Teacher involvement and control over the curriculum and instructional strategies used in their classroom may vary between schools.
6. The socioeconomic status varies between the four schools and their communities, which may cause discrepancies in the amount of money that is allocated by the schools for teacher professional development purposes. Less access to professional development training may impact teachers' access to gaining new professional growth processes and activities. This could have an impact on teachers' use of self-regulation in their own professional growth as well as their instruction.

Assumptions

For the purpose of this study it was assumed that:

1. Answers provided by participating teachers are accurate to the best of their understanding of the questions asked.

2. Participating teachers are invested in their students' growth and strive to select the best instructional strategies available to them.
3. Teachers are invested in their own professional growth and strive to utilize strategies that will allow them to grow the most professionally.

Definition of Terms

The following terms used in this study were operationally defined as follows:

1. *Rural High School*- The National Center for Education Statistics (NCES) has placed rural high schools into the following categories:
 - a. Fringe- Census defined rural territory that is less than or equal to 5 miles from an urbanized area, as well as rural territory that is less than or equal to 2.5 miles from an urban cluster ("School Locale Definitions," 2006); 22 Kansas public school districts fit this description ("Number of public school districts," n.d.).
 - b. Distant- Census-defined rural territory that is more than 5 miles but less than or equal to 25 miles from an urbanized area, as well as rural territory that is more than 2.5 miles but less than or equal to 10 miles from an urban cluster ("School Locale Definitions," 2006); 71 Kansas public school districts fit this description ("Number of public school districts," n.d.).
 - c. Remote- Census-defined rural territory that is more than 25 miles from an urbanized area and is also more than 10 miles from an urban cluster ("School Locale Definitions," 2006); 128 Kansas public school districts fit this description ("Number of public school districts," n.d.).

2. *Agriculture Teacher*- Any high school teacher employed in a Kansas State Department of Education approved high school agricultural education program and whose course load consists of at least 75% agriculture classes.
3. *Self-Regulation*- It is thought to be a component of metacognition, and includes the following strategies: Self-evaluation, organizing and transforming, goal-setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance, and reviewing records (Zimmerman & Martinez-Pons, 1986).
4. *Experiential Learning Theory*- learning theory that presents “a holistic integrative perspective on learning that combines experience, perception, cognition, and behavior” (Kolb, 1984, pg. 21).
5. *Perceived Self-Efficacy*- “Beliefs concerning one’s capabilities to organize and implement actions necessary to attain designated performance levels” (Schunk, 1989, p. 84).
6. *Facilitated Self-Regulation*- Classroom instruction that explicitly or implicitly promotes and encourages self-regulation strategies among students.
7. *Professional Growth*- Activities or actions done or initiated by teachers for the purposes of increasing their effectiveness as an educator. Some examples may include: self-reflecting and evaluating previous instructional strategies and outcomes, setting goals to improve one’s teaching, and planning ways to reach set goals.

Summary

Agricultural education is a unique educational context through which students and teachers have many possibilities. As a CTE field, teachers are preparing students for not only

future academic endeavors but career endeavors as well. Through its uniqueness, agricultural educators potentially have the ability to incorporate self-regulation strategies into their instruction. This study aimed to explore how agriculture teachers comprehend self-regulation, and how they might implement self-regulatory strategies in their instruction.

Chapter 2 - Literature Review

Purpose of the Study

The purpose of this study is to investigate four rural Kansas high school agriculture teachers' comprehension and implementation of self-regulation strategies in their own professional growth and in their instructional practice

Introduction

Chapter one discussed the findings and existing use of self-regulation processes in general education classes, students with disabilities, and cooperative education classes. The potential impacts of facilitating self-regulation processes in an agricultural education context could be drawn from the existing literature involving cooperative and workplace education, as Career and Technical Education (CTE) includes cooperative programs as well as agricultural education.

The prospective effects of facilitating self-regulation were explored in Munby et al. (2007) where students enrolled in a cooperative, work-based education class were provided metacognitive instruction in order to aide their learning of workplace routines. Through interviews with both the employers and the students, the researchers found the instruction had an impact on students' overall progress as employees. While Munby et al. (2007) suggested metacognitive strategies may have an impact on the education students of CTE and work-based environments receive, it is possible this impact could potentially extend to agricultural education as well since it prepares students for entry into the workforce and potential post-secondary academic endeavors.

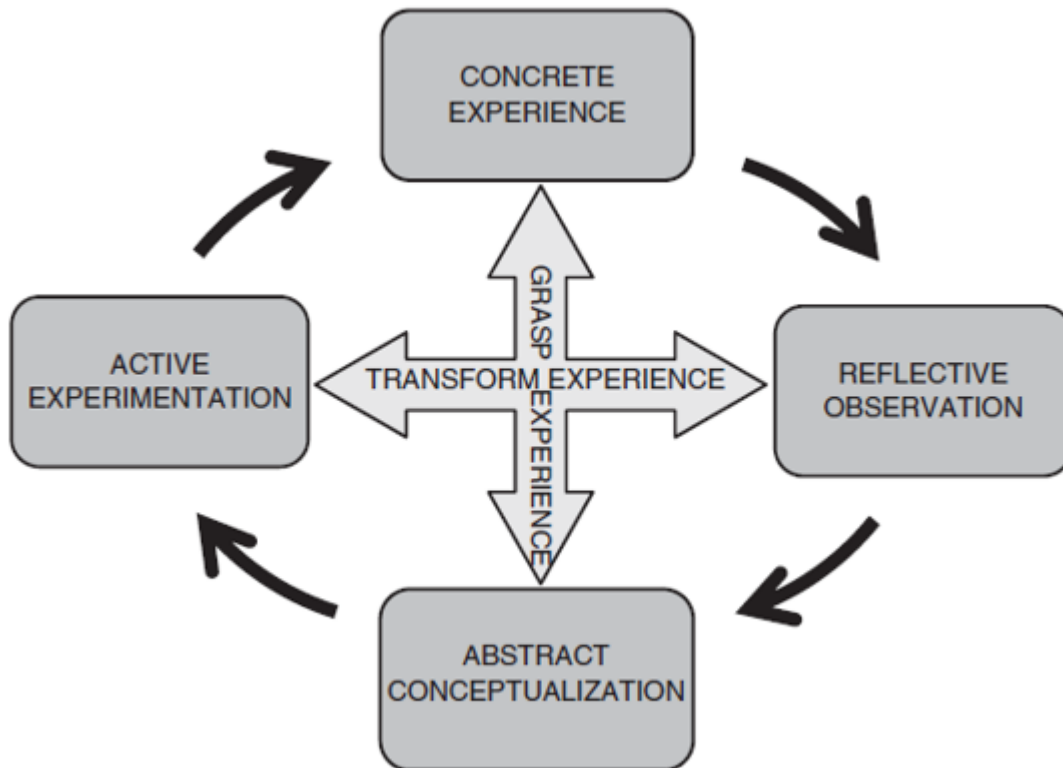
While the suggested impacts of self-regulation seem applicable to agricultural education settings, how current agricultural educators make meaning of and employ self-regulation

strategies has yet to be studied. As such, there exists a need for research concerning teachers' use of, and understanding of, self-regulation in an agricultural education context. Research findings could have a potential effect on teacher-education and teacher professional development programs and how they prepare pre-service and in-service teachers as they begin and advance their teaching careers. This chapter will provide an overview of existing research concerning self-regulation and its potential effects.

Experiential Learning Theory

Experiential Learning Theory (ELT) is one of the theories used by education and other fields as a way to interpret human learning. Kolb (1984) defines learning in the context of ELT as “the process whereby knowledge is created through the transformation of experience” (p. 38). Kolb (1984) postulated his theory of experiential learning presented “a holistic integrative perspective on learning that combines experience, perception, cognition, and behavior” (pg. 21). When articulating his theory, Kolb (1984) cited multiple models of the experiential learning process, including those from Lewin, Dewey, and Piaget. A. Y. Kolb & Kolb (2009) portrayed the ELT model as follows:

Figure 2.1 The experiential learning cycle (A.Y. Kolb & Kolb, 2009)



When detailing ELT, Kolb (1984) identified and discussed six characteristics of experiential learning: 1) learning is best thought of as a process, not as an outcome; 2) learning is a continuous process based in experience; 3) learning results from resolution of conflicting ways we adapt to the world; 4) learning is a holistic process of adaptation; 5) learning involves environments; and 6) learning is the process of creating knowledge. The writer related each of the characteristics and discussed their impact on ELT.

The first characteristic Kolb (1984) detailed was learning as a process. He argued ideas are not “fixed and immutable elements of thought” (p. 26), therefore learning should be conceived as a process that is ever changing and cannot be measured by the amount of fixed ideas someone has accumulated. Feeding into the second characteristic, Kolb (1984) postulated knowledge results from tested experiences of learners in a continuous process, and that “all

learning is relearning” (p. 28). He argued everyone enters a learning opportunity/situation with preconceived notions, accurate or inaccurate, and it is the job of educators to either dispose of or modify those initial notions.

Kolb (1984) discussed the third characteristic as a conflict between “opposing ways of dealing with the world” (p. 29). In Kolb’s model of ELT, the two dialectics are concrete experiences and abstract concepts, and observation and action. The author argued learners need the four dialectic abilities to be effective, and that he/she must choose which abilities are needed for each situation. Kolb (1984) continued with the fourth characteristic arguing learning is central to human adaptation, encompassing all life stages, settings and the total organism – “thinking, feeling, perceiving, and behaving” (p. 31).

The fifth characteristic Kolb (1984) described was the involvement of transactions between the learner and the environment. Kolb termed the involvements as transactions, and cited the similarity of ELT to that of Social Cognitive Theory (SCT). Social Cognitive Theory postulated personal factors, environmental factors, and behaviors all influence each other in a continuous fashion, what Bandura called reciprocal determinism (Bandura, 1977). Another transaction, between social and personal knowledge, was described by Kolb (1984) as the sixth characteristic of ELT. Kolb suggested learning is a process of creating knowledge, and “knowledge is the result of the transaction between social knowledge and personal knowledge” (Kolb, 1984, p. 36). Roberts (2006) pointed out the similarity of ELT to constructivism, which calls for learners to create meaning from their experiences and, according to National Research Council (2000), postulates that “existing knowledge is used to build new knowledge” (p.11).

One of the principles of ELT outlined by Kolb (1984) is the transaction between the learner and the environment. This transaction is congruent with what Bandura (1977) stated

about Social Cognitive Theory when he suggested humans are best understood in terms of “a continuous reciprocal interaction between behavior and its controlling conditions” (p. 2), which he called triadic reciprocity. The term “reciprocal” was used to refer “to the mutual action between causal factors” (p.23) meaning each factor could potentially impact the others (Bandura, 1986). From both the self-regulation and ELT standpoint, environmental factors can have a continuous impact on the learner.

One way self-regulation characterized environmental impact was through self-efficacy, which can be described as a person’s beliefs about their abilities to attain certain levels of performance (Schunk, 1989). Schunk (1989) suggested students’ efficacy beliefs may have an impact on behavior (such as attempting to acquire a skill) and in turn, students’ actual behaviors (such as succeeding or not succeeding at that skill) impact their efficacy beliefs by providing positive or negative feedback. Other environmental variables can also influence self-efficacy, as the student may become more confident he/she will succeed at a task if he/she witnesses another student succeeding first.

Experiential Learning Theory and Self-Regulation

Schunk (1989) suggested self-regulation follows the notion that students actively contribute to their learning goals instead of passively receiving information. Self-regulation seems to align with ELT in that ELT recognizes a need for learners to actively manage their dialectic abilities in order to select correct approaches to making meaning of different situations (Kolb, 1984). Kolb’s fourth characteristic of ELT postulated that learners must make decisions when entering a learning situation of how they will begin the learning process, similar to how self-regulated learners acting in the forethought phase will plan which strategies they will use to help them learn new material. Kolb (1984) characterized ELT as a continuous process as

students enter each situation with preconceived notions, this principle can be related to the model of self-regulation Zimmerman & Campillo (2003) presented that detailed three non-linear phases, one of which was the forethought phase. During the forethought phase, students will enter the learning task with beliefs in their ability, which can greatly depend on their previous encounters with the subject and/or task.

The phases of a self-regulated learner are similar to the components of ELT: a learner has a concrete experience, reflects on it, conceptualizes it, and actively experiments with it. In both cases, a learner may proceed through the phases at different rates and in a different order. Both Self-Regulation and ELT call for learners to be engaged. According to Zimmerman (2002), self-regulated learners are active in the learning process, knowing when to use a skill appropriately during the learning cycle. Kolb (1984) described ELT as a continuous process, akin to how Zimmerman & Campillo (2003) conceptualized the model of self-regulation (below). Both researchers postulated their models are conducted in a non-linear fashion, with each component interacting with and impacting the others. The Zimmerman & Campillo (2003) model of self-regulation becomes cyclical as students use self-reflections from previous events to engage in effective forethought processes in preparing for future events.

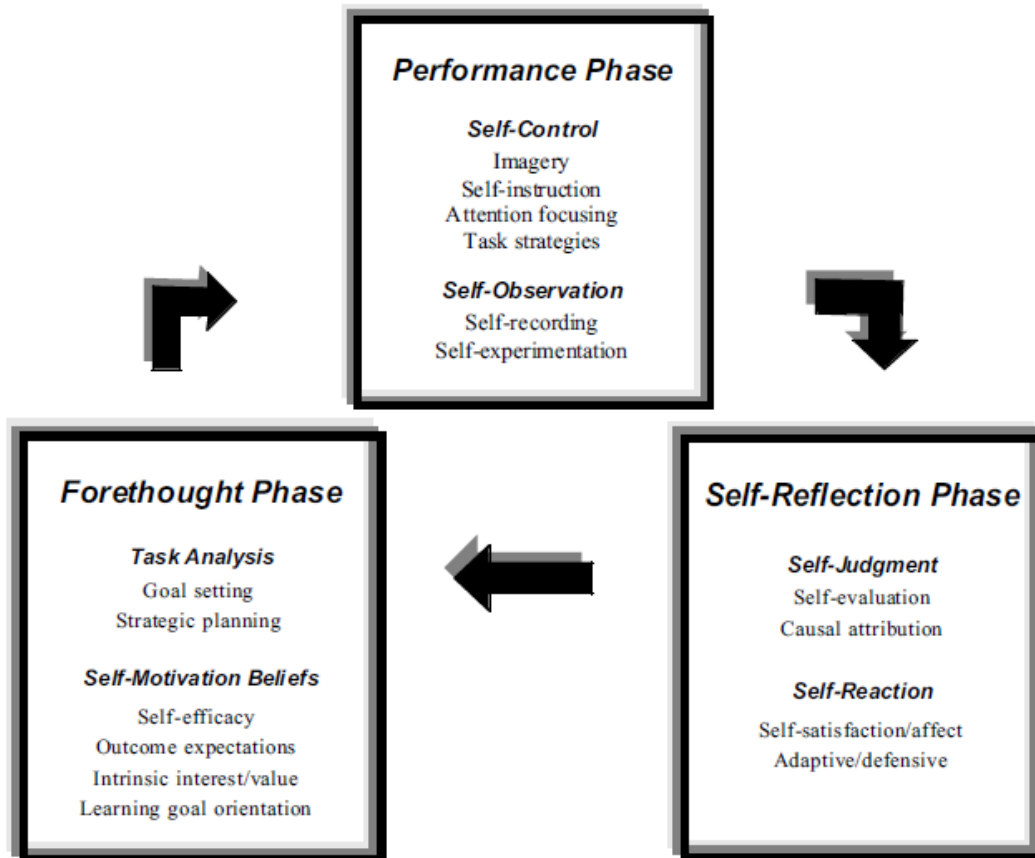
Self-Regulation as a Process

Zimmerman (2002) defined metacognition as “the awareness of and knowledge about one’s own thinking” (p.65). For this study Self-Regulation is operationally defined to be a component of metacognition, and includes the following strategies: Self-evaluation, organizing and transforming, goal-setting and planning, seeking information, keeping records and monitoring, environmental structuring, self-consequences, rehearsing and memorizing, seeking social assistance, and reviewing records (Zimmerman & Martinez-Pons, 1986). Zimmerman

(1989) suggested that in order to qualify specifically as self-regulated learning, “students’ learning must involve the use of specified strategies to achieve academic goals on the basis of self-efficacy perceptions” (p. 329). Self-regulation involves more than just knowledge of a particular skill; it also involves the understanding to be able to implement that skill knowledge appropriately with the behavior skill, self-motivation, and self-awareness that are needed (Zimmerman, 2002).

Zimmerman & Campillo (2003) suggested a model of Self-Regulation broken down into three cyclical phases, including the Forethought Phase, Performance Phase, and the Self-Reflection Phase. See Figure 2:

Figure 2.2 Phases and subprocesses of self-regulation (Zimmerman & Campillo, 2003)



Zimmerman (2002) explained the phases with the following: “The forethought phase refers to processes and beliefs that occur before efforts to learn; the performance phase refers to processes that occur during behavioral implementation, and self-reflection refers to processes that occur after each learning effort” (p. 67).

The forethought phase includes both task analysis and self-motivation, with task analysis involving setting goals and planning for learning. Self-motivation is driven by a student’s beliefs about learning and their own capability to learn. It is also tied to the intrinsic value of the knowledge the student is learning, meaning they are interested in the learning (Zimmerman, 2002).

The performance phase (Zimmerman, 2002) includes self-control and self-observation, with self-control meaning the deployment of learning strategies chosen in the forethought phase and self-observation meaning keeping track of or recording personal events. An example of a strategy in this phase would be a student using self-monitoring, a covert form of self-observation according to Zimmerman, to track the travel speed at which he/she moves an electrode while arc welding. If, through self-observation, the student finds their travel speed to be too slow or too fast, they can take measures to correct it.

The self-reflection phase consists of self-judgment and self-reaction. Self-judgment can include self-evaluation, where the student compares his/her performance against a particular standard of performance, or as Zimmerman (2002) suggested, self-judgment can also include causal attribution, where a student attributes his/her success or failure to a specific cause. Self-reaction involves a student reacting, either positively or negatively, to their performance. A positive reaction can increase motivation, whereas a negative reaction may cause a defensive

behavior and a decrease in motivation. Adaptive responses may also take place, causing the student to adjust his/her methods in order to increase learning.

The process becomes cyclical when students use self-reflections from previous events to engage in effective forethought processes. According to Zimmerman (2002), the self-regulation phases develop differently with novices compared to experts. Novices tend to self-regulate reactively, compare their performance with that of their peers, and typically do not engage in quality forethought. Whereas experts set goals, have high levels of self-motivation, and evaluate their own performance against their own goals. Teachers may be empowered to better understand their learners by becoming familiar with how the phases of self-regulation present themselves among students.

Self-Regulation and Academic Achievement

Multiple researchers (Bercher, 2012; Cleary et al., 2008; Nota et al., 2004; Zimmerman & Martinez-Pons, 1986; Zimmerman & Martinez-Pons, 1988) have suggested self-regulatory processes are an important component of learning that impacts student academic achievement. While self-regulation can encompass multiple strategies, Zimmerman & Martinez-Pons (1986) attempted to correlate 14 self-regulatory processes to academic achievement among 40 high achievement track and 40 lower achievement track 10th grade high school students. Through the Self-Regulated Learning Interview Schedule (SRLIS), which is an interview design aimed to assess an individual's use of self-regulation processes, researchers found higher achieving students reported greater use of 13 self-regulation processes, and that use of self-regulation processes were a better indicator of a student's success than both socioeconomic status and gender.

Furthering their study of self-regulation Zimmerman & Martinez-Pons (1988) attempted to compare the SRLIS student results, 44 male and 36 female students studied, with ratings given by their corresponding teacher. While researchers reported the findings showed both convergent and discriminative validity for correlating SRLIS with teacher ratings, not all self-regulation strategies that predict student success were evident to teachers when they completed the ratings of students. One of the highest correlated processes between the SRLIS and teacher ratings was seeking information, which led the authors to conclude “self-regulated students were not passive learners but actively sought out information and assistance when needed” (p. 289). As this process was predictive of student success in their previous study (Zimmerman & Martinez-Pons, 1986), the authors suggested the data supports the notion seeking information is an important characteristic of self-regulated learners.

Continuing the line of research with the SRLIS, Nota et al. (2004) conducted a longitudinal study with 81 Italian students comparing their use of self-regulation processes with their academic achievement and resilience concerning their pursuit of higher education. Differing from previous research (Zimmerman & Martinez-Pons, 1986; Zimmerman & Martinez-Pons, 1988), not all processes in the SRLIS were directly predictive of academic achievement. This difference was attributed to the variance of the sample of students in that the Italian study was comprised of mostly high achieving students who were self-selected. The authors suggested the SRLIS may be “less predictive among high achievers” (p. 212) because measuring the use of these processes in a quantitative manner (frequency) may be “insufficient to differentiate among the top students” (p. 212). However, the authors did report the use of the organizing and transforming process of self-regulation was a strong indicator of academic achievement. It was also reported the use of the self-consequence strategy was predictive of academic resilience and

continuing education. The authors suggested the predictive nature of self-consequences could mean that a student who places consequences or rewards on their own learning could positively impact their motivation and efforts to learn.

In a 2002 study, Hughes et al. examined the impact of self-monitoring among special education students enrolled in general education classes. By delivering self-monitoring strategies designed specifically for target behaviors based on each student's Individualized Education Plan (IEP), the authors reported students' use of targeted behaviors increased. Along these lines, Bercher (2012) suggested self-monitoring is a necessary skill for student success. In the study, authors examined self-regulation among 77 students using the Student Self-Assessment Sheet (SSAS) and Post Exam Reflection Sheet (PERS). The students completed the SSAS after each lab session, and the PERS after each of the five exams that occurred during the study. The authors reported the students who stated on the PERS their studying was impacted by the SSAS scored better on the exams than the students who stated the SSAS had no impact. It was concluded the self-monitoring strategies provided by the SSAS enabled students to monitor their progress and make accurate judgments of their mastery.

Cleary et al. (2008) also explored the influence of self-regulation processes on students. Researchers studied the effects of a Self-Regulation Empowerment Program (SREP) on students in an urban setting. It was reported students who participated in the SREP (which included training on-task analysis, goal-setting, and self-reflection) displayed considerable improvement in their test performance. Participating students went from scoring below the class average on tests before the intervention program to scoring at or above the class average after the program. It was also suggested students increased their self-efficacy and their use of self-regulation strategies as a result of the program.

One of the 14 strategies listed by Zimmerman & Martinez-Pons (1986) as possible self-regulation components was goal-setting and planning. In a 1992 article Zimmerman, Bandura, & Martinez-Pons (1992) studied the impact and role of goal-setting and self-efficacy among social studies students and reported both had impacts on student success. Students' self-efficacy beliefs influenced their goal setting and their ability to reach those goals. The researchers also suggested parents held higher goals for their children than the students held for themselves, which could imply students do not always adopt the high goals placed on them by others. The authors used this finding to suggest students base their goals more on their own academic efficacy than on expectations placed on them by others, therefore academic experiences should be structured in “a way that enhances students' sense of academic efficacy” (p. 673) to foster higher academic achievement.

Self-Regulation and Teachers/Professionals

Self-regulation and other metacognitive strategies have been explored in the professional realm as well. In a 2012 study by Seraphin et al. where metacognitive strategies were delivered to science teachers through professional development modules, researchers reported it was common for teachers beginning the program to be unfamiliar with metacognitive strategies. However, by the end of the professional development modules the researchers suggested both experienced and novice teachers benefited from the metacognitive instruction.

Simonsen (2013) analyzed the effects self-monitoring, often thought to be a component of self-regulation, had on teachers' use of praise in their instruction by asking teachers to self-monitor with the aid of clickers, tallies, or ratings their frequency of issuing specific praises to students. It was reported teachers' use of specific praise increased while utilizing the self-

monitoring strategies and it was suggested by the researchers that by employing self-monitoring strategies, teachers can increase their use of evidence-based practices.

In a 2005 study Van Eekelen, Boshuizen, & Vermunt aimed to discover whether teachers actively self-regulated their learning experiences by interviewing 15 higher education teachers at 3 different institutions. The authors offered three previously formulated ideas of how teachers learn: learning what is already known or learning best practice examples, consciously reflecting on one's own practice to construct new knowledge, and thirdly by generating new knowledge through intentional investigation in their classrooms. The researchers suggested in their findings that only one-third of teacher learning experiences were planned, the other two-thirds were attributed to spontaneous or non-linear learning. It was recommended this finding followed previous research in that most high school teachers' learning is more a result of situations and is not goal-oriented. The authors also concluded few teachers studied reported a structured or planned form of reflection and teachers, like students, "need guided and sustained opportunities to reflect on their practice" (Van Eekelen et al., 2005, p. 466). Of interesting note, while the authors found that teachers did not regularly self-regulate their own learning, it was reported that those teachers did self-regulate their teaching practices by constructing "instructional strategies based on specific goals for their students" (p 467), using those strategies, monitoring the outcomes, and revising instructions accordingly.

In a 2004 article Butler, Lauscher, Jarvis-Selinger, & Beckingham proposed a professional development model for teachers focusing on collaboration and self-regulation. The authors suggested a key to instructional change is a shift in conceptual knowledge about teaching by the practicing teacher, not just a development of a procedural skill, allowing the teacher to reconstruct their knowledge and revise their practice. Along those lines Timperly (2008)

supported the need for teachers to develop self-regulatory skills to monitor and reflect on their practices. The author proclaims that in the absence of self-regulation, changing practice becomes the end goal instead of a way to benefit students.

Self-regulation in the Workplace and the Career and Technical Education Environment

Several articles have been published concerning self-regulation and metacognitive skills and their roles in the workplace and career and technical education (CTE). Many of the studies have expressed a need for employees utilizing metacognitive and/or self-regulation strategies in a variety of workplaces (Beddoes-Jones, 2003; Kuiper, 2002; Margaryan, Littlejohn, & Milligan, 2013; Munby, Hutchinson, & Chin, 2009; Munby et al., 2007; VandeWalle, Brown, Cron, & Slocum, 1999; Weinstein, Acee, & Jung, 2011). Dawson (2008), who defines metacognition as thinking about thinking which includes skills such as reflective judgment and problem solving, postulates adults who have refined metacognitive skills exhibit a higher motivation to learn, can handle complexity, are better critical thinkers, and can cope with conflict. This view on adult learning is relevant due to the changing nature of workplaces and a growing need for lifelong learners who can “adapt to the rapidly changing and evolving demands of the modern world” (Weinstein et al., 2011, p. 51).

A 2007 Canadian study Munby et al. involved cooperative education teachers disseminating metacognitive instructional materials to their three respective work-based education (WBE) students. The instructional materials included worksheets with thought provoking questions, and it was reported that the employers found the materials to be beneficial to their student employees. The instructional materials were intended to aid the student with developing metacognitive thinking strategies that would allow them to ask questions concerning

their workplace in order to gain a better understanding of their role and the routines to follow. While the employer supervisors saw benefit to the instructional aide, teachers were “unconvinced about the usefulness of the instructional materials” (Munby et al., 2007, p. 18). The researchers suggested the teachers failed to fully comprehend the purpose and necessity of the students asking themselves the questions listed on the materials, as opposed to the teacher reviewing the worksheet with the student before the student went to the job site. Despite this possible misinterpretation, it was reported teachers still had interest in using the thought provoking questions instructional sheets as assessment tools.

In concordance with the 2007 Munby et al. article, VandeWalle et al. (1999) and Kuiper (2002) and conducted research studies on two different professions (medical supplies sales and nursing) and reported similar findings concerning the importance of self-regulation skills and knowledge. In a 1999 study using a longitudinal framework to research performance levels of salespeople for a medical supply company, VandeWalle et al. reported that salespeople reached higher levels of performance when they were learning goal oriented instead of performance goal-oriented. These two goal types were contrasted by the authors: learning goal orientation is where a person seeks to achieve competence through mastery of new skills and situations. Performance goal orientation is where a person seeks to demonstrate competence by pursuing positive judgments or by avoiding negative ones. The researchers then reported that a workforce with a learning goal orientation that utilizes self-regulation strategies would likely be higher performing. The researchers concluded the relationship between the sales performance and the learning goal was mediated by three “self-regulation tactics: goal setting, effort, and planning” (p. 249).

Following the same theme Kuiper (2002) conducted research on graduating nursing students and concluded self-regulation skills could potentially enable new nursing practitioners to more easily transition into the workplace. The authors suggested the need for self-regulation skills among new nurses in the workforce arises from the job's unique circumstances, and these skills would aid the new practitioners in adjusting to changes in the work environment. It was also postulated that self-regulation fostered instruction could promote critical thinking among nursing students in varied clinical areas.

In a study spanning 12 countries involving professional employees within an energy sector company it was found that self-regulation was potentially a fluid activity that did not happen in chronological phases (Margaryan et al., 2013). While the authors suggested self-reflection was a crucial learning activity, they described it as not happening under deliberately or planned circumstances very often. The potential resolution offered was for workers to have “dedicated and sustained opportunities to reflect on their learning in the context of work” (p. 256) and for novice professionals to have support via trainings concerning their reflection skills.

Along these lines Munby et al. (2009) suggested that knowledge in the workplace is different from knowledge in the classroom. They offered the idea that knowledge in the classroom tends to be declarative in nature and knowledge in the workplace tends to be procedural in nature. By conceptualizing the workplace as a learning environment involving routines, the authors developed instructional approaches for workplace learning that included metacognitive skills. They provided three ideas that describe their workplace instructional approach: work can be understood as routines, the idea of routines can be taught and learned, and “the metacognitive functions of routines give structure to learning in the workplace” (p. 1766).

Summary

Self-regulation aligns with ELT as each is considered to be a continuous process, with ELT having four components including concrete experiences, reflection, conceptualization, and active experimentation (Kolb, 1984), and according to Zimmerman (2002) self-regulation involves three cyclical phases, including the Forethought Phase, Performance Phase, and the Self-Reflection Phase. The three cyclical phases reflect principles of ELT, such as the environmental transactions principle Kolb (1984) discussed: all learners are impacted by, and impact, their environment. Kolb (1984) defined his Experiential Learning Theory as “the process whereby knowledge is created through the transformation of experience” (p. 38).

Self-regulation is considered a component of metacognition, and according to Zimmerman (2002) includes three cyclical phases: Forethought Phase, Performance Phase, and the Self-Reflection Phase – these phases can be related to ELT’s principle of transactions between the learner and the environment. Much research has been done on the potential impacts of self-regulation strategies on learners in classroom settings, workplace and CTE settings, and among professionals. While the research conducted on self-regulation has suggested self-regulation can impact student success, there is a void of research conducted on self-regulation in an agricultural education setting.

Chapter 3 - Methodology

Purpose of the Study

The purpose of this study is to investigate four rural Kansas high school agriculture teachers' comprehension and implementation of self-regulation strategies in their own professional growth and in their instructional practice.

Research Questions

1. How do rural Kansas high school agriculture teachers make meaning of self-regulation and the processes needed to facilitate self-regulation?
2. In what ways do teachers self-regulate for their own professional growth purposes?
3. What strategies do teachers use to foster self-regulation in their students?

Introduction

Chapter one discussed the role self-regulation plays among students in secondary schools and the potential impact of teacher facilitated self-regulation in agricultural education.

Agricultural education is unique as students and teachers have many possibilities for differentiated learning atmospheres. As a CTE program, agricultural education prepares students to enter both the workforce and college, and self-regulation can be a valuable component in both circumstances. In addition to examining self-regulation processes teachers facilitate with students, the role of self-regulation strategies teachers employ within their own professional growth may have an impact on the degree of growth teachers experience.

Chapter two started by discussing Experiential Learning Theory (ELT) and its relationship to self-regulation processes. Kolb (1984) offered a working definition of learning under ELT: "Learning is the process whereby knowledge is created through the transformation of experience" (p. 38). ELT can correlate to self-regulation as each is considered to be a

continuous process, with ELT having four components including concrete experiences, reflection, conceptualization, and active experimentation (Kolb, 1984), and according to Zimmerman (2002) self-regulation involves three cyclical phases, including the Forethought Phase, Performance Phase, and the Self-Reflection Phase. The three cyclical phases reflect principles of ELT, such as the environmental transactions principle Kolb (1984) discussed: all learners are impacted by, and impact, their environment. This follows self-regulation in that students' self-efficacy, a component of self-regulation, can be impacted by environmental factors in the form of feedback and self-evaluation. Chapter two went on to discuss the potential impacts of self-regulation among both learners and teaching professionals.

Chapter three will outline the methodology employed in the study.

Philosophical Overview

Teaching is comprised of human experiences involving teachers, students, parents, administrators, etc. One aspect of this study is to understand how high school agriculture teachers interpret self-regulation processes, or make meaning of those processes. Focusing on the processes helps define the research as an interpretivist approach, and more specifically, Symbolic Interactionism. Crotty (1998) credits the pragmatist philosopher George Herbert Mead for the development of Symbolic Interactionism. It was to one of Mead's students, Herbert Blumer, whom Crotty gave the most credit when examining the impact Mead's thoughts had on sociology. According to Blumer (1969), symbolic interactionism has three assumptions:

- human beings act toward things on the basis of the meanings these things have for them;
- the meaning of such things is derived from, and arises out of the social interaction one has with one's fellows;
- these meanings are handled in, and modified through, an interpretive process used by the person in dealing with the things he encounters. (p. 2)

Flick (2009) suggested the consequence of these assumptions is that research using the symbolic interactionism approach should focus on the different ways in which individuals under study make meaning of their experiences. The author claimed the researcher should aim to “reconstruct the subject’s viewpoints” (p. 58) in order to analyze social worlds.

Flick further mentioned Thomas’ theorem as cited by Stryker (1976) which states “when a person defines a situation as real, [the] situation is real in its consequences” (p. 259), and “the fundamental methodological principle of symbolic interactionism [is] researchers have to see the world from the angle of the subjects they study” (p. 259). Flick (2009) further iterated it is methodologically important “to reconstruct the subject’s viewpoint” (p. 58), which should give the researcher access to the time and settings of the participant’s point of view. Flick recommended two avenues a researcher can use to accomplish this. One of which understands the ways in which the participant uses theories to make meaning of the world and the other is reconstructing “autobiographical narratives” (p. 58) from the perspective of the participants.

The present study aimed to interpret participants’ meanings of self-regulation processes by seeking to understand how they make meaning of their professional environment and how those meanings influence their perspectives on self-regulation processes. As such, symbolic interactionism was determined to be appropriate as a framework for this study. The meanings teachers make of self-regulation processes are very dependent on the individual teacher’s experiences in teacher education programs, training in their schools, their interactions with students during instruction, and so forth. In order to gain insight into their understanding of self-regulation strategies, and how they implement those strategies into their instruction and professional growth, the research must be focused on the perspectives of the participants. By focusing on the unique experiences of the participants, and incorporating a focus on how the

participants create meaning of the world, the research will aim to uncover the rationale behind the actions of the participants.

The experiences of the participants will potentially impact how, as asked in the first research question, they comprehend self-regulation processes. Explained further, interactions between the participants (teachers), their students, their administration, and students' parents may all effect how a participant views his/her teaching methods and career responsibilities. A simple survey could determine whether teachers know what self-regulation is, but taking an interpretivist approach will enable the researcher to focus on the perspective of the participants in order to gain a deeper understanding. The researcher then utilized the Zimmerman & Campillo (2003) model of self-regulation as the analytic framework to interpret how participants made meaning of the self-regulation process.

The first question relates to the second and third questions of how teachers utilize self-regulation in their own professional growth and how they facilitate self-regulation processes in their instruction. The symbolic interactionism approach was implemented to explore ways in which teachers make meaning of self-regulation processes used, and how their meanings are impacted by the interactions with others that take place within their professional field. It is anticipated that this approach will allow for better understanding of ways in which student interactions impact teachers' use of self-regulation strategies in instruction. The focus on interactions and perspectives are what provide the rationale for the application of symbolic interactionism to the study. Symbolic interactionism can potentially focus on the individual subjectivity of human experiences and interactions when examining how someone makes meaning of their world.

Method

As this study aimed to gain an understanding of how teachers make meaning and utilize self-regulation in their professional practices, an in-depth, semi-structured interview data collection method using a basic interpretivist approach was employed. Merriam (2002) postulated basic interpretive qualitative studies seek to understand how participants make meanings, as “mediated through the researcher as instrument” (p. 6). Flick (2009) suggested semi-structured interviews have gained interest because it is expected the interviewees’ viewpoints “are more likely to be expressed” (p.150) in an open interview than in a more standardized interview. The semi-structured format will potentially allow participants to represent their thoughts and interpretations more accurately, which will allow the researcher a greater understanding of the meaning participants make of their professional practices.

Data Collection

Interviews were designed in accordance with the Seidman (2013) technique which utilizes a series of three, 90 minute interviews and were conducted using a semi-structured technique with the aid of a voice recording device to assist transcription. Before initiating the study, the researcher developed a list of primary questions and follow-up probing questions that guided the interview, but still allowed for question adaptability in order to comprehend each participant’s perspective. See Appendix A.

The first interview sought to put the participant’s experience into context. The second interview focused on reconstructing the participant’s experiences within the context they occurred. The third interview encouraged the participant to reflect on the meanings of their experiences. Following the structure of the Seidman Technique (Seidman, 2013), the in-depth interview method consisted of interviews that were approximately 60 to 90 minutes in length

with each participant on three separate occasions during the Spring 2015 semester. The Seidman technique was chosen as “it allows both the interviewer and participant to explore the participant’s experience, place it in context, and reflect on its meaning” (Seidman, 2013, p. 20).

Following Seidman (2013) the first interview of three focused on developing a frame through which the participant made meaning of their professional world. This frame was attained by focusing the interview on the participants’ previous experiences pertaining to their careers, which included interactions between them and students, administrators, parents, and even their teachers when they were students. Developing a frame through previous experiences is guided by symbolic interactionism and its focus on interactions, and how those interactions impact human beliefs.

Once the frame for a participant’s meanings has been formed, Seidman (2013) recommends the next interview focus on reconstructing the participant’s actual experiences with processes in the context they took place. The second interview was used to seek answers for research questions two and three by focusing on what self-regulation processes participants employ for their own growth or for their students growth.

The third and final interview concentrated on encouraging the participant to reflect on the meanings of their experiences. This was achieved by focusing on how the participants’ prior experiences in education affected their current views on self-regulation and how their employment of self-regulation strategies have impacted their feelings toward those processes.

Interviews were approximately 90 minutes in length following Seidman’s recommendation that “the purpose of this approach is to have the participants reconstruct their experience, put it in the context of their lives, and reflect on its meaning, anything shorter than 90 minutes seems too short” (Seidman, 2013, p. 23-24). It is also implied this is a flexible

guideline, and the researcher has capability to alter the length to better suit the study. Seidman recommends spacing interviews three to seven days apart to allow the researcher and participant time to process the previous interview and have interactions over a two to three week period. Therefore, while agricultural educators keep a busy schedule during the school year, the researcher strived to accommodate this recommendation. In order to accommodate busy teacher schedules and provide familiarity for participants, interviews were conducted by the researcher at the participant's school after regular school hours. The interviews utilized a semi-structured technique with pre-determined open-ended questions and follow-up probing questions as warranted. The semi-structured format was employed because it allowed for a more accurate representation of the participants' viewpoint, while also keeping the interview focused on the research purpose.

A voice recording device was used during each interview to ensure precise transcription of data. All data transcription was completed by the researcher, with member checks and auditing completed after transcription in order to increase credibility and confirmability. Member checks were completed by emailing the transcribed text to each participant, which allowed the participant to review the transcribed data from the interviews and determine if the contents are indeed accurate and representative of their feelings, this is considered a form of communicative validation - or trustworthiness (Flick, 2009). Auditing was completed periodically by the researcher's major professor in order to cross-check themes, categories, and notes. It was suggested by Flick this allows for an increase in dependability of the research. Guba (1981) suggested audit trails increase the stability (dependability) and confirmability of research findings.

Trustworthiness

Guba (1981) postulated there are four parts to trustworthiness as it pertains to inquiry: internal validity, external validity, reliability, and objectivity. Guba went on to provide more naturalistic terms for use in qualitative inquiry and discussed how to achieve trustworthiness: credibility in place of internal validity, transferability in place of external validity, dependability in place of reliability, and confirmability in place of objectivity.

Credibility is sought by testing findings “with the various sources...from which data were drawn,” referred to as conducting member checks (Guba, 1981, pg. 80). When considering the external validity part of inquiry, the author suggested the qualitative researcher does not seek to generalize to all situations and all times, but rather, seeks to form working hypotheses that may be transferred from one context to another. The transferability between contexts is dependent upon the fit between the two contexts. Dependability is sought by the researcher through trackability and the documentation of actions conducted by the researcher, such as audits and journaling. Lastly, Guba (1981) postulated qualitative research shifts the “burden of neutrality” (p. 81), or objectivity, from the researcher to the data. Unlike quantitative approaches that require the researcher be removed from the experiment, qualitative approaches seek to account for researcher bias and pursue confirmability of the data produced.

Subjectivity Statement

The subjectivity statement is designed to provide a written account of expectations, assumptions, and personal investments held by the researcher concerning the focus of the study (Bhattacharya, 2007). As an agricultural educator and researcher seeking to comprehend the ways in which agricultural educators make meaning of and employ self-regulation strategies, I

have examined and detailed how my own interactions and prior experiences in education have impacted my own meaning of the study.

I have had a longstanding love for agriculture since my days as a child being raised on a ranch in rural central Florida. I have three older brothers and one older sister, and we always had livestock animals, pets, and plenty of land to play on. It was a result of these youthful interactions with livestock and land that I developed an appreciation of and fascination for agriculture. Although ranching would have been an ideal enterprise for my Dad, my siblings, and myself, the family ranch was sold, and as a result my career interests began to shift.

It wasn't until community college that I began to seriously consider agricultural education as a career path. When I first began college I wanted to become a veterinarian, but quickly realized that pursuit wasn't best for me. I began reflecting on my life and the activities I enjoyed, and recognized agriculture was an important component for me. While also considering the impacts agricultural education and my teachers had on me during my high school years, I decided to chart a career towards agricultural education.

My studies led me to the University of Florida (UF), where I obtained a Bachelors in agricultural education in 2010 and started teaching middle school in Marion County, Florida. During our stints as students at UF, I met my wife while we were attending the National FFA Convention. After our marriage, and her graduation from UF, we began traveling in the pursuit of higher education. Our first stop was Indiana, where my wife obtained a Masters degree at Purdue University and I taught high school agriculture in a rural school district for two years. When decision time came for where she would pursue a Ph.D., I too decided I would pursue higher education in the form of a Masters degree at Kansas State University (KSU).

The pursuit of higher education was an opportunity for me to not only expand pedagogical knowledge, but also an opportunity to reflect on my three years as an educator. I enjoy learning and want to provide any potential future student I may have with the best educational experience I can offer, which led to my decision to start graduate school. When visiting KSU my wife and I both enjoyed the agriculturally oriented culture, and felt comfortable with the academic departments in which we would work.

I have always believed myself to have effective study habits as a student, such as monitoring my studying environments, pre-planning what I was going to study and for how long, and seeking help from others. I did not know of a label to assign to these habits, nor do I recall where exactly I learned them. Some, I am sure, were explicitly taught to me as a youngster, but I feel as though I picked up many through observing others and their actions. My resulting assumption is that most self-regulation strategies are taught implicitly rather than explicitly in public education.

Throughout elementary and middle school I was a strong academic student, but my first interaction with consistent, constructive feedback came in the form of agricultural education in high school. Competing in Career Development Events (CDEs) called for a necessary amount of criticism from my ag teacher in order for me to become more proficient at the task. This is what caused me to learn how to reflect on my performances and make adjustments in order to achieve more. As a result of this I have strong feelings about the impact agricultural education can have on learners, and the capability agricultural education programs have to teach self-regulation strategies.

My relationship with my agriculture teacher/FFA advisor had a definite impact on my decision to enter the agricultural education field. As a result of this, as a teacher I feel a strong

sense of responsibility to my students to provide them with my best every day - my best to prepare quality lessons, my best to treat them fairly, my best to build a strong rapport and create a suitable learning environment, and my best to help them succeed in life. It is my assumption that educators who will participate in this study share similar beliefs to these concerning their diligence to students.

My usage of self-regulation strategies as a student have carried over into my work as a professional. I often reflected on lessons and daily events as a teacher, always seeking to improve my instruction and relationships with students. I also sought advice from other teachers with more experience who were viewed as quality educators by their peers and students. While not knowing the term for these strategies was “self-regulation,” I viewed them as important and beneficial to my growth as an educator.

Most of my incorporation of self-regulating strategies was done implicitly, not explicitly. I feel as though I modeled the behaviors well, and encouraged students to self-evaluate their performances and products (especially in shop classes), but did not explicitly give instruction on these strategies and how they may impact the students. It is through reflection on my teaching that I realize the opportunities I had, but did not take advantage of, as an agricultural educator to incorporate self - regulation into my instruction. These opportunities are due to agricultural education being so broad and encompassing of many different topics and interactions with students-agricultural educators have the opportunity to not only interact with students on cognitive tasks, but physical working tasks as well. Physical tasks are openings for students to observe modeled behavior, such as a teacher employing self-regulating strategies like being self-aware by monitoring his/her cutting preparations for a piece of lumber by measuring the length

to be cut twice, to ensure accuracy. Opportunities to learn self-regulation strategies can potentially impact student behavior, and their success.

Participants

To enhance the trustworthiness of the study, four teachers were selected to participate. Invitation to participate in the study was through an email initiated by the researcher, followed by a follow-up conversation. The selection of participants followed pre-determined criteria and was aided by agricultural education faculty in the Department of Communications and Agricultural Education at Kansas State University. Of the 174 agricultural educators in Kansas, four teachers were selected from school districts in rural areas, as defined by The National Center for Education Statistics (NCES). Participants selected met the conditions of being a teacher employed in a Kansas State Department of Education (KSDE) approved high school agricultural education program, with a course load consisting of at least 75% agriculture classes, and having more than five years of experience and less than 20 years of experience.

The rationale for limiting the population of teachers to those serving in a rural area was that a majority of schools in Kansas with agricultural education programs are located in rural areas; therefore selecting teachers from rural areas allowed the researcher to draw from the largest pool of potential participants. According to the National Center for Education Statistics, 221 of the 312 Kansas school districts are located in rural areas (“Number of public school districts,” n.d.).

Rice (2010) asserted that a teacher is likely to make the most improvements in effectiveness within their first five years of teaching, after which there is a plateau on improvement and the differences in effectiveness between a five year teacher and a 20 year teacher are negligible. Therefore, the author determined to limit participant eligibility to those

teachers with more than five years of teaching experience. This criterion allowed the researcher to focus on participants who are generally accepted as skilled teachers. Participants were limited to less than 20 years of experience in order to more accurately reflect the majority of Kansas agricultural educators' experience level. Also, in a 2011 meta-analysis of science teachers' pedagogical content knowledge development Schneider & Plasman suggested more experience did not necessarily translate to more pedagogical content knowledge among science teachers. The authors proclaimed teachers who did not seek teacher training, professional development opportunities or higher education may actually lose pedagogical content knowledge as their careers progress.

The number of participants was set at four to allow for perspectives of teachers within the five to eight year experience range, the nine to twelve year teaching range, the 13 to 16 year teaching range, and the 17 to 20 year teaching range respectively. Setting the number of participants at four allowed for the unique perspectives of those experience ranges to be represented in the study, in order to understand the phenomenon more thoroughly.

Of the four teachers, two were female and two were male to account for potential differences in gender. Possible gender differences were accounted for based on research by Bidjerano (2005) that found differences in self-regulating behaviors between genders, in that females surpassed males in their ability to use six strategies the researcher associated with self-regulation: rehearsal, organization, metacognition, time management skills, elaboration, and effort. It was suggested these differences could be due to gender impacting a proclivity of utilizing self-regulated strategies in their learning, females might have been more reflective about their learning or revealed a higher willingness to report their use of the strategies.

Selecting teachers from different age ranges and genders permitted the researcher to represent these many possible different perspectives. Limiting the study to four participants also enabled the researcher adequate time resources to dedicate to each of the participant's three interviews and to process the wealth of data generated.

Data Analysis

According to Glaser (1965), qualitative analysis is generally approached in two ways. One way is to convert qualitative data into a crude quantifiable form in order to test hypotheses; this is done by systematic coding followed by analysis. The other way is the researcher inspects data for new properties of his/her theoretical categories, so he/she can generate theoretical ideas or new concepts. Glaser further suggested a third alternative, the constant comparative method, which combined the two approaches discussed above by utilizing the explicit coding procedures of the first approach and the theory development of the second. Glaser (1965) stated the constant comparative method is "concerned with generating and plausibly suggesting...many properties and hypotheses about a general phenomenon" (p. 438). The researcher accomplishes this through four stages: comparing incidents to categories, integrating categories and their properties, delimiting the theory, and writing the theory (Glaser, 1965).

Glaser (1965) suggested that during the first stage, the researcher compare incidents to categories. During this time theoretical properties of the category quickly begin to emerge. Next, the coding changes from comparing "incident[s] with incident[s] to [comparing] incident[s] with properties" (Glaser, 1965, p. 440). It is between the previous two stages that Glaser (1965) suggested the researcher record memos concerning theoretical notions, then reflect and deliberate about these notions, which then produces clearer ideas on the emerging theory, and these are then systematically recorded in memos. The researcher then begins to reduce the theory to fewer,

higher level concepts “based on underlying uniformities in the original set of categories of their properties” (Glaser, 1965, p. 441). In the last step of the process, Glaser stated the researcher will then use the discussions in memos, which provide the content within the categories and are the major themes of the theory, to write the theory. Although the process is presented in a linear layout, Glaser (1965) suggested it is accomplished in a non-linear fashion, and the stages “remain in operation throughout the analysis” (p. 439).

Summary

To investigate agriculture teachers’ comprehension and implementation of self-regulation strategies the researcher used symbolic interactionism as a philosophical overview. This approach enabled the researcher to gain the perspectives of the participant by focusing on the ways in which participants make meaning of their experiences (Flick, 2009). To achieve this understanding the researcher utilized three semi-structured, in-depth interviews per participant following the Seidman Technique. Flick (2009) suggested semi-structured interviews have gained interest because, as compared to more structured interviews, interviewees can more accurately establish their viewpoints. The Seidman Technique involves a three interview series, with each interview focusing on a particular theme with the participant. The three interviews on separate occasions allows the researcher to gain the participant’s perspective by understanding the context of their experiences, reconstructing their experiences, and then reflecting on the experiences (Seidman, 2013).

In order to maintain trustworthiness and gain an accurate understanding of multiple viewpoints, including experience level and gender, this study included four participants. To more accurately represent Kansas agriculture teachers and their perspectives, participants selected met the conditions of being a teacher employed in a Kansas State Department of

Education approved high school agricultural education program, with a course load consisting of at least 75% agriculture classes, and having more than five years of experience and less than 20 years of experience. Having four participants enabled the researcher to allow for differences among ranges for years of teaching experience by selecting participants across multiple experience levels between 5 and 20 years of teaching. Possible gender differences were also be accounted for by selecting two male and two female participants.

Chapter 4 - Results

The purpose of this study was to investigate four rural Kansas high school agriculture teachers' comprehension and implementation of self-regulation strategies in their own professional growth and in their instructional practice. At the conclusion of the transcription process, there were 170 pages of text included in the data analysis process. From the data, six specific themes emerged: teachers as learners, teachers focusing on their own learning, comprehension of self-regulation, application of self-regulation, teachers' growth strategies, and self-regulating professional development. Use of the constant comparative method of analysis resulted in four sub-themes relevant to teachers as learners, three sub-themes relevant to teachers focusing on their own learning, two sub-themes relevant to comprehension of self-regulation, three sub-themes relevant to application of self-regulation, four sub-themes relevant to teachers' growth strategies, and two sub-themes relevant to self-regulating professional development.

Themes, sub-themes, and categories are outlined in table below:

Table 4.1 Themes, sub-themes, and categories

Theme	Sub-theme	Category
Teachers as learners	Motivation	Wanting to be correct
		Parents
		Getting by
		Job approach
	Learning methods	Learning through note-taking
		Learning through reading
		Learning through organizing
		Learning through reviewing records
		Learning by doing
		Learning through effort
Learning by listening		
Strategies used to improve Metacognitive instruction		
Teachers focusing on their own learning	Feelings toward teacher ed	Negative
		Positive
		Teaching is intuitive

	Became aware of learning in college	
	Became focused on learning as novice teacher	
Comprehension of Self-Regulation	Attribution of self-regulation to students	Associating self-regulation with motivation & effort
		Associating self-regulation with good behavior
		Associating self-regulation with organizing information
		Associating self-regulation with seeking information
		Value of self-regulation
	Attributing self-regulation to personal preference	
Application of self-regulation	Fostering growth	One-on-one
		Organization
		Motivation/Engagement
		Regulating for students
		Goal-setting
		Self-evaluation/awareness
		Group working
		Giving freedom
	Decreasing expectations	
	Self-regulation absent from instructional planning	
	Structuring instruction based on personal preference	
Teachers' growth strategies	Reflecting to improve	Learned reflection process
		Timing of reflection
		Self-evaluation
		Steps to correct
	Seeking information to improve	
	Reflections on overall growth	
	Focus of improvement	
Self-regulating professional development	Self-regulation not present	Negative experiences
	Self-regulation present	Processing information during professional development
		Immediacy
		Instructional strategies
		Content

Description of Participants

To provide more detail of the participants' background, a brief description of their experience and program has been provided below. In an effort to protect the confidentiality of the participants, pseudonyms were used.

Aubrey

Aubrey has been teaching for six years. She earned a Bachelor's degree in agricultural education and has taught agriculture at two different schools. She currently teaches at a small, rural high school with a total enrollment of approximately 240 students and has approximately 50 students in her program. Her course load consists of exclusively agricultural education classes.

Brad

Brad has been teaching for 12 years, having taught at three different schools. He earned a Bachelor's degree in agricultural education, and currently teaches at a mid-sized high school with a student enrollment of approximately 450. His course load consists of exclusively agricultural education classes.

Claire

Claire has been teaching for 13 years. She earned a Bachelor's degree in Agricultural Education and a Master's degree in Curriculum and Instruction and currently teaches at a small, rural junior/senior high school with an approximate enrollment of 220 students. Her course load consists of exclusively agricultural education classes.

Doug

Doug has been teaching for 20 years. He earned a Bachelor's degree in Agricultural Education and currently teaches at a small, rural junior/senior high school with an approximate

enrollment of 130 students. His course load consists of exclusively agricultural education classes, and he has approximately 30 students in his program.

Teachers as Learners

The theme, teachers as learners, explored how participants described their experiences as learners during their academic careers. Teachers discussed varying levels of academic success while they were students. They all talked about their own need to be motivated and to see value in learning. The sources of motivation varied, Doug approached school like a job, Claire did enough to get by (but by her own admission was not the best student), Brad was motivated by expectations placed on him by his parents, and Aubrey was motivated by always wanting to be right. No participants could remember a time of explicitly thinking about their learning, although Claire did recant a story of adjusting study habits in high school and Doug briefly discussed learning how to think in steps during early grade school. While not explicitly discussing self-regulation strategies, each participant did exhibit characteristics of self-regulation, in that they were familiar with how they best learned and discussed an ability to cater to their desired style of learning. The sub-themes relevant to teachers as learners included motivation, learning methods, strategies used to improve, and metacognitive instruction.

Motivation

The sub-theme, motivation, contained four categories including wanting to be correct, parents, getting by, and job approach. All of the participants attributed academic success to effort and motivation to learn. However, not all teachers exhibited similar motivation or effort to learn in their careers as students, as each participant presented a different concept of their motivation.

The category, wanting to be correct, emerged based on discussions with Aubrey, she described her motivation to achieve in school as:

...I honestly don't know. I mean, my parents, they were kind of strict, but neither of them were like the, you know, they didn't really push us and say you have to get an A or you'll have to do this. It was never that, it was - I just like being right I think. I think it honestly came from I just like being right and I didn't like being wrong. And so, you know, I want to have the highest score on a test or whatever, I think that's where it really came from. Wasn't anything outside, it was all I just wanted to be right.

Aubrey couldn't recall outside motivators, but she described herself as a successful learner who wanted to learn "everything." She also detailed how her motivation to be correct further impacted her academic career, stating she only answered questions in class if she was 100% sure of the answer because she "hated being wrong in front of my peers." If given the opportunity to select assignments to go into a portfolio, she says she would have chosen the one with the best feedback, or one that made her look smart: "...look, I'm smart, I got an A on this..."

Another participant, Brad, described his source of motivation as coming from his parents. He stated he was a "curious" learner and received a "lot of support at home." He described the support,

...you know, [my parents] were always, you know, parent-teacher conferences, going to see about your teachers and getting feedback and, um, so you knew that you were going to be accountable at home as well as at school...so there was, you know, there was an expectation put on us as kids...

He went on to describe further support from his parents, such as his mom sitting down with him to do homework when he was in younger grades. He described another incident, where after earning a 'B' in a class due to lack of effort, his mom "made that expectation clear to me that, that I needed to work harder..."

Claire, a successful learner who had trouble focusing at times, described what she would have looked like as a student during class,

So if you would have walked in I wasn't that perfect student in the front of the class taking every note that the teacher said, I was more the student towards the back of the

class that was paying attention but not necessarily in the exact way that probably that teacher wanted me to...

By her own admission she had “bad study habits,” but was still an interested learner who wanted to learn, but at times had trouble focusing or completing assignments. She allowed other priorities to supercede schoolwork at times, “so sometimes the work part of it I didn't ever do, it wasn't that I didn't enjoy it, I just put other priorities [chores, sports] ahead of homework sometimes” and procrastinated,

...when I went in to take the test, [I] wanted to do well on the test, it would've just been kind of that last minute so a lot of times I would read a Chapter that I was probably supposed to read two weeks beforehand and I would just read it the night before or I would go to the study questions at the back and then go back and read it.

Despite her other interests, Claire liked courses that required solving and “figuring out” problems, and was a “curious” person overall.

Doug, also a successful learner, described his motivation for school as treating it like a job. He explained his performance increased when he went from a JUCO to [University] because his parents were paying for his tuition, “I gotta turn it on, ‘cause now I am on somebody else’s dime.” He also described difficulties learning if he wasn’t interested, “I would say that if it interests me, I was a good learner. If it didn’t, then... struggle with it I guess... don’t know if struggle is the word, just didn’t try...” With Doug and the other teachers, attribution of their success to sources of motivation did have an impact on how they make meaning of self-regulated learning, as will be discussed later in this chapter.

Learning Methods

The sub-theme, learning methods, was comprised of seven categories including learning through note-taking, learning through reading, learning through organizing, learning through

reviewing records, learning by doing, learning through effort, and learning by listening. Several of the participants detailed their ability to learn by listening (auditory) and by reading.

Aubrey and Claire both described instances of note-taking being a part of their academic success. Aubrey stated, “I took really extensive notes, um, throughout high school, and I did the same thing in college too,” and also further mentioned reviewing her notes as a study strategy, which will be discussed later. Claire explained she would study her notes, if she had taken any, while preparing for an exam – but the studying usually took place “the night before at 10 o'clock at night or at 11 o'clock at night, or the morning of, or the class before.”

The only participant to talk at length about reading, organizing and reviewing records as a preferred style or strategy was Aubrey. She discussed wanting the ability to move at her own pace, and that it allowed for her to remember information a little better. She described her first recollection of teaching herself something,

...first time I had a teach, uh, that I can remember, uh, teaching myself how to learn something was, um, well it was both times is in 4th grade learning long division. I was gone for a livestock show the day they went over long division and she, teacher, gave me the assignment, and the notes and everything or whatever we had to go with it, and um, I mean I went home and I just had to use her example that she had given me and kind of make sense of it myself... it kind of goes back to what I was saying earlier, like, I do better when I can read through something and just kind of figure it out myself.

Even though she discussed other learning strategies and styles, she explained that she needs to read something to “really understand it.” When it came to organization, Aubrey described several instances of things she did in high school, “I always kept, you know, a notebook for every class and there was sections for notes, sections for assignments, and things like that” and she would “go through my notebooks or whatever...organize it into like things...I would have a table of contents, because I like things to be organized and easy to find.” In addition to her preference for her own learning materials to be organized, she expressed

discontentment when classes weren't organized or structured as well, "there was never any structure in that class... might not have hated it so much if it'd been a little more organized, or structured."

When discussing learning by reviewing records Aubrey stated, "I didn't throw anything away, um, until I was sure I wouldn't need it anymore...then I could go back and look at that, to study." She also described how she would review old assignments as well as notes and quizzes while studying for a class. How Aubrey, and other participants, prefer to learn does have an influence on how they facilitate their classes, as will be discussed in later themes.

The other strategy, or preferred style, Claire referenced was learning by doing. She proclaimed, "but if it came to sitting still and reading, then I probably wasn't the best learner." She stated classes that involved activity and problem solving, "I was all over those, and when I say that, it didn't seem like work." Similarly, she discussed liking the literature part of English, because there were problems to solve, but loathing the grammar part.

Doug repeatedly attributed his success, and likened his preferred way to learn, to work ethic and effort. He credited learning to hard work, "to me it just comes down to work ethic I guess. So that's why I feel I was successful because I worked at it." When he was having trouble with a goal, he described how he would continue to come at it from a different direction until he could "make it happen." In distinction, Brad talked about being an auditory learner and having the ability during high school to sit in the classroom, listen, and learn - although, he did still reference liking to do "hands-on stuff."

Strategies Used to Improve

The sub-theme, strategies used to improve, is comprised of strategies described by three of the four participants as a method they used to improve their learning or performance in school.

Three teachers made reference to doing things to keep them on task, and two referenced seeking assistance. Examples of activities mentioned to keep on task include “had to make a conscious effort to make sure I got everything done on time” and “my strategy was to keep myself busy, if I kept myself busy, then I could focus on what someone else was talking about,” as well as “then for homework usually finding a partner to work with would keep me on task because if I did it by myself I would put it off until the last minute.” Examples of seeking assistance included “I probably would have gone to a friend first before I would've gone to the teacher” and “making yourself kind of do it in class...there was always teacher help there.”

Metacognitive Instruction

While the teachers exhibited some ability to self-regulate their learning while in school, none could pinpoint where or how they learned to do any of those activities. Doug briefly mentioned a teacher who helped him sort his thinking out (learning to think in steps) while in grade school. Aubrey stated “never” when asked if she received any instruction on self-regulation strategies, and even discussed not receiving instruction on metacognitive activities in teacher education, “I’m trying to think back, like teacher ed stuff, I don’t remember them ever really going over like how to have your students do this to make them better learners.” Brad stated “I don't ever remember being taught how to, you know, how to self-regulate,” while Claire and Doug had similar discussions concerning being taught goal-setting while in school.

Teachers Focusing on Their Own Learning

Frequently, teachers discussed not really focusing on their learning all the way up until student teaching. The biggest cause for change seemed to be actually doing (Claire, Brad, Doug), or because classes were tougher once they got to college (Aubrey). A recurring emphasis was once in student teaching they weren’t just responsible for themselves anymore; they were now

responsible for their students as well – this caused a change in intrinsic motivation to become better for Claire. Claire also mentioned about teacher education was that telling wasn't good enough to learn, "it wasn't until I was out doing that I became probably the learner that I am now," which explains why student teaching was a visible turning point in focus. The sub-themes relevant to teachers focusing on their own learning included: became aware of learning in college, became focused on learning as novice teacher, and feelings toward teacher education.

Became aware of learning in college

Also discussed as a turning point in teachers' thinking was when they started college. Several mentioned they became more aware of their own learning as they started focusing on how they would use the new knowledge, as Aubrey stated, "my attitude changed when I got into college, 'cause I kept thinking about how am I going to use this to teach my students..." Brad discussed deciphering what he needed and didn't need to know,

Probably I didn't really think about my own learning until I was really in college... trying to figure out okay what is it that I need to know, what is it that I don't need to know and you're kind of planning, scheduling...

It was also discussed that a change in difficulty brought on the need to think about their learning, as Aubrey said "probably in college.... they were giving you more information, um, and a lot faster, and I realized that, you know, I needed to [think about my learning]." Brad talked about struggling being his awakening to the need for change in thinking,

...probably, you know, kind of when I was, you know, at K-State and started to take some of those upper-level classes - some of the classes where I actually started to struggle a little bit - I just started thinking "okay, how am I going to attack this, how am I going to learn this information?"

Claire further discussed the need to start seeking out more information once she started college, "like thinking and seeking out knowledge, I would say that was probably more college

level.” Participants also cited needing to think about note-taking and study strategies once they entered college.

Became focused on learning as novice teacher

A common discussion point for participants was not focusing on their own learning until they either started their student teaching experience or started their teaching careers. Claire talked about not reflecting until student teaching, “I probably did not focus on what I would say true, like, reflecting and learning until I was in college. And probably even more so when I was student teaching.” Doug discussed that he did not spend much time thinking about learning early on, even in student teaching,

...when I was in school, especially in student teaching, I was so focused on just getting it right, I don't know if I was really understanding or grasping, um, about, you know, worrying about students' learning styles, and how to get that figured out... definitely wasn't about a reflection because it was all about proving what you could do...

He elaborated by citing he did start thinking about learning later, once on the job, and discussed the reason for that may have been the need to do, instead of being told,

I don't think they [his teacher-educators] could have, and I know that's probably not what you want to hear, but in my case I don't think they could have because, when you are young, man that's all you want, me that's all I wanted to do was prove I could do it.

And Claire similarly continued

So it probably wasn't until like that student teaching experience, where I was out on my own and was like I have to be disciplined and learn something, like I have to sit down and do something myself versus I can't just listen to someone else, or take notes from someone else and be able to do okay.

Claire further stated she became the learner she is now after she was “out doing,” and it may have been several years into her career before true self-awareness started to happen.

Feelings toward teacher education

The sub-theme, feelings toward teacher education, was comprised of three categories including negative, positive, and teaching is intuitive. The main drawback discussed about teacher education, as Claire suggested, is before going out to student teach, there isn't much doing – it could have been said to her many times, but she wouldn't truly comprehend it until she was out and doing.

Claire went on to elaborate,

I think there's people that could always look at it and say, oh, we could do this differently, or this differently. But I am a hands-on learner, so you could have told me how to do everything in that teacher education prep, and I, I would've heard it, I could've tested on it, but I don't know that I would have learned it until I would have gotten out and actually did it for myself.

Aubrey discussed the unrealistic stages of early lesson planning as a drawback to her teacher education experiences,

...now as a teacher, like especially first year, like gosh you almost don't have time to sit down and like prepare how you're going to teach that. So I guess that would be maybe one negative thing is you're, you get used, like oh you have two weeks to prepare this lesson about one thing and that's not realistic.

Teachers discussed many positives about teacher education preparation, as Aubrey and Brad both talked about getting the opportunity to work with pre-service teachers from other curricular areas. Brad also highlighted that teacher education gave him “a network of people that I know I could go to and talk [for help],” and Claire continued that line of thought, “teacher education prep was good because it gave me some of that base and I knew where to go for stuff and I knew how to find resources and I knew who to ask questions,” Doug emphasized how teacher education prepared him to put in the time and hard work to be successful, “I learned that, that you have to put that time in, and then I pass it on, because, I put that time in and show my kids how.”

The third category relevant to teachers' feelings towards teacher education was the emergence of the view of teaching as a somewhat intuitive process. Aubrey explains, "but to help students learn, I don't really know if the teacher ed program did that a lot... Like, that's kind of an intuitive thing, I guess, for me." Brad's take concurred with Aubrey,

...there is an ability there to teach that either you have it, or you don't, and there is not a lot that teacher ed [can do], you know, [it] may be able to pull a poor teacher up to mediocre...

He continued to discuss the importance of the ability to relate to kids, "[y]ou are not going to be a good teacher no matter what teacher ed you have [if you cannot engage kids]." Their discussions elaborated on an underlying belief that, even though teacher education can improve one's ability to teach, there still needs to be an intrinsic ability to relate to people within the prospective teacher.

Comprehension of Self-Regulation

The theme, comprehension of self-regulation, described how participants made meaning of self-regulated learning. The participants placed emphasis on the importance of student motivation and generally associated self-regulated learning with student motivation and effort. When pushed further into discussing what self-regulation looks like or what self-regulated learners do, teachers frequently described a "good student" (on task, motivated to do well, paying attention, taking notes) that was listening to lecture. The sub-themes relevant to the theme, comprehension of self-regulation, included attributing self-regulation to personal preference and attribution of self-regulation to students.

Attributing self-regulation to personal preference

All participants placed emphasis on the need for motivation, and much of that could be attributed to their own feelings toward learning. When discussing her thoughts on self-regulation,

Aubrey talked about her own motivation in high school, and willingness to achieve, “if there was anything on the board [when I came in], I would, you know, I would do it,” and Brad highlighted his own experiences as a student and the importance of motivation, “what I think it does is it helps, for me, that my competitive nature and my, my desire to do well, it made me really kind of dig into it and try to make sure I could learn it.”

Claire acknowledged the importance of motivation when she was in school, “if I want to get an A in the class, this is what I am going to have to learn to get myself there, so it's almost kind of a self-motivation to get whatever that knowledge is.” She also discussed self-regulation as “what I am willing to do myself because I want to better myself, and not what someone else says you have to learn this because you are in this class.” Similarly, Doug discussed how he found success, “to me it just comes down to work ethic...I guess...that’s why I feel I was successful, because I worked at it” and he said he “become[s] engrossed in whatever it is that I am involved in or interested in at that time.” Doug continued to discuss his own interpretation of self-regulation based on his experiences as a learner, relating self-regulation to interest,

...I wasn’t great at self-regulated learning unless it was something I was interested in, and that’s where, that’s how you had to, that’s how you had to kind of self-regulate it was you had to become interested in it and make it a goal...

Attribution of Self-Regulation to students

The sub-theme, attribution of self-regulation to students, is comprised of five categories including associating self-regulation with motivation and effort, associating self-regulation with good behavior, associating self-regulation with organizing information, associating self-regulation with seeking information, and value of self-regulation. A common perception of self-regulation among participants involved associating self-regulated learning with motivation and

that of being a good student. This perception was substantiated by their own beliefs about learning and by their observations of students.

Participants made many associations between self-regulation and motivation, in their own learning experiences and their students'. Doug described a student who was successful at self-regulating her learning, in order to improve her circumstances, and linked her success to her drive and mindset, "it's all about your mindset, and uh, you know, she just, she didn't want to be like that, so she, her goal was to make sure no matter what it took that she didn't want to end up like that."

Aubrey compared self-regulation with motivation, "making yourself learn, um, being self-motivated I guess. Being self-motivated is always the first thing that comes to mind when I hear that." She also finds that, usually, when a student is not achieving, it is because of lack of focus, "kids that, that, I have that turn in weak work, I know for the most part can do better. They are just not focused." She then discussed her experiences with some of her students in class,

Here is time in class to finish something, I am giving you time in class so you don't have to worry about doing homework, but if you don't get it done it is homework. And then they don't do it, they don't finish it, they turn it in incomplete or they don't turn it in at all.

Along the same lines, Brad discussed responsibility when thinking of talking with a student about self-regulation, "make sure you're, you're taking care of yourself, you're getting, you're a junior in high school now, start taking some responsibility," and Claire discussed accountability and drive when describing a student who was successful at self-regulating their learning, "I think the reason that she is so good about her self-regulation, is she is very much driven to succeed and be the best... she is very accountable."

Another perception of self-regulation was that of a stereotypical "good student," one who pays attention, takes notes, turns in work on time, etc. Brad described a self-regulated learner in

this fashion, “if you have got notes up on the board, they are putting the notes down. You know they are taking the notes, when you give them time to study [they study],” and Aubrey detailed a concurring belief with this description, “paying attention, they come to class because they value the time in class, um, assignments handed in, studying, um, for me as an ag teacher being involved in FFA.” Claire further illustrated the emphasis on paying attention, “So detail oriented for sure. No doodles on there whatsoever. So computer is not open unless it needs to be open, would be another thing. You know, so like very, I don’t know, I would say instructor focused.” Doug described the need for staying on task, “you know staying on task, isn’t distracted easily, understands that hey here’s why we are in school let me turn off that social aspect and focus on what we need to do.”

Further connecting the association with a good student, Claire and Brad discussed the importance of note-taking and listening when thinking of self-regulation Claire stated, “if it’s something fun like a get up and move moment, sometimes my self-regulated learners don’t like to do those things because they like to sit and hear lecture” and Brad cited “taking notes, is self-regulating, you know, without being asked, without being prodded, that is self-regulation.”

The next two categories, associating self-regulation with organization and associating self-regulation with seeking information, were discussed by three of the participants, but less frequently. Aubrey described her use of study guides to organize when she was in high school, “making study guides to make sense of what you learned or maybe to make it a little more clear, or more relevant, try to tie it into something else.” Brad discussed a student lacking in self-regulation and described them as being unorganized, “not very organized, so they, when you asked them to pull out their notes from yesterday they’re digging through their notebooks for five minutes trying to find notes.” Seeking information was also alluded to when discussing self-

regulation, as Aubrey detailed a student who went above and beyond the minimal amounts of information required to complete an assignment in order to help themselves “remember it better.”

The final category, value of self-regulation, is how participants saw value in self-regulation processes toward the end of our interviews. Aubrey suggested it may “help the top level ones a little bit more,” but she felt it would probably be beneficial to all students, and said she knows “there is value in it.” Brad discussed the realization that maybe it’s not that students don’t want to self-regulate, but maybe they do not know how, “but now I realize, you know, but, now you realize, that, you know, they are just, not, they just don't know how.” Along the same lines, Doug described letting students think for themselves more, “where now I can kind of, I can kind of sit back and give a kid a chance to kind of think about some things instead of thinking for them.”

Application of Self-Regulation

The sub-themes relevant to the theme, application of self-regulation, included structuring instruction based on personal preferences, fostering growth, and self-regulation absent from instructional planning.

Structuring instruction based on personal preferences

It was common for participants to discuss how they view learning, or like to learn, as similar to how they structure their classes or form their expectations of students. This becomes relevant when looking at how they make meaning of self-regulation for themselves, and how that could impact how they work with their students.

Aubrey discussed her feelings toward creativity in high school, “I enjoyed, like, designing stuff, and making things that I could see in my head and then put on paper, and that

also helped me learn because that's a good way to, for me anyway, to kind of review" and later discussed she tries to allow for creativity in her classes, "I try to give kids as many opportunities to be creative." Similarly, Claire discussed empathizing with students she views as comparable to herself when she was a student, "I also think it makes me more empathetic to the kids that I see are successful, but maybe are not the best students." She also discussed how empathy towards those students who are similar to her impacts her structuring of her classes, "the first step is noticing that students either aren't getting it or that they seem bored. And I think some of that comes from, like, back when I was a student I hated to be bored." Doug described how he tries to transfer his own thoughts towards learning to his students, "whatever you want to put your mind to is what you can accomplish. And I believe that, and that's what I try to portray to my kids," and how his own beliefs impact his expectations of students, "it seems so simple to have some drive and to have some goals."

Fostering growth

The sub-theme, fostering growth, is comprised of ten relevant categories including one-on-one, organization, motivation and engagement, regulating for the student, goal-setting, self-evaluation/awareness, group working, giving freedom and allowing failure, and decreasing expectations. While teachers themselves utilize many of the self-regulation processes subconsciously, when it comes to fostering growth in their students they mainly attribute failure to effort, and focus on correcting the lack of motivation in their students by working one-on-one or by trying to enhance engagement. Self-evaluation was the most frequently mentioned self-regulation strategy teachers employed to help their students, and it was discussed more frequently as the interviews progressed. It was also mentioned by two participants that when they have a student who is struggling, they actually regulate for the child more than they do others,

such as picking up an assignment so the student doesn't lose it or forget to turn it in, and having a place for students to keep notes so they don't lose them.

When discussing how they foster growth in their students, the two most often discussed strategies involved meeting or working with the student in a one-on-one setting and targeting motivation or engagement. Doug and Claire discussed one-on-one strategies for struggling students. Doug said "I'll put in extra time after school, I mean it's in the morning, get them to come in, just kind of, I hate to say it, just do one-on-one work with them." And Claire similarly stated "first thing I will do is talk with the students one-on-one...Generally the kid will be like yeah, yeah, I know." Claire's comment, and Aubrey discussed an analogous situation, refer to working with a student in a one-on-one situation actually targeted towards improving effort from the student, which was the most frequently discussed strategy to foster growth.

Among discussions concerning motivation and effort, Brad suggested "sometimes it's just a kid that is, you know, it's an effort thing, or it's an attitude thing, so you talk to them," and he continued to mention he gives students opportunities to choose what they like to learn as a way to improve engagement, "what are some things that you would like to learn about? And I think that helps engagement." Claire also discussed the need for a relationship with students in order to foster motivation and effort, "trying to build relationships with them. Because they are not going to perform for me, or grow, you know, growth or whatever, they aren't going to put forth that effort unless they respect me." In another mention of motivation, Doug described how he seeks to find something that interests his students, "I try to go around and come in the back door somewhere. And in the way I do that is, try to find something that interests them" and Aubrey illustrated calling on a student more to increase engagement, "when I am asking questions in class you know I call on him and call on him a little bit more."

Organization was described by participants as a way to foster growth as well, as Aubrey discussed how she incorporates outlines into her speech writing unit, “organizing, I stress, you know, I try to go over, you know, outlines for speeches.” Doug also alluded to this strategy while discussing how he attempted to foster growth in a student that was struggling by giving them an alternative assignment of making a graphic organizer, “I had him basically do a graphic organizer on a poster where he could use pictures to kind of formulate what we were trying to go over.” In contrast, as an alternative way to foster growth in students, Brad mentioned utilizing group work, “if one kid is struggling, there are several kids that are struggling...and so a lot of times what we’ll do is we’ll review...what I’ll do is I’ll put kids together, put them in groups.” He explained that students sometimes need a different voice, or another approach, to learning a concept, and a classmate can offer that.

Two less frequent growth strategies discussed by participants were actually in contrast with one another, Claire discussed goal-setting as a way to foster growth in her students and Doug mentioned decreasing expectations. Claire described goal setting as important and stated, “definitely, goal-setting is one of the things that we work on.” Doug’s approach and reasoning behind lowering expectations at times is to decrease the pressure on a student, “modify their lessons, maybe decrease some of the expectations, back off just a little bit” in order to get them on track.

Regulating for the student was alluded to by two participants, as Aubrey described going into a student’s backpack to locate his work for him, because it is frustrating to see him repeatedly receive zeros for work he has completed, but did not turn in, “sometimes I will go to his notebook, grab it, and then grade it, just because I am tired of putting zeros in.” Brad discussed similar situations, stating “I’ll just go, go through, when they are done, and just pull

[the worksheet] from them [so they don't lose it]." He also described trying to increase class work time so he can help regulate the students, "I try to make sure they can do everything in class, so that at least they are they are regulated in here," and keeping a place for students to store work so they do not lose it, "I try to keep an area for them to keep their notes so they don't have to take things to and from."

The most frequently cited element of self-regulation discussed by participants was the use of self-evaluation and awareness to foster growth. Claire discussed working with her seniors on self-awareness "senior year we do a lot of like that self-awareness of, like, where am I at, where do I need to grow to be able to, ready for college or career readiness." Similarly, Aubrey described allowing opportunities for her ag mechanics students to self-evaluate, "they can pick out the best one and, like, turn that in for their grade. But I make them like look at, like, well what did you do wrong, were you going too fast? Too slow?" When discussing how she could have helped a young man who struggled at self-regulating his learning, Aubrey again discussed the need for self-evaluation, "I just can't help but think that if he would have just had a little more structure, and really would have like evaluated himself, and like challenged himself..."

In multiple instances, Brad discussed giving more freedom and allowing failure as strategies to foster student growth, albeit with varied success. He described a time when he attempted to allow for more freedom with a student, but it did not work,

...I was trying to say, okay, here is your information that you are responsible for if you are going to go get help in, you know, history during animal science class, you have got to be responsible for that information. And then she wasn't responsible...

He also discussed the need to allow for failure in the classroom, as he talked about a fear of failure with most students today, in order to foster growth,

...kids have a hard time failing, and I try to convince them that it's okay, you know, trying to convince a kid that it's okay to fail...I try to convince them that failure is an

option, and it's really, the easiest way to learn is to struggle a little bit, and then figure out why you struggled, why didn't you get it right, and then you can come back and get it right.

Self-regulation absent from instructional planning

The final sub-theme, self-regulation absent from instructional planning, describes how participants alluded to focusing on instructor and student responsibilities while explaining how they structure their instruction, while not focusing as prevalently on student thinking. Some descriptions teachers discussed included focusing on giving students “the information they need,” while trying to “leave out anything that isn't important.”

Frequently, participants discussed focusing on activities and lecture while planning instruction, as teachers mentioned attempting to alternate between activity and lecture, either on a daily basis, as Brad elaborated “I tend to have content days and activity days,” or during each class period, as Claire stated “then generally it is either going to be activity and then a lecture, or small lecture and then an activity.” Discussion and engagement during note-taking was also described by multiple teachers, with Brad mentioning “[I] try to keep the notes pretty brief and do more, you know, in-depth with some questioning...to kind of keep kids engaged.” Claire stated “discussion is in there” and Aubrey described how she will “do a little bit of talking” and then ask some questions. Participants also discussed instructor focused lessons, with Aubrey detailing the typical structure for a lab,

...if we are doing something like kind of a lab thing, I try to do it while they're watching. Like I'll do it, they watch and then they usually have like a list of whatever they need to be doing, steps, for them to do it themselves.

While participants described focusing on instructor and student activities, they did, less frequently, discuss student thinking, as Brad stated concerning the “how” and “why,” “then we'll discuss the how and why. How does it work and why are we concerned with that.” Similarly,

Aubrey described tailoring instructional activities while preparing a unit to fit “different types of learners.”

Teachers’ Growth Strategies

While participants may have mostly associated self-regulation with motivation and effort, they exhibited signs of using self-regulation in their professional growth. Most commonly teachers relied on reflection, utilizing self-awareness and self-evaluation skills to trigger and process information. Different situations triggered the reflections, such as being observed by pre-service teachers, anticipated expectations of a lesson or activity, or gut feelings after the activity had concluded. Doug cited how he constantly imagines his administrator is watching him in order to help himself assess his lessons and also to stay professional. Seeking more information, either through colleagues or through internet/books, was mentioned frequently by teachers when discussing their growth. As a form of self-evaluation, teachers monitor students while in class to gauge their learning. The sub-themes relevant to the theme, teachers’ growth strategies, included focus of improvement, reflecting to improve, seeking information to improve, and reflections on overall growth.

Focus of improvement

The sub-theme, focus of improvement, described how participants looked to improve. Claire mentioned focusing on becoming a better overall teacher and also cited a change toward focusing on interests of the students and community, “teaching to what my students needed and what the community needed and finding interest of the students.” Brad discussed making changes to his curriculum and content so that it more accurately reflects the real world,

...I thought that's not real world, and so what we've done is we have taken that EPD unit, I give them all bull sale catalogs, they have to go through...they've got to look through

the bull sale catalog and choose five or 10 bulls that they want...then we actually have an auction...

Similarly, Doug focuses on his content to improve, as he stated if something doesn't work well in the classroom, it is probably because he "didn't know it well enough." Lastly, Aubrey discussed focusing on multiple instructional strategies to keep instruction new to the students, "while I'm thinking or trying to think of, like, different instructional things I can improve on, I am trying to think of multiple ones so that I am not have having them [students] repeat the same practice every time."

Reflecting to improve

The sub-theme, reflecting to improve, is comprised of four relevant categories including learned reflection process, timing of reflection, self-evaluating, and steps to correct. Reflection was mentioned as a common way for participants to grow as professionals. They described different places they learned their reflection process, as Brad and Aubrey cited their time in student teaching, and Claire discussed professional development events.

Brad described his early reflecting activities with his cooperating teacher as follows,

...you sit down and you talk with your cooperating teacher. Okay, this you know, what [do] you think went well, what [do] you think didn't go so well, what can we do to improve, how you know, what are we going to do tomorrow?

Similarly, Aubrey discussed student teaching as the time when she learned to reflect on her instruction, "I, really in student teaching... I think student teaching is probably when I first started thinking about, kind of reflecting and self-evaluation." In subtle contrast, Claire highlighted early professional development events in her career as the time when she learned to reflect, and that she learned it from observing other teachers and their reflection practices, "probably professional development of hearing the other teachers had done that" and she elaborated "like, the first time that I can remember really thinking about, like, how I, what I did

as a teacher and what impacted the kids the most, was when I went through that very first Delta leadership conference.”

The timing of, and what triggered, reflections varied by participant, as Brad discussed trying to reflect at the end of each day, “I kind of sit back and think at the end of the day,” and Claire mentioned trying to do a journal reflection weekly, “my goal is to try and journal about once a week of how I do.”

The triggering of the reflections included being observed by pre-service teachers, student performance, and after attending professional development events. Aubrey discussed a professional development event that triggered a reflection for her concerning her reading strategy use during instruction, “after that little workshop speaker, you know, I kind of thought, like, yeah, I could probably improve the way kids go about reading other than just have them sit there and read it silently.” Claire and Doug both mentioned how having pre-service teachers visit their classrooms caused them to reflect on their own practices, with Claire detailing “I would say in the moment is where, especially, like, I notice [languaging] more when I, like, have, like, people who are out observing me or student teachers or something.” Lastly, observing the level of student engagement was something Brad described as triggering reflections for him, “you can just look around the room and see the amount of engagement, the number of kids that are paying attention.”

Participants utilized different methods to self-evaluate while reflecting on their practices. They described knowing a lesson went poorly based on gut feelings, feelings of frustration, and by focusing on what their administrators would want to see in their classes. Claire mentioned “I would say being unhappy or frustrated about something” is how she evaluates and realizes there is a problem. Similarly, Aubrey described realizing there is a problem as a gut feeling, “I don't

know, it's a type of feeling, like when you leave the classroom and kids leave the class, like was that good, was that bad?" In contrast, Doug pretends he is always being observed by his administrators to help him evaluate, "I always try to visualize somebody is watching me, so that way I can just always stay professional and don't get too loose."

Observing students as a way to evaluate instruction was discussed by all participants, with Brad stating "maybe students weren't engaged or I don't think they are really getting..." Aubrey triggers reflection and assesses there is a problem when she asks a question and hears "crickets," while Claire determines a problem when students look "bored." In slight contrast, Doug paints a picture of "what my classroom needs to look like," and determines there is a problem when the picture doesn't line up with what is happening.

Participants discussed various steps to move toward making a correction once they reflected on and evaluated a problem. Brad looks to what his goal was, and where he wanted to be, when planning to move forward. He also focuses on what the source of the problem was, his end or the students', before looking for ways to make improvements. Claire brainstorms solutions and/or sets new goals for herself to make the decided improvements. Lastly, Aubrey described taking immediate steps once she assesses a problem, "I don't do that next year. I throw it away, or I delete or something off my computer, or I fix it, like, right then."

Seeking information to improve

The sub-theme, seeking information to improve, focused on ways teachers sought external sources of information to improve. Seeking assistance and information from others is recognized as a self-regulation process, and all participants discussed using this strategy when improving themselves as educators. When they recognize they are lacking knowledge in a particular area, Aubrey and Claire both described using the internet and texts to find more

information, as Aubrey states “I will, like, Google or I will, like, reread the chapter in the book that relates to what we are going over.” While also citing internet and books as resources, Brad joined Doug in listing fellow practitioners as sources of information; Doug described using colleagues as sources of instructional knowledge and Brad highlighted using communities of practice as a source of lab activities.

Reflections on overall growth

The sub-theme, reflections on overall growth, detailed how participants described their emotions when reflecting on their overall growth as professionals. Pride concerning their growth was the most often discussed emotion among the participants. While describing pride over his improvement, Brad also suggested “there is always room for growth,” Aubrey similarly stated she had been reflecting on her professional development, and while she had satisfying feelings, she still felt the need to pursue more formal professional development – such as a Master’s degree. Claire also mentioned pride, but still suggested she gets “frustrated” with herself for her continual lack of time management while reflecting and working on growth as a teacher.

Self-Regulating Professional Development

The theme, self-regulating professional development, explored how participants utilized self-regulation while participating in professional development events. Participants described a propensity to self-regulate while involved with professional development events if the event was deemed meaningful and useful to them. A key factor was immediacy, when something was quickly and easily implemented in their programs, participants were motivated to learn and described ways of self-regulating. What drives teachers to seek out professional development varied among the participants, some would seek content in order to engage their students, and others would seek instructional strategies in order to enhance student engagement. How teachers

processed information during professional development varied, for some it was about focusing on students, and others it was about how something could be implemented in the program. The theme, self-regulating professional development, is comprised of two relevant sub-themes including self-regulation not present and self-regulation present.

Self-regulation not present

The sub-theme, self-regulation not present, was comprised of one relevant category, negative experiences. Participants were more likely to describe situations where they were not self-regulating during a professional development event if they did not find the event meaningful. Often, un-meaningful events were discussed in association with school-driven agendas.

Participants highlighted bad experiences they have encountered with school-driven professional development, and their lack of perceived value. Aubrey discussed the explicit instruction focused professional development would be great for a beginning teacher, but is redundant for an experienced one, “it would have been a great book for somebody in college that was going into education, and we did that after we have been teaching [for years].” Brad described how his experience with instructional strategies geared toward technology has proven not to be useful so far,

...we were going to have all this money and so we were going to do one-to-one and so almost all our technology, all our in-service has been technology driven... now, obviously, it's probably not going to happen with the one-to-one next year [because the funding fell through].

Claire also explained a past focus that deterred students from learning,

But for a while there we, like, we had to, like, it was kind of reading, it was kind of the same thing, it was a reading strategy...and the kids didn't like it because they saw it in every class [because everyone was supposed to implement it].

The experiences and constant change of agendas have led to a level of apathy, as Brad described, “I’ll do whatever you tell me to do with [this], but don’t expect me to get real excited about it and change everything that I do, because in five years [this] is going to be gone.”

Self-regulation present

The sub-theme, self-regulation present, was comprised of four categories including processing information during professional development, immediacy, seeking instructional strategies, and seeking content. When participants were motivated to learn, or perceived value present in an event, they demonstrated the use of self-regulation strategies to help them process the information. Participants described utilizing self-awareness and self-evaluation processes to determine where new knowledge could be employed and who new knowledge might benefit.

The first category, processing information during professional development, discusses how participants process information while attending professional development. For Claire, it was about not only focusing on how her students could benefit, but more specifically, how a small group of students may benefit from that particular subject, “I look more at, like, ways that I can help those individual students, or to kind of, like, a group of students that are all similar.” Aubrey concurred, stating she thinks about “what are the students going to get out of it.”

Brad, on the other hand, focused on where the information can be plugged in, or where he could implement it in his program, “how does it fit my overall program, I look at it from a program perspective of, okay, where is this, where can I put this...Is it an animal science thing...is it agriculture science, or veterinary science.” Doug shared similar thoughts to Brad, stating “the first thing I was think thinking was how can I use thisThen I think about later how I can use it, teach [it] that is.” Though their initial thought processes differ while they are

experiencing professional development, all teachers described wanting to help their students as being their outcome.

The need for immediacy, or the ability to utilize something quickly, was an idea shared by most of the participants. Aubrey and Brad talked about wanting professional development that they can use easily and quickly, as Brad shared a thought similar to Aubrey, “I want to be able to take something back that I can use relatively easily, within my classroom, fairly quickly.” For Claire, the immediacy referred to getting the opportunity to do what is being learned, “something that makes it relevant for me is doing. If I am doing the experiment they are talking about.”

What participants sought out for professional development was split between instructional strategies and content. Instructional strategies were distinguished by Aubrey and Claire as what they seek when looking for professional development. They both focus on instruction because they see content as easily accessible and constantly changing. Aubrey detailed,

...I get more out of ones that are more, like, instructional strategies. Because the content stuff, you know we have our competency profiles and we have textbooks and 1 million things you can look up on the Internet. And so I am not usually too worried about finding information or ideas on what I could teach because I already have a pretty good idea of what I need to be teaching.

Claire similarly stated,

...more pedagogy, making me better, because I think what I have found is, if, I, content changes, or I can always find content, but the way I deliver it is going to change whether or not the student gets it or not.

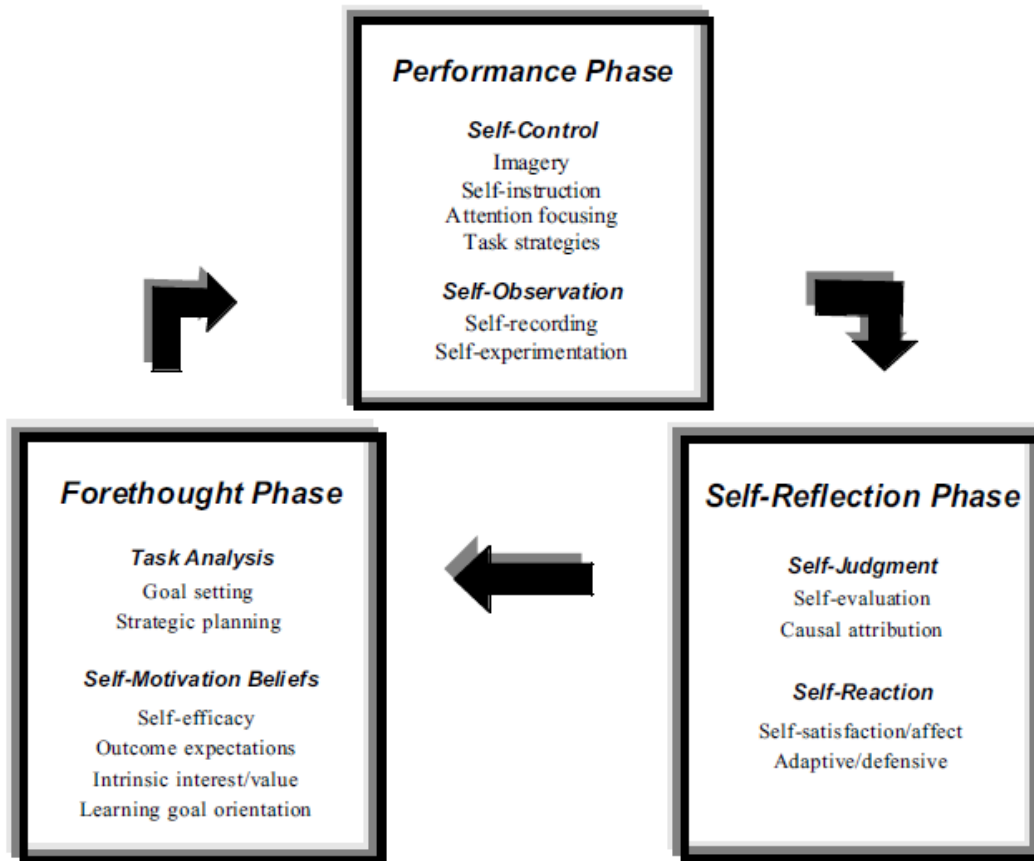
In contrast, Doug and Brad both focus on content when seeking out professional development opportunities, because, as Brad stated, “we can find ways to get students engaged if you've got, I think if you you've got good content student engagement comes...” Doug

contributed similar feelings and highlighted he sought to learn about things that he is obligated to use “that I don't know anything about.”

Chapter 5 - Discussion

This qualitative study sought to investigate four rural Kansas high school agriculture teachers' comprehension and implementation of self-regulation strategies, as defined by Zimmerman (2002), in their own professional growth and in their instructional practice (see Figure 3 below). To carry out this study, a panel of experts selected four current rural Kansas agricultural educators who have been teaching for five to 20 years. Each of the teachers participated in three in-depth interviews to share how they make meaning of self-regulation and the processes needed to facilitate self-regulation, how they self-regulate for their own professional growth, and what strategies they use to foster self-regulation in their students. The model presented by Zimmerman & Campillo (2003) was used to interpret participants' descriptions of self-regulating strategies.

Figure 3.1 Phases and subprocesses of self-regulation (Zimmerman & Campillo, 2003)



Results from the data analysis were presented in Chapter four. From the 170 pages of data, 18 sub-themes were grouped into six themes. After themes were determined they were aligned with the research objectives of the study. The themes relevant to Research Question One: “how teachers make meaning of self-regulation and the processes needed to facilitate self-regulation” included teachers as learners, teachers focusing on their own learning, and comprehension of self-regulation. The themes relevant to Research Question Two: “in what ways do teachers self-regulate for their own professional growth” included teachers’ growth strategies and self-regulating professional development. The theme pertinent to Research Question Three: “what strategies do teachers use to foster self-regulation in their students”

included application of self-regulation. This chapter will present key findings from the research, discuss implications for practitioners, and suggest recommendations for future research.

Key Findings

How do Teachers Make Meaning of Self-Regulation and the Processes Needed to Facilitate Self-Regulation

When looking at how teachers made meaning of self-regulation, several themes were identified as relevant to the question: teachers as learners, teachers focusing on their own learning, and comprehension of self-regulation. The section “teachers as learners” explored how teachers viewed themselves as learners, whether they received metacognitive instruction, and how they achieved as students. The section “teachers focusing on their own learning” investigated when teachers began focusing on the learning process and their feelings toward teacher education. Finally, “comprehension of self-regulation” explored how teachers made meaning of self-regulation.

When describing self-regulation, it was common for participants to associate self-regulated learning with the amount of effort put forth. When reflecting back on their time as students, participants agreed they were, generally, successful students, and attributed their success to hard work and motivation. Despite not recalling specific instruction about metacognitive strategies in primary, secondary, or post-secondary education, all four participants exhibited subconscious use of self-regulation processes while in school, such as organizing and transforming information, and self-evaluation. Their reflections were focused more on their actions and behaviors as students, and less focused on the cognitive processes that led them to those behaviors.

In conjunction, participants cited not thinking about the learning process until starting college or when they started student teaching. Different responses were given for the cause of change in participants' thinking, including the rigor of college and the actual learning by "doing" brought on by student teaching. For some, their motivation shifted from extrinsic to intrinsic because they felt accountable for their students. In the Zimmerman & Campillo (2003) model of self-regulated learning, motivation is part of self-efficacy which is a component of the forethought phase. This finding suggests the participants focus much of their meaning attributions to the forethought phase, while they tend to overlook the components of self-regulation Zimmerman described as the performance (during) and self-reflection (after) phases.

While teachers discussed using self-regulation strategies subconsciously as students, and thinking more explicitly about their own learning when they started teaching, they did not focus as much on the cognitions involved as they did on the actual implementation (doing) of the strategy. The focusing on doing, and overlooking cognitions, could explain why participants also associated self-regulation with stereotypical "good student" behavior. A typical statement describing a student who self-regulates might be "you have got homework to do, are you going to do it. And that is self-regulation, I mean regulating your own learning. Taking notes, is self-regulating, you know, without being asked, without being prodded, that is self-regulation."

While teachers themselves expressed indications that they use all three phases of the Zimmerman & Campillo (2003) self-regulation model, their apparent incomplete understanding of the cognitive phases of self-regulation may be impeding their ability to address the sub-processes of self-regulation related to their students. Participants' unfamiliarity with the cognitive backdrop of self-regulation is likely impacted by their lack of instruction on metacognitive processes while students in school and as pre-service teachers. When asked ways

they had sought to improve when they were students, participants focused primarily on behaviors, such as reading or working with a partner.

Conclusions

1. While participants described utilizing, subconsciously, strategies that are associated with self-regulated learning, they have an incomplete understanding of self-regulated learning. Their understanding is mainly tied to motivation and effort, which are part of the forethought phase in the Zimmerman & Campillo (2003) model of self-regulation. Much less frequently discussed by teachers were the other two phases of the model – performance and self-reflection phases. The performance phase describes cognitive strategies employed by learners during learning, such as self-control and self-observation, and self-reflection phase describes cognitive strategies utilized after learning, such as self-judgment and self-reaction. It is likely teachers have formulated an incomplete understanding of self-regulated learning processes because they did not receive instruction on metacognitive strategies while in school. Participants focus on effort put forth by the students, instead of associating self-regulation to the underlying ability to consciously utilize cognitive self-regulation sub-processes.

Implications for practice

Participants in this study are regarded as highly qualified practitioners in agricultural education. Findings discussed concerning the first research question, making meaning of self-regulation, suggest that further education and skill development in the areas of metacognition and self-regulated learning for agricultural educators is warranted. Instruction connecting the three phases of the Zimmerman & Campillo (2003) model – forethought, performance, and self-reflection – could assist agricultural educators with forming a more complete understanding of

self-regulated learning while also enabling them to recognize self-regulation cognitions in their students. As self-regulation is thought to be an indicator of academic achievement (Zimmerman & Pons, 1986), agricultural educators need to develop a deeper comprehension of self-regulation in order to facilitate improved thinking and learning in their students.

A potentiality is for teacher education programs to explore incorporating metacognitive instruction into their curriculum. Based on participants' recollections of the importance of student teaching, another possibility is for teacher education programs to target metacognitive and self-regulation training for future cooperating teachers. Empowering cooperating teachers with self-regulatory strategies may support the application of those strategies with their student teachers, as the cooperating teacher can work with the pre-service teacher on a daily basis to help make the pre-service teacher's thinking visible to his/her students. There is also the potential for professional organizations to explore offering professional development in the area of metacognition and self-regulated learning.

In What Ways do Teachers Self-Regulate for their Own Professional Growth Purposes

When looking at the research question in what ways do teachers self-regulate for their own professional growth purposes, two themes were identified as relevant: teachers' growth strategies, and self-regulating professional development. The section "teachers' growth strategies" investigated the ways teachers improve their instruction, and the section "self-regulating professional development" explored when teachers self-regulate during professional development and how they process information during professional development.

When reflecting on experiences with school-driven professional development events, teachers generally elicited negative experiences. The reasons for this varied, but multiple teachers mentioned receiving training that did not apply to them, such as reading a book

targeting beginning teachers – after having been a teacher for several years. Most importantly, under these circumstances, participants described not self-regulating, as they did not perceive value in the learning. In order for teachers to continue to actively manage their learning (self-regulation) during professional development, they described needing to value the knowledge to be gained and also cited the need for immediacy, or being able to implement it quickly.

Participants' descriptions of school-driven professional development indicated that they entered into a learning situation relying heavily on the forethought phase of the self-regulation model, by focusing on the intrinsic interest or value of potential knowledge. If the value criteria were established in their mind, they then proceeded to carry-out the remaining phases, and self-regulating in order to improve.

When value was perceived (such as when teachers selected their own professional development), and despite associating self-regulation with motivation, participants described using self-regulation processes in order to grow professionally. Participants discussed when making instructional improvements, they often rely on conscious reflection and seeking assistance to make improvements – the third phase of the self-regulation model (self-reflection). Teachers described learning their reflection process either during student teaching or early in their careers, and that this had been brought on by several causes. Often, participants mentioned reflecting on a daily or weekly basis or that reflections were also triggered by interactions with other, younger teachers.

A key component of their reflections was the ability to self-evaluate and self-monitor at proficient levels. This was achieved through different means, such as painting a mental image of how a lesson should go and then comparing reality to that image, or constantly monitoring student engagement and performance – this indicates use of the performance phase (self-

observation) of the self-regulation model (Zimmerman & Campillo, 2003). Once evaluations were made, participants discussed the steps they would follow to ensure change, such as jotting down notes, editing files, or making mental notes – this indicates use of the self-reflection phase (adaptive response) of the self-regulation model (Zimmerman & Campillo, 2003).

Also discussed was the use of seeking assistance in order to improve. When participants identified a deficiency, they sought more knowledgeable sources to acquire information. If it was a deficiency in content, teachers mentioned utilizing the internet and textbooks to learn what they did not know. If it was a need for ideas for instructional strategies or labs, they sought information from other professionals in their field. The teachers' use of seeking social assistance indicates self-regulation, as a study done by Zimmerman & Pons (1986) postulated the category of seeking assistance, as a component of self-regulation, was the strongest differentiator between self-regulated, higher achieving students and non-self-regulated, lower achieving students.

Conclusions

1. Because participants utilized self-regulation only when they perceived value in the learning to be acquired, it could have bearing on their own meanings of self-regulation, as they understand their own need to see value in learning and be motivated. This may cause the over-attribution of self-regulation to motivation. However, when participants did perceive value in professional development, they described consciously using self-regulated learning strategies such as seeking assistance, self-evaluation, and self-monitoring. These processes indicate they utilize self-regulation to grow professionally, even though they do not accurately assign meaning to all phases of self-regulation.

2. Because they lack formal training in self-regulation, and because they recognize their own need to value learning, teachers focused more on their actions when describing self-regulation than on their cognitions. Their lack of formal understanding of the underlying cognitive processes may impact how they make meaning of, and attribute, self-regulation with their students. The participants – highly skilled educators and learners in their own right – have acquired self-regulation processes mostly on their own through an intrinsic motivation to improve. As they have an incomplete understanding of their own cognitions involved with the processes, they struggle with adapting and facilitating those cognitions within their students.

Implications for practice

It is highly plausible agricultural educators utilize self-regulation processes for their own growth as professionals. Participants may lack the knowledge of how to transfer the abilities they have developed to their students. Professional development focused on transferring teachers' knowledge of these processes from their own internal cognitions to new contexts involving student use of those processes would be beneficial to agricultural education. Professional development and education efforts on metacognitive exercises could teach educators how to make their thinking strategies visible to others around them, while also teaching educators how to focus on the thinking strategies of their students.

What Strategies do Teachers Use to Foster Self-Regulation in their Students

When looking at the research question what strategies do teachers use to foster self-regulation in their students, the theme identified as relevant was application of self-regulation. Application of self-regulation explored the ways teachers seek to foster growth in their students and how teachers structure their classes.

When queried how they foster growth in their students, participants discussed many strategies, but most commonly they described strategies targeting student motivation. This aligns with the previous finding that teachers associate attributions of their own academic achievement with that of their students. Teachers tend to facilitate, or structure, instruction in ways that are similar to how they view learning. Participants placed a large emphasis on self-efficacy, part of the first phase of the self-regulation model (Zimmerman & Campillo, 2003). Because they valued the need for motivation, they viewed a lack of motivation as the cause of failure. This led them to attempt to facilitate the first stage of the self-regulation model, while neglecting the second (performance) and third (self-reflection) phases. This may be affiliated with their own incomplete understanding of the cognitions underlying the second and third phases, even though evidence exists they use these phases for their own professional growth.

The focus on phase one, and lack of formal understanding of the cognitions underlying phases two and three, also caused participants to focus on actions when discussing self-regulation. Participants often made allusions to what students were physically doing when they described a self-regulated learner and the focus on doing led them to attempt to foster growth in self-regulation through behavior instead of cognitions. The ways participants focused on fostering growth in their students were aimed at keeping the student on-task and motivated, or maintaining self-control and behaving as a “good student” would. When planning instruction, teacher discussions commonly focused on teacher actions or student activities, and less on what teachers plan to encourage student thinking and reflection.

Conclusions

1. In line with previous conclusions about how participants made meaning of self-regulation, attempts to foster growth in self-regulation among students mainly

targeted motivation instead of targeting the underlying ability to utilize self-regulation processes. While motivation is a necessary component for self-regulation to happen, as teachers demonstrated themselves, the underlying cognitions of the second and third phases of self-regulation were neglected when teachers discussed fostering growth in students. This is likely due to participants structuring and facilitating instruction similarly to how they view their own learning processes, thereby transferring their own beliefs about learning and attributions of success onto their students.

2. While agricultural educators described utilizing all three phases of self-regulation processes to effect growth in their own careers, there was a disconnect when participants described how they try to facilitate these processes within their students. Because teachers figured out self-regulation processes on their own without formal training, teachers focused less on cognitions of their students and more on behaviors, targeting growth strategies to impact motivation and cause students to behave like “good students.” Participants may incorrectly attribute motivation to outward behaviors demonstrated by students. These growth attempts may fall short in assisting students in learning how to self-regulate, because even though they may be outwardly self-efficacious (phase one), they likely do not have the knowledge of how to utilize processes in phases two and three of the model of self-regulation. Examples of processes in phase two might include self-observation strategies students use to monitor their progress, such as self-experimentation and self-recording; while examples of processes in phase three may include self-judgment strategies students

use to place values on their performance, such as self-evaluation and causal attribution.

Implications for practice

Findings discussed concerning the research question, what strategies do teachers use to foster self-regulation in their students, suggest that further education concerning self-regulated learning is warranted in order to produce pedagogical content knowledge that facilitates self-regulation processes. Despite participants' personal use of self-regulation processes, there still exists a lack of formal understating of the cognitions underlying the three phases of the Zimmerman & Campillo (2003) self-regulation model. Teacher-education should take steps to close the gap between personal use of self-regulation and formal comprehension of the cognitions involved in the processes and the strategies necessary to help students self-regulate their learning. As teachers become more aware of their own thinking, and self-regulation processes, they can move toward structuring instruction in ways that facilitate this metacognitive ability within their students. Students without knowledge of self-regulatory processes would benefit from instruction about ways to promote transfer to new contexts, and to utilize all three phases of self-regulation portrayed by the self-regulation model. Teacher education should devote more resources to exploring the inter-connectedness of self-regulation and motivation with pre-service teachers. Developing a deeper understanding of motivation could impact how teachers make meaning of self-regulation and how they attempt to foster growth within their students.

Recommendations for Future Research

This study aimed to provide a base level appreciation for four rural Kansas high school agriculture teachers' awareness of self-regulation. Findings from this study suggest participants

formed an incomplete understanding of self-regulation, and that understanding potentially impacted how they tried to facilitate self-regulation processes. These new findings can inform future research that explores self-regulation instructional strategies that hold promise for teaching teachers and students how to cognitively process self-regulation components. While there exists a body of evidence suggesting self-regulation is an important component of academic achievement, and participants in this study described using self-regulation for their own growth, future research is needed concerning the development of self-regulation instruction for teachers as well as strategies to facilitate self-regulation within students.

A crucial step in that research involves investigating strategies that hold promise for increasing educators' formal knowledge and comprehension of underlying cognitions required for self-regulation to occur. Reducing the divide between teachers' personal utilization and their perceived incomplete understanding of facilitating self-regulation processes could advance the field of agricultural education towards finding effective ways to facilitate these processes within students. This could potentially be accomplished by developing different professional development materials for teachers concerning self-regulation processes, evaluating teachers' comprehension of self-regulation with a pre-test, delivering the professional development materials, and then evaluating teacher's comprehension of self-regulation with a post-test. Discovering the most effective strategies to provide instruction to teachers could enhance teacher-education programs' opportunities to teach metacognitive processes.

Once the most effective strategies for professional development involving self-regulation comprehension have been identified, the role such instruction has on teachers' attitudes toward their profession could then be explored. Examining teachers' self-efficacy before completing self-regulation instruction and then re-examining their self-efficacy after they have had the

opportunity to facilitate self-regulation within their students could provide crucial information regarding the value teachers place on such instruction, and how it impacts their feelings toward their profession. It could also highlight how teachers' ability to help students focus on metacognitive thinking impacts teachers' perceptions of their efforts toward helping students learn.

For teachers who have participated in professional development involving self-regulation, research designed to explore how newly acquired knowledge impacts teachers' future professional development experiences would be valuable. Examining whether instruction in self-regulation increases teachers' proclivity to seek out further professional development in other areas, and how self-regulation instruction impacts teachers' future use of self-regulation processes while undergoing professional development serve as a useful measure of the extended benefits of professional development in self-regulation. It could also explore whether teachers are more, or less, likely to incorporate learning from professional development events once they have received instruction on self-regulation processes.

Gender differences related to self-regulation could also be explored, as findings in this study support the possible gender differences postulated by Bidjerano (2005). Research could explore possible gender differences in how self-regulation instruction impacts what teachers' seek to improve upon (delivery or content) and the sources to which teachers refer for improvement (written or colleagues). Additional research could also examine possible gender impacts of teachers' facilitation of self-regulation within their students.

Future research could also be designed to explore potential student impact by investigating how instruction in self-regulation processes impacts teachers' facilitation of those processes during instruction. Research could be conducted to examine whether instruction in

self-regulation impacts teachers' implementation of said self-regulation processes. Additional studies could then test which teacher professional development approaches lead to greatest teacher adoption and implementation of self-regulation in their instruction. Discovering the most effective strategies to teach self-regulation to teachers could also provide teacher-education programs with tools to facilitate these processes with pre-service teachers.

Research is also merited that would investigate which instructional strategies used by teachers are the most effective at increasing student utilization of self-regulation processes. Replication of the Zimmerman & Pons (1986) study would further inform the profession. This study utilized the Self-Regulated Learning Interview Schedule (SRLIS), which is an interview design aimed to assess an individual's use of self-regulation processes. The SRLIS could be utilized to examine which instructional strategies employed by teachers have the most impact on students by conducting the interview schedule before and after students are exposed to the selected self-regulation fostering instructional strategies.

Another potentially valuable study for agricultural education would be an assessment of self-regulation facilitation strategies and their impact on such variables as student academic achievement, interest in agriculture, motivation to learn, career aspirations and so forth. Such research would address whether self-regulation instruction would impact student academic performance, but additional value would be derived from determining whether self-regulation impacts motivation and career aspirations pertaining to agriculture.

The final research recommendation would be to explore the transfer of self-regulation strategies to other classes. Examining transfer to other academic settings could be accomplished through the SRLIS, in a pre/post format conducted before and after students receive self-regulation facilitating instruction in agriculture class. While research shows self-regulation is

strongly correlated to academic achievement, exploring how and if students transfer newly acquired self-regulation strategies to new learning contexts could provide valuable information to agricultural education concerning the self-regulation instructional needs of its students.

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Appendix A - Letter to Expert Panel

January 22, 2015

Dear _____,

As you know, pedagogical knowledge is an important component of effective teaching in the agricultural education context. While research suggests self-regulation is an important skill for students to attain, there exists no research on how the agricultural education field comprehends self-regulated learning or whether we foster it in our instruction. Therefore I am conducting a study to better understand self-regulation and its use in the agricultural education field.

As an agricultural teacher educator, you are an expert in the area of teacher pedagogy and have a vast understanding of the practices used in the agricultural education classroom across the state. With your expertise and familiarity with agricultural educators in Kansas, I am asking you to identify four educators to participate in this study using the following criteria listed below:

- Be identified by you (the committee) as being a quality teacher of agricultural education with good pedagogical knowledge.
- Be a teacher employed in a Kansas State Department of Education (KSDE) approved high school agricultural education program
- Have a course load consisting of at least 75% agriculture classes
- Have more than five years of experience and less than 20 years of experience. With (preferably) one teacher from each of the following ranges: 5-8, 9-12, 13-16, and 17-20.
- Have two males, and two females.

Thank you for your participation. Your role in this study and your role in agricultural education is important for the future success of the agricultural education profession.

Robert B. McKendree

Appendix B - Participant Recruitment Email

Dear _____,

As you know, agricultural education is a unique subject in the field of education. My experiences as an agricultural educator have inspired my interest in researching self-regulation comprehension and implementation among teachers in an agricultural education context. Research on self-regulation will potentially further our knowledge about the way students learn in the field of agricultural education. You have been nominated as a quality teacher of agriculture by an expert panel following a given set of criteria, I would like to invite you to be one member of a very small group of teachers who will participate in my thesis study.

Being fascinated with teacher pedagogy and student success, I have been doing a lot of reading on self-regulation processes when used for academic purposes. Our field is unique, we have many opportunities to impact students in ways teachers of other subjects do not. By conducting research on self-regulation, with your help, we can look to further the pedagogy in agricultural education.

With your consent, I would like to conduct a series of three interviews with you about how you make meaning of self-regulation, what strategies you implement to foster self-regulation in your students, and in what ways you self-regulate for your own professional development purposes. The interviews can be conducted at your school after the school day at your convenience, with each interview lasting approximately 90 minutes. If you are willing to participate in this important study, please let me know by February 6, 2015 and we can arrange a date and time for my first visit to your school.

Thank you for considering my request, if you have more questions or concerns please feel free to email or call, or discuss with me at conference later this week.

Buddy McKendree

Appendix C - Interview Guide

Researcher Introduction:

Thank you for your willingness to participate in this study. You may stop participating in this study at any time, completely at your discretion. After interviews and transcribing have been completed, you will be given the opportunity to review the transcripts of our interviews in order to confirm the transcripts represent your thoughts and beliefs accurately. I want you to think about yourself as a learner, and how it has impacted your professional development and yourself as a teacher.

Interview 1: Learner as self (setting context)

1. Describe your feelings towards learning when you were a student.
 - a. Were you a successful learner, why or why not?
 - b. What learning strategies did you employ as a student?
 - c. Tell me about a time when you first remember thinking about your own learning.

2. Walk me through a typical day for you as a high school learner.
 - a. What did you like from that time?
 - b. What did you loathe from that time?
 - c. How have those events impacted you as a teacher?

3. Describe your feelings as you reflect back on your teacher education program.
 - a. How have those feelings impacted you as a teacher?
 - b. Do you feel your teacher ed program prepared you to be a teacher?
 - c. In what ways did your teacher ed program prepare you to help students learn?
 - d. In what ways did your teacher ed program help you understand how learning happens?

4. When you think of self-regulated learning, describe what comes to mind.
 - Provided definition from summary.
 - a. How did this impact you as a learner?
5. Describe for me a time when you remember receiving instruction on or involving self-regulation.
 - a. How did this instruction affect you as a learner?

Summary:

Thank you for your thoughts. Through my research I have come to a definition for self-regulation – SR is a component of metacognition (thinking about your thinking) and is defined by students being active in their own learning processes by managing their learning strategies in order to increase performance or knowledge.

Interview 2: Learner as professional and teacher

Thank you again for your time and contribution to my study. To start us off today here is a summary of what we discussed in our last interview. Last time we talked about your experiences as a learner, and how instruction in self-regulation may have impacted your learning. We also discussed how your own learning experiences have impacted you as a teacher. Today I want to focus on you as a teacher and a professional, and how you may utilize self-regulation in those capacities.

1. Give me an example of a time when you made an instructional improvement.
 - a. Walk me through the steps you engaged in when making that improvement.
2. Walk me through what makes a professional development event beneficial to you?
 - a. How do you process information during a professional development event?
3. What kind of professional development opportunities do you seek out?
4. What are some present professional development agendas at your school?
 - a. How have the present professional development agendas at your school impacted your development as a teacher? (if changed, how so?)
5. If I were to ask you to self-assess any aspect of your life, what steps would you follow?

6. Describe a typical lesson in one of your classes, focusing on the instructional processes you use more than routine procedures.
7. If a student consistently turns in weak work, what strategies do you employ to help them improve?
8. Describe a student who was successful at self-regulating their learning.
 - a. What did you do to foster growth in that student?
9. Describe a student who struggled with self-regulating their learning.
 - a. What did you do to foster growth in that student?
10. Tell me about a time when you attempted to help a student improve their self-regulation strategy use and it failed (or backfired). When it succeeded?
11. What self-regulation (learning strategies) strategies do you foster/facilitate during whole class instruction?
 - a. Describe for me a time you tried a strategy and it was successful. Describe what that success looked like.
 - b. Describe for me a time you tried a strategy and it failed. Describe what that failure looked like.
12. When planning whole class instruction, what characteristics instructional strategies help you decide to use or not use that strategy?

Interview 3: Reflecting on meaning

Thank you again for your time and contribution to my study. To start us off today here is a summary of what we discussed in our last interview. Last time we talked about your experiences with self-regulation strategies as a teacher – how you use them for your own professional growth and also how you use them in instruction. Today I want to focus on reflection, and how this study may impact you as a professional and a teacher.

1. Walk me through the process you engage in when reflecting on teaching.
 - a. How or where did you learn this process for reflecting?
2. Tell me about a time when you reflected on your professional development.

- a. How have those reflections impacted you as an educator?
3. When reflecting on your professional development, what emotions do you feel?
 - a. How have those emotions impacted your growth as a teacher?
4. When reflecting on your teaching experience, does a student come to mind that could have benefitted from self-regulation strategy instruction?
 - a. (if so, describe how he/she could have benefitted)
5. How might this study effect your instructional strategy use?
6. How has this study impacted your comprehension of self-regulation?
 - a. How have the interviews impacted the perception of the value of SR use in your classroom?

Appendix D - Participant Debriefing

Dear _____,

Thank you for your participation in my study of self-regulated learning in agricultural education contexts. I hope this study has been as beneficial for you as it has been for me. I would like to take a moment and debrief you about my research. The information discovered while conducting these interviews will help formulate suggestions of how teacher education programs can be improved in order to help young teachers be more prepared to use expert pedagogical techniques.

Your insights into your instructional strategies have helped me gain an understanding of what self-regulation looks like in an agricultural education setting. Understanding what self-regulation presently looks like will enable teacher educators to make informed decisions of curriculum changes that could benefit teacher education programs. Self-regulation has been shown to be a powerful learning tool, and hopefully this study provided insights for you concerning its use. This research will provide valuable comprehension of how we as a profession can sustain or improve self-regulation strategies.

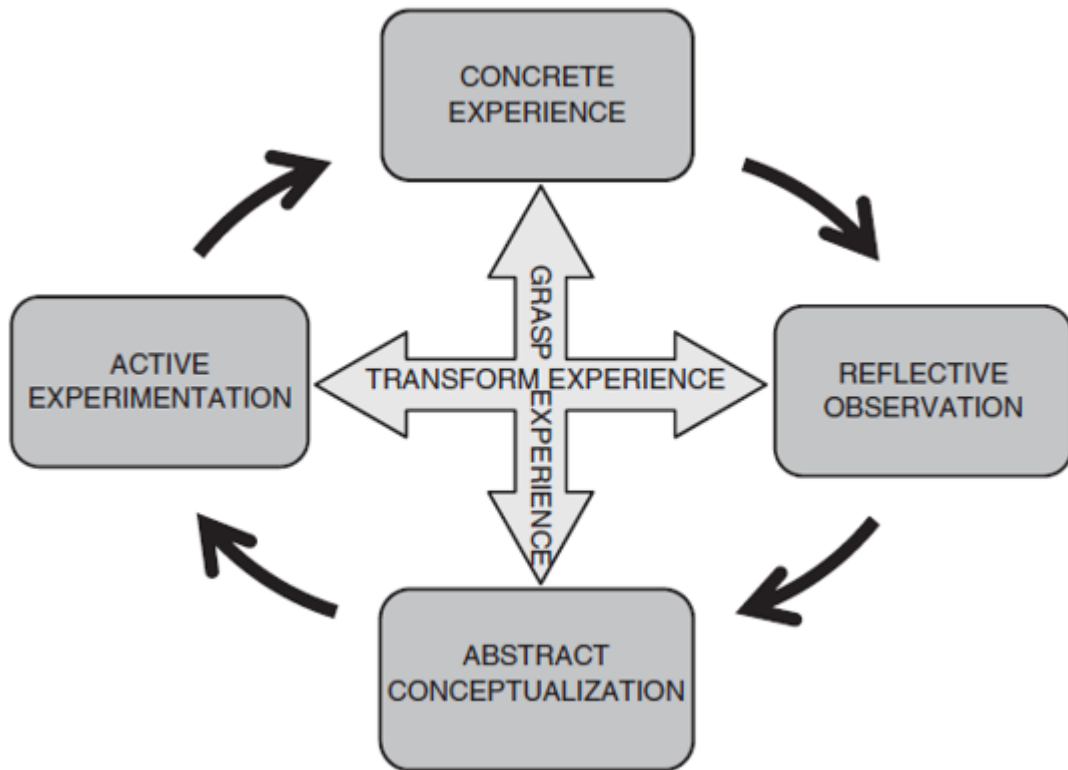
Please find attached the transcripts of our interviews. If you would, please comb through and confirm the transcriptions accurately reflect your thoughts/opinion and that you are willing to contribute your thoughts to my study. If there is something you feel does not accurately reflect you or your thoughts, or something you would like excluded, please let me know.

Thank you for your participation,

Robert B. McKendree

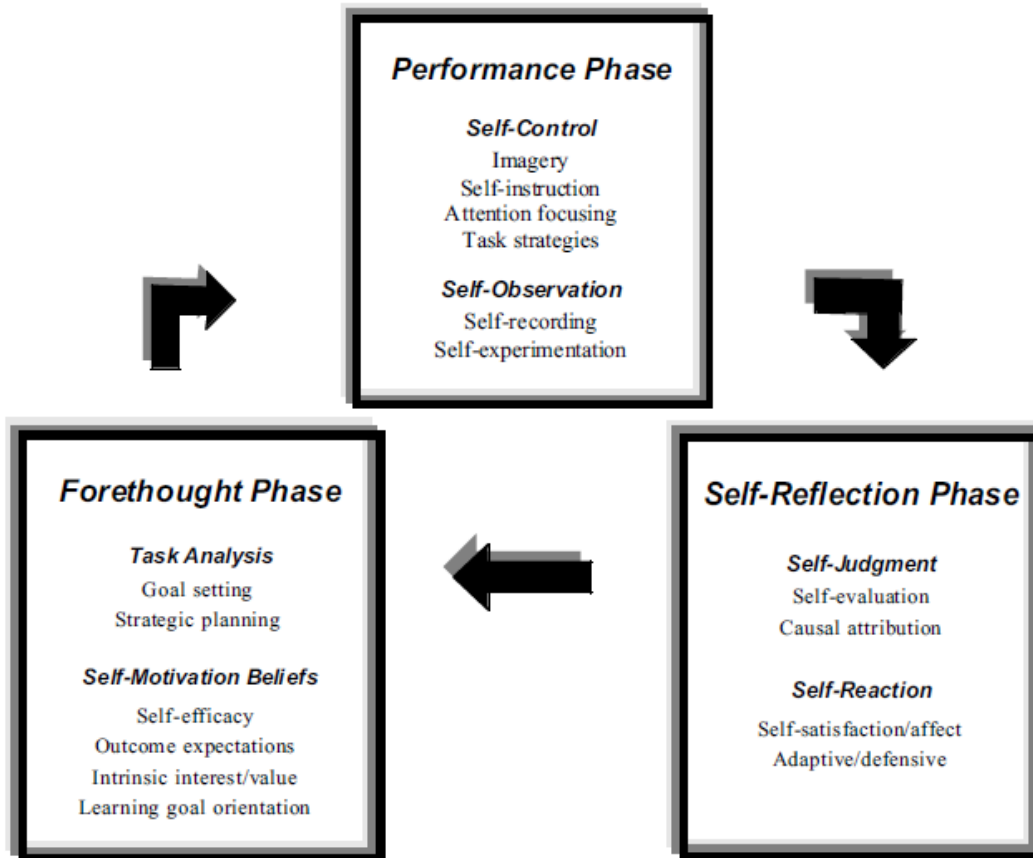
Appendix E - The Experiential Learning Cycle

Figure E The experiential learning cycle (A.Y. Kolb & Kolb, 2009)



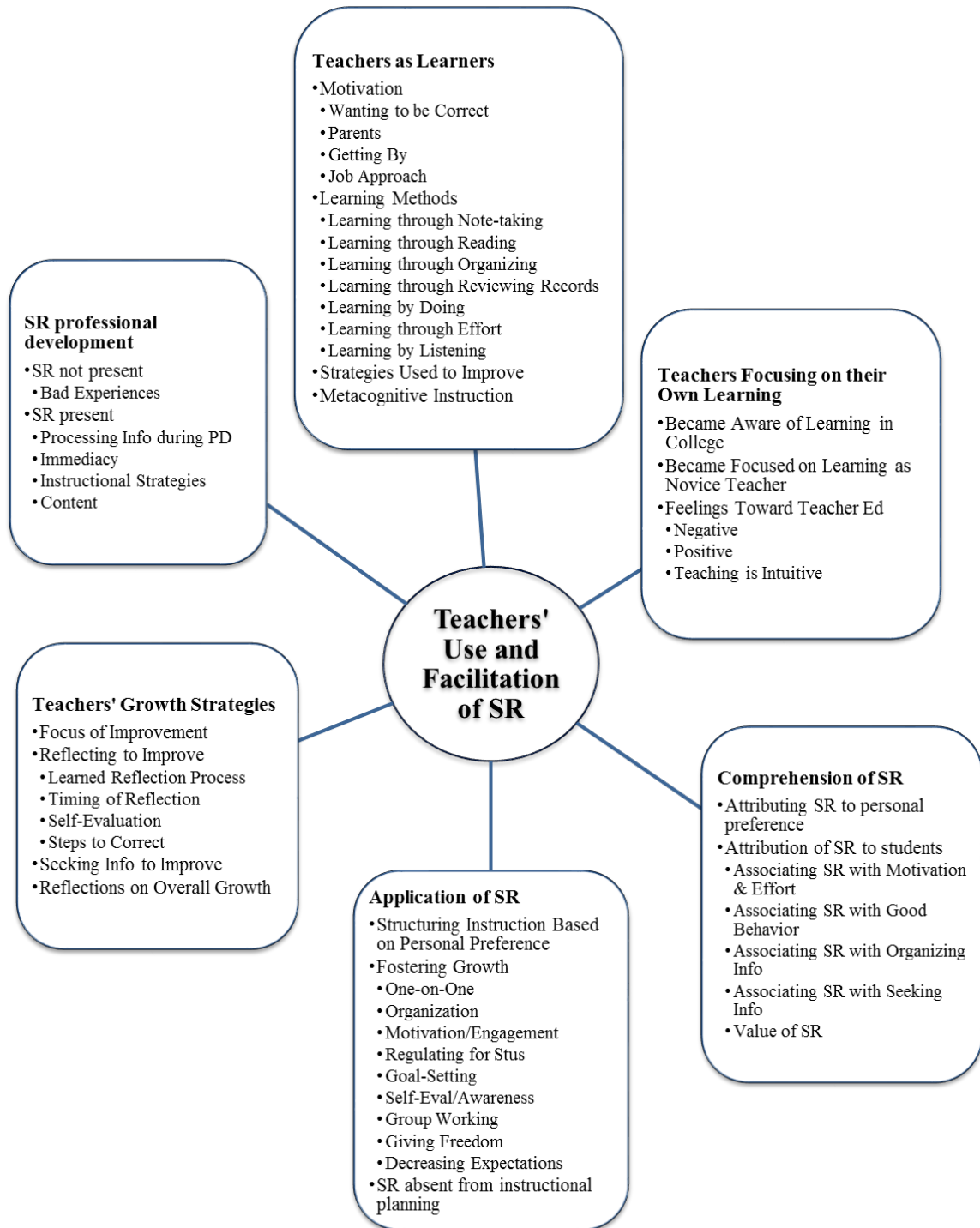
Appendix F - Phases and Sub-Processes of Self-Regulation

Figure F Phases and subprocesses of self-regulation (Zimmerman & Campillo, 2003)



Appendix G - Theme Map

Figure G Theme map



Appendix H - Theme Chart

Table G Themes, sub-themes, and categories

Theme	Sub-theme	Category
Teachers as learners	Motivation	Wanting to be correct
		Parents
		Getting by
		Job approach
	Learning methods	Learning through note-taking
		Learning through reading
		Learning through organizing
		Learning through reviewing records
		Learning by doing
		Learning through effort
Learning by listening		
Strategies used to improve Metacognitive instruction		
Teachers focusing on their own learning	Feelings toward teacher ed	Negative
		Positive
		Teaching is intuitive
	Became aware of learning in college	
Became focused on learning as novice teacher		
Comprehension of Self-Regulation	Attribution of self-regulation to students	Associating self-regulation with motivation & effort
		Associating self-regulation with good behavior
		Associating self-regulation with organizing information
		Associating self-regulation with seeking information
		Value of self-regulation
	Attributing self-regulation to personal preference	
Application of self-regulation	Fostering growth	One-on-one
		Organization
		Motivation/Engagement
		Regulating for students
		Goal-setting
		Self-evaluation/awareness
		Group working

		Giving freedom
		Decreasing expectations
	Self-regulation absent from instructional planning	
Structuring instruction based on personal preference		
Teachers' growth strategies	Reflecting to improve	Learned reflection process
		Timing of reflection
		Self-evaluation
		Steps to correct
	Seeking information to improve	
	Reflections on overall growth Focus of improvement	
Self-regulating professional development	Self-regulation not present	Negative experiences
	Self-regulation present	Processing information during professional development
		Immediacy
		Instructional strategies
		Content