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Teacher Behaviors Contributing to Student Content Engagement: A Socially Constructed Consensus of Undergraduate Students in a College of Agriculture

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Students in colleges of agriculture will face a dynamically changing workplace. In order to learn the skills needed to succeed in such an environment, students must be cognitively engaged in the college classroom. Engagement with instructional content is a precursor to learning, and teachers in colleges of agriculture must shift towards using more learner-centered, engaging instructional methods. The purpose of this qualitative study was to explore college of agriculture students' perspectives of specific teacher behaviors contributing to cognitive engagement. A focus group methodology was applied using the Student Content Engagement (SCE) framework to guide the interviews. The SCE framework consists of four constructs that must be in place for cognitive engagement to occur: subject matter content level, occasion for processing, physiological readiness, and motivation. Results of the study showed a multitude of teacher variables contributed to student content engagement and many of the findings were consistent with prior research about effective teaching. What is more, teacher immediacy was discovered as a consistent theme throughout all of the constructs. We concluded that teacher immediacy might be a construct for consideration in the SCE framework.

Keywords: agricultural education; college of agriculture; student engagement; teacher behaviors

In light of changing technologies and rapid globalization, employers expect college graduates to have an extensive skill set, including problem-solving, critical thinking, conflict resolution, and leadership, along with many other higher-order thinking skills (Arum & Roksa, 2011; Association of Public and Land-grant Universities, 2009; National Research Council, NRC, 2009). What is more, the National Research Council argued that employers in the agricultural industry are looking for these skills coupled with an appreciation of agriculture. Accordingly, learning environments in colleges of agriculture are the starting place to prepare graduates for this dynamic workplace. To adequately equip students, effective instruction should provide educational experiences that actively engage students with the content being taught (McLaughlin et al., 2005). The need for active, engaging instruction has been recognized in higher education (Bonwell & Eison, 1991; Braxton, 2006; Svinicki & McKeachie, 2011) and colleges of agriculture (APLU, 2009; NRC, 2009). Consequently, the implementation of more engaging instruction in colleges of agriculture might aid in supplying the workforce with competent, resourceful graduates capable of meeting employers' needs.

The term *student engagement* has been widely used in higher education. However, much of the research conducted concerning student engagement has investigated the involvement of students in all aspects of college life (National Survey of Student Engagement, NSSE, 2000). Kuh, Kinzie, Buckley, Bridges & Hayek (2006) proposed that student engagement lies at the intersection of student behaviors and institutional factors and that high levels of student engagement are facilitated by many educational influences, including active and

collaborative learning, faculty-student interactions, and educational environments that are inclusive and affirming with high, clearly communicated expectations for success. Because the learning environment plays a huge role in student engagement, we took a narrower focus on student engagement by examining student *cognitive engagement* in the learning process.

For this study, cognitive engagement was operationally defined as a psychological investment in learning by students, characterized by cognitive processes including increased mental effort, active attending to, and interaction with the material to be learned (Fredricks, Blumenfeld, & Paris, 2004; McLaughlin et al., 2005; Weinstein & Mayer, 1986). McLaughlin et al. (2005) termed this *student content engagement* and stated that this is not an assurance of learning, but must be present for learning to take place.

The *Student Content Engagement* (SCE) model proposed by McLaughlin et al. (2005) served as the frame for this study. The SCE model was chosen for several reasons. First, McLaughlin et al.'s definition of engagement closely aligned with ours. Next, the SCE model deals strictly with the engagement that occurs in the learning environment, and lastly, the constructs of the SCE model encompass an assortment of student and teacher variables, both visible and latent. The four constructs of the model include: (a) subject matter content level, (b) occasion for processing, (c) physiological readiness, and (d) motivation, all of which McLaughlin et al. posited must exist for cognitive engagement to occur.

Smith, Sheppard, Johnson and Johnson (2005) indicated that the primary objective of teachers should be to engage students with the content. To accomplish this, McLaughlin et al. (2005) posited that teachers' instructional designs and teaching behaviors should incorporate aspects of the four SCE constructs. This qualitative inquiry seeks to build upon the SCE model by investigating specific teacher behaviors that contribute to increased student content engagement.

Subject Matter Content Level

The first construct of the SCE model is Subject Matter Content Level (SMCL). The main premises of the SMCL construct are that first, all new learning is dependent upon a learner's prior knowledge and second, new knowledge should be introduced to learners at a level just above what learners already know (McLaughlin et al., 2005).

In line with the first premise of SMCL, Piaget and Inhelder (1969) theorized learners' experiences and prior knowledge help them develop perceptions of the world around them, which they use to make sense of their surroundings. Dewey (1938) suggested that all students enter the classroom with prior knowledge and experiences while Doolittle and Camp (1999) added that learners use this prior knowledge to help interpret new information. In a study of undergraduate agriculture students at the University of Nebraska, Mousel, Moser, and Schacht (2006) discovered that students lacking agricultural background knowledge performed poorer in an introductory agriculture class than students with agricultural background knowledge. In a similar study of undergraduate agriculture students, Greene and Byler (2004) found that students' agricultural background and whether or not students took high school agricultural classes served as slight predictors of performance in several undergraduate introductory agriculture classes. Results of these studies add evidence to the belief that student background knowledge plays a role in the acquisition of new knowledge.

The second premise of SMCL was that new information should be presented to learners at an appropriate level for learning to occur. Vygotsky (1978) proposed the zone of proximal development, which specified that if students are posed with a task they deem too difficult or too easy, students either give up or choose not to complete the task. Therefore, according to Vygotsky's recommendations, learning tasks should be at a level that challenges the student but not to the point of being overly difficult. In agriculture, there is a lack of research on the level of difficulty of learning activities relating to cognitive engagement, as defined in this study. However, Whittington and colleagues

(McCormick & Whittington, 2000; Whittington, 1995; Whittington & Newcomb, 1992) have extensively studied cognitive levels of instruction in college of agriculture classrooms as a way to increase critical thinking. McCormick and Whittington (2000) measured the cognitive level of academic challenges of eleven professors in the College of Agricultural Sciences at Penn State University. They found across the different academic challenges (e.g. exams, projects, and problem sets) varying levels of cognition were reached, with exams mostly exhibiting lower levels of cognition while projects and problem sets employed higher levels of cognition. Recommendations by McCormick and Whittington were that professors should deliberately plan activities requiring students to think at higher cognitive levels. A similar study by Newcomb and Trefz (1987), found that 85% of the items on in-class and out-of-class assignments in 16 classes in the College of Agriculture at The Ohio State University required students to think at low cognitive levels. This appears to be an issue throughout colleges of agriculture, as Whittington (1995) revealed, professors in colleges of agriculture desire to teach at higher cognitive levels, but in reality, professors tend to teach at lower cognitive levels.

Occasion for Processing

The second construct proposed by McLaughlin et al. (2005) is Occasion for Processing (OP). OP concerns the learning activities which allow students opportunities for cognitive processing, defined earlier as *cognitive engagement*. McLaughlin et al. stated OP does not deal with the processing itself, as processing is internal and not readily seen or easily measured. Instead, OP deals with the opportunities students are given to engage in learning activities.

The selection of suitable instructional methods and activities provides the occasion for processing to students. Research by Rosenshine and Furst (1971) revealed that one characteristic of effective teachers is the ability to utilize multiple, varied learning activities, while Hativa (2000) argued mental engagement in these activities leads to student learning. Consequently, Dyer and Osborne (1996) recommended that teachers select and utilize appropriate teaching methods to help ensure the success of students' learning.

Active learning strategies are an excellent approach to provide the occasion for processing. Svinicki and McKeachie (2011) advocated the use of active learning strategies in the college classroom, which engage students through several different modalities and lead students to higher levels of cognitive thinking. Supporting this idea, Murano and Knight (1999) reported the results of a study, in which students in an introductory food science course were assigned a cooperative learning term project, the purpose of which was to strengthen the communication, higher-order thinking, and creativity skills of the students. Results revealed that students were generally pleased with the experience and indicated gains in their comprehension of the material. In addition, students reported that they were actively engaged with the project and utilized higher level cognitive skills to solve the problems. Many faculty members in colleges of agriculture understand the importance of occasion for processing. Harder, Roberts, Stedman, Thoron, and Myers (2009) surveyed instructors in the College of Agricultural and Life Sciences at the University of Florida concerning teaching competencies, and found that instructors identified engaging students, using active learning strategies, and teaching critical thinking as some of the most relevant teaching competencies.

Physiological Readiness

Physiological readiness (PR) addresses the biological requirements for learning, which McLaughlin et al. (2005) deemed an "important precursor to engagement" (p. 13). Maslow (1943) argued that physiological needs must be met before higher levels of needs can be considered. McLaughlin et al. described five main areas of PR: attention, stress, disabilities, nutrition, and sleep. There is a dearth of research in agricultural education at the postsecondary level concerning physiological readiness factors. However, research has been conducted in education concerning the effects of physiological needs on learning. Studies indicated that

stress (Cohen, Evans, Krantz, & Stokols, 1986), nutrition (Smith, Kendrick, Maben, & Salmon, 1994), and sleep (Pilcher & Walters, 1997) all have an effect on the cognitive functions of students.

Motivation

Many motivational theories exist; however the theory used in the SCE model is the expectancy-value theory of achievement motivation (EVT) (Wigfield & Eccles, 2000). EVT deals with a person's expectations for success and their perceived value of a task (Wigfield & Eccles, 2000). Students' expectancies and their value beliefs play a role in the amount of effort they will put forth in the classroom (Velez & Cano, 2008). Pintrich and Schunk (2002) concluded people tend to try harder, persist, and perform better when they expect to do well, while Weiner (1992) suggested students will engage in behaviors consistent with attaining a goal when they see value in reaching that goal. Accordingly, how a student perceives their abilities coupled with the value they place in a course should have an effect on their motivation to engage in classroom tasks. Velez and Cano suggested that teachers should understand and utilize behaviors that lead to increased student motivation.

Purpose

The *National Research Agenda* has identified meaningful, engaged learning in all environments as a priority (Doerfert, 2011). Consequently, this study of student content engagement should help add insight into this area. The SCE model provides a good framework to study cognitive engagement; however, the SCE model is relatively new, untested, and theoretical in nature and does not provide instructors with practical suggestions for use in the learning environment. This study seeks to identify teacher behaviors that contribute to student engagement with the intent of filling gaps in the model allowing it to be used more pragmatically in the classroom or laboratory. We used the constructs of the SCE model to guide the question development for the focus groups, thus creating a framework upon which students' discussions were built. Accordingly, the purpose of this qualitative study was to explore the socially constructed perspective of students in a college of agriculture concerning specific teacher behaviors contributing to cognitive engagement using the SCE model as a guide.

Methods

The theoretical perspective for this study was social constructivism. Social constructivism is the belief that knowledge is constructed through social interactions (Flick, 2006). Crotty (1998) stated knowledge is "constructed in and out of interaction between human beings and their world, and developed and transmitted within an essentially social context" (p. 42). In the case of this study, the *constructed knowledge* of interest was the teacher behaviors that groups of students collectively felt led to cognitive engagement. Because the intent of this study was to examine students' perceptions of their teachers' actions, we believed the purpose of this study was best accomplished through the lens of social constructivism. A qualitative methodology that included three focus groups was used in this study. According to Flick (2006), focus groups can be viewed "as a quasi-naturalistic method for studying the generation of social representations or social knowledge in general" (p. 199). As a result, focus groups were deemed an appropriate method for use with a social constructivist theoretical perspective.

Participants for the study were recruited from a large technical writing course in the College of Agricultural and Life Sciences during the spring 2010 semester at the University of Florida. This course was chosen because a wide range of students from a variety of agricultural majors enroll in the course, and students are required to be juniors or seniors. Our belief was that juniors and seniors would have a larger base of classroom experiences to draw upon than younger students, thus generating richer discussions in the groups. To prevent any bias, we had no affiliation with this class. We were allowed to discuss the project at a class session and invite students to participate, and participants were offered an incentive of extra credit points in the class for participating in the study. A total of 29 students volunteered to participate, and three

focus groups were conducted with 12, 12, and 5 participants. Students self-selected which focus groups they attended based on the available dates.

Interview guides were developed using semi-structured questions (Merriam, 1998). This allowed the focus group moderator to guide the discussion, while reacting to and exploring participant responses. Extensive discourse among participants was encouraged by the moderator throughout the focus group to increase the richness of the data. The four constructs of the SCE model (McLaughlin et al., 2005) guided the construction of the open-ended questions for the interview guides, but the four main constructs were not explicitly stated to the participants. Questions were worded in a way that allowed students to think of instructors from their previous courses. Examples of questions from the interview guide included, (1) in what ways have your instructors really made you think about a topic, (2) in what ways have your instructors gotten you back on track and ready to learn, and (3) what things have contributed to the amount of effort you put into a class?

To establish trustworthiness, each focus group was audio-recorded and then transcribed verbatim. Once the focus groups were transcribed, we listened to the recordings a second time to verify the accuracy of the transcriptions (Merriam, 1998). During analysis the primary researcher made the initial categorization of themes and the second researcher reviewed the analysis. We then discussed discrepancies and came to agreement on the categorizations (Merriam, 1998).

For the data analysis, the data were loaded into Weft QDA, which is a downloadable qualitative data analysis program that helps organize the data, and analyzed using a hybrid approach of qualitative methods. The deductive *a priori* template of codes method delineated by Crabtree and Miller (1999) was used in conjunction with the constant-comparative method (Glaser & Strauss, 1967). Data were first analyzed using the constant-comparative method; responses were categorized and analyzed repeatedly to determine emerging themes. Because participants of the three focus groups were taken from the same class, no attempt was made to determine differences between the groups. Themes that emerged across groups were the themes that were reported. Once the emergent themes were identified, they were grouped and assigned labels. In conjunction with the template of codes method, the emergent themes were then compared to the constructs of the SCE model (McLaughlin et al., 2005) and emergent themes found to be congruent with the SCE constructs were organized under the applicable constructs, while newly emergent themes were presented as possible new constructs.

To comply with Institutional Review Board protocol, confidentiality of the participants was achieved by attributing data to the focus group not the individual participant. The codes for each group were: FG1=Focus Group 1; FG2=Focus Group 2; and FG3=Focus Group 3. In addition to ensuring participant confidentiality, this also helped create an audit trail. Quotes were traceable back to the raw data in Weft QDA using the focus group codes thus helping to ensure confirmability (Erlandson, Harris, Skipper & Allen, 1993).

When conducting a qualitative study, it is appropriate to present researcher biases to provide readers with a lens in which to interpret the results (Merriam, 1998). The primary researcher is a former high school teacher and current doctoral student studying agricultural education. The second researcher is a faculty member in agricultural education. We both believe in creating learner-centered instructional environments in which students are active participants in the learning process.

Results

Subject Matter Content Level

The first construct of the SCE model was subject matter content level. Emergent themes that fit under this construct were *teacher elaboration, difficulty of classes*, and *student prior knowledge*.

Teacher elaboration. Students agreed they were more likely to engage when teachers explained content in simple, understandable terms. As one student noted, teachers help him engage in the material when "they talk about it

in our language" (FG 1). Another student said, "If you can also take it and explain it on a level to where we know nothing… for me that helps" (FG 1). Instructional content presented clearly, at an understandable level helped students cognitively "solidify the concepts" (FG 2).

Difficulty of classes. Students described having higher levels of cognitive engagement in classes perceived as difficult. "If it's difficult I would tend to try to keep up with the material a little more" (FG 1). Note-taking, questioning, and overall attention increased when the level of the content was more complicated (FG 1, 2, &3). One student noted, "You're more…focused in a harder class" (FG 2).

Student prior knowledge. Students preferred teachers who take time to assess students' prior knowledge and connect new information to that knowledge. According to the students, these connections take shape in the form of pre-tests, review questions, movie clips, problem sets, and discussions among others (FG 1, 2, &3). One student stated, "I took this pathogens class where we had a pre-test…and he just wanted to know what exactly we knew coming into the class…and then he kind of tailored his teaching to that" (FG 3). Another student said, "There are a lot of concepts that they [teachers] come in assuming you already know, so they'll whiz through that material" (FG 3). "Sometimes they [teachers] assume that you know all these things" (FG 1).

Occasion for Processing

The second construct of the SCE model was occasion for processing. The emergent themes congruent with this construct were *interest approach, daily class structure, discussion, projects, assessment, repetition, questioning, collaborative learning, variability in teaching, problem-based learning*, and *contextualizing the content with examples*.

Interest approach. Students believed teachers who utilize an interest approach to begin class helps students get ready to engage. One student described an early morning class where the teacher would play music as everyone arrived. "[Teacher] plays songs, he will get on YouTube® and play…and like that usually gets me awake and just more ready to function" (FG 2). Other students described teachers who would begin class with stories. "The stories she would tell would sort of segue into the day so it kind of winded you down" (FG 3). Other techniques mentioned were video clips, various ways of greeting students, and asking students how their week/weekend has been. The consensus of the participants was that these types of activities helped them get settled into class and ready to engage.

Daily class structure

Students believed that using daily learning objectives did not help them engage in the content. "I think it's just a waste of a slide, when they say we will be going over this, this, and this and no one pays attention to that" (FG 1). Many students said they would rather not have daily learning objectives because their teachers do not follow the objectives. "It's just very frustrating to like keep doing the work basically when you know like it's really hard to get from them what they really want" (FG 2). Another student stated "You just study for the test you don't really care about actually learning the objectives" (FG 2). Alternately a few students described effective use objectives. One student stated, "I think objectives are extremely important to a class because like I just took a food science exam yesterday and she always goes over objectives" (FG 3). Another student said, "Sometimes I don't mind daily objectives I feel like then you know what you're talking about like that day" (FG 2).

Discussion. Students described classroom discussion as one of the most common and effective ways teachers engage students with the material. "Reading off of the slides and stuff doesn't really help students engage and learn; it's just like the discussions in class; not only hearing what the teachers have to say but like the students give back valuable information" (FG 1). Another student said, "I feel that discussions are much more effective than just reading off of PowerPoint's" (FG 1). One

student summarized, "I think class discussion is wonderful" (FG 3).

Projects. Most students felt projects were engaging. One student described a semester long project which required periodic class presentations by saying:

> [Use of projects] really shows if you're learning or not, because it shows, not only have you taken the time to go the extra mile and do whatever you can, but it also shows that you have learned the material and you can teach it to someone else. (FG 1)

The types of projects students said they benefited from most directly applied material from class and used knowledge built throughout the semester. These projects helped students stay engaged because students knew they would need to have a good understanding of the material to complete their projects.

Assessment. Students agreed the most common type of classroom assessment is the multiple choice exam. However, almost all students agreed the type of exam changes the way they engage in the material. Essay tests were regarded as the type of assessment that required the most studying and understanding of a topic (FG 2). However, alternative assessments also helped students cognitively engage and demonstrate the knowledge gained in a class. One student's example of an alternative assessment was a class presentation: "I had a presentation as an exam grade…that makes you have to make sure that you can effectively teach the class that material too, so it makes you understand" (FG 2).

Repetition. Another aspect of occasion for processing which arose in the focus groups was repetition. Students agreed teachers who use repetition in their teaching help them engage more than teachers who do not use repetition. Some examples of repetitious teacher behaviors described by students were repeating information in class, referring back to material from previous classes, regular quizzes, and homework assignments. One student summarized by saying, "I would say the key is repetition" (FG 1).

Contextualizing the content with examples. Students overwhelmingly agreed that when teachers use examples in class they are more engaged. One student described a teacher who brought in visual aids:

> [The teacher] brought in some spoiled goods and it's stuff that, it's whenever they go above and beyond and they make sure that you know, 'I'm gonna reach everyone in the class even the person who's asleep in the back by bringing in something interesting,' then that definitely aids in the learning process. (FG 3)

Questioning. Another activity used by teachers which helped engage students was questioning. One student mentioned, "The teacher would call on students, so you are forced to pay attention" (FG 2). Another student declared questioning "does make you sit and think 'ok, what did I just learn'" (FG 3). The majority of students said if they knew a teacher was prone to question students they would engage more in class.

Collaborative learning. Participants agreed in-class collaborative learning activities helped them engage in class. Students mostly mentioned collaborative learning activities such as group discussions, presentations, and role playing. The consensus among students was that in large or small classes their engagement was increased by group work. "I feel like when people are more engaged in like, group settings then yeah, people are more helpful and I just learn so much more" (FG 3).

Variability in teaching. Students were more engaged when teachers varied their teaching methods. Engaging teachers "won't just teach something one way, a difficult thing one way, but instead will teach it in multiple fashions" (FG 3). Variability in teaching styles, assignments, classroom activities, and assessments were mentioned as key areas (FG 1, 2, & 3). One student also mentioned he enjoyed guest lecturers because it provided variety which helped him engage more (FG 3).

Problem-based learning. Several students explicitly mentioned problem-based learning as a way to keep students engaged in the material, help them to learn to think critically, and become independent learners. One student said, "It does really help you grasp the material for actually putting it into use while you're learning" (FG 3). Another student indicated he was interested in medical schools that implemented problem-based learning. He said, "PBL kind of helps you…you know you become a better critical thinker because you have to figure out your own problem" (FG 3).

Physiological Readiness

The third construct was physiological readiness. Emergent themes under this construct included *personal stressors, class stressors*, and *class time*.

Personal stressors. Participants indicated that personal stressors lower classroom engagement. Some examples of personal stressors which surfaced were family problems, money issues, employment, and extracurricular activities (FG 1, 2, & 3). In regard to stress, one student stated "I would say I perform a lot more poorly or pay a lot less attention in class" (FG 2). Another student said, "It's like hard for me to pay attention when I study because I got so much more stuff going through my mind so I feel like that has a really big effect on it" (FG 1). Additionally, one student indicated, "I can study and I do very well in school; but if, you know, something's going on in my life and I'm just all emotional about that that will ruin everything" (FG 1). Students understand how stress affects their engagement and stated they like when teachers help them through stressful times. One student remarked, "It's really nice and comforting when teachers and your TAs go above and beyond to help you get back on track" (FG 1).

Class stressors. The effect of classroom stress was the same as personal stress on student engagement, but students believe the teacher can be more help in this area. Most classroom stress mentioned dealt with tests and assignments. One student remarked, "All of a sudden it seems like everything comes due at once or you have tests at once" (FG 2). Other class stressors noted by students were teachers increasing the difficulty of classes, assigning large amounts of reading, and assigning course-work not on the syllabus.

Class time. Students indicated being less engaged in early morning classes. While discussing morning classes one student stated, "It's a lot harder to learn" (FG 3). Another student described how a teacher helped students in this aspect was by scheduling exams in the evening. The student revealed this helped with studying for and engagement during the exam:

> I really like that he schedules his tests at night. That way you don't have to be prepared to take it like super early in the morning. You just don't have class in the morning and you take it later in the day. (FG 2)

Motivation

The last construct of the SCE model was motivation. The emergent themes under motivation included *relevance*, and *class reputation*.

Relevance. Teachers who connect classroom content with real world applications are more engaging to students. One student said, "If you just go to class and you don't see the relevance of it, even if it is for a grade it's going to be hard to engage" (FG 2). Another student stated, "Drawing a connection between what you're learning and how it could actually apply…finding a way to make it practical I think really would be a good stimulus for students to engage mentally" (FG 2). Skills described by students as being *real world* were resume writing, interviewing techniques, team building, and critical thinking (FG 1, 2, & 3). One student summarized by asking, "If you're learning about something that doesn't have to do with the real world, why learn it" (FG 3)?

Class reputation. Students indicated that they draw upon a variety of resources to determine the reputation of a class. Sources range from peers, to *ratemyprofessor.com,* to the self-perceived difficulty of the subject. Class

reputation gives students a preconceived idea of the class and/or the teacher and affects student engagement. One student commented, "If I hear…there's a class that's difficult I think I would pay closer attention to what the professors are saying because…I won't be able to do well on the exams if I don't pay closer attention" (FG 3). Another student observed, "If I hear ahead of time that there's a professor that's really, really hard I know this, that I myself stay awake [sic]…whenever I hear that it's difficult I try to pay closer attention and be more focused" (FG 3).

Teacher Immediacy

An emerging theme that surfaced was teacher immediacy. Students generally mentioned teacher immediacy while discussing motivation, however the theme ran through all of the SCE constructs. Because of this, teacher immediacy was presented as its own construct. The emergent themes grouped under teacher immediacy were *personal connection, teacher caring, teacher effort, teacher enthusiasm*, and *teacher approachability*.

Personal connection. Students indicated more of a desire to engage in classes where teachers exhibit a personal connection with students. Examples of personal connections included the use of personal stories in teaching, teachers learning students' names, and teachers taking an interest in students' personal lives and goals (FG 1, 2, & 3). The majority of the students said they would be more engaged in a class where teachers use personal examples. Personal stories "make you remember that your teachers are human; because sometimes teachers, you feel like they're these people that you wonder, do you have a life beyond your subject" (FG 3). Students suggested personal stories helped them relate to their teachers better. Another personal connection factor which students said personalized their experience and made them want to engage more was when teachers learned students' names. "I think any class where the teachers know your name you're automatically more inclined to pay attention because you feel like they know, they'll be watching out for you" (FG 3). The last personal connection was teachers taking an interest in students' personal lives and goals. Describing one professor, a student said, "She knows all of our names she knows where we're going, what we're doing; she made it a point to get to know all of us" (FG 3). Students agreed personal connection to the teacher was a factor that helped them engage in class.

Teacher caring. Students identified teacher caring as an important element leading to student engagement. One student stated, "They [teachers] want you to succeed they don't want you to walk away from it thinking that it was a waste of time, and if they make that clear to you then it makes you want to be better yourself" (FG 2). Another student agreed, "It makes you care more about the teacher if they care about you, and when you care more about the teacher you want to do good in the class for them" (FG 1). One student gave a specific example by stating:

> I have a class…the teacher comes up and asks right before class 'how are you doing'…and like shows an interest and that really helps. I mean it gets you ready for class and you feel like you want to learn…so many teachers could care less they just go up and start lecturing. (FG 1)

The participants felt a need to perform better when they thought the teacher cared about their learning.

Teacher enthusiasm. Additionally, students stated a preference for teachers who display enthusiasm in their teaching. "I remember [teacher] from biology, he was really energetic in how he taught it, and the whole time I was able to pay attention" (FG 3). Another student remarked, "When professors are passionate about it, I would be engaged and listening and learning the entire time…For me it makes a big difference, because I have seen the effects of passionate and not passionate teachers" (FG 1).

Teacher effort and teacher approachability.

Teacher effort and approachability were the last two teacher immediacy factors which surfaced during the focus groups. Students felt each of these teacher characteristics contributed

to student engagement in a positive way. In response to teacher effort one student said, "If I see a teacher putting a lot of effort into his class…I am going to want to work harder in return because I feel they're putting their side of the effort in" (FG 2). Teacher approachability was considered crucial by students for classroom engagement. One student said, "If you're approachable then the students are not going to be intimidated to learn, and they're not going to be as scared to ask questions" (FG 3).

Conclusions/Recommendations

Results of this study revealed that within the SCE framework (McLaughlin et al., 2005) a multitude of observable, measurable teacher behaviors exist (See Table 1). The subject matter content level results were consistent with prior research. Students indicated they were more engaged when material was presented at challenging, yet understandable levels corresponding to Vygotsky's (1978) work. In addition, students reported increases in engagement when teachers made an effort to assess prior knowledge and connect prior knowledge to information being taught, which is in accordance to the work of Dewey (1938) and Doolittle and Camp (1999).

A variety of behaviors contributing to student cognitive engagement surfaced within the occasion for processing construct. Student engagement was enhanced by instructors' use of specific active learning activities such as *discussions*, *projects*, *collaborative learning*, and *questioning*. These findings were consistent with previous research on teaching and learning (Bonwell & Eison, 1991; Hativa, 2000; Smith, Sheppard, Johnson & Johnson, 2005). The use of varying instructional methods also contributed to students' perceptions of their level of engagement. Rosenshine and Furst (1971) considered variability in instruction a characteristic of effective teachers. In addition, participants specifically mentioned *problem-based learning* as a teaching method that promotes cognitive engagement.

Table 1
Summary of Emergent Themes for the Constructs of the Student Content Engagement Model

Subject Matter Content Level	*Occasion for Processing*	*Physiological Readiness*	*Motivation*	*Teacher Immediacy*
Teacher Elaboration	Interest Approach	Personal Stressors	Relevance	Personal Connection
Class Difficulty	Daily Class Structure	Class Stressors	Class Reputation	Teacher Caring
Prior Knowledge	Class Discussion	Class Time		Teacher Effort
	Projects			Enthusiasm
	Questioning			Approachability
	Collaborative Learning			
	Problem-based Learning			
	Repetition			
	Variability			
	Contextualizing Content with Examples			
	Type of Assessment			

Physiological readiness factors that influenced participants' cognitive engagement were *personal stressors, class stressors*, and *class time*. Personal stress included such factors as family problems, employment, sickness, tiredness, money problems, and extracurricular activities. While instructors have little influence over personal stressors, they can help students through stressful times. Instructors need to understand that students' physiological needs must be met before cognitive engagement can take place (Maslow, 1943).

For motivation, *relevance* and *class reputation* surfaced as themes contributing to student engagement. These themes seemingly align with the expectancy-value theory of motivation (Wigfield & Eccles, 2000). However, students indicated they tended to engage more in classes having a reputation as being difficult. Motivational theory would suggest that students engage more when they have a high degree of expectancy for success, but the students in this study reported that they were more engaged in classes perceived as difficult. These results are puzzling because, according to theory, the perceived difficulty of the class should lower students' self-efficacy and thus their expectancy for success. Additionally, in accordance with the value portion of the expectancy-value theory, the theme of relevance showed that students tend to be more engaged in classes they perceive as valuable to their future.

One interesting finding from this study was the emergence of teacher immediacy. After an examination of the themes of teacher immediacy: *teacher caring, teacher effort, teacher enthusiasm, teacher approachability,* and *personal connection*, the determination was made that these closely align with the nonverbal and verbal immediacy behaviors outlined by Gorham and associates (Gorham, 1988; Richmond, Gorham, & McCroskey, 1987). Our initial thought was that the teacher immediacy factors should be grouped into the motivation construct because teacher immediacy has been previously linked with motivation (Kelley & Gorham, 1988; Velez & Cano, 2008). However, past research has suggested that immediacy influences motivation as opposed to being integrated into motivation (Christophel, 1990; Frymier, 1994). The findings of this study point to the work by Christophel (1990) and Frymier (1994); teacher immediacy did not appear to directly influence cognitive engagement, instead influencing students' motivation to engage.

The results of this study represent only a small number of students in the College of Agricultural and Life Sciences at the University of Florida and are not generalizable farther than the sample. However, several recommendations can be made from the results. First, classroom teachers should put forth the effort to assess students' existing knowledge in order to link new material to that knowledge. Students do not come to the classroom with a blank slate, and learning theory would state that teaching is more effective when new knowledge is linked to existing knowledge (Dewey, 1938). Second, teachers should attempt to use a variety of active learning strategies that might include discussions, questioning, collaborative group work, projects, presentations, problem-based learning, and role play as outlined by Braxton (2006). Problem-based learning and various other active learning activities designed to foster critical thinking skills increase the cognitive level of teaching in the classroom tying into work by Whittington and colleagues (McCormick & Whittington, 2000; Whittington, 1995; Whittington & Newcomb, 1992; Whittington, Stup, Bish, & Allen, 1997). Additionally, while teachers may not have a direct effect on the physiological readiness of students, they can understand students' physical and emotional needs and attempt to accommodate students. Instructors who are empathetic to students' needs might be viewed more favorably by students, thus giving students an increased impetus to engage in class. Lastly, student engagement might be increased when instructors utilize teacher immediacy behaviors in the classroom. Instructors could employ verbal and nonverbal immediacy behaviors, such as calling students by name, using personal stories or examples, moving around the classroom while teaching, smiling at students, and praising students' work and comments. Use of these types of immediacy behaviors might help make instructors seem more approachable to students, thus increasing motivation. In addition, faculty development programs aimed at helping instructors understand the importance of integrating active, engaging learning activities into their classrooms, as well as to helping instructors understand how to motivate students to engage in classroom learning could prove beneficial.

While small in scope, the results of this study help expand the knowledge concerning teacher behaviors' contribution to student content engagement. However, this study generated more questions that warrant further investigation. Replications of this study should be conducted to determine if the teacher variables discovered in this study are consistent

among groups of students in other colleges of agriculture, as well as other educational settings. Additionally, inquiries should be made to determine the relationships of these teacher behaviors with student achievement. This study found that students engaged more in classes they deemed as difficult. Further research should investigate students' perceptions of and motivation in classes with a reputation for being difficult. Furthermore, an instrument measuring students' perceptions of specific teacher behaviors that predict engagement should be created. Lastly, an examination of the influence of teacher immediacy on motivation and cognitive engagement should be made.

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