Effective Instruction for Engaging Culturally Diverse Students in Higher Education

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Engagement is related to important student outcomes such as persistence, retention, and grades. It is key to all students' learning, but it may be particularly important for culturally diverse students who may have fewer models and other resources for keeping themselves engaged. As the institutions of higher education become increasingly culturally and linguistically diverse, instructors are challenged to engage a more diverse student population. This paper describes how three university instructors applied the Center for Research on Education, Diversity, and Excellence (CREDE) Standards for Effective Pedagogy to their instruction in courses of general psychology, educational psychology, and statistics in order to increase students' cognitive and social engagement. The CREDE Standards are strategies of instruction that incorporate small group discussions and making connections between students' prior experiences and abstract concepts.

The purpose of this paper is to present strategies to engage culturally diverse students in higher education. Academic engagement is multidimensional (Carini, 2012), consisting of behavioral, cognitive, emotional, and social investment (National Research Council, 2004). Behavioral engagement includes observable actions, e.g., coming to class, completing assignments, and persisting in academic programs. Cognitive engagement includes students paying attention and problem solving. When students are emotionally engaged, they show interest and enthusiasm and view the curriculum as relevant. Social engagement includes students feeling connected to classmates and teachers, and perceiving the school climate to be supportive. Engagement also includes students' involvement in extra-curricular activities.

A synthesis of over ten years of research on engagement in higher education indicated that academic and social engagement had indirect effects on student persistence through institutional commitment, the degree to which students were committed to staying at a particular school (Pascarella & Terenzini, 2005). Harper and Quaye (2009) emphasized a dual responsibility for engagement such that students have a responsibility to be engaged in meaningful activities, while educators are responsible for providing activities that engage them.

Educators may attempt to increase cognitive engagement by applying active learning strategies in their courses. For example, Goldberg and Ingram (2001) compared student engagement and performance in two sections of a botany course. The active learning section was designed as a combination of mini lectures and activities, such as concept map-making, problem solving, and categorization tasks. Students in the active learning section performed better on the final exam and also reported being more cognitively engaged. Mazur and colleagues developed Peer Instruction, a method to

actively engage students in their lecture classes. Peer Instruction involves asking conceptual questions throughout the class period that students answer individually first and then engage in discussions with classmates who have solved the problem in different ways to come up with revised and improved solutions (Crouch & Mazur, 2001; Fagen, Crouch, & Mazur, 2002; Mazur, 2009). During the peer discussions, the instructor and teaching assistants circulate to participate in the discussions. Mazur (2009) reported that students' conceptual understandings increased, often threefold, through use of Peer Instruction. Jakee (2011) described providing modified lecture notes to students that did not include the conceptual understandings or conclusions of the lectures. Students filled in the important details during the lecture, promoting more active learning and lecture attendance. Fatokun and Fatokun (2013) applied problem-based learning, another active learning strategy, in their chemistry and mathematics classes. Working in small groups, the students solved "real world" problems that integrated the two subjects, identifying concepts, brainstorming possible solutions, and interpreting results. Ahn (Ahn & Class, 2011) described students constructing sample exam questions that assessed conceptual, rather than rote learning. Although the task was challenging, it promoted active learning and peer collaboration.

Some instructors use technology, such as clickers, to promote students' cognitive engagement (e.g., Blasco-Arcas, Bull, Hernández-Ortega, & Sese, 2013; Gauci, Dantas, Williams, & Kemm, 2009; Han & Finkelstein, 2013). Clickers are electronic devices that students use to answer questions posed by the teacher. In general, students reported enjoying using clickers in courses (Crossgrove & Curran, 2008; Powell, Straub, Rodrigues, VanHorn, 2011) and suggested that it increases their engagement and learning (Powell et al, 2011). In one study, students who used clickers received better grades

than those who did not, and those who benefitted most had received lower grades in a related previous course (Gauci et al., 2009). Crossgrove and Curran (2008) studied the effects of using clickers in two large section biology courses, one for biology majors and another for non-majors. They found that students in both courses expressed positive attitudes toward clicker use, but its effects on learning were more dramatic for the non-majors. Sullivan (2008/2009) pointed out that clickers are best used when instructors pose questions that engage a higher level of thinking and require students to go beyond rote memorization to apply, analyze, or synthesize information. Mazur and colleagues used clickers in this way to implement the Peer Instruction described previously (Crouch & Mazur, 2001; Fagen, Crouch, & Mazur, 2002; Mazur, 2009).

Instructors may also design course activities that increase social engagement through classroom interactions. Research suggests that peer support is related to college persistence, retention, and grades (Dennis, Phinney, & Chuateco, 2005). The timing of students' social engagement and perceptions of support may also make a difference. Berger and Milem (1999) found that students' perceptions of faculty and peer support early in their college careers were strong predictors of persistence. A perceived *lack* of peer support was more predictive of academic outcomes among first-generation college students than actual support (Dennis et al., 2005).

Thus, engagement can be considered the first step in the learning process for students. Although this is the case for all students, higher education instructors may find it especially important to consider effective strategies to engage culturally diverse students, for example, immigrant students and those who are the first in their families to attend college. These students may have fewer models and other resources to sustain their own engagement in higher education. Instructors' attempts to design instruction for effective engagement may have particular influence on the retention and achievement of culturally diverse students.

The Increasing Diversity of Higher Education

Across the globe, higher education classrooms are becoming more culturally and linguistically diverse. As countries like the U.S. become more multicultural, institutions of higher education tend to reflect those trends (Laden, 2004). Of the 18.6 million undergraduates enrolled in American universities in 2011, 45% were non-White (Knapp, Kelly-Reid, & Ginder, 2012). Educators have attempted to increase the diversity of their universities to parallel their national populations. For example, Dutch universities have tried to increase the enrollment of minority groups while maintaining a high level of academic achievement (Reumer & van der Wende, 2010).

The growing numbers of international students have also increased the diversity of higher education. Between 1990 and 2011, the number of students studying outside of their home countries tripled, with an annual increase of 6% (OECD, 2013). Nearly 4.5 million students studied in international settings in 2013. In 2011, the largest numbers of students studying abroad were from China, India, and Korea, with 53% of all international students arriving from Asia. Although the U.S. and U.K. continue to have the largest share of international students, other countries are increasing their international enrollments. For example, 18% and 11% of higher education graduates in Australia and New Zealand respectively were international students, as were half of all PhD candidates in Switzerland (OECD, 2014). Spain, Russia, and Korea are new to this arena, with increasing numbers of international students (OECD, 2013).

Jiang (2010) observed that many universities are operating within a broad, global context and serving an increasingly diverse student population. The increase in students studying outside their country of citizenship has been attributed to a number of factors, including students' perceptions of the benefits of cultural understandings, language learning, and a competitive advantage of a foreign degree (OECD, 2013; Sawir, 2013). Some students from less developed countries, for example, those from Africa, report that their home countries do not have the capacity to provide the advanced education they desire (Maringe & Carter, 2007). Other students, for example, from China, are encouraged to attend a university abroad in order to build the capacity of their own countries (OECD/World Bank, 2007).

Increasingly, universities and colleges view international students as a form of revenue as public funding for higher education continues to decrease, and those institutions are more reliant on tuition dollars (Sawir, 2013; Trilokekar & Kizilbash, 2013). In Japan, a decreasing birth rate has threatened the continuation of a number of higher education institutions, and this has promoted the recruitment of international students (Rivers, 2010).

As their student bodies become more multicultural, higher education faculty are challenged to use strategies to better engage them. This may be particularly problematic for new faculty, as most doctoral programs do not require teaching preparation (Jensen 2011), and those new to teaching report being unprepared for the instructional demands of an academic position (Golde & Dore, 2001). Thus, many professors were not prepared to teach, much less to consider the needs of diverse students. Some universities now provide pedagogical training for faculty once they are hired. One study found that those who participated in such training indicated positive changes, including the use of more student-

centered strategies and increased teaching self-efficacy (Postareff, Lindblom-Ylänne, & Nevgi, 2007).

Without adequate preparation, professors may perpetuate instructional models that they were exposed to as students, using strategies that are not suited to diverse student populations. Close relationships and support that students perceive from teachers and peers are related to persistence by minority students (e.g., Dennis et al., 2005; Jackson, Smith, & Hill, 2003). However, reliance on lecturing, particularly in large classes, often prevents professors from getting to know their students. Many have criticized lectures for their resulting in student passivity and low levels of engagement and understanding (e.g., Rodd, 2003; Yoon, Kensington-Miller, Sneddon, & Bartholomew, 2011).

Using The CREDE Standards for Effective Pedagogy to Promote Engagement

This paper describes how the Center for Research on Education, Diversity, and Excellence (CREDE) Standards for Effective Pedagogy can promote students' engagement in learning. We reflected on our adaptation of the CREDE Standards for Effective Pedagogy for our university classrooms, their effect on engagement, and the challenges posed. Below we describe the CREDE model and research on its effectiveness.

The CREDE Standards

The CREDE Standards are strategies to create interaction-rich classrooms that integrate classroom dialogue to promote conceptual understanding (Tharp, Estrada, Dalton, & Yamauchi, 2000). CREDE was a U.S. national research center for eight years (1996-2004) (CREDE, n.d.). The Center funded 31 research projects across the nation that focused on how best to teach culturally and linguistically diverse students from kindergarten through 12th grade. From that research and previous work from the National Center for Research on Cultural Diversity and Second Language Learning and the Kamehameha Early Education Program, CREDE researchers identified five strategies of effective instruction that appeared to be important for all groups of students. These five became known as the CREDE Standards. Researchers working with American Indians, Native Hawaiians, and Alaska Natives identified two additional Standards that appeared to be important for indigenous groups (Tharp, 2006); however, most of the research on CREDE has focused on the first five. Researchers later adapted the seven Standards for preschoolers (Yamauchi, Im, & Schonleber, 2012). Although some have used the CREDE model in higher education (e.g., Stoddard,

Bravo, Solis, Stevens, & Vega de Jesus, 2009), little has been written on their adaptation for adult learning.

The CREDE Standards

The CREDE Standards are based on Vygotsky's (1978) theory and over 40 years of research on effective instruction for diverse students (Tharp et al., 2000). They are the following:

- Joint Productive Activity: Teachers and students working together to create shared understandings and tangible products.
- Language and Literacy Development: Promoting language goals and skills.
- Contextualization: Connecting new information to what students already know from their previous home, community and cultural experiences.
- Complex Thinking: Developing students' high-level thinking and problem solving skills.
- Instructional Conversation: Using small group discussions to develop conceptual understandings.

Effectiveness of the CREDE Standards

Researchers have found positive relationships between use of the CREDE Standards and student achievement in K-12 settings (e.g., Doherty, Hilberg, Pinal, & Tharp, 2003; Saunders & Goldenberg, 2007). The US Department of Education reviewed 73 studies focused on language development for English language learners and ranked the CREDE Standards as the most effective method for promoting reading achievement and the second most effective for improving English language literacy (Institute of Educational Sciences, 2006).

Use of the CREDE model may improve engagement of culturally diverse post-secondary students. An analysis of over 42,000 students at 137 institutions of higher education indicated greater engagement and learning when instructors interacted with students (Joint Productive Activity, Instructional Conversation), provided experiential learning opportunities (Contextualization), used active and collaborative strategies (Joint Productive Activity, Complex Thinking) and emphasized higher order thinking (Complex Thinking) (Umbach & Wawrzynski, 2005). In this paper, we define engagement as students' sustained attention to tasks requiring mental effort (Corno & Mandinach, 1983); students' enthusiasm, interest, and enjoyment (Skinner, Kindermann & Furrer, 2008); and their emotional connections to teachers and peers.

Our Instructional Contexts

We are three instructors who collaborated to understand how the CREDE Standards could be applied in higher education to increase student engagement. The three of us taught at universities in Hawai'i, an American state with no ethnic majority. The institutions in which we worked have been rated among the top 10 most ethnically diverse universities in the nation (US News and World Report, 2015a; 2015b). Students in all three courses were ethnically and linguistically diverse and from the US and other countries. Tracy taught an undergraduate survey of psychology class at a small Catholic university where there was an undergraduate enrollment of just over 1,300 students, of whom 66% were from Hawai'i, 22% from the U.S. continent, and 9% from the Pacific Islands. The racial/ethnic background of the university included 37% Asian, 17% Hawaiian or Pacific Islander, 15% Caucasian, and 17% mixed ethnicity.

Lois and Kazufumi taught at a large public university with an undergraduate enrollment of 14,500 students, of whom 71% were from Hawai'i and 21% from the continental U.S. The racial/ethnic background of full-time students at this university included 28% Asian, 24% Caucasian, 15% Hawaiian/Part Hawaiian, 14% mixed ethnicity, 2% Pacific Islander, and 18% other. Lois, a professor in educational psychology, taught introductory graduate-level educational psychology. Kazufumi, a doctoral student from Okinawa, taught undergraduate statistics. Although the statistics course was designed for undergraduates, a few graduate students also enrolled.

CREDE in Higher Education

In this section, we describe how we used each Standard in one of the courses and provide shorter examples from the other classes. We also discuss challenges presented by the model.

Joint Productive Activity

Joint Productive Activity refers to teachers and students collaborating to create tangible or intangible products. At its highest level, the instructor collaborates with a small group of students for at least 10 minutes (Luning, Wyatt, & Im, 2011). Collaboration occurs between the teacher and students, with the majority participating and the teacher assisting in different ways.

Undergraduate introduction to psychology. In Tracy's course, there were multiple opportunities for students to work collaboratively on tangible products. For example, in groups with four or five members, students discussed what humans need to live, and they wrote each item on a Post-it note. Tracy rotated through several of these groups to monitor their discussion, encourage them to think broadly, and promote the engagement of quieter students. Participation was encouraged by the simplicity of the task. It did not require self-disclosure or depend on whether students had read the chapter on motivation, yet it drew on their past experiences. Students then left their groups, moved to the front of the classroom, and placed their Post-it notes on the whiteboard. Tracy asked the class what they noticed about the many "needs" on the board. Students noted that there was considerable redundancy as the small groups had generated similar lists. Tracy then asked the students to come up to the board and group similar needs. These grouped needs were then labeled by the class and placed in a hierarchy from what was most "basic" to the most sophisticated need, essentially duplicating Maslow's (1943) Hierarchy, a pyramid depicting physiological and safety needs at the bottom that are essential before other needs at higher levels (e.g., love, esteem, self-actualization) can be realized.

Students appeared to enjoy the exploratory nature of this activity and that there were no "correct answers." At the same time, the parallels between Maslow's concept and their class-created hierarchy were striking and increased the credibility of the Hierarchy of Needs construct. Tracy challenged the class to come up with exceptions to such a hierarchy, such as the life of Nelson Mandela, whose basic needs were severely limited while satisfying higher levels, such as self-actualization. This prompted a class discussion of other exceptions, and students suggested other examples such as soldiers and religious pilgrims.

This activity exemplified Joint Productive Activity at the highest level in that the students collaborated with each other and the instructor to develop both tangible products (the list of needs and the eventual composite hierarchy) and intangible products (understanding of Maslow's ideas and exceptions to an established motivation hierarchy). Tracy assisted students' collaboration by questioning, rephrasing what was said, and modeling how concepts could be grouped and how established and well-known theories may be challenged.

Joint Productive Activity in the other courses. Kazufumi implemented Joint Productive Activity when he covered the topics of statistical analyses and estimation. Like Tracy, Kazufumi's students worked on the same task in small groups while he circulated among them. For example, students discussed how to create four steps of hypothesis testing and summarized their discussions on chart paper as a tangible product that was created while the students also built their intangible understandings. Lois structured her class into small groups and planned a different collaborative activity for each "center." Students rotated through each of the centers throughout the class period with

the composition of the centers changing so that they worked with different members for each rotation. At each center, both peer-led and teacher-facilitated, students discussed questions posed, creating intangible products and sometimes creating tangible products together. For a session focused on theories of learning, Lois met with her small group to discuss contexts in which students had learned something intentionally or unintentionally, while a peer-led group created a visual representation of the main ideas of the reading, and a third group worked in pairs to teach each other something new.

Language and Literacy Development

Language and Literacy Development refers to teachers promoting the language of their subject matter. At the highest level, one of the goals of the class session is for students to write or speak in ways that are specific to that subject (Luning et al., 2011).

Graduate introduction to educational psychology. Lois designed the activity centers with a goal of developing students' skills in reading, writing, or talking about research and theory in educational psychology. Students wrote a short paper responding to a prompt about the assigned readings and in class, read each other's papers, and wrote comments on them. Then, in one of the centers, they discussed the papers. The students enjoyed reading each other's papers, and this also gave them ideas for their discussion. This promoted the engagement of quieter students who might have tended to remain silent in discussion. They participated by writing comments to their peers, and other students also asked them questions more directly based on what the quieter students had written. The peer paper sharing and discussion groups is considered Language and Literacy Development, but not at the highest level because the teacher was not there to provide assistance.

At her Center that day, Lois sat with each small group of students and discussed their literature review questions. Lois had told students to bring one or two of their ideas. At that Center, the students took turns presenting their ideas and the group provided feedback. Language and Literacy Development was enacted at the highest level because Lois modeled use of psychological language and assisted students through questioning and rephrasing what they had said using psychological terms. The goal was for students to be able to articulate a question they could pursue for their final paper. For example, one of the students, Jana, was a teacher who had been out of school for a while and was intimidated by having to write a long research paper. Jana wanted her paper to be relevant to her classroom practice and was unsure how to frame her

ideas as an appropriate literature review question. Lois asked Jana questions to clarify what she wanted to know: "What do you want to find out to help you improve your instruction? How is that psychological?" Other students in the small group made suggestions, and Jana eventually stated the focus of her paper as, "How is family engagement related to student outcomes?"

Designing the class activities so that students had many opportunities to communicate with each other and with the instructor increased engagement because students were expected to take an active rather than passive role in learning. One of the international students in class told Lois that the emphasis on language and literacy was especially helpful to the development of her English writing and speaking skills, as she was required to speak and write a lot and for many purposes. She also felt that the intensive interaction promoted students getting to know each other and created a socially engaging class, which further supported students' development.

Language and Literacy in the other courses. After a mini lecture on difficult statistical terms and concepts, Kazufumi posed a question that small groups of students discussed as he moved among them to assist with comprehension of terms. The question for one day was, "What are differences and similarities between hypothesis testing and interval estimation?" These were two concepts that were difficult for students. When Kazufumi worked with each group, the students explained the concepts to show their understanding, applying appropriate and technical language.

Tracy required students to work in small groups on a research project that included writing a term paper. Students brought sections of the paper to class to share with group members. As students provided feedback on each other's writing, Tracy rotated through the groups to monitor this process and model how to give constructive feedback. Students received a group score rather than an individual grade for the paper, so there was incentive and a high level of engagement to provide productive feedback to each other.

Contextualization

This Standard focuses on the notion that instruction is most engaging and successful when new information is connected to what learners already know from prior home, community, and school experiences. At its highest level, teachers integrate students' prior knowledge with new and abstract understandings (Luning et al., 2011).

Undergraduate introduction to psychology. Tracy found that there were many opportunities to connect students' prior experiences to course concepts. To promote such connections, he required journal assignments in

which students connected how the topic of the week related to their own lives. For example, as a means of exploring the nature versus nurture debate in development, students reflected on aspects of their personality and the extent to which they considered themselves to be more like their parents or more like their friends.

To demonstrate classical conditioning, Tracy showed students an empty bag of *li hing mui*, a salty Chinese snack that is popular in Hawai'i. Those students who were raised in Hawai'i and recognized the bag salivated upon seeing it, demonstrating a conditioned response, whereas, those who were unfamiliar did not. This demonstration was both an example of the involuntary nature of conditioned responses and provided relevancy to the typical review of Pavlov's research. Students were then challenged in a whole class discussion to come up with other ways in which they experienced conditioning. Students volunteered that the smell of a perfume or cologne could make them feel good as it reminded them of a boyfriend or girlfriend.

Tracy used students' everyday experiences to illustrate a concept and assisted students in understanding the abstract ideas by questioning and modeling the connections. Student engagement increased when they were required to relate concepts to their own lives and share these insights. Contextualization was at the highest level of enactment when Tracy could assess student understandings and assist them in making connections between their personal experiences and abstract concepts (Luning et al., 2011).

Contextualization in the other courses. In the other courses, the instructors made many attempts to connect students' prior experiences to concepts being taught. For example, when they discussed student assessment in the graduate educational psychology course, Lois asked the students to think of an example of an assessment they had experienced as a student and to relate that experience to what they had read in the text.

When a student in the statistics course had difficulty understanding the concept of correlation, Kazufumi gave an example of the correlation between GPA in college and the likelihood of gaining a well-paid job. Contextualization increased students' cognitive engagement in that it required students to actively apply the abstract concepts to previous experiences.

Complex Thinking

Complex Thinking goes beyond rote memorization such that students use skills of analysis, synthesis, and application (Tharp et al., 2000). Instructors emphasize Complex Thinking when they teach students metacognitive skills, such as how to organize and revise a paper or when they provide a template for an assignment. At the highest level, teachers design instructional activities that require

complex thinking and assist students with these strategies (Luning et al., 2011).

Undergraduate statistics. Kazufumi provided lecture-style instruction for half of the class and group activities for the remainder of the session. He divided the students into small groups for a 10-minute session at the beginning of class to work in small groups to discuss their homework. A 20-minute group discussion followed to assess students' understanding of those ideas. Kazufumi checked in with each group, asking students about the meaning of statistical concepts and encouraging them to apply prior knowledge and experience to understand the ideas.

For small group discussions on statistical hypothesis testing, Kazufumi posed two questions: "What is the level of significance or α level and what are typical probabilities at that level?" He joined each group in their conversations, asking questions, rephrasing, and clarifying. One group's discussion went beyond answering the questions. They talked about the social consequences of setting an α level for one's research. A student suggested that a significance level of .05 and .01 could be too high in certain areas, such as physics. Kazufumi joined this group, and they discussed how setting an α level at .05 or .01 in physics, medical science, and other areas could be problematic because of the consequences of error. Researchers would want to be more stringent in their decision-making. Kazufumi asked the students to consider the importance of assessing whether the significance level fit the particular area of research and to consider aspects of practical significance and the social consequences of research, in addition to statistical significance.

This example of a small group discussion can be considered Complex Thinking at the highest level because students and Kazufumi developed shared understandings and applications of statistical concepts that went beyond providing definitions and calculating formulas. By designing small group discussions in which he participated, Kazufumi assessed students' knowledge and assisted through clarification, questioning, and modeling use of concepts. Complex thinking is itself cognitive engagement. By having students tackle questions that were complicated and required discussion in small groups, Kazufumi promoted an environment in which students got to know one another, felt comfortable asking questions, and engaged in conversations on complex topics.

Complex Thinking in the other courses. Instructors in the other two courses engaged their students in many activities that required higher-level thinking, rather than memorizing facts. Students in the graduate educational psychology class were required to apply criteria of what made for quality research to critique an empirical article.

In the undergraduate psychology course, students listened to an audio recording of a conversation between Tracy and a professional telephone psychic. Tracy asked students to reflect on a number of features of the conversation, such as the specificity of predictions, the clarity of terms, and the model of causation reflected by what the psychic said about planetary movement and Tracy's future. This exercise promoted students' critical thinking, consideration of causation, and reflections on the nature of truth and limits to understanding. The phone call was very amusing, so students were interested and enjoyed the activities.

Instructional Conversation

Instructional Conversation (IC) involves the teacher and a small group of students in sustained conversation about an academic topic (Tharp & Gallimore 1988). Students talk to each other, as well as to the teacher, and ideally, students speak more than the teacher. At the highest level, IC occurs for at least 10 minutes, and teachers listen carefully, foster students' understandings, and question them on their judgments and rationales (Luning et al., 2011).

Graduate introduction to educational psychology. As described in the section on Joint Productive Activity, Lois designed her class as a series of small group rotations. At her Center, Lois deliberately chose a topic that the students would likely have difficulty understanding and designed an IC around those concepts. For one class, students each brought an article for which they were writing critiques based upon criteria in the readings that described quality educational research. In their small group with Lois, the students summarized the articles they had chosen and discussed their strengths and weaknesses. Lois questioned students by referring to the articles the class had read on standards for judging educational research: "How does that relate to the articles we read on good research?" She asked other students in the group what they thought: "What are other strengths and weaknesses that you can think of?" Student engagement in the discussion was generally high as students worked to understand their classmates' arguments. Students asked each other to clarify their points and suggested other strengths and weaknesses of the papers. One student pointed out that what a peer had suggested as a negative aspect of the article he was analyzing could also be conceived of as a strength: "The article you chose is a qualitative study, so maybe you can also think of the small sample size as appropriate for that kind of study. The point wasn't to go broad, but instead having a small sample size allowed the researcher to go into more in depth and to explore what people thought."

One of the strengths of these ICs was that, in general, student engagement was high and students talked to each other, as well as the teacher. However, as it was somewhat early in the semester and a topic for which students had relatively little experience, some students were reticent to participate. In one group a student tended to dominate the conversation. Lois worked to include more students in the discussion by asking the particular student to hold off before others spoke: "I would like to hear a little more from others in the group before you add your comments." She then more directly asked the other students for their comments.

Using IC promoted student engagement because Lois met with small groups of students in which she could assess student understanding and ask questions to promote cognitive engagement. The small group setting also promoted Lois getting to know students better, so it influenced the social and emotional engagement of the class.

IC in the other two courses. Tracy and Kazufumi also engaged their students in frequent small group discussions. Kazufumi often used IC to engage students with statistical concepts. He engaged students in dialogue during small group discussions, moving from group to group to see how students were doing, clarifying concepts, and asking questions that pushed them to think more deeply about the topic. These conversations increased students' mental effort and promoted students getting to know one another in a class that typically created a lot of anxiety for many students.

Tracy organized small student discussion groups and circulated among them to engage in the conversations. He often followed this with whole class discussions, and he found that these larger conversations moved in unexpected directions and led to deeper levels of understanding. For example, after small group discussions on their families' parenting styles, students in the whole class discussion recognized that those who came from particular cultures—those that tended to emphasize an extended family structure—also tended to have parents with a more authoritarian parenting style. These discussion structures increased emotional and social engagement as students enjoyed sharing and interacting with peers.

Challenges to Using CREDE

All of the instructors experienced challenges implementing the CREDE Standards in their classrooms. Lois found that some students, particularly those who were international students from Asia, were not used to discussion-based courses and did not feel comfortable, initially, discussing their ideas in class. These students reported wanting to hear more lecturing, particularly when the content was challenging and they were not sure if they were on the right track. Another challenge was making sure that the peer-led center activities were roughly the same

length of time. When activities ended early, students talked about less relevant topics.

Kazufumi felt that one of the most challenging aspects of integrating the CREDE Standards was how to address a diversity of statistical knowledge, learning styles, and attitudes toward statistics. Kazufumi allowed students to choose with whom they wanted to work. He noticed that the students tended to work with the same peers each time, and there was one group that was lower achieving. This group was obviously anxious about statistics. These students did not seem as motivated to create the joint products that were assigned and had more difficulty engaging in tasks than other groups. While Shimazoe and Aldrich (2010) found that increased group productivity was related to teacher-assigned groups, compared to situations in which students self-select their group membership, research by Chapman, Meuter, Toy, and Wright (2006) indicated that there were advantages to allowing students to choose their own groups. Kazufumi decided that the next time he teaches this course, he will assign students to groups and rotate them so that they work with different peers.

A few students in the introductory psychology course appeared less comfortable with engaging in small group activity and whole class discussions. Some appeared to expect more lectures, and one commented in the post-course evaluation that Tracy was not teaching enough! Tracy found that it was often necessary to interact more with groups who did not seem as engaged, which at times left the higher achieving groups without his participation. The personal nature of the psychology course content may have also presented more difficulties for some introverted students to discuss issues openly with peers and the instructor.

Conclusions

Engagement among Culturally Diverse Higher Education Students

We chose to apply the CREDE model in our university classrooms because of its long history of success with culturally and linguistically diverse K-12 students (e.g., Doherty et al. 2003; Saunders & Goldenberg, 2007). Students in our courses were very diverse in terms of ethnicity and nationality. The CREDE model appeared to engage these diverse groups of students to participate in our classroom activities. However, for some students, particularly those from Asia, the model was different from what they had experienced as students in their home countries. It took longer for those students to be comfortable in a CREDE-based classroom, and some preferred more passive lectures and interactions with faculty members, rather than peers.

This is consistent with previous research indicating that international students, particularly in their first year studying at an American university, tended to interact more with faculty members than their U.S. counterparts (Zhao, Kuh, & Carini, 2005). Furnham and Alibhai (1985) found that international students also tended to prefer developing friendships with students from their home countries, or other international students, rather than students from the host country. Promoting classroom friendships with many different students, including those from the host country, can be fostered through CREDE classroom activities. This can be beneficial for international students, as research suggests that those who develop friendships with host country peers tend to have an easier time adjusting to their new situations (Furnham & Alibhai, 1985; Ying & Han, 2008). We found that once the students from Asia got used to the model, their engagement increased, and they reported that they were more active learners than they were in university classrooms back home.

In general, Contextualization appeared to be an important way to engage diverse students to participate because it required them to connect prior experiences to the new information being taught, thus increasing cognitive engagement. Through Contextualization, everyone's past experiences are highlighted as important to learning new concepts. Small group instruction, as required by Joint Productive Activity and IC, also promotes social engagement and creates opportunities for instructors to get to know students. Once teachers know more about their students, they can promote the expansion of their understandings.

By getting to know our students and talking with them in small groups, we may create a more caring environment. Previous research found that students' perceptions of faculty members' warmth and caring were related to persistence and retention in higher education (Jackson et al., 2003). Instructors' positive comments and non-verbal cues indicated responsiveness to students' needs and were related to positive faculty-student relationships. These relationships predicted the development of students' self-efficacy and their feelings of being in control of their learning environments (Creasey, Jarvis, & Gadke, 2009). This in turn may have led to better learning outcomes, as college students with higher self-efficacy tend to earn better grades (DeFreitas, 2012; Komarraju, & Nadler, 2013; Peters, 2013).

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Acknowledgements