APPLYING STUDENTS' PERSPECTIVES ON DIFFERENT TEACHING STRATEGIES:

A Holistic View of Service-Learning Community Engagement

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Abstract

From a university perspective, service-learning and community engagement (SLCE) has been identified as a high-impact practice that offers advantages over traditional lecture and assignments, yet students do not always embrace SLCE courses. While most studies of undergraduate students' perceptions of SLCE focus on particular experiences or on SLCE in general, contextualizing these findings within students' perceptions of various teaching strategies and knowledge can better assist faculty in engaging students. Drawing on cognitive anthropology, this article is one of the first to conduct a cultural domain analysis to provide insights into how undergraduates conceptualize SLCE in relation to other teaching strategies. This broader analysis of the associations undergraduates make with SLCE reveals how these can carry ramifications for quality engagement with the project and community partners. The results include how faculty can design and scaffold SLCE into their courses in the absence of a centralized agency or formal campus-wide process for regulating SLCE experiences.

From a university perspective, service-learning and community engagement (SLCE) has been identified as a high-impact practice that offers certain advantages over traditional lecture and assignments, yet some students do not always recognize the benefits of SLCE.[1] Past research reveals that part of the context that influences students' understandings of and responses to SLCE includes students' life experiences and identities, their expe-

1. The author acknowledges some of the problems associated with the term "service-learning" (Jacoby, 2015). However, at the university where the research was conducted, "service-learning" was the term commonly used by faculty and students at the time of the study. Thus, this article uses the term "service-learning community engagement" to reflect how it was referred to in the case study. Its use at the time of the study aligned with Bringle and Hatcher's (1995) definition of service learning as "an educational experience [i.e., a course] in which students (a) participate in mutually identified service activities that benefit the community, and (b) reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of personal values and civic responsibility" (p. 112).

riences engaging with community partners, the scaffolding of the SLCE, and their cognitive development (e.g., Baxter Magolda & Boes, 2017; Morrison, 2015). This article highlights another important contextual element that faculty should consider when framing and designing SLCE experiences: students' experiences and perceptions of other teaching strategies.

The whole series of learning activities and course content that students are experiencing throughout their courses and not just a specific SLCE experience can influence how students interpret SLCE. The juxtapositioning of familiar teaching strategies with others that, together with course content, stretch comfort zones can help lead to a transformative SLCE experience for students in terms of cognitive and civic growth if other course design factors are in place. However, a careful balance between "disorienting" experiences and supportive feedback and course design is required (Baxter Magolda, 2009; Baxter Magolda & Boes, 2017; Kiely, 2005). Too much disorientation in the form of SLCE experiences or other teaching strategies can lead to disengagement, whereas too little can result in no change or, worse, the reinforcing of erroneous assumptions (Baxter Magolda & Boes, 2017; Giles, 2014). For those students whose disorientation stems in part from how they view knowledge, their frustrations can derive not only from the course content and modes of learning associated with the SLCE experience but from a series of teaching activities that students are experiencing that can influence their opinions of SLCE.

This study argues that identifying trends in how some undergraduate students conceptualize SLCE in relation to various teaching strategies can give faculty and institutions important insights into how their undergraduate populations approach SLCE. These insights in turn can be used to scaffold curriculum and prepare students for productive interactions with community partners. This study is one of the first to use cultural domain analysis to begin to identify such trends. Cultural domain analysis stems from cognitive anthropology and captures how particular groups of people perceive items that belong together in the same category, such as teaching strategies (Bernard, 2006; Borgatti, 1994a). Data was collected at a 4-year Midwestern university with a long history of SLCE scholarship, including a center. The results are reflective of student perceptions at similar institutions that do not have a central agency and process for approving activities referred to as SLCE or community-engaged learning. The study integrates the cultural domain analysis results with Perry's (1998) scheme of intellectual and ethical development and students' demographics to identify potential patterns in how various undergraduate students at such institutions may view SLCE in relation to a variety of teaching strategies used on college campuses. The results and discussion point to the importance of preparing students to take an active role in their learning both inside and outside of SLCE and provide key insights that faculty can use to address current issues, such as framing how to talk about SLCE and how to support students in critically unpacking the politics of knowledge (Kane, 2012; O'Meara & Niehaus, 2009).

Cultural Domain Analysis and Why Understanding the Larger Cognitive Picture Matters

Recent scholarship shows a concern with understanding how faculty and institutions organize the ways they think about SLCE and the associated real-world implications for how it is carried out. For example, several studies focus on faculty perspectives and those of community partners (i.e., George-Paschal et al., 2019); how faculty and universities talk about SLCE (Arrazattee et al., 2013; Bortolin, 2011; Miller-Young et al., 2015; O'Meara & Niehaus, 2009); what scholars and faculty mean by certain words, especially "reciprocity" and "community" (Bortolin, 2011; Dostilio et al., 2012); and how faculty perceptions of not just SLCE but their disciplinary paradigms and personal worldviews influence how SLCE is done and the ways community partners are involved (Morrison, 2015). Moreover, there is continued discussion among scholars about what terms should be used to capture different forms of engagement, and these terms link back to how scholars and institutions conceptualize interactions with community partners (Saltmarsh et al., 2009; Welch, 2016).

Studies that focus on student perceptions of SLCE tend to concentrate more on particular SLCE experiences in a specific class but do not directly address students' perceptions of SLCE in relation to a variety of learning options (Burke & Bush, 2013; Caspersz & Olaru, 2017; Lumpkin et al., 2015; McKenna & Rizzo, 1999; Piper et al., 2000; Reising et al., 2006; Whitley, 2014). A focus on the broader educational context as it relates to the different teaching strategies students are experiencing and how students cognize SLCE's place within them is also important for understanding student reactions to SLCE.

This article applies the methodology of cultural domain analysis to analyze how students conceptualize SLCE in relation to a wide variety of active and passive learning strategies. This methodology provides insight into the associations people make and can lead to a better understanding of how they view particular items (Bernard, 2006). Cultural domain analysis is commonly broken down into several steps that involve free lists focused on a particular cultural domain, pile sorts based on the free list results, and interview questions that accompany the pile sorts (Bernard, 2006; Borgatti, 1994a).[2] The pile sort results are then analyzed in the aggregate to identify particular groupings or clustering across respondents, assuming that there will be divergent but also common understandings of different items (Bernard, 2006; Borgatti, 1994a). The resulting groups of similar items provide insights that direct future questions into how some people cognize the world differently and thus their resulting differing behaviors and beliefs related to the same cultural domain.

While different methods, such as surveys, interviews, and content analysis of students' reflections, have been used in the past to analyze students' perceptions of SLCE, cultural domain analysis is a rarely explored option that can offer deeper insights than methodologies that ask students to rate SLCE or give their opinions of it. In these cases, undergraduate students are self-reporting on their perceived level of learning or satisfaction with

2. For the pile sorts, a different set of individuals from the target group are asked to group all of the items from the free list that fit together and to explain their reasoning for their groupings (Bernard, 2006). These two steps generally involve around 30 participants each to reach saturation (Bernard et al., 2009; Borgatti, 1994a). For more information on how to conduct cultural domain analysis, see Bernard et al. (2009) and Maxwell and Bernard (n.d.).

the technique; such data can reveal that disconnects exist between faculty and student expectations but do not generally get at the roots of why and the possible alternatives. However, cultural domain analysis is better able to assess how undergraduate students' broader categorization and conceptualization of teaching strategies influence the way they approach SLCE by providing an aggregate perspective of teaching strategies and SLCE's place within them.

Perceptions of Knowledge

At the same time this study investigates undergraduate students' cultural domain of teaching strategies, it also takes into consideration factors that past research has shown influence students' perceptions of SLCE, particularly students' cognitive development and perceptions of knowledge. Early studies illustrate the influential role that students' approach to knowledge and openness to alternate worldviews can have on their perceptions of SLCE and their growth in several areas (Fitch, 2004; McEwen, 1996; Olney & Grande, 1995). For example, Fitch (2004) showed that a student's positioning along Perry's (1998) scheme of intellectual and ethical development is connected to their cultural sensitivity rating and that cultural contact was a key component for learning intercultural competency inside and outside of SLCE. Baxter Magolda's (2009) Learning Partnership Model demonstrates the direct connection between developmental capacities and the scaffolding of course experiences, including SLCE, to promote self-authorship (Baxter Magolda & Boes, 2017). Moreover, Bringle and Wall (2020) pointed out that:

> Baxter Magolda's (2001; see also Baxter Magolda & Boes, 2017) self-authorship model posits that growth of the mind that produces civic growth comes in a shift from uncritical reliance on external authority toward self-authorship and the internal capacity to craft one's beliefs, identities, and social relations. (p. 12)

Bringle and Wall similarly noted Knefelkamp's (2008) work, which identifies "complex intellectual (i.e., cognitive) and ethical development" as a key component of civic identity (p. 3).

William Perry's model captures shifts in how students' perceptions of knowledge change as their intellectual and ethical development progresses (Moore, 2002).[3] Although students can move back and forth in terms of their positioning as part of their growth, in general most individuals begin in the dualism position, whereby they hold a common assumption that there is one correct worldview and the instructor's job is to provide students with *the* accurate facts to better understand this worldview (Moore, 2002). Individuals then transition into the next set of positions, called multiplicity, which is characterized by less certainty concerning a single, correct worldview and an openness to multiple, potentially accurate worldviews (Moore, 2002). However, this openness to multiple viewpoints does not necessitate an informed, critical evaluation of the options (Moore, 2002). The next

3. Although Perry's original sample is not representative of today's student body, considering the different ways of viewing knowledge that students may be bringing into the course can assist in scaffolding and designing curriculum that addresses potential cognitive barriers or points of tension for students' effective involvement in SLCE.

position, called contextual relativism, involves embracing the necessity of an informed, critical evaluation of the options and self-reflection of one's own role in the process of knowledge creation (Moore, 2002). This position is a key moment in development within Perry's model (Moore, 2002) as well as for students' perceptions of SLCE since they would be more likely to recognize the value of SLCE and their growth in certain areas.[4]

As past research suggests, being in the dualism and even multiplicity phases can negatively impact a person's ability to engage in SLCE. Since those in the dualism phase struggle with understanding that knowledge is constructed, this outlook can affect their engagement in the accompanying critical reflections, which are key for learning (Ash et al., 2005; Bringle & Hatcher, 1999; McEwen, 1996), and further complicate crafting reciprocity among students and community partners. Such students may expect to be given direction on the "best" way to address a particular issue associated with their SLCE in order for it to result in a positive, expected deliverable. They may struggle with recognizing the value of discussion and that observation and context are necessary for evaluation. They can become frustrated and dissatisfied when they are either left to make sense of the seemingly messy experiences through personal reflections or when their efforts do not result in the expected outcome. They may also struggle with expanding their conceptions of who produces knowledge for whom, leaning more toward hegemonic notions of instructors as the producers of expert knowledge and not look equally to community partners for valuable insights (Kane, 2012). In addition, they may perceive lecture and problem-solving exercises that offer practice working with the data and clear correct-incorrect answers as more productive for learning than SLCE experiences.

This article identifies what some students of various backgrounds and positionings along Perry's continuum share in common in terms of their perceptions of teaching strategies used at universities and the positioning of SLCE within these strategies. Through identifying commonalities in students' ordering of the educational world in particular ways across student demographics, including Perry's continuum of intellectual and ethical development, as well as areas of divergence, faculty can gain deeper insights into how to structure their course activities to balance the disorienting challenges of SLCE and other learning activities (Baxter Magolda & Boes, 2017). This information in turn can be used by faculty to help students transition into taking a more active role in their learning and adjust their expectations and perceptions of SLCE in order to minimize or even avoid cognitive barriers to full embracement.

Methods

A cultural domain analysis was conducted with 65 undergraduate students of various majors, demographics, and years in school at a Midwestern public state university with a long history of SLCE. This institution did not require at the time approval by a central agency before courses and co-curricular activities could be referred to informally or formally as SLCE. Recruitment for the study took place in public spaces on campus and in courses in which instructor permission was provided. Recent SLCE scholarship points out that one common limitation

4. There is also a final set of positions in Perry's model, called commitment to relativism, but it is rare for an undergraduate to obtain such positions prior to graduation (Moore, 2002).

Table 1
Participant Demographics

Demographics of participants		Free list: sample size 31	Pile sort: sample size 34
Gender	Man	35%	38%
	Woman	65%	62%
Perry's scheme of intellectual and ethical development	Dualism	38%	27%
	Multiplicity	54%	64%
	Contextual realism	8%	9%
Year in college	First year	52%	26%
	Sophomore	10%	15%
	Junior	16%	20%
	Senior	16%	21%
Indicated past experience with SLCE		23%	27%

in some SLCE research design is not incorporating a comparative sample that includes both students with and without SLCE experience (Bringle & Wall, 2020; Gonsalves et al., 2019; Steinberg et al., 2013). As a means to address this limitation, this study used recruitment strategies in all phases that involved undergraduate students with and without prior SLCE experience and controlled for this difference during the analysis. Because faculty who teach SLCE courses are recruiting from a student body with various experiences with SLCE labeled courses, identifying commonalities across this experience range is important.

Overall, most students who participated in the study were between the ages of 18 and 21 years. In addition to demographic questions and semi-structured interviews that commonly accompany pile sorts, each student was asked to fill out a structured survey associated with Perry's scheme of intellectual and ethical development (LEP) to gather additional contextual data about how the students viewed knowledge production and learning (Moore, 2002).[5] As illustrated by Table 1, there were similar proportions in terms of gender, positioning along Perry's scheme, and prior experience with SLCE in the two phases.

Out of the 31 undergraduates who participated in the free list interviews, 16 students identified as white, and the remaining students identified as African American, biracial/multiracial, Hispanic/Latinx, Indian, and of Middle East descent, with two leaving the question blank. Similar to the free lists, the pile sort sample included 22 students who identified as white, and the remaining students identified as Hispanic/Latinx, African American, or Asian. Both samples represented a variety of majors, including liberal arts, STEM, business, and informatics.

The undergraduate students' free lists were combined to produce a final list of 42 reported teaching strategies that were used in the pile sort. Students were asked to sort the teaching strategies into piles based on similarity or what they thought went together. They could have as many or as few piles as they chose but could not have only one pile, or 42 individual piles. Students were asked to give each group of teaching strategies a title or name and

5. Less than half of the students in the free list sample elected to complete the LEP survey, which consists of 90 rating questions; nevertheless, the dualism, multiplicity, and contextual relativism phases were all represented. Almost all students in the pile sort completed the LEP survey.

explain why they grouped these items together. Student participants were not told that this study was specifically about SLCE in order to avoid extra attention or bias in sorting.

The pile sort data was entered into ANTHROPAC software to generate the domain analysis (Borgatti, 1992). The software produces an "aggregate matrix [that is the] averaged group view of the relationships among" the items in the cultural domain (Maxwell & Bernard, n.d.). Since some scholars (Aronson et al., 2005; Roldan et al., 2004) have found differences in student perceptions of SLCE based on gender and whether a student has had prior experience with SLCE, the data was also divided based on prior SLCE experience and gender. Consensus analysis was run along with quadratic assignment procedures (QAP) to determine whether these subgroups showed a distinction in the way they sorted the teaching strategies (Bernard et al., 2009; Hubert & Schultz, 1976).[6] Since students' perceptions of knowledge and learning can also potentially influence their categorization of teaching strategies, the pile sort data was also divided based on students' LEP scores, which produced subscores for each of the positions from dualism thru contextual relativism. Following Moore (n.d.), the position with the highest frequency for each student was used for the basis of the comparison, and QAP was run, comparing the dualism and multiplicity groups, the dualism and contextual relativism groups, and the multiplicity and contextual relativism groups.[7]

For better visualization of the pile sort results, non-metric multidimensional (MDS) scaling and hierarchical cluster analyses were performed.[8] The patterning across the MDS visual summary and hierarchical clustering was used to propose themes or hypotheses, and these results were compared with interview data to begin to identify possible reasons behind the associations (Borgatti, 1994a). The qualitative interview data collected with the pile sorts was analyzed in a qualitative software program, and commonalities associated with the reasons given for the targeted piles were identified, including the potential influence of a respondent's positioning along Perry's scheme of intellectual and ethical development.

Free List Results: What Inclusions and Exclusions Can Tell Us

The results of the free lists showed that service-learning or SLCE was not mentioned by any of the students, although several students listed experiential learning, fieldwork, and/or internships. Surprisingly, 23% of stu-

6. Consensus analyses were run on the individual proximity matrixes from the pile sort data to evaluate whether the consistency in results indicated the presence of one or more cultural groups (Bernard et al., 2009; Borgatti, 1994a; Romney et al., 1986). The presence of more than one subgroup and potentially more than one taxonomy for the cultural domain can distort the interpretation of the pile sort data.

7. In addition, the two subgroups of the multiplicity phase were combined to facilitate the analysis.

8. MDS provides a visual summary of how participants overall grouped items together (Borgatti et al., 2002). Although it is non-metric and thus the numerical distance between points and clusters cannot be used in calculations, clusters indicate consistent placement in the same pile. Hierarchical clustering depicts the proximity of two items and then their proximity with another item, pair, or group of items that result in a "nesting" of similarities (D'Andrade, 1978; Johnson, 1967; both as cited in Borgatti, 1994b). Hierarchical clustering was used to help interpret some of the patterns that were noticed in the non-metric MDS scaling (Bernard et al., 2009).

dents indicated that they had done "service-learning" when asked about it after the free list activity. The absence of SLCE from the undergraduate students' lists suggests that SLCE is still not readily conceptualized as a learning strategy and that a blurring of distinctions between community service and SLCE may be occurring, especially among first-year students. These results reflect Jones et al.'s (2008) findings concerning the multiplicity of experiences labeled as service-learning in high school and how college students did not readily or initially view such experiences as *learning* experiences.

Table 2 is the aggregated results of the final free list with the frequencies, that is, the number of individuals who included the item in their list. The top three teaching strategies that the undergraduate students most commonly listed were PowerPoints, lectures, and in-class group activities.

Since SLCE did not emerge in the free lists, it was added as "service-learning activity" and "service-learning project" to the pile sort. This addition to the list for the pile sort activity does not invalidate the methodology, as they are part of the cultural domain and recognized as such by students when asked (Bernard et al., 2009). The use of the term "service-learning" and not "community-engaged learning" or "service-learning community engagement" is due to the fact that "service-learning" was the official student-facing term. Thus, "service-learning" provided the most likelihood for student recognition and will be used throughout the article when referring to its pile sort appearance and student comments.

"Service-learning activity" and "service-learning project" are listed separately in order to better understand if there exists any difference in student perceptions depending on how faculty talk about SLCE or if these concepts function more like synonyms. The question about whether such a difference exists stems from preliminary observations that I made after teaching for several semesters SLCE undergraduate courses as well as a graduate SLCE course that collaborated with the same community partner. My experiences listening to students, reading critical reflections, and using different types of assignments in the SLCE courses suggested that some undergraduate students may view SLCE that has a tangible goal or deliverable for the community partner differently from SLCE that is associated with interactions with a community partner and reflections and/or term paper. Such distinctions can carry ramifications for the design of SLCE and how faculty frame and scaffold their SLCE classes.

Pile Sort Results: Identifying the Patterns and Some Possible Meanings

The results of the consensus analysis as well as the QAP comparison between piles produced by undergraduate women and men and by students with and without prior SLCE experience indicated that there was not a significant difference between each set of groups. Nevertheless, for students with and without prior SLCE experience there was some small variation in how service-learning activities and projects were categorized in relation to one another and to "professor uses contemporary examples" and "research assignments." These will be discussed in more detail below. In terms of Perry's continuum, the results revealed that individuals in the contextual relativism phase sorted differently than the other two phases. These findings suggest that students with certain

Table 2
Final Free List With Frequencies and Abbreviations

Cultural domain: "teaching strategies used by professors"	Frequency	Abbreviation of teaching strategy
PowerPoints	16	POW
Lectures	12	LEC
In-class group activities	12	IGA
Required readings outside of class	8	ROC
Group projects	8	GPA
Videos	7	VID
Review session	7	REV
Assignments outside of class	6	AOC
Papers	6	PAP
Class discussion	5	DIS
Individual presentations	5	IPS
In-class assignments	5	IAS
Quizzes	5	QIZ
Complete reading questions	5	RQU
Small group discussion	4	SGD
Discussion boards	4	DBO
Fieldwork exercises	4	FEX
Problem-solving exercises	4	PEX
Exams	3	EXA
Class handouts	3	CLH
Internship	3	INT
Posting resources on canvas	3	CAN
Individual projects	3	IPR
Professor includes contemporary examples	3	CEX
Games	3	GAM
Whiteboard activities	3	WHI
Clicker questions	2	CLI
Professor uses repetition	2	REP
Research assignments	2	RES
Ice breaker exercises	2	ICE
Models or displays	2	MOD
Field trips	2	FTR
Student-lead discussions	2	SDI
Labs	1	LAB
Debates	1	DEB
Partner discussion	1	PDS
Hands-on activities	1	HAN
Experiential learning	1	EXL
Flipped classroom	1	FLP
[Service-learning activity]	0	SLA
[Service-learning project]	0	SLP

Table 3
The Five Main Clusters From Hierarchical Clustering

Group 1	Group 2	Group 3	Group 4	Group 5
• individual presentations • individual projects • required readings outside of class • assignments outside of class • papers • complete reading questions • research assignments	• discussion boards • ice breaker activities • group projects • debates • class discussion • student-led discussion • small group discussion • in-class group activities • partner discussion	• review session • class handouts • professor includes contemporary examples • professor includes repetition • lecture • quizzes • exams • in-class assignments • problem-solving activities • labs	• clicker questions • PowerPoints • videos • models or displays • whiteboard activities • games • hands-on activities	• experiential learning • internship • fieldwork exercise • field trip • service-learning activities • service-learning project

perceptions of knowledge follow different organizational structures for how active and passive learning techniques go together, including SLCE. Such results align both with Perry's framework and one of the underlying assumptions with consensus analysis, namely that variation can be due to differing competence levels (Borgatti & Halgin, 2011). However, since the sample size for the contextual relativism group (three people) is very small, the visual results are left in the aggregate, and key differences across the Perry groups as it relates to SLCE will be discussed below.

Overall, the layout of clustering for the different teaching strategies and service-learning's place within the clustering suggests some patterns for how some undergraduates may view SLCE. Beginning at the top of Figure 1 and moving downward, there appears to be a progression of teaching strategies consisting of in-class group interactions, such as debates, group presentations, and ice breakers, to more individual and/or out-of-class activities, such as papers, complete reading questions, and required readings outside of class. In addition, extending from the bottom of Group 1 diagonally up to Groups 2 and 5, there appears a possible progression from summative assessment, such as quizzes and papers, that are graded for correctness to more formative assessment, such as games and in-class discussions, that are not often specifically tied to individual grades based on correctness. Following these trends, the positioning of service-learning project and service-learning activity in Group 5 suggests a perceptual distinction from summative assignments and a closer association with hands-on learning, games, and discussion boards, which often emphasize participation and practice more than graded, correct application of course material. While additional research is needed to confirm the patterns, the qualitative results will be analyzed to further explore these patterns and the possible ramifications they may have for how faculty integrate SLCE into their classes.

The titles and reasoning that students gave for their group containing "service-learning" and their group containing "required readings outside of class," which are on opposite ends of the hierarchical clustering, suggest that familiarity and trust play a role in how students categorize different teaching strategies. Some students used words

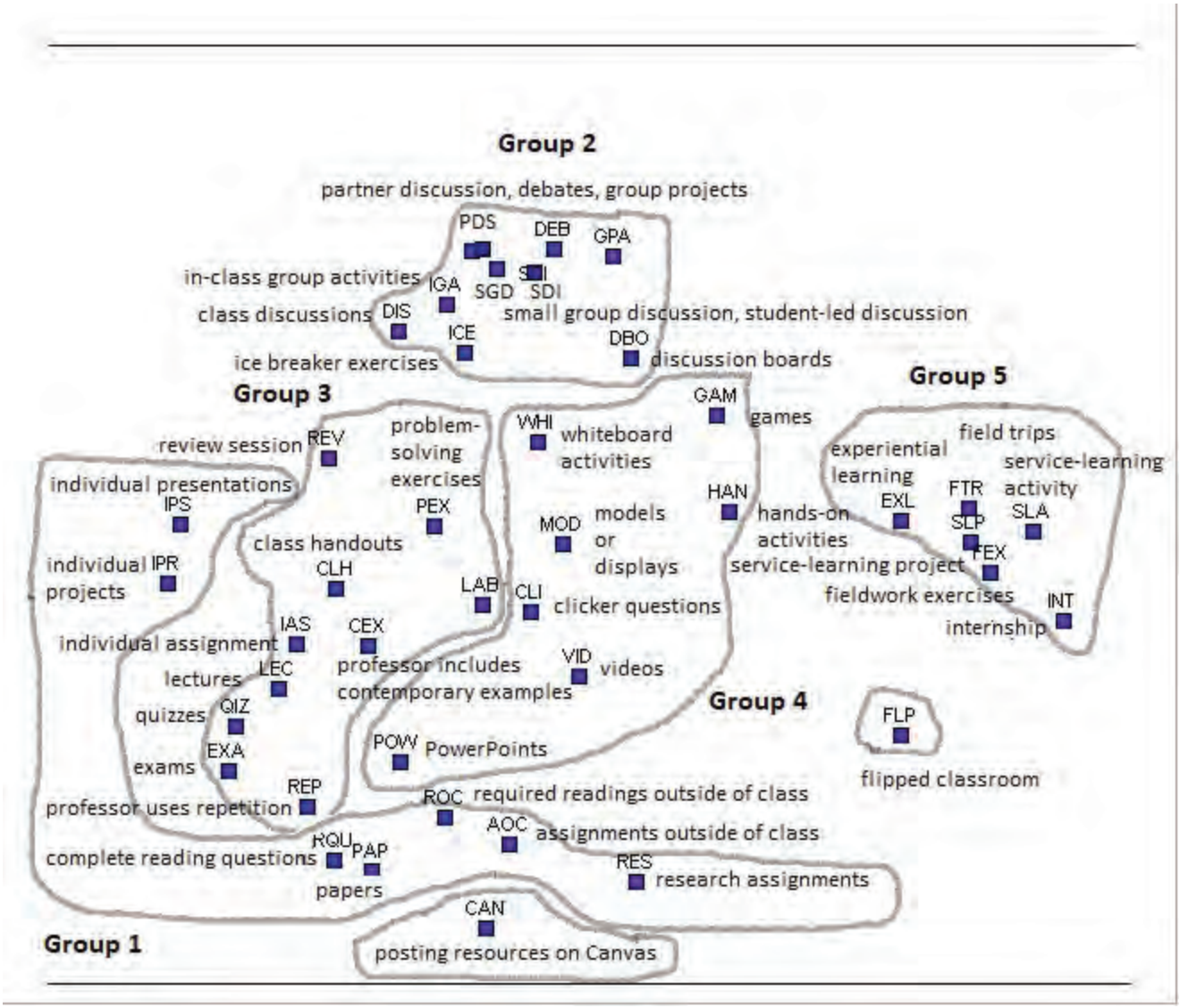

Figure 1 visually depicts the trends in how undergraduate students categorized the different teaching strategies; it is the aggregate matrix of all of the respondents' pile sort results with the specific hierarchical clustering results. Table 3 captures the five basic groups of associated teaching strategies that were illustrated through the hierarchical clustering.

Note. Abbreviations are used for each teaching strategy, and full names for each item are listed.[9]

9. The results from the hierarchical clustering reveal that "resources on Canvas [a learning management system]" and "flipped classroom" were most likely outliers given their very late association with any cluster and may have slightly affected the visual layout, such as the shifting of items "assignments outside of class" and "research assignments" further away from their actual cluster. Since the MDS condenses multiple dimensions into two dimensions, stress or distortions in the layout is expected (Sturrock & Rocha, 2000). The stress value for the non-metric MDS in Figure 1 is .185, which is below the .348 cutoff value, indicating that the distribution captures actual patterns rather than being random (Sturrock & Rocha, 2000).

or phrases, such as "unfamiliar," "not traditional methods," "unconventional," "different learning," or "outside of typical" to title or explain the pile containing service-learning. Conversely, words such as "traditional," "typical," "basic," and "standard" were used to describe and explain the pile containing "required readings outside of class."

The other ways that some students spoke about service-learning in relation to their group with "required readings outside of class" highlights how these associations can lead to misunderstandings and student frustration with SLCE. For example, while some students described the category with service-learning more as "supplemental," "optional," and "extra-curricular activities," the group with required readings was more commonly referred to as "homework" or "assignments." These associations can affect the degree of seriousness in which students approach SLCE and the centrality to which they view it in terms of their education. Moreover, one student elaborated on the pile they called "typical" by explaining that all of these teaching techniques were "tried and true." The student's "typical" pile contained PowerPoints, lectures, required readings outside of class, assignments outside of class, papers, class discussion, individual presentations, quizzes, fieldwork exercises, exams, individual projects, professor includes contemporary examples, research assignments, and labs but neither service-learning activity nor service-learning project. These findings suggest that high-impact practices, such as SLCE, are being viewed by some undergraduate students as less familiar and potentially less reliable in terms of their learning outcome than other more passive learning strategies.

When comparing this data about the titles given to the piles with results from the interviews about the rationale for the pile sorts, it becomes clearer how students' approaches to knowledge can influence their perspective of SLCE. Take for example two students, one a liberal arts major who identified as an African American woman and the other an engineering major who identified as a white man. Both scored in the highest multiplicity phase and placed service-learning project and service-learning activity together in the same pile.

The African American woman who had previous SLCE experience called her pile with service-learning "Field Activities" and placed together fieldwork exercises, field trips, experiential learning, and the two service-learning options. She explained that these field activities all involve "mutual interaction between someone conducting [the] experiment and the subject of [the] experiment." She described all of the items in the pile as "making an impact beyond the classroom setting, involving practical applications beyond class, helping someone, and making a difference."

The white man who had no prior SLCE experience labeled his pile "Experiential Learning" and explained similarly that these were "activities or things you do outside of class to gain real world application and experience." His pile contained not only the same items as the liberal arts student but also problem-solving exercises, internship, games, and hands-on activities.

Although the first student's comments highlight more a recognition of a reciprocal relationship between students and community partners in contrast to the more one-sided, student-gaining perspective of the second student, both statements illustrate some slippage in conceptualizing service-learning as service in the sense of volunteerism and as student learning in the sense of internships (Jacoby, 2015). Both held a positive view of SLCE and a view of knowledge that aligned with the highest multiplicity phase. These results indicate a need to clarify exactly what SLCE is even for students who recognize some of its benefits.

The above students' more positive appraisals of SLCE contrast with the following two students who had different views of knowledge as it relates to Perry's continuum and whose pile with service-learning involved some of the same experiential items but contained additional items as well. For example, another engineering student who is also a white man with no prior SLCE experience placed in the same pile the two service-learning options, experiential learning, and field trips. His LEP score fell within the dualism phase. His pile with service-learning also included internship, clicker questions, ice breaker exercises, student-lead discussions, labs, and flipped classes, and he had a very different view than the above students about these teaching strategies. He called his pile "Miscellaneous" and explained this group as "New Agey or don't fit in the regular classroom form. A little out there."

Another STEM student, an Asian man whose approach to knowledge fell within the first multiplicity phase, held similar views; however, he had prior SLCE experience. This student placed service-learning activity in a pile called "Effective to a Certain Learner," explaining that it is "debatable if these [items in the pile] are effective. Some might benefit from these, but most students do these poorly. These are mostly conforming students to learn this," implying that it is more about faculty trying to get students to adopt or embrace these strategies than about students desiring such for their learning. This student placed service-learning project in a separate pile called "Never Should Do" along with papers, complete reading questions, small group discussion, discussion boards, posting resources on Canvas, games, ice breaker exercises, models or displays, field trips, partner discussion, and experiential learning. He explained that these are "all things that do not work. Discussion is a waste of time and rarely optimal." He went on to explain that teachers post resources, but students do not use them even though they are available. This participant was a tutor, and from experience said these methods, referring to all of the items in the pile, do not work because "students don't learn well or conduct these poorly."

For both of these STEM students who held a negative perception of SLCE, a common denominator for the items in the cluster containing SLCE was that these teaching strategies placed significant responsibility on the student for the learning to be effective. This finding corresponds with Taylor (1998), who found that transformative learning depends in part on students' willingness to be proactive and responsible for their learning (as cited in Fetherston & Kelly, 2007). Students who are in Perry's dualism phase and new to multiplicity have perspectives on knowledge that can cause them to struggle with understanding the usefulness of such strategies given their viewpoint of knowledge acquisition as more passive and that the instructor should be the one delivering *the* correct information. In fact, the second student's next highest LEP score was for dualism. Moreover, the comments of the student with the dual role as student and tutor suggests a particular view of learning that may hinder recognizing other ways that learning may be occurring.

These two students' explanations also reveal a related, underlying issue, namely, a lack of trust in active learning and a lack of understanding about the role of social interaction in learning and problem-solving more broadly. As one of the above STEM students described it, service-learning and the other interactive, student-driven activities in the same pile were "New Agey . . . a little out there." Such an appraisal indicates a lack of trust that active learning methods in general would work as well as a hesitancy to alternative worldviews given the fact that New Age refers to an approach to spirituality and healing that runs counter to dominate, scientific, Western

Table 4
Sample Titles for Piles Containing Service-Learning Project and Service-Learning Activity

Sample titles for the pile containing service-learning project	Sample titles for the pile containing service-learning activity
Presentation Type	Fun, Outside of Typical
Assignments	Outside Learning
Helpful Learning	Not Helpful Learning
Out of Class Work	Unconventional Way to Learn

perspectives. Moreover, the other STEM student described discussion as "a waste of time." While there can be problems in how some discussion activities are designed, such a blanket appraisal can pose a serious cognitive barrier to productive SLCE experiences, especially as it relates to establishing reciprocal relationships, as some students may not understand why they are talking with community partners, especially if they view knowledge in such a way that it is the professor who ultimately should tell them what they need to know. The result can be a disconnect between the community partner's actual goals and those of the students, as more of the social context is assumed by students or based on case studies from class rather than conversations with the community. It can also trigger feelings of frustration among students as more strategies from their equivalent of the "Never Should Do" or ineffective pile are integrated into the course, which can lead to too much of a disorienting experience and disengagement from or avoidance of SLCE.

The distinction that some students made between service-learning activity and service-learning project relates back to the above issue of how certain teaching techniques are viewed as more effective than others. Overall, 26% of students placed service-learning project and service-learning activity in separate piles. Most of the students who sorted service-learning activity and service-learning project in separate piles had no previous SLCE experience and were either in the dualism or contextual relativism phase. Table 4 illustrates differences in the titles given to each pile. When compared, the titles students gave each pile reveal that they associate service-learning projects more with formal academic work. This is in contrast to service-learning activity, which qualitative responses revealed was associated more with a field trip. This association suggests that some students, especially those without prior SLCE experience, may view SLCE more seriously as learning if a project is produced. These findings align with Gonsalves et al.'s (2019) work, which found that assigning a series of tasks with a deliverable at the end was important for students to carry out successfully the SLCE.

Relatedly, the differences in the degree of association between SLCE and "research assignments" among those with and without SLCE experience suggests that after an initial SLCE course, students may better understand SLCE and, to a limited extent, the activity itself as a formal learning experience that involves outside, independent study and more active, independent critical thinking such as research assignments, especially if their perception of knowledge is beyond the dualism phase. Students who previously took a SLCE course were more likely to associate research assignments with service-learning in general, yet they still associated it more with service-learning project than with service-learning activity. For those students without prior SLCE experience, there is less of an association of research assignments with service-learning overall, and in cases of association, the link is

more likely to be with projects, which further suggests that the service-learning activity is viewed as less academic than the project.

The cultural domain analysis's ability to capture students' perceptions of SLCE in relation to a broad range of teaching strategies can further aid faculty in framing how they talk about SLCE. The hierarchical cluster analysis illustrates a fairly strong association of "professor includes contemporary examples" with "professor includes repetition." This was true for both students with and without SLCE experience and suggests that students do not conceptualize "professor includes contemporary examples" as new information. Thus, a faculty member who introduces SLCE as a great contemporary example of *x* issue may reinforce for some students the view of the SLCE as practice but not necessarily "new" learning or, worse, just repetition or supplementary information and thus even less relevant or necessary for a student who feels they already understand the topic and do not need another example. Such a viewpoint sheds light on another reason why past studies (i.e., Pedersen et al., 2015) found that some students became frustrated with the extra time commitments involved in required SLCE activities, especially those that produce no tangible product.

Overall, the results revealed that the added responsibility SLCE places on students for their learning combined with their unfamiliarity with it as a learning technique distinguishes SLCE from what some students conceptualize as familiar and more trustworthy teaching strategies in terms of their learning outcomes and efficacy. In addition, the ways in which faculty talk about SLCE may influence students to conceptualize SLCE in certain ways. Moreover, the value of the SLCE activity for learning can be overlooked by some students falling across various phases of Perry's scheme of intellectual and ethical development, especially if they do not have prior SLCE experience. The likelihood that the learning potential may go unrecognized for SLCE is compounded if the experience does not produce an end product and if the students already struggle with understanding how they can learn from others and that knowledge acquisition involves self-growth. As the cultural domain analysis and qualitative interview data reveal, simply selecting other interactive pedagogy as an alternative to expose students to multiple worldviews and to help them practice critical evaluation while self-reflecting on their own assumptions can be received in similar, negative ways as SLCE. Thus, faculty who incorporate not only SLCE but also various, in-class active learning teaching strategies face the challenge of both helping students learn the material while also learning why and how to take an active role in their learning.

Discussion and Recommendations

Based on the above results, this section brings together recommendations from a variety of sources that faculty and institutions can use to help balance some disorienting challenges associated with SLCE, particularly those stemming from certain conceptions of knowledge. Effective engagement involves not just faculty, institutions, and community partners but also students, yet there may be multiple motivations driving a student to participate or discouraging them from participating in SLCE. These suggestions focus more on the cognitive or conceptual barriers and align with constructive-developmental pedagogy (Baxter Magolda, 2009; Boes, 2006). The recommendations

begin with the more surface-level, easy adjustments, such as the words faculty use to describe SLCE, and then go deeper into more complex issues, such as helping undergraduate students re-conceptualize how they see knowledge and its production, which has implications for reciprocity with community partners, so that students can develop the skills needed to embrace a more active role in their learning. Such efforts are not limited to the ways that faculty frame their SLCE experiences and assist students already in a SLCE course. They are also relevant for recruiting students who have not yet done SLCE and for preparing students in other classes for SLCE experiences.

Semantically, there are several relatively easy adjustments that can be made in how SLCE is framed when communicating with some undergraduate students who are attending institutions similar to the university in this study. Using the word "project" instead of "activity" as the descriptor can help promote, although not guarantee, a perception of the SLCE as formal academic work. Moreover, having tangible deliverables, such as pre- and post-SLCE practicum evaluations or end products based on the community partner's goals can assist students in recognizing the academic value of SLCE. In addition, being cognizant that justifying the inclusion of a SLCE experience in class by referring to it as a contemporary example may influence some students to view the SLCE as just supplementary experience, not one that is going to provide additional, new insights. It will most likely index for students repetition and at best real-world practice but not necessarily the type of participation that involves gaining new information and perspectives about the topic.

However, semantic shifts alone are not sufficient to address deeper issues related to the common perception that some students had of SLCE as optional, extra, and external compared to more "familiar" and sometimes more passive teaching strategies. In reality, the relationship among perceptions of SLCE, perceptions of knowledge and learning, and doing SLCE effectively is symbiotic. As past research points out, SLCE activities can further students' intellectual and ethical development (Baxter Magolda & Boes, 2017; Baxter Magolda & King, 2004, 2012; Boes, 2006; Bowman, 2011; Bringle & Wall, 2020; Fitch, 2004; Pascarella et al., 2014). But it is equally important to remember the reverse, that the ability to be active learners and not holding too closely to a dualistic perspective of knowledge is key for some students to even elect to do and then effectively carry out SLCE. Such findings illustrate what Fitch (2004), Erickson (2007), and Howard (2001) proposed as well as Fetherston and Kelly (2007), who found that resistance is an issue in trying to facilitate transformative learning. Thus, efforts to address some students' lack of trust in "unfamiliar" and active learning teaching strategies can help limit overly disorienting experiences, especially given how easily the unfamiliar could transition into the uncomfortable, not liked, or ineffective.

Following past research, one of the first steps is to clarify with students the purpose of doing SLCE (George-Paschal et al., 2019). This is especially true at institutions where different types of engagement are labeled "service-learning" or "community-engaged learning.[10] Assigning, for example, in the first weeks a student-facing reading about what SLCE is and its purposes, such as from Ash and Clayton's (2009) workbook, and following it with a critical reflection activity that asks students to explain what they think the purpose of the course's specific SLCE

10. Chapter 2 in Welch (2016) provides a comprehensive overview of the different terminology and key differences.

is and to identify their own motives for engaging can help. In addition, it is important to explicitly discuss early on with students the connection between the SLCE and the course learning objectives to make more central the importance of the SLCE as it relates to student learning, their future careers and lives, and those they will be working with (Ash & Clayton, 2009; Gonsalves et al., 2019; Heffernan, 2001). Critical reflection activities can also help the instructor identify the level of apprehension and the misunderstandings that the above analysis revealed some students have about the benefits of SLCE and of active learning more broadly that places significant responsibility on students. These types of early exercises also align with Bringle and Wall's (2020) recommendations for cultivating civic-mindedness and resiliency. As Bringle and Wall (2020) pointed out, the more motives students have and the more these align with the specifics of the engaged experience, the more resilient students will be in their engagement.

Discussing with students the importance of reciprocity and what it means within the context of the SLCE also relates to clarifying the goals of the SLCE. As Dostilio et al. (2012) pointed out, there are several different ways in which SLCE scholars use the term "reciprocity." It is commonly used to reflect "exchange (parties benefit), influence (parties impact the work), or generativity (together the parties produce systemic change, create new value, and/or undergo transformation in their way of being)" (Dostilio et al., 2012, p. 21). If students don't understand why they are doing service-learning or their motives contradict the intention of the SLCE and community partners and/or they do not have the skills to actively carry out the objectives, then the result can be an imbalance in the reciprocal relationship that can ultimately hurt or drain community partners and hinder students' learning (Kane, 2012).

Setting up specific channels that facilitate communication among community partners, students, and faculty about the SLCE experience can assist and help clarify the purpose of a specific SLCE not just at the beginning but throughout the partnership and foster more reciprocal relationships (George-Paschal et al., 2019). In addition, methodologies, such as oral histories and participatory action research, have been found to support reciprocity and mutuality (Smith, 2012; as cited in Santiago-Ortiz, 2019, p. 49). For certain types of engagement, introducing the methodology of participant observation can be productive in helping students learn how to "notice," that is, identify, pick up on, and analyze the affective dimensions that Bay and Swacha (2020) illustrated as important for working with community partners in collecting actionable data that capture the experiences and concerns of those involved. But the productivity of such efforts is dependent in part on how students perceive knowledge and its production and reproduction. While the preference in SLCE is a perception of knowledge as "co-created with rather than for the community," students with a dualism approach to knowledge may have a harder time understanding this and thus the actual purpose of the SLCE despite it being explained to them and reflecting on their own motives (d'Arlach et al., 2009; as cited in Bortolin, 2011, 54).

To help students recognize the importance of "the doing" component, that is, the SLCE activity, and that there are "right" ways and "problematic" ways to go about it, faculty can use the course and curriculum design to "nudge" students along Perry's continuum, keeping in mind that such shifts generally do not happen in one semester (Cunningham & Grossman, 2009; Howard, 2001; Kloss, 1994, 153). One way to do this is through

scaffolding active learning practice exercises that target problem-solving and other critical thinking skills students would need for the SLCE.[11] To create activities that target specific critical thinking skills necessary for the SLCE, faculty can use pile sort data to integrate a balance of what students commonly placed in piles with labels such as "familiar" or "trusted" and "unfamiliar" or "never should do." Past research also points to the benefits of integrating universal design and flexible due dates into the scaffolding of SLCE courses in order to empower students with real choices (Gonsalves et al., 2019).

It is also important to point out how the in-class active learning directly facilitates students' success in specific areas of SLCE and how it would help them more broadly in the future (Gonsalves et al., 2019; Steinberg et al., 2011). To help students recognize the benefits of SLCE and other active learning exercises, students can participate in a minute reflection and in-class discussion that compares the skills gained from activities commonly listed in opposite pile sort categories such as "trusted" and "unfamiliar." Alternately, faculty could ask students to do pile sorts of teaching strategies as an in-class activity and basis for discussing SLCE and its learning benefits compared to other strategies. Such discussions and balancing of class activities can help avoid too many disorientating experiences.

Another way to support students in shifting their perceptions of knowledge and learning itself is by helping them recognize the behind-the-scenes of what they may believe to be *the* truth or *the* approach to something, such as policy or history. Behind-the-scenes refers here to taking a real-life example; identifying the structural issues and different viewpoints that exist; how these viewpoints were evaluated, integrated, or left out in order to come up with *a truth* or a course of action; and the real-life consequences when multiple viewpoints and structural issues were not considered and personal bias and particular cultural worldviews dominated. Since part of understanding the behind-the-scenes involves structural issues that intersect with the selected example, introducing specific concepts, theories, or frameworks that identify and explain such structural issues is key, as is discussing why such structural issues are not widely known by all sectors of society. Within this process, it is important to help students understand the politics of knowledge and how personal experiences (e.g., different positionalities) and cultural models influence what is perceived and not perceived (McCabe, 2004). This involves integrating activities that ask students to reflect on their own social positioning and privilege and how this influences their worldviews (McCabe, 2004).

These and similar efforts in turn can help shed light on the illusion of simple truths and help students realize the necessity of multiple perspectives and the why of active learning, particularly the social interaction and discussion that commonly occurs within the context of the SLCE activity, and thus why truly working *with* community partners and the flow of knowledge between them is important. They also align with past research on transformative learning within SLCE, particularly the "transformative learning continuum" that points to both the necessity and effectiveness of strategically leading students to greater awareness about self and their assumptions, the valuation of multiple worldviews, the recognition of structural barriers, and the critical integration of these together in conjunction with the SLCE experience (Cunningham & Grossman, 2009; Mezirow, 1997).

11. Ricke (2018) provides a framework for scaffolding in-class readings and activities to prepare students to effectively apply and evaluate theories in higher-level SLCE courses.

The suggestions made above do not differ greatly in substance from past SLCE research but together with the cultural domain analysis results call specific attention to the need to focus explicitly on helping students take a more active role in their learning and develop a different concept of knowledge in order to prepare them for doing SLCE (Bringle & Wall, 2020; Heffernan, 2001; Howard, 2001; Jacoby, 2015; Kane, 2012; Strand et al., 2003). Such preparations need not, should not, and are not confined to SLCE courses but give educators pause to reflect on how the larger curriculum is constructed and ways in which it can be reinforced to prepare students for SLCE opportunities even outside of specific SLCE courses. The results of this study support the work of Kecskes (2009) on engaged departments and thinking strategically about how to guide students through curriculum paths that prepare them to be receptive to the kinds of active learning and disorienting challenges they may encounter in SLCE.

Conclusion

This study is one of the first to apply cultural domain analysis to SLCE to not just capture students' perceptions of SLCE but also contextualize students' perceptions of SLCE within various active and passive learning strategies. This broader cognitive perspective can help faculty better anticipate perceptions of other supporting teaching options that instructors use and ultimately provide faculty important insights into how to combine different types of course assignments and activities to effectively craft a balance between challenging experiences and supportive educational design. When combined with Perry's work on intellectual and ethical development, this study highlights how trends in students' perception of certain active and passive learning strategies can be used to support students in recognizing and engaging in SLCE.

The results of the cultural domain analysis and accompanying interview and survey point to additional curriculum adjustments that can be made both within and outside of SLCE courses to help undergraduate students become active learners, move away from dualistic perceptions of knowledge, and develop critical thinking skills. For example, adjusting how SLCE is discussed, strategically integrating learning strategies that students are more familiar with into SLCE projects and course preparation, and asking students to compare the skills gained from SLCE to those gained from other teaching strategies are several ways to apply the cultural domain analysis results to support student engagement in SLCE. Future research directions include conducting a cultural domain analysis with faculty to identify how their viewpoints on SLCE intersect with other colleagues and relate to other teaching strategies, which can assist in curriculum design and professional development at the departmental or institutional level.

While effective SLCE experiences involve at least four categories of actors—students, faculty, institutions, and community partners—students' abilities to adopt an active role in their learning, think critically, and then take action are a key component (Baxter Magolda & Boes, 2017; Bringle & Wall, 2020; Knefelkamp, 2008). The acquisition of these skills is influenced in part by students' perception of knowledge. In turn, understanding the utility of discussion and social interactions for learning goes hand in hand with embracing the existence of multiple worldviews and that knowledge is socially constructed; knowing how to critically evaluate multiple perspec-

tives while being reflexive; and contextualizing the analysis politically, historically, and culturally (Fitch, 2004). SLCE can further students in achieving these skills, but supporting students in this manner is also important for students to recognize the benefits of and be able to do SLCE.

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Biography

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