

## **Student Perceptions of the Integration of Early Clinical Experiences and Coursework:**

### **A Pilot Investigation**

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### **Abstract**

The current study examines student perceptions of the implementation of integrated curriculum in a teacher education program as well as their understanding of a common framework. Qualitative analyses were conducted on data from focus groups and student writings. The integrated curriculum program was viewed positively by the teacher candidates. Data analysis indicates the students were able to see connections among various areas of course content in a different manner than in previous coursework. A more in-depth understanding of a grounding model was also achieved by the students. The authors recommend further research into the potential benefits of integrated curriculum models.

## **Introduction**

The essence of schooling is teaching and the resultant learning. This importance cannot be overstated. In recent years, the work of higher education has benefited from increased reflection on the quality of the teaching and learning that occurs. The importance of this reflection is reflected in growth of the scholarship of teaching and learning activities. Currently there is an increased scrutiny of higher education from others (National Commission on Accountability in Higher Education, 2005). This increased scrutiny provides the imperative for faculty to evaluate our own work and articulate our own views of teaching and learning. A corollary of this focus on accountability is a closer examination of the most effective practices in higher education (Byrne, 2006; Schray, 2006; Shulman, 2002) and the resultant examination of student outcomes. Integrated curriculum is one such promising instructional practice that warrants further examination.

Student perception data is one lens through which members of the higher education teaching community can view the process and outcomes of any instructional innovation. Research examining student perceptions has addressed many different contexts, such as on-line course delivery, goal structure and classroom environment, classroom organization and participation, and the impact of classroom diversity on educational outcomes (Cramer, Collins, Snider, & Fawcett, 2006; Lyke & Kelaher-Young, 2006; Meacham, McClellan, Pearse, & Greene, 2003; O'Malley, 1999; Weaver & Qi, 2005). Therefore, the need to research student perceptions regarding an instructional strategy such as integrated curriculum is an important undertaking which can inform future research and is relevant to other disciplines.

## **Curriculum Integration**

Integrated curriculum definitions have been proposed by many (Harvey & Reid, 2001; Huber & Hutchings, 2004; Kysilka, 1998; Lake, 1994; Percival & Black, 2000) with some overlap in conceptualization as well as much diversity in the definitions. In a review of the literature on integrated curriculum, Lake (1994) notes the following aspects of integrated curriculum: (a) a combination of subjects, (b) an emphasis on projects, (c) sources that go beyond textbooks, (d) relationships among concepts, (e) thematic units as organizing principles, (f) flexible schedules, and (g) flexible student groupings (p. 2).

*Curriculum integration models.* Fogarty (1991) describes several models of curriculum integration which differ in the nature of connections among topics or disciplines. When curriculum is integrated as *connected*, topics within one discipline are purposefully aligned. When implementing a connected integrated curriculum, review and reconceptualization allow students to put various “big ideas” together in a meaningful way. The next level of integration is *nested curriculum*, which lays different arenas of learning onto a given subject. *Sequenced curriculum*, as a level of integrated curriculum, involves the teaching of given concepts in a sequenced manner from different subject areas. *Shared curriculum*, similar to sequenced curriculum, involves cross-discipline curriculum with more shared concepts across the disciplines. Fogarty delineates *webbed curriculum* as a level above shared curriculum. Webbed curriculum involves thematic connections between multiple disciplines. The next level of integration, labeled *threaded curriculum*, involves the purposeful weaving of arenas of learning, through various disciplines. *Integration*, Fogarty’s term for another type of curriculum planning, overlaps concepts, skills and dispositions of multiple disciplines. *Immersed curriculum* centers on the learner using a given “lens” to view multiple disciplines. Finally, the highest level of integration is *networked*, wherein the learner also directs the crossover of disciplines through direction of resources. Figure 1 graphically represents these levels of curriculum integration.

*Curriculum integration in higher education.* Kysilka (1998) notes that integrated curriculum at the university level, “means whatever someone decides it means, as long as there is a ‘connection’ between previously separated content areas and/or skill areas” (p. 198). The topic of curriculum integration appears in the higher education literature in all iterations of Fogarty’s continuum (1991). Most reports detail programs that would be identified as “connected” curriculum integration wherein ideas within particular content areas are related (Bristor, Pelaez, & Crawley, 2000; Dinan, 2002). The literature on curriculum integration in higher education suggests there may be positive results for student learning across many disciplines (Craft & Mack, 2001; Wilkinson & Scofield, 2002; Zellner, Boerst, & Semling, 2003). Shapiro (2003) notes, in his description of a case study in curricular revision, the emergence of, “a core structure consisting of multiple, concrete activities that promote ongoing thinking through the curriculum...with four major interdependent components” (p. 432) which are an entry level course, a capstone experience, organized and related learning activities throughout the program and writing

throughout the program. Descriptive accounts of integrated curriculum programs come from a variety of disciplines within higher education (Drake, 1998; Harden, 2001; Kokkala & Gessell, 2002-2003; Zellner, et al., 2003) but provide little empirical evidence of the effects of this innovation.

### *Need for Curriculum Integration*

The integration of curriculum content, (e.g., reading and math) as applied to K-12 classrooms is discussed in coursework for pre-service teachers; however, there is no common demonstration of this practice for pre-service teachers. The discussion of curriculum integration applies to all programs in higher education as Huber and Hutchings (2004) note, "Learning that helps develop integrative capacities is important because it builds habits of mind that prepare students to make informed judgments in the conduct of person, professional, and civic life..." (pg. 1). Curriculum integration is also a promising practice for higher education due to the potential for increased knowledge and skill development for graduates (Drake, 1998; Halpern & Hakel, 2003; Huber & Hutchings, 2004).

Limited research has been reported in the area of integrated curriculum in higher education and teacher preparation in particular. The current study is intended to add to the research in this area. The research was conducted with pre-service teacher education majors but the findings can be considered as a basis for further research for other higher education programs. The purpose of this exploratory investigation is to answer the following research question: What are students' perceptions of the integration of multiple courses and early field experiences in a pre-service teacher education curriculum? A secondary purpose of this exploratory study is to assess the impact of curriculum integration on the development of pre-service teachers' conceptions of teaching.

### **Method**

The current study was designed to analyze students' perceptions of an integrated curriculum program and the impact of integrated curriculum on the development of pre-service teachers. A case study approach was used providing an intensive look at one example of a pre-service integrated curriculum program (Bogdan & Biklen, 2003; Creswell, 1998).

*Program Description*

This program was developed to maximize pre-service teacher learning through several interventions. When conceptualized, the content of the multiple courses was integrated and a co-teaching model for delivery of the courses was planned. The three courses that comprised the integrated curriculum were an individualized curriculum development course, an instructional strategies course, and a field work course with associated practicum in a school. The curriculum course included the knowledge and skills that support the development of curriculum to meet individual student needs, including non-academic curriculum domains such as leisure and vocational areas. The instructional strategies course included behavior intervention strategies such as prompting hierarchies and consequence interventions in an instructional environment. The field work course included knowledge and skills related to implementation of instructional plans and reflection on teaching. The curriculum development course was a six credit hour course, the instructional strategy course was a three credit hour course, and the field work course was a four credit hour course. The integrated curriculum was delivered in a blocked schedule of six hours per day for two days per week. Students were also enrolled in a clinical classroom placement two full days per week. This program differed from more common module approaches in that the content of courses were woven together throughout the semester rather than presented as isolated units. The integrated curriculum program occurred within the second semester of the students' junior year and was the first of three semesters in which students had clinical placements.

*The Cognition of Teaching model.* The description Shapiro (2003) provides of a "core structure" reflects the intent of our integrated curriculum program. We utilized a graphic representation of teaching as the center, or core structure, of these three courses (see Figure 2). The Cognition of Teaching model was developed primarily by clinical faculty in our teacher education program, and had been previously utilized during students' senior year. The model was developed as a way to assist students in understanding the relationships among key aspects of teaching. These key aspects are typically taught in separate courses, sometimes in separate semesters. This graphic representation of teaching indicates the relationships among assessment, curriculum development, and instruction, as well as the centrality of the student to these teaching activities. The model suggests that teaching involves engaging in these key aspects on an ongoing basis, and that each of these key aspects influences other key aspects. For

example, the curriculum for a student, or what the student is expected to learn, influences how a teacher assesses the student. Ongoing assessment data on that learning may influence changes in the instructional strategies a teacher utilizes. In addition to illustrating the relationship among assessment, instruction, and curriculum development, the model reflects the influence of guiding principals such as reflective practice, collaboration, self-determination, and decision-making on those key aspects.

The integration of the courses in this project was based on the Cognition of Teaching model, and the course content was related to the model throughout the semester. The curriculum integration of this program and utilization of the Cognition of Teaching model reflected aspects of Fogarty's (1991) shared model of curriculum integration as well as aspects of webbed integration (see Figure 1). The Cognition of Teaching Model served as a theme for all three courses, a feature of Fogarty's webbed curriculum. The team planning that brought the content of the three courses into some common forms is reflective of Fogarty's shared curriculum model. As co-instructors we designed the program using the learning standards and core concepts addressed in the three courses. The Cognition of Teaching model was used to identify connections between concepts and practices typically addressed in separate courses, as well as to identify opportunities to connect course content to clinical experiences (shared curriculum integration).

For example, the collection of assessment data for use in both developing curriculum and in designing instruction was taught in relation to curriculum development standards (determining individual student priorities), instructional strategies standards (what current skills were demonstrated by students) and practicum standards (what impact did a particular lesson have for the learners). Students applied the data collection skills for curriculum development and instructional design within their school sites as a part of the practicum course. In a non-integrated model, students would apply assessment strategies to instruction and curriculum development in two separate courses, possibly with separate instructors, without receiving explicit and ongoing support in identifying and understanding the relationships among these components.

The Cognition of Teaching model was also used as the center of other concepts taught (demonstrating Fogarty's webbed curriculum). The connections between development of curriculum and instruction, as evinced in the model, were overtly recognized and emphasized during course time through

use of the Cognition of Teaching model. Then, after practice in clinical settings, the students would bring these applications back to the course for discussion and reflection. Continual checking of the understanding of the assessment-curriculum development-instruction relationships determined student development. For example, when a practice was introduced or discussed, students might be asked to reflect on where the practice is reflected in the model, and how that practice might influence or be influenced by other components of the model. In other words, practices typically associated with a single course were rarely presented in isolation but rather in the context of the model and the overall practice of teaching. In non-integrated delivery, there would likely be less purposeful and less frequent discussion of the connections between these core concepts, which would be presented in separate courses.

For example, during instruction on the principle of self-determination, connections to practice in assessment, curriculum development, and instruction were discussed in class. Students then implemented some of these practices through course projects in their clinical settings. Participants' assessment practices included collecting data on students' interests, preferences, and goals. They then used the data to identify appropriate instructional strategies that were implemented in the clinical setting. Participants also completed curriculum projects that included educational priorities related to developing self-determination skills based on the assessment data, and their instructional projects may have included self-instruction and self-management strategies (components of self-determination). After implementing these practices in clinical settings, course discussions were facilitated to guide students in reflecting upon current and future implementation issues related to promoting self-determination. In a more traditional model, the principle of self-determination would have been emphasized in the curriculum development course, with less support for understanding how self-determination can be facilitated through methods of assessment and instruction.

### *Participants*

In the semester in which this study was conducted, there were three sections of each course offered. For each of the courses, one section was designated as the section that would participate in the integrated curriculum program. A total of 83 students were approved for registration in the courses. After students were provided with initial information on the integrated curriculum program, 27 of the eligible students were randomly selected to enroll in the integrated curriculum program section. Random

assignment was accomplished by selecting every third student on the list of eligible students to this course sequence. These randomly selected students were sent a letter notifying them of the program and directing them to register for the designated section of the program. Students also had the option to register for traditional course delivery sections if desired, though no students did so.

Of the 83 eligible students, 27 students enrolled in the integrated curriculum program, with the other 56 students enrolling in the traditional course delivery sections. One student in the integrated curriculum program withdrew due to personal reasons, leaving 26 students in the program. Once enrolled in either the integrated curriculum program or the traditional course delivery sections, the students were provided with an overview of the research study and asked to provide informed consent to participate. An extremely limited number of the students enrolled in the traditional course delivery sections gave consent for their work to be included in the study and so comparison work was not feasible for this preliminary study. In the integrated curriculum program, 23 of the 26 students consented to have their work included in the study. All 23 of the research participants were female. Students were all special education majors seeking certification as a Learning Behavior Specialist 1 (cross categorical certification).

#### *Data Collection*

Data were collected from student work and a focus group. One focus group was held during the final week of the semester. The focus group was facilitated by a College of Education faculty member not otherwise affiliated with the program but with extensive experience in group facilitation. Questions related to students' perceptions of (a) the logistics of the cohort experience (e.g., schedule, assignment coordination), (b) the content relationships between courses, and (c) the relationships between courses and practicum experiences. There were six participants in this focus group.

Student work was copied after submission to the instructor and the original was returned to the student. Only the work from the 23 students who consented to participate in the research was included in this study. Student work used for this study included two in-class writing assignments related to the Cognition of Teaching model. Of the 23 research participants, 22 completed both writing assignments and all 22 were included in the data analysis. In both Cognition of Teaching writing assignments, students were asked to write about the extent to which the model reflected their own views of teaching, and in the second write, (end of semester write) how their understanding of the model had changed.

### *Data Analysis*

Data analysis included qualitative analysis for data gathered in the focus group session and student work. The focus group audiotape was transcribed verbatim. The transcriptions and student writing were independently open-coded (Strauss & Corbin, 1998) by two of the researchers and then the codes were cross-checked by all three researchers. The codes were organized into categories and those categories were also used in analysis of student work samples. An iterative process for data analysis was implemented to ensure confirmability (Denzin & Lincoln, 2005). A table of categories based on the codes was constructed and continually reviewed as data analysis was completed. Researchers independently checked the category table with data from student work and focus groups and consensus was built for the categories.

## **Results**

### *Student Perceptions of the Integrated Curriculum*

Several themes related to integrated curriculum emerged from the focus group transcript, including scheduling, content coverage and planning, and the connection between content and practicum.

*Scheduling.* Focus group participants indicated that the cohort schedule was difficult to adjust to, but they otherwise had positive comments about the schedule. One student commented, "I mean it was hard to get used to in the beginning...But after the first couple days it's fine, and I really like it a lot better...". Another student commented,

I like how the course schedule is. I think it stressed me out more when I was going to a bunch of one hour classes because there was never enough time to get everything in and then I was confusing the contents with one class with another...and we have 6 hours when you can ask a question about anything. It's not like you have to wait for this one hour class and if you don't get to the question part then too bad.

Students also referenced the scheduling in their in-class writing assignments. They were positive about the class schedule writing "I don't feel so overwhelmed because I think about it as being what I need to do for one class" and

The way they lay out when projects are due...They made projects due on different days. I think if you are in two or three different classes that don't communicate with each other, I mean you

could have two or three big projects due on like one day. That's one thing that's probably reduced my stress level.

*Content coverage and planning.* Participants suggested that the planning of integration across courses was apparent and was a key to their learning. Several students noted a "flow" of content across courses,

I mean at the beginning of the semester I had this mind set that this teacher is going to get up, this teacher is going to get up, and this teacher is going to give input and three different spirals, but I mean it's flowed so well together that you just keep taking notes from one instructor to the next because the flow of the class is so well developed.

Another student commented, "They've really purposely planned the classes and that's definitely made a difference". Students also expressed appreciation of the coordination of assignment due dates.

Students also commented on the content coverage and planning in their in-class writing assignments. The "flow" of the curriculum again emerged as a theme. One student described as a strength, "how all of the information is blended together and how it makes sense together", and another student wrote "makes relating the info we're given easier to connect to one another". Others commented on "mesh" and content that is "tied together".

*Connection between content and practicum.* Students reported a connection between course content and their practicum experiences. The extent of that connection varied across students. Students felt that having opportunities to apply content assisted with their learning. One student noted,

We learned something in class one day and then we just go and implement it the next day. You can work it into your lesson plan and then we learned on Monday and implemented it on Tuesday and we can still talk about it. Talk about what worked or didn't work and go back through it, so that helps.

Students also suggested that it was easier to apply their practicum experience to coursework in the integrated curriculum model. As one student stated,

I think it's been easier to apply things to our practicum because of the integrated class because if I was in three separate classes it would be hard for me to bring that knowledge to each class. I know people that are in the other sections that are separated and they are so stressed out

figuring out which project is for which class but they don't understand the content...We really are able to flow smoothly through all of the material and application of it.

Students again also commented on the relationship to their practicum settings in their in-class writing assignments. One student wrote, "All projects [completed through practicum], discussions interconnected."

#### *Cognition of Teaching Model as Curriculum Core*

Reviewing the students' writing on the Cognition of Teaching Model indicates the students' perceptions of curriculum integration as grounded by the model. The Cognition of Teaching Model, a graphic representation of teaching, indicates the relationships of core aspects of teaching (see Figure 2). The underpinning of the model was addressed by the students, both at the beginning of the semester and at the end of the semester and in their analysis of their own growth in understanding teaching as reflected in the model. Three themes emerged in our analysis. Students demonstrated deeper understanding of the components of the model, paid greater attention to the relationship among components of the model, and recognized the importance of student-centered teaching.

*Deeper understanding of the components of the model.* Students reiterated the components of the Cognition of Teaching model in their initial writes, whereas in the second writes the students demonstrated deeper understanding of the model by describing characteristics of, or variations in, the components. For example, Jana initially recognized that teaching involved the three main components of the model—assessment, instruction and curriculum development. She wrote, "I believe it is very important to have an instructional plan that focuses on the goals of curriculum and assessment. In the model, instruction, curriculum and assessment depend on each other." At the end of the semester, Jana demonstrated a deeper understanding of curriculum development:

I think teaching involves individualization. All students are different and they have different styles of learning. So I think individualizing the curriculum to meet every students' needs is important...I want to take in the preferences of my students, family members of students, and social validators. Jana described her own growth thusly, "...I have a greater knowledge of each part. I now understand different concepts within curriculum development, instruction and assessment."

Likewise, Melinda initially wrote, "...if I was asked what I thought I would be doing in class [teaching] I would most likely say – assess and instruct. I feel that curriculum is something that we have to go by." Melinda's recognition of the elements minimally addresses curriculum development and includes assessment and instruction without elaboration. Her final response delves much more deeply into the process of teaching. Melinda writes,

...there are 4 main components. First there is the student. As a teacher we need to determine the best practices for the student and individualize for that student...Through assessment, a meaningful curriculum and individualized curricula we can do this [provide a great education].

The change in her conceptualization of teaching is not lost on Melinda. She wrote, "Comparing my conception of teaching from January and now are completely different. I had no idea what I was talking about 3 months ago...My idea before was to value assessing and instruction the most. Now it is to value the student the most."

*Greater attention to the relationships among components of the model.* The students also developed their understanding of the connection among the major components of the model, including the core concepts of assessment, curriculum, and instruction, and the connecting concepts of collaboration, decision-making, reflection, and self-determination. In Maggie's first response, she describes each component and its position in and importance to the model individually. In her second response, however, she writes about the model as a whole:

Teaching is selfless, as the whole model of teaching is focused on collaboration and centered on ethical practice for the student. We must put the students before us, by planning effectively in order to instruct and have our students learn. There are different parts to the Cognition of Teaching model, and each part is effective individually. However, the model will not be successful, and I will not be able to use the model effectively, if all three parts are not integrated together as I teach.

Maggie appears to connect the model to her values as a teacher.

In Lisa's initial response, she described how the model differed from her previous conceptions of teaching:

In my model...instruction was the largest piece, and assessment and curriculum were somewhat smaller. Also, I included reflection, collaboration, and decision-making with instruction, but did not think about how they tied in with collaboration and assessment...I thought this way because I saw instruction as the bulk of teaching, as viewed from a student's perspective.

In her second response, Lisa writes with more of a "teacher voice" and highlights the connections among core and connecting components of the model. She writes,

At the beginning of the semester, I agreed with the "wheel" but did not fully understand the "threads". Now that I do, I feel that they are just as important as the wheel. However, I might add for my own model that reflection and decision-making need to be purposeful...to really think about all parts of the Cognition of Teaching model while making decisions and reflecting is considerably more challenging, and a lot more meaningful.

In January, Hannah wrote,

...I've learned that assessment and instruction is always connected. I've also learned about how assessment is connected to curriculum and curriculum to instruction...I have never thought about the ideas of reflecting, decision-making, collaborating, and self-determination as the concepts that connect assessment, curriculum, and instruction.

She identified the major components and the "threads" that connect these components within the Cognition of Teaching model; however, her understanding is at a recognition level. In the final write of the semester, Hannah stated,

...these three concepts [assessment, instruction, and curriculum] always relate to and build off of one another...Additionally, the alternative curriculum project showed me the ways in which curriculum, instruction, and assessment all come about as a result of each other. One concept that I think is not stressed enough in the model is the fact that all three happen constantly and at the same time as the other ones.

*Recognition of the importance of student-centered teaching.* Students also demonstrated growth in understanding the importance of student-centered approaches. In Karen's initial response, she spoke to the importance of addressing individual student needs, stating,

The best interests of the students are the top of the list [of responsibilities as a teacher]. In order to teach to the best of my ability I know I will need to constantly be reflecting and changing based on my students' needs.

In her first response, Karen demonstrated that she values the student, but in her second response she demonstrated integration of concepts by connecting the other components of the model to the student. In the second response, she wrote,

This semester has exemplified the importance of student-centered learning, in class and in practicum. It is apparent to me that if the education is not planned for the student and does not pertain to the student, then there is no point. In having the student in the middle, the rest of the model makes sense. In order to teach what the student needs, we need to use assessment to find these needs, develop a curriculum to address these needs, and then instruct on this information.

She described her own growth, writing,

Having the student's interest in mind was at the top of my list for both. In my newer write I was able to look at each aspect and discuss why it is important as opposed to the general thoughts in my first one.

### **Discussion**

Through this study, students' perceptions of an integrated curriculum and the impact of the integrated curriculum program on students' development were examined. Key findings related to perceptions about the connections between practicum and coursework, the grounding of learning in the Cognition of Teaching model, and the management of learning that arose from the integrated curriculum experience will be discussed further.

#### *Student Perceptions of Integrated Curriculum Program*

Student perceptions of the integrated curriculum program were overwhelmingly positive. Students expressed that their ability to make connections between practicum and coursework was enhanced through the integrated curriculum. Connecting theory and knowledge gained in coursework is one essential task of higher education (Feiman-Nemser, 2001; Schon, 1995; Zhu & Baylen, 2005), and one that requires continued effort on the part of teacher education programs. Integrated learning, fostered by

integrated curriculum, has been recommended for all programs in higher education, potentially benefiting students in any degree program (Fink, 2003; Huber & Hutchings, 2004).

At the end of the semester, the students were better able to see connections among the components of teaching in the Cognition of Teaching model than they were at the beginning of the semester. Using Fogarty's model (1991) of webbed curriculum (see Figure 1), the Cognition of Teaching model became the central core of our curriculum and the course content was purposefully "webbed" to this model. As with O'Neill's (2000) study of integrated curriculum, this conscious effort to web the curriculum enhanced learning as evinced through their self-reports. Likewise, core conceptual models in other disciplines could be "webbed" to further student outcomes. Scheja (2006) notes that, "...the approaches that students typically adopt in their studies tend to influence the quality of the understanding reached, with a deep approach often being associated with a more sophisticated understanding and better academic results than that of a surface approach" (pg. 422). The webbed approach to curriculum integration provides a foundation for the students' adoption of a deep approach to learning.

Schon (1995) indicates that traditional conceptualizations of knowledge used by higher education in contrast to a different conceptualization of knowledge used by K-12 education to be a false dichotomy. Schon (1995) notes, "We should think about practice as a setting not only for the application of knowledge but for its generation." Conceptualizing teacher preparation as an integration of "knowing in action" and "reflection in action" is crucial to teacher development. Professionals in other spheres should also look towards a generation of knowledge within their programs; the "intentional, deliberative, and reflexive stance towards vocation" (pg. 3) noted by Huber and Hutchings (2004). Utilizing an integrated curriculum model can facilitate this knowledge generation and reflexive stance.

The integrated curriculum program described here created a common foundation among the theoretical material embedded in the three courses and a bridge between that theoretical material and the field experience of the students. Class work purposefully provided knowledge which became the basis for generation of "knowledge in practice" which was then brought back to the classroom for reflection and refinement. The integrated curriculum model promoted the cyclical development of teaching knowledge. While the results of this study indicate positive outcomes in students' perceptions and development with the implementation of an integrated curriculum program, there are challenges to be overcome. As

instructors, we noted the substantial increase in time for course planning and delivery. Additionally, university structure does not always support or value this work. Yet, we also note this program enhanced our own teaching and understanding of our curriculum and we take those enhancements into our current courses.

### *Implications and Recommendations*

Despite the difficulty in measuring student outcomes of the integrated curriculum, the students' positive perceptions of the integrated curriculum suggest that there is benefit to continued efforts in this area as well as continued investigation of the impact on student learning and practice. The common framework, the Cognition of Teaching model, facilitated the integration for us as well as for the students.

Institutionalizing an integrated curriculum within a block schedule structure may prove difficult for many teacher education programs as well as other higher education programs (Fink, 2003; Schneider & Schoenberg, 1999). However, based on students' perceptions of the integrated curriculum, teacher education programs and other higher education programs may benefit from engaging in curriculum integration. Teacher preparation programs are well-organized according to standards provided by various professional organizations, yet the overlap among standards is not always consciously addressed within and among courses. Similarly, as Schneider and Schoenberg note, "The degree to which a discipline represents a paradigmatic structure of knowledge that provides, in and of itself, a viable organizational principle for undergraduate learning is called into question by the increasing 'interdisciplinarity' of both student interests and faculty behaviors..." (pg. 30). The complexity of work that students will do once out of the academy demands a learning experience that integrates knowledge.

These data lend credence to the recommendation that integration of curriculum occur within a common framework (Shapiro, 2003). The Cognition of Teaching model is one such framework. These initial data indicate that it is effective in promoting pre-service teachers' understanding of the complex work of teaching. Teacher educators can use an agreed-upon framework to illustrate connections to students throughout their programs of study, and the framework can be threaded throughout a teacher preparation program. The authors hypothesize that similar results will be obtained with other programs. Frameworks used by other disciplines can be researched to validate the effectiveness of their use.

This study leads us to ask more questions about improving the efficacy of teacher preparation programs and by correlate other programs in higher education. Future research should be focused on collecting multiple measures of students' understanding of the connections among various aspects of teaching so that a solid base of understanding can be built. Outcome measures of student knowledge and skills are needed. Additionally, more research on integrative models that prove most effective for programs in higher education is needed. The multiple ways that curriculum can be integrated doesn't assume that all are effective. Research comparing integrated curriculum delivery to traditional delivery, as well as comparing different models of integrated curriculum, should be conducted. The effects of these approaches on student perceptions and learning outcomes need to be further investigated. The influence of factors such as student characteristics and content areas also need further investigation. In the current climate calling for effective instructional practices in university classrooms, it is imperative that we engage in substantial research in this area. Innovative practices, such as curriculum integration, hold promise for higher education, and continued research is needed to explore their full impact.

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Figure 1

Levels of integrated curriculum, adapted from Fogarty, R. (1991). *The mindful school: How to integrate the curriculum*. Palatine, IL: Skylight Publishing.

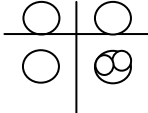
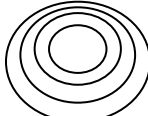
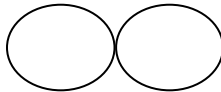
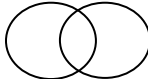
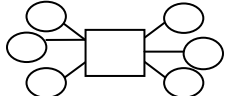
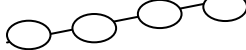
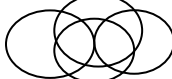
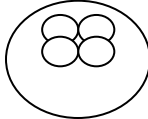
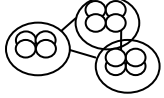
Level of Curriculum Integration	Visual Representation of Level
Connected	
Nested	
Sequenced	
Shared	
Webbed	
Threaded	
Integrated	
Immersed	
Networked	

Figure 2

Cognition of teaching model illustrating the relationships among teaching practices and principles.

