



## Transfer of Active Learning Strategies from the Teacher Education Classroom to PreK-12th Grade Classrooms

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In this study, researchers investigated the influence of modeling active learning strategies in an introductory foundations teacher preparation course: 1) on teacher candidates' perceptions of participating in active learning in the college classroom, 2) on participants' acquisition of course content, and 3) on participants' later use of active learning strategies in their classrooms as practicing teachers. Results revealed there was a significant difference in teacher candidates' acquisition of course content in the course sections that incorporated active learning (AL) and ones that incorporated a traditional lecture format (TL). In addition, on a follow-up survey of participants who are now practicing teachers, there was little difference in the use of the active learning strategies; however, there was a difference in the level of conceptual understanding of the theories of human development and diversity and how that knowledge was utilized by the AL and TL groups in their classrooms.

*Keywords:* teacher education, active learning, transfer of learning, cooperative groups, problem-based learning, educational foundations

Research indicates that the use of active learning strategies, such as cooperative learning groups and problem-centered learning, positively influences student learning in the classroom for preKindergarten (preK)-12th grade students as well as university students (Cherney, 2008; Dewey, 1916; McCarthy & Anderson, 2000; Schmidt, 2010). This has important implications for teacher educators who are responsible for preparing prospective teachers to be successful in elementary, middle, high school, and special education classrooms. Implementation of active learning strategies in an introductory foundations course within a teacher preparation program facilitates teacher candidates' understanding of the developmentally and academically appropriate instructional strategies needed to promote preK-12th grade student success. In addition, prospective

teachers develop a better understanding of the effectiveness of the strategies when they have the opportunity to experience the strategies as a student. This experience could enhance teacher candidates' conceptual understanding of the content and influence these future teachers to implement the strategies in their preK-12th grade classroom. This article presents a study designed to determine the effectiveness of this concept. Instructors of a human development and diversity foundations course incorporated a semester-long active learning project which included cooperative learning groups and problem-centered instructional strategies for university students beginning a teaching preparation program. The researchers sought to determine (1) teacher candidates' perceptions of the use of the active learning project in teaching, (2) their acquisition of content related to the

theories of human development and diversity, and (3) the transfer of active learning strategies to their practice as career teachers.

#### **Effectiveness of the Active Learning Approach**

Michael (2007) points out that the constraints of time placed on the college professor often lead to a lecture only format with little investment in active learning. However, research on learning indicates that if the goal is to help people act and reflect responsibly, then learning should take place at a much higher level than simple memorization of facts (Bransford, Derry, Berliner, & Hammerness, 2005). Dewey (1916) avowed that students flourish in an active learning environment where they have the opportunity to experience and interact with the curriculum to answer questions and solve problems. In addition, his theories indicated that the teacher should serve as a facilitator and guide students to discover meaning in the skills or concepts to be learned.

Eggen and Kauchak (2007) acknowledge that educators have been guided by the views of social constructivism for years and often use the benefits of peer interaction to support student learning in the preK-12th grade classroom. Prince (2004) noted that the effectiveness of collaborative learning in the college classroom has been studied by many researchers with results showing considerable support for the use of this particular pedagogical technique. In fact, Walker (1996) found that most college students enjoy working in collaborative groups and find the experience to be interesting and motivating.

The rationale for using Dewey's social constructivist teaching strategies in the college classroom was outlined by Hanson and Sinclair (2005). They stated that these methods of instruction "(1) help students to construct a deeper understanding of theoretical concepts that is better connected with practical experience; (2) help students to develop skills in performing the routine problem-solving tasks of their intended profession ...; and (3) develop students' knowledge creation capacity – the capabilities and dispositions for engaging in collaborative problem-based inquiry..." (p.169). In addition, Bransford et al., (2005) noted that a "community-centered" classroom provides a supportive environment where students can learn from one another in cooperative groups. Student learning is more effective when they are allowed to use the resources of their peers, when students believe their efforts matter to the success of their group, and when they have the opportunity to link their life experiences to learning within the classroom.

Active learning is an instructional process that engages students in higher-order thinking tasks. According to Meyers and Jones (1993), active learning is based on two assumptions: learning is an active rather than passive process and different people learn in different ways. When students are involved in active learning, they are doing more than simply listening to a

lecture; they are discovering, processing, and applying information. Cherney (2008) contends that students in undergraduate programs have better recall of information learned through active learning exercises than other modes of instruction. Cherney's two studies involved 314 undergraduate students at a liberal arts college in the Midwestern United States. The purpose was to examine students' memory of instruction and level of understanding for material taught in introductory classes and advanced classes in an undergraduate program. The first study involved 250 students enrolled in introductory courses and the second study involved 64 students enrolled in higher level courses. The instructors asked participants in both studies to list ten concepts learned during the semester. Across all class levels, the most frequently listed items were concepts introduced through active learning exercises.

Meyers and Jones (1993) offer activities such as informal group work, cooperative student projects, problem-solving exercises, simulations, case studies, and role playing as ways students can be involved in active learning. Cooperative learning, through informal group work and cooperative student projects, is a teaching strategy in which small groups use a variety of learning activities to improve their understanding of a subject. Group members are responsible for learning what is taught and for helping teammates learn as well. Tsay and Brady (2010) conducted a study with 24 undergraduate students at a large northeastern university in the U.S. to examine the relationship between cooperative learning and academic performance in the higher education setting. The findings of this study indicated that students who fully participated in group activities were more likely to earn higher test scores and course grades at the end of the semester, which supports the notion that cooperative learning is an active pedagogy that promotes higher academic achievement.

McCarthy and Anderson (2000) took an empirical look at active learning in the college classroom, specifically the impact role-playing and collaborative activities had on student achievement in a college history class and a political science class. Both exercises emphasized the active participation of the students in the learning process. These activities were alternatives to the standard passive lecture and teacher-centered discussions. The results of the study showed that the students involved in the role-plays and collaborative activities did better on a standard assessment of knowledge than their peers taught through a traditional lecture technique. These results suggest that, in addition to being more engaging for the students, active learning techniques may more effectively communicate information than traditional formats.

Whicker, Bol, and Nunnery (1997) conducted a study to determine high school mathematics students' achievement and attitudes toward cooperative learning.

Students in the first class studied the material in cooperative groups while the students in another class studied the material independently. Three chapter tests assessed student achievement and a questionnaire was administered to the class studying in cooperative groups at the end of the study to assess their attitudes toward the cooperative learning process. Students in the cooperative learning group had increasingly higher scores on the chapter tests than the class that studied independently. Student responses on the questionnaire were generally favorable, but suggested that group membership should alternate rather than remaining with the same group for all work.

Salinas and Garr (2009) found that learner-centered classrooms and schools had a positive impact on the academic performance of elementary students from minority groups (African American, Latino, and American Indian). Participants included 236 students from six learner-centered and six matched control schools across the U.S. Results of student performance on standardized achievement tests were utilized to determine student academic performance; however, students were also assessed on other constructs such as creativity, motivation, cooperative skills, and openness to diversity. Findings revealed that students from minority groups who studied in learner-centered classrooms and schools had test scores that were statistically equal to those of their non-minority peers. In addition, these students had higher scores on measures of other constructs such as tolerance and openness to diversity. In addition, there is evidence to suggest that problem-centered or problem-solving approaches which are paired with peer interaction have the greatest impact on student learning. Merrill and Gilbert (2008) point out that the give and take between peers coupled with the structure of problem-centered instruction leads to enhanced understanding, the ability to make connections across theories, and increased rates of knowledge retention. Furthermore, Bransford et al., (2005) note that as students work together in groups, they learn from one another in a variety of ways as they share their understandings and reasoning with one another. This helps to develop their problem-solving and critical thinking skills as well as build their store of knowledge. In a study designed to examine improvement in high school students' inquiry capabilities in scientific literacy through a problem-based environmental curriculum, Kang, DeChenne, and Smith (2012) found that students involved in the problem-based, inquiry curriculum performed better than the comparison group in posing inquiry questions and generating hypothesis-driven approaches. In addition, Tarim (2009) found that preschoolers' verbal mathematics problem-solving ability was enhanced through the cooperative learning approach. In addition, skills related to cooperation, sharing, listening, and self-regulated learning improved as well.

#### **Active Learning in Teacher Education**

Implementing an active learning project in an introductory teacher education class can be a powerful learning experience for prospective teachers. These students, new to teacher preparation, have spent at least twelve years in traditional classroom settings and have developed preconceived ideas about teaching from these experiences. The learning theories and principles of teaching taught in teacher preparation programs may be quite different from the ideas about teaching these teacher education students bring with them. Gaining an in-depth understanding of the theories of learning, of teaching, and the transfer of learning is vital for prospective teachers as they prepare to teach preK-12th grade students (Bransford et al., 2005). Learning course content through instructional strategies that are also effective with preK-12th grade students may be the most powerful form of teacher education prospective teachers can experience.

Successful teacher education programs include strong coursework on child and adolescent development closely linked to field experiences that foster child observation and analysis of learning within a school (Horowitz, Darling-Hammond, & Bransford, 2005).

Important understandings that teacher candidates must have to facilitate effective instructional planning are related to the developmental progressions, individual differences, and diverse nature of the students in the preK-12th grade classroom. This knowledge helps new teachers realize how the instruction they plan can support the development of students (Bransford et al., 2005). It also allows them to determine when students are prepared to accomplish new goals. In order to meet the needs of the students in their classrooms, new teachers must understand the importance of thinking about the learners' diverse needs rather than focusing on subject matter only.

According to Bransford et al. (2005), teacher candidates benefit greatly from experiencing what it is like to learn in classrooms that implement the learning principles and type of strategies they are expected to utilize in the preK-12th classroom. In an effort to incorporate active learning strategies within a human development and diversity foundations introductory course in teacher education, instructors created the "Develop-a-Child" project. The semester-long Develop-a-Child project enabled teacher candidates to apply human development and diversity principles and theories to a "fictional child" in the areas of social, emotional, physical, and cognitive development. Two active learning strategies, cooperative learning groups and problem-centered learning, were woven throughout the project. To support learning in the university course, teacher candidates spent twenty-five hours during the semester in a field-based classroom experience observing and working with small groups. They also developed a three-day written lesson plan and taught one of the lessons to a small group in the preK-12th grade setting in which they were placed. This experience provided the opportunity for

the teacher candidates to conceptualize and apply theories related to human development and diversity learned in the foundations course to students in an actual classroom.

Investigating the perceptions of teacher candidates related to participation in the project, their acquisition of course content, as well as the transfer of learning to their practice in the field may provide important information to assist in improving university instruction. Teacher candidates' perceptions of the effectiveness of active learning projects may also impact the types of instructional strategies they use in their future preK-12th grade classroom.

### **Project Description**

The Develop-a-Child problem-centered activity implemented in the foundations class provided the opportunity for teacher candidates to consider theories of human development and diversity in reference to a specific child. This exercise was further enhanced through class and group discussions related to the preK-12th grade students in their field placement classrooms. In addition, cooperative groups were given the opportunity to analyze how theories may impact their specific child and then justify their analysis to the class. Through informal discussions with the participants, instructors learned that this was the first opportunity that some junior-level teacher education candidates had had working in groups at the university level. As revealed in their responses to a questionnaire at the end of the foundations class, this opportunity helped them to realize that the use of this instructional strategy can be a powerful learning experience. In addition, instructors incorporated theories such as scaffolding, multiple intelligences, and human development and diversity into class curriculum to enhance the experience. As they modeled the active learning instructional strategies, the instructors used guiding questions related to the field experience to solidify understanding of the theories of human development and diversity for the teacher education candidates.

Teacher candidates chose to participate in grade-level groups (pre-K, primary, elementary, middle, and secondary) based on their area of interest and their field placement. Each group of four to five teacher candidates decided the gender, age, name, and ethnicity of their "child" and drew a life-size model to represent the child. Rather than including socio-economic status in the characteristics candidates assigned their child, the influence this attribute has on development and issues of diversity was discussed with each new theory and particularly during discussions of students with whom they worked in field placements. Course content was presented by the instructor through PowerPoint presentations and guided discussion. As new developmental stages and accompanying theories were introduced by the instructor, group activities were completed by the teacher candidates allowing them to

apply the new information to the chosen characteristics of their child. The groups added to the model based on the theories and the specific characteristics of the child. Presentations were made by each group to explain the significance of the content as it related to their child's developmental level and aspects of diversity. By having group presentations that addressed pre-K through high school-aged children coupled with experiences in a field placement, the teacher candidates were provided the opportunity to recognize and conceptualize the stages of human development and diversity principles covered in the class.

The first activity and presentation followed content instruction that explained Piaget's theory of human development, Vygotsky's theories of the role between learning and human development including the zone of proximal development, and Erikson's stages of psychosocial development. Teacher candidates met in their group to decide how these theories might influence their child, considering the gender, age, and ethnicity. Incorporating their knowledge of the students in their field-placement setting, they determined how their child might react in certain situations, what they might say and do, or what would impact a child's decision on things such as what they would wear. Once the characteristics of the developmental level of their child were determined, this information was added to their model in a creative way chosen by the group. Some groups used conversation bubbles to relate what their child might say or dressed their child based on their age level. Presentations were made by each group to explain the rationale for the decisions they made.

Following a study of learner differences and discussions linking this information to the children in their field placement, groups were asked to select an age-appropriate literature book that carried a specific message related to an issue of diversity. Diversity was defined as topics related to culture, gender, learning abilities, physical handicaps, behavior, or language. Groups were to identify ways the specific issue of diversity might impact their child. Groups were instructed to select two "intelligences" as identified by Gardner's Theory of Multiple Intelligences that might be evident in their child. The groups then planned a learning activity with these intelligences in mind that would effectively teach the message of diversity found in the children's book to their fictional child. Depending on the specific intelligences they identified for their child, the learning activity might include music, writing, and spatial activities, or students might be able to select whether they worked in groups or alone. As before, during the presentation to the class, teacher candidate groups justified their decisions.

In order for teacher candidates to conceptualize the theories of the behaviorist view of learning, social cognitive learning theory, and cognitive learning theory, each group was provided with a specific scenario that

related to their child. Teacher candidates were asked to determine how these theoretical concepts might impact their child in relation to their developmental level and asked to determine solutions for the scenario based on information about the theoretical stances found in the text. As the teacher candidates considered the students in their field placements, class discussions after each group presentation assisted them in realizing how these theories of learning impacted students at different age levels and had the opportunity to make comparisons to their own child. In addition, considerations of the student gender, ethnicity, and socio-economic status were part of discussions.

Each group also examined the role the classroom teacher plays in a child's success in conceptualizing new information in the learning process. To demonstrate an understanding of the characteristics of constructivism, each group planned a learning activity for their child based on his/her developmental and individual needs. Relating the characteristics of constructivism to the students in their field-experience classrooms, the groups identified three ways they could ensure meaningful encoding of new information by their child. In the learning activity, the groups provided examples the teacher might use to make the information relevant for the child. During the presentation, they identified ways cognitive and social constructivism theories were addressed in the activity. They also explained ways the activity promoted high levels of quality interaction, how it connected to the real world, and how the activity was assessed.

When studying motivational views and associated behaviors, teacher candidates were instructed to think about the developmental characteristics exhibited by the students in their field-placement classrooms and the factors needed to increase motivation for those students. The theory focus for each group was different: pre K– extrinsic/intrinsic motivational theory; primary – Maslow's deficiency needs theory; elementary – Maslow's growth needs theory; middle – attribution theory; and high school – goal theory. Each group then designed a motivational poster for their fictional child based on the view of motivation that directly impacted that age group – the behavioral views of motivation, the humanistic views of motivation, or the cognitive views of motivation.

A final presentation was made by each group at the end of the semester that encapsulated the theories and concepts learned during the class. The final life-size models of their fictional children were hung side-by-side which enabled teacher candidates to draw conclusions about the developmental stages. During class discussions led by the instructors, comparisons of the models were made to help teacher candidates better understand the significant characteristics of a child at each stage. By the

end of the semester, the candidates had an opportunity to understand how personality characteristics emerged within specific grade and age levels and how teacher behaviors may impact student psychological and emotional development. Numerous discussions throughout the semester related to the field-based experiences incorporated within this class provided opportunities for teacher candidates to enhance their understanding of the significance of being an effective teacher as well as their understanding of how the knowledge of the developmental levels and learning theories impacted the individual differences evident in students.

### **Methodology**

This study used a combination of descriptive survey and quasi-experimental research designs to determine candidates' perceptions of the active learning instructional strategies utilized in the Develop-a-Child semester-long project, candidates' comprehension of the theories of human development and diversity, and graduates' perceptions of the implementation of active learning strategies in their classrooms as career teachers.

The following guided the study and addressed the three purposes outlined above.

- What impact did the incorporation of active learning strategies in designated classes of the introductory foundations course have on the teacher education candidates' perceptions of the use of these instructional strategies in teaching?
- There is no significant difference in the scores of teacher education candidates in the sections of the introductory foundations course which incorporated active learning strategies on the Praxis II - Principles of Teaching and Learning test and the teacher education candidates in sections that used traditional lecture methods.
- To what extent did teacher education graduates who completed the introductory foundations course which incorporated active learning strategies and graduates in sections that were taught with traditional lecture method utilize active learning strategies in their preK-12th grade classrooms two to three years after graduation?

The study was completed in three phases as indicated in Table 1.

#### **Phase I**

Descriptive survey research (Creswell, 2012) was utilized to address the question posed for the initial phase of the study. Upon completion of the introductory foundations course in classes in which the active learning strategies were incorporated, a questionnaire was administered to volunteers to ascertain the teacher candidates' perceptions of the use of active learning as an instructional strategy (Appendix A). A space to include comments after each questionnaire item was provided

Table 1  
*Phases of Transfer of Active Learning Strategies Study*

Phase I	Phase II	Phase III
A questionnaire was administered to teacher candidates only in introductory foundation classes in which the active learning strategies were incorporated to determine their perceptions of the active learning instructional strategies.	Comparison of Praxis II-Principles of Teaching and Learning scores (overall and subtest scores) of teacher education candidates in introductory foundation classes in which the active learning strategies were incorporated and teacher education candidates in classes where the traditional lecture approach was utilized. Quasi-experimental (nonequivalent control groups posttest only)	A survey was administered to the teacher education graduates of both groups described in Phase II two to three years after becoming teachers to determine perceptions of their use of active learning strategies in the preK-12 grade classroom.

encouraging respondents to further explain their responses concerning the benefits or drawbacks of the strategies utilized in the Develop-a-Child project, the impact this project had on their acquisition of course content, and whether they felt the strategies would be useful in their teaching. For two semesters, questionnaire data were collected from candidates (n=128) enrolled in two sections of classes in which active learning was incorporated.

**Phase II**

A quasi-experimental nonequivalent posttest-only design (Gribbons & Herman, 1997) was utilized in Phase II to determine whether the hypothesis in the study was supported or not supported. To determine the long-term impact of the project on teacher candidates' understanding of the developmental theories and issues related to diversity, the Praxis II Principles of Teaching and Learning (PLT) scores for the teacher education candidates in the classes that incorporated active learning (n=128) were compared to teacher education candidates' scores who completed the same course in a traditional lecture format during the same semesters (n=120) The traditional lecture instructors used the same syllabus and the same textbook as the instructors who taught using the active learning strategies. Activities in the traditional lecture classes included PowerPoint presentations with lecture, whole-class and small-group discussions, online assignments, and individual research papers completed by the candidates rather than problem-centered activities or cooperative group projects in class activities. The traditional lecture classes were designated as the control group. Approximately 98% of the students from Phase I completed Phase II of the study, Teacher candidates took

the Praxis II PLT test during the student-teaching semester, approximately 18 months after completing the foundations course.

**Phase III**

Descriptive survey research (Creswell, 2012) was utilized in Phase III of the study to address the final question posed. Teacher education graduates who were in the classes that incorporated active learning strategies and graduates who were in traditional lecture classes who held a teaching position within the state were contacted. These teachers who had been practicing teachers for two to three years were sent a follow-up survey (Appendix B) to determine perceptions of their use of active learning strategies in the preK-12th grade classroom. The follow-up survey also sought to determine whether the instructional strategies in the foundations course helped them to make connections between developmental theories and their students' learning styles, preferences, and age levels, and whether the instructional strategies in the course had an influence on their implementation of active learning strategies in their classrooms.

**Participants**

The participants, in their first semester of the teacher education program at the University of Mississippi, were enrolled in a one-semester introductory foundations course which covered principles and theories of human development and diversity. In Phase I, 128 teacher education candidates enrolled in the junior-level course participated in the classes that incorporated the active learning strategies. The classes were used as intact groups, thus no random selection of participants took place. All candidates participated in the Develop-a-Child project as it was part of the course design for these

sections of the course. The groups spanned two semesters with Group 1 (first semester) having 59 candidates and Group 2 (second semester) having 69 candidates. Demographics of the candidates revealed that 95% were Caucasian (104 females/17 males), 5% were African American (6 females /1 male) and the mean age was 22 years.

In Phases II and III, follow-up data were collected on the participants of the classes that implemented active learning strategies, as well as teacher candidates who completed the foundations course taught in a traditional lecture format (Group 1-54 candidates, Group 2-66 candidates). Classes were identified as treatment and control groups based on the method of instruction utilized by the instructor. Again, intact classes were used for candidates in the traditional lecture format. All candidates participated in this instructional format as part of the course design for these classes. The demographics of candidates participating in the traditional lecture format classes were comparable to the candidates in the classes that incorporated active learning strategies. Demographics of this group revealed that 88% were Caucasian (94 female/12 male), 9% were African American (10 female/1 male), 1% was Hispanic (1 female/1 male), and 1% was Asian (1 female). The mean age of the traditional lecture group was 21.25 years.

#### **Instrumentation**

The questionnaire in Phase I was administered to teacher education candidate volunteers in the classes that incorporated active learning strategies. Volunteers completed the instrument at the end of the last class session of the semester and were asked to place them in a large envelope to ensure anonymity. Twenty-four volunteers (41% of 59) completed the survey the first semester (Group 1) and 30 (43% of 69) the second semester (Group 2). The group was considered to a good representation of the overall classes. This questionnaire included items that sought to determine teacher candidates' perceptions of the use of the active learning project in teaching, understanding of concepts and theories of human developmental and diversity, and transfer of learning to their practice in the field. The instrument consisted of 12 questions to which participants responded by circling "yes" or "no." The researchers designed the questionnaire so respondents made a positive or negative choice related to the item, but included a comment section with each item allowing participants to explain their response. The researchers felt the written responses would provide valuable information to aid in the analysis of the forced-choice items. The items on the questionnaire were reviewed by a panel of education faculty to insure content validity. Researchers analyzed the data by quantifying results for "yes" and "no" responses and coding written explanations by sorting

comments into categories to ascertain patterns and themes related to the three areas of focus of the questionnaire.

In Phase II, approximately 18 months after completing the course, during the student teaching semester, participants took the Praxis II Principles of Learning and Teaching test which is required for certification in the state. This test assesses content understanding and addresses the second focus of the study: acquisition of content knowledge. According to information on the Educational Testing Service website, the PLT is "designed to assess a beginning teacher's knowledge of... areas such as educational psychology, human growth and development, classroom management, instructional design and delivery techniques, evaluation and assessment, and other professional preparation" (Educational Testing Service, nd). The test includes subtests in the areas of Students as Learners, Instruction and Assessment, Teacher Professionalism and Communication Techniques. Part of the test is composed of four case studies related to a particular teaching situation in which candidates respond to short-answer items. The short-answer items require examinees "to demonstrate understanding of the importance of an aspect of teaching, demonstrate understanding of the principles of learning and teaching underlying an aspect of teaching, or recognize when and how to apply the principles of learning and teaching underlying an aspect of teaching" (Educational Testing Service, nd). In addition, the test contains multiple-choice questions covering the areas noted above. The overall total score and the percent of correct responses for each subtest score were obtained for participants' enrolled in classes implementing the active learning strategies and compared to the same scores of teacher education candidates who completed the class in the traditional lecture format.

Phase III, the follow-up portion of the study, was related to the third focus, perceptions of implementation of active learning strategies in the preK-12th grade classroom. Teacher education candidates in the foundations courses in which active learning and traditional lecture formats were used and who held teaching positions within the state were located with the assistance of the state department of education. Participants included in Group 1 of the study were in their third year of teaching and participants included in Group 2 were in their second year of teaching. These groups contain elementary, middle school, and high school teachers, as well as special education teachers. The follow-up survey contained five items that sought to determine participants' current teaching grade level, how often they used active learning strategies in their teaching, and the impact that instruction in the foundations class had on their understanding and willingness to utilize active learning strategies. Likert-type response options

suitable to each question were included on the survey. A panel of teacher education faculty reviewed the questions for clarity and to determine whether they would provide the information to help the researchers answer the study questions. The electronic survey was created using SurveyMonkey. A cover letter that included the link to the survey was emailed to participants. Groups 1 and 2 were combined and treated as one group for this exercise. Of the active learning participants, 58 emails were sent with 13 being returned as undeliverable. For the traditional lecture group, 67 emails were sent with 10 being returned as undeliverable. Nineteen teachers (42%) who participated in the active learning class responded to the survey. Thirteen teachers (23%) who participated in the lecture-only class responded. Researchers analyzed the data by quantifying results of the response choices and coding written explanations by sorting comments into categories to ascertain patterns and themes related to the three areas of focus of the questionnaire.

### **Results**

Because the Develop-a-Child Questionnaire administered in Phase I was directed solely at the active learning strategies used in specific sections of the introductory foundations course, only teacher education candidates enrolled in these sections were provided the opportunity to respond. The results yielded valuable information related to the three focal areas of the study. The results of the responses on the questionnaire are grouped according to the three research areas of interest in the study. In addition, results of follow-up activities in Phases II and III related to the three areas of focus are discussed in the corresponding sections with the results of the initial questionnaire.

#### **1) Teacher candidates' perceptions of an active learning approach as an instructional strategy.**

**Phase I: Develop-a-Child questionnaire results.** The responses in research area one are based on yes/no responses and clarifying written responses to survey questions 6, 7, 9, 10, and 12. These five questions asked participants to determine whether the use of the active learning project, which incorporated cooperative learning and problem-centered activities, was an effective instructional strategy. As noted on Table 2, teacher candidates were very favorable when responding to each question except the final one which asked if they felt there were drawbacks or negatives to participating in this project. Group 1 responded equally positively and negatively toward this item; however Group 2 was much more positive. This change may be due to adjustments in the instructors' group participation instructions from one semester to the next.

The written responses revealed interesting information. Written comments for the two groups were combined and analyzed by categorizing responses as favorable and not favorable. Eighty-one percent (44) of

the teacher candidates responding indicated that the active learning experience was very enjoyable and beneficial. According to the written responses, the teacher candidates stated that the Develop-a-Child project combined visual representations with auditory presentations that met their learning needs and allowed for creative expression. In addition, they felt the activities kept them on-task and actively involved with the content. They encountered creative teaching ideas and discovered that it enhanced team building as they got to know their classmates and learned from one another. They added that more professors should include cooperative learning activities in their instruction, because no matter what content is being taught, this is an effective way to teach it.

Nineteen percent (10) of the teacher candidates across the two groups felt there were drawbacks to participating in the project. Written responses by these candidates noted that some members of their groups did not contribute enough to the project. They also pointed out that although it was enjoyable and they knew a lot about their own group's child, some candidates had difficulty remembering about the other children that were developed. Three participants felt strongly that education courses use too much group work and preferred to learn the information through a direct instruction model.

#### **2) Teacher candidates' comprehension of the theories of human development and diversity**

**Phase I: Develop-a-Child questionnaire results.** The responses in research area two are based on yes/no and written responses to survey questions 1, 5, and 8. These three questions asked participants to respond to the effectiveness of the Develop-a-Child project on their comprehension of course concepts and theories of human development and diversity. Yes/no responses to these three items on Table 3 indicated very positive responses to these questions. Again, responses from Group 2 were more positive than from Group 1 perhaps indicating a difference in the groups over the two years or a possible change in the way material was presented as a result of instructor reflection on the course activities from the previous year.

The written responses of the two groups provided more clarification to the yes/no responses. Eighty-six percent (46) of teacher candidates responding indicated the "Develop-a-Child" project was an interesting way to learn how preK-12th grade students develop. A summary of their written responses indicated that it helped spark their interest in the content since they realized they had to understand the content in order to successfully create the child and present the child to the class. They liked being able to interact with the content rather than simply studying it in the textbook. The active learning experience gave them an opportunity to thoroughly develop an understanding of the concepts and connect the concepts from the book to real-life situations.

Table 2  
*Perceptions of Active Learning as an Instructional Strategy*

Develop-A-Child Questionnaire Items	Group 1 N=24		Group 2 N=30	
	Yes	No	Yes	No
6. Did you feel the instructor for the course modeled effective instructional strategies while presenting the course content during the semester?	95.8% 23	4.2% 1	100% 30	0% 0
7. Do you think all professors in higher education should provide opportunities for cooperative group activities?	91.6% 22	8.4% 2	90.0% 27	10.0% 3
9. Do you feel the Develop-a-Child project was suited to your personal learning style?	83.3% 20	16.6% 4	86.6% 26	13.4% 4
10. Did you enjoy participating in the Develop-a-Child project?	87.5% 21	12.5% 3	90.0% 27	10.0% 3
12. Do you feel there were drawbacks or negatives to participating in this project?	50.0% 12	50.0% 12	16.6% 5	83.4% 19

Table 3  
*Teacher Candidates' Comprehension of Theories of Human Development and Diversity*

Develop-A-Child Questionnaire Items	Group 1 N=24		Group 2 N=30	
	Yes	No	Yes	No
1. Did the Develop-a-Child activity help you learn the course content (examples: emotional, social, physical, cognitive developmental theories)	83.3% 20	16.6% 4	90.0% 27	10.0% 3
5. Did participating in the activity motivate you to learn the course content?	66.6% 16	33.3% 8	93.3% 28	6.7% 2
8. Did working cooperatively help you learn the content?	87.5% 21	12.5% 3	90.0% 27	10.0% 3

They indicated that the hands-on learning activities helped them learn the content because it made it easier to see how the developmental theories applied to an actual child at a given age. They also indicated the project helped them to connect more closely to the students in their field placement setting. Teacher candidates noted that assigning an age, grade, gender, personality traits, interests, and background experiences helped them see how these factors impact development. Explaining the information to the rest of the class also seemed to be helpful to some of the candidates since it required them to summarize the information that was included on the Develop-a-Child poster. They benefitted from different perspectives and found that in some cases, different candidates within the group had a better understanding of the content and were able to explain it to their peers in a way that made it easier to understand.

Most participants were positive about learning the content through the active learning experiences, yet 14% (7) of the teacher candidates commented the project was a hassle and their goal was to complete the assignment rather than focusing on the content. Others stated that although it was fun and motivating, being in a group wasn't the reason they learned the content; their real motivation was their desire to get a good grade.

Perhaps the active learning approach did not match their learning styles or the personalities and learning styles of the members in their group were not a good fit.

#### **Phase II: Follow-up: Praxis II PLT results.**

Available Praxis II PLT scores for active learning study participants (AL) (Group 1, N=44; Group 2, N=33) as well as scores for candidates who completed the course the same semesters in a class that utilized a traditional lecture format (TL) (Group 1, N=33; Group 2, N=36) were compared. Figure 1 displays the Average Overall Scores for Groups 1 and 2 of the AL and TL groups.

Figure 2 displays the average percent of correct items on the subtests of the Praxis II PLT for Groups 1 and 2 of the active learning and traditional lecture groups. Exact percentages of the correct responses on the subtests are found on Table 4.

After analyzing the overall scores and the subtest scores of the two groups, independent samples t-tests were conducted to statistically compare the overall scores and the percent of correct responses on subtests of candidates in the AL group to candidates in TL group. Table 4 reveals significant differences between the overall scores of the groups, as well as on three subtests.

AL group scores were higher on Overall Score averages for both Groups 1 and 2. In addition, the percent of correct responses for the subtests were higher for the AL group on almost every subtest. For the Overall Scores results, findings revealed a significant difference in the

scores of the AL and TL groups for both Group 1: AL (M=173.66, SD=8.6) and TL (M=169.46, SD=9.8);  $t(75)=2.03, p=.046$  and Group 2: AL (M=175.66, SD=9.66) and TL (M=169.11, SD=9.04);  $t(73)=3.027, p=.003$ . This finding supports previous research which indicates that candidates completing a course which incorporates active learning strategies retain the content more effectively than those completing the traditional lecture course. These results also support the perceptions of teacher candidates on the Develop-a-Child Questionnaire.

When considering the subtest scores, the percent of correct responses for the AL and TL groups for Groups 1 and 2 were revealed in Table 4. After considering the differences, an independent samples t-test was conducted to determine whether there was a significant difference in the scores of the AL and TL groups for Groups 1 and 2 on each subtest. Findings revealed a significant difference in the subtest scores of the AL and TL groups for Group 1 in Instruction and Assessment (short answer/case study items) and in Teachers as Professionals (short answer/case study items). Results on the subtest Instruction and Assessment (16 items) for Group 1 indicated: AL (M=11.91, SD=2.49) and TL (M=10.27, SD=3.73);  $t(75)=2.34, p=.022$ . Results on subtest Teachers as Professionals (8 items) for Group 1 indicated: AL (M=4.91, SD=2.17) and TL (M=3.81, SD=2.25);  $t(75)=2.17, p=.033$ .

For Group 2, findings revealed a significant difference in the subtest scores of the AL and TL groups on subtest Students as Learners (short answer/case study items). Results on subtest Students as Learners (16 items) for Group 2 indicated: AL (M=10.87, SD=3.39) and TL (M=9.11, SD=2.80);  $t(73)=2.43, p=.017$ .

It is interesting to note that there were significant differences on all three of the short-answer item tests related to the case studies. According to Popham (2007), assessing students using the short-answer format requires them to develop their own correct response rather than choosing a response from a list of possible answers. Thus, this type of assessment item is more cognitively demanding than multiple-choice items. A significant difference on scores related to the short answer items on the case studies may indicate that the participants of the AL groups have a better conceptual understanding of the concepts and theories of human development and diversity and are better able to verbalize those understandings. This also supports teacher candidates' perceptions on the Develop-a-Child questionnaire.

### **3) Teacher Candidates' Implementation of the Active Learning Strategies in their Classrooms as Practicing Teachers.**

**Phase I: Develop-a-Child questionnaire results.** The responses in research area three were based

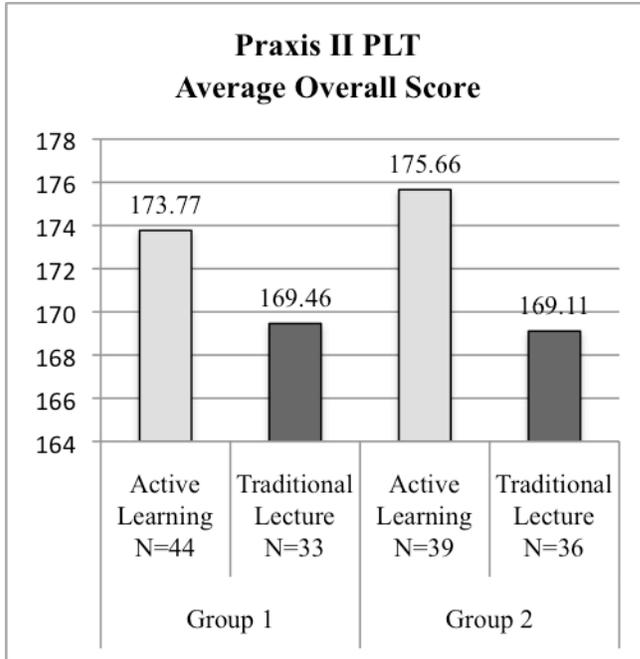


Figure 1. Praxis II PLT Average Overall Scores. Average overall Praxis II PLT scores for Groups 1 and 2 of the Active Learning and Traditional Lecture groups.

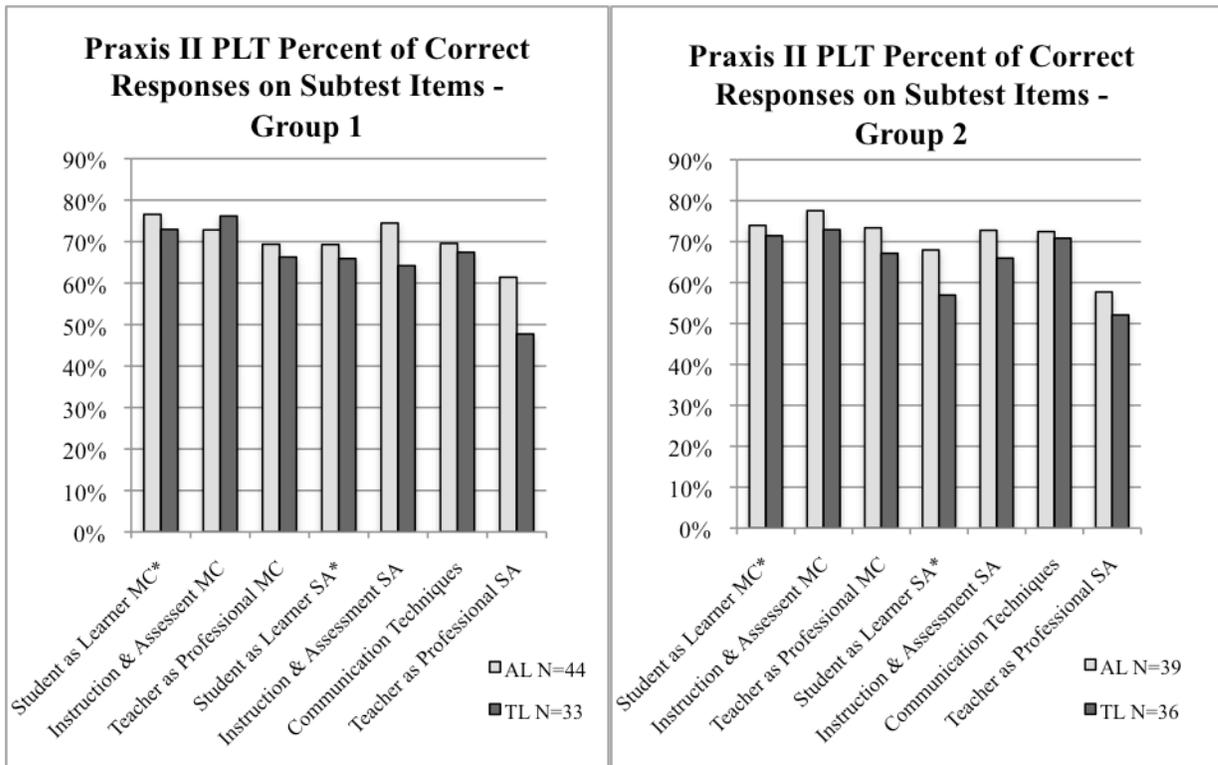


Figure 2. Praxis II PLT-Percent of Correct Responses on Praxis II PLT Subtest Items for Groups 1 and 2. \*MC-Multiple Choice; SA-Short Answer; AL-Active Learning; TL-Traditional Lecture.

on yes/no and clarifying written responses to survey questions 2, 3, 4, and 11. These four questions asked participants to respond to the effect of the Develop-a-Child project on their ability to connect developmental theories and diversity principles covered in class to field experiences and whether they felt they would use these activities in their future classrooms. Yes/no responses to these items revealed on Table 5 were, as a whole, not as positive. Perhaps this is because the teacher candidates were enrolled in an introductory class and spent only 25 hours in the field working with small groups. Because of their limited experience, teacher candidates were understandably unclear as to whether the Develop-a-Child activity would assist their decision-making as a teacher, what impact the experience had on their work with children in the field experience setting, and whether it would impact their teaching in the future.

The written comments provided a clearer explanation of their ideas. Sixty-nine percent (37) of

teacher candidates responding indicated that the visual representation of their child made it easier to make connections between developmental theories and the children in their classrooms. Analysis of the written responses revealed one teacher candidate who pointed out that some groups made stronger connections than others, which benefitted all candidates when they made their group presentations. Another teacher candidate enhanced her own learning by thinking about specific students in the field experience classroom while working on the “Develop-a-Child” activity. Overall, teacher candidates indicated that the active learning experience helped them relate to preK-12th grade students better as they further developed their understanding of how children think and why they behave as they do. They acknowledged that their interaction with preK-12th grade students changed as they learned how a student’s background experiences impacted their behavior. They also began to set more

Table 4  
Praxis II PLT Results: Average Overall Score and Percent of Correct Responses on Subtests

Praxis II- PLT	Average Overall Score	Student as Learner MC*	Instruction Assessment MC	Teacher as Prof MC	Student as Learner SA*	Instruction Assessment SA	Comm Tech	Teacher as Prof SA
<b>Group 1-</b>								
AL N=44	173.77 <sup>+</sup>	76.57%	72.83%	69.36%	69.29%	74.46% <sup>+</sup>	69.57%	61.41% <sup>+</sup>
TL N=33	169.46	72.94%	76.17%	66.28%	65.91%	64.20%	67.42%	47.73%
<b>Group 2-</b>								
AL N=39	175.66 <sup>+</sup>	73.95%	77.56%	73.36%	67.95% <sup>+</sup>	72.76%	72.44%	57.69%
TL N=36	169.11	71.43%	72.92%	67.14%	56.94%	65.97%	70.83%	52.08%

\*MC-Multiple Choice; SA-Short Answer

+ indicates tests with significant differences in scores between the two groups.

appropriate expectations for the preK-12<sup>th</sup> grade students and demonstrated more understanding toward the students as a result of participation in the project.

Teaching was impacted as some teacher candidates' eyes were opened to the different phases of development and how development affects the ways in which preK-12th grade students learn, therefore, determining ways in which they might be taught. One important realization was noted by teacher candidates when they acknowledged that the learning experience helped them to become more sensitive to the diversity in the classroom and the importance of meeting diverse educational needs.

Participants stated that this project was different from other group activities in which they had participated and that it reinforced the idea that active learning is a great way for preK-12th grade students to learn the content. Most participants indicated they would implement group projects in their classrooms as an effective way to teach preK-12th grade students. They also thought this experience would help them choose the right kind of activities that best fit their preK-12th grade students' needs.

On the other hand, participants noted that since the project was hypothetical, they did not always relate information back to experiences they encountered in the classroom. One teacher candidate stated that more learning occurred from observing the field experience

classroom teacher than participation in the active learning project.

**Phase III: Follow-up: Survey to practicing teachers.** Forty-five of the AL groups and 57 of the TL groups received emails with a link to the follow-up survey. The survey, which targeted practicing teachers, contained five items that sought to determine their current teaching grade level, how often they use active learning in their teaching, and the impact that the type of instruction in the foundations classes had on their understanding and willingness to utilize active learning strategies in classroom instruction. Nineteen teachers (42%) who participated in the active learning class responded to the survey. Thirteen teachers (23%) who participated in the lecture-only class responded. Table 6 provides results for the survey.

Responses to items on the survey revealed interesting information. The first item asked how often practicing teachers used active learning strategies. Both AL and TL groups indicated they used active learning often in their classrooms. The majority used these strategies at least once a week and many used them more often. The group that implemented the strategies less often included secondary and special education teachers. When asked in item two which of the active learning strategies they used in their classrooms, teachers' responses indicated that all three were used with cooperative groups used the most often. Problem-based

Table 5  
*Perceptions of Implementation of Active Learning Strategies in Classrooms as Practicing Teachers*

Develop-A-Child Questionnaire Items	Group 1 N=24		Group 2 N=30	
	Yes	No	Yes	No
2. Did the activity help you make connections between developmental theories and your K-12 field experiences?	70.8% 17	29.2% 7	86.6% 26	13.4% 4
3. Did the activity inform your decision-making as a teacher?	37.5% 9	62.5% 15	66.6% 20	33.3% 10
4. Did the activity have an impact on how you interacted with students in your field experiences?	79.1% 19	20.9% 5	53.3% 16	46.7% 14
11. Do you think participating in this project will impact your decisions about implementing group projects in your future classrooms?	62.5% 15	37.5% 9	86.6% 26	13.4% 4

Table 6  
Follow-up: Survey to Practicing Teachers

1. How often do you incorporate active learning strategies into your curriculum during a grading period (6-weeks, 9-weeks)?

Group	More than 9 times	5-9 times	1-4 times	Never
AL (N=19)	47.4% (9)	36.8% (7)	15.8% (3)	-
TL (N=13)	69.2% (9)	30.8% (4)	-	-

2. Which of the following active learning strategies do you use in your classroom? (May choose more than one.)

Group	Problem-Based Learning	Cooperative Groups	Group Presentations
AL (N=19)	57.9% (11)	94.7% (18)	57.9% (11)
TL (N=13)	84.6% (11)	100% (13)	62.9% (9)

3. Instruction in the EDCI 352 course prepared me to make connections between developmental theories and my current students' learning styles, preferences, and age levels.

Group	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
AL (N=19)	5.3% (1)	73.7% (14)	21.4% (4)	-	-
TL (N=13)	23.1% (3)	61.5% (8)	15.4% (2)	-	-

4. Instructional strategies used in the EDCI 352 course positively influenced my decisions about implementing active learning strategies and group projects with my current students.

Group	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
AL (N=19)	26.3% (5)	52.6% (10)	21.0% (4)	-	-
TL (N=13)	30.8% (4)	30.8% (4)	30.8% (4)	-	7.7% (1)

5. In which of the following academic areas do you teach? (May choose more than one.)

Group	Elementary	Middle School	Secondary	Special Ed	Mixed Levels	
AL (N=19)	42.1% (8)	36.8% (7)	10.5% (2)	10.5% (2)	Sec/SpEd 5.2% (1)	Sec/Mid 5.2% (1)
TL (N=13)	46.1% (6)	30.8% (4)	15.4% (2)	7.7% (1)	Elem/Middle 7.7% (1)	

learning and group presentations were not far behind the cooperative group percentages. Responses for the third item indicated that 84.6% (11) of the TL group and 79% (15) of the AL group agreed or strongly agreed that instruction in the introductory foundations course prepared them to make connections between developmental theories and their current students' learning styles, preferences, and age levels. However, in the fourth item which asked whether the instructional strategies used in the EDCI 352 course positively influenced their decisions about implementing active learning strategies and group projects with their current students: 79% (15) of the AL group and 61.1% (8) of the TL group agreed or strongly agreed. Finally, the number of respondents teaching at specific grade levels for each group was comparable with elementary and middle school teachers responding most often.

Written comments from the two groups revealed an interesting difference. It appeared that the AL group responses revealed a deeper conceptual understanding of the theories of human development and diversity than the TL group. Two respondents from the TL group included comments with their survey related to their current elementary classrooms.

One elementary teacher wrote, "In the three years that I have been teaching, I have found that my students enjoy group projects, co-op style learning, and are engaged in the learning process. They are less critical if one of their peers makes a mistake and instead of criticizing, they actually help their peers focus on clue words in a problem."

The second elementary teacher indicated, "I incorporate lots of the activities that we used in class, but it is hard to spend the time on those neat projects."

Responses from the AL group provided additional insight.

An elementary teacher wrote, "I teach pre-K until noon and my afternoons are spent conducting Tier III interventions for grades 4, 5, and 6. The Develop-a-Child activity provided me with information about the various developmental stages of students. I face two very different age groups daily: the abundantly energetic and the hormonally charged! Knowing the reasons behind why they act the way they do is extremely beneficial to my career."

Another elementary teacher indicated, "Working in cooperative groups gives teacher candidates the opportunity to apply theories and gain understanding of them with others. It also provides an opportunity for future teachers to understand what it takes to work in groups to complete a task in an effective way."

A secondary teacher revealed, "My knowledge gained through the University of Mississippi greatly helped me to understand the various learning styles in the

typical classroom as well gain an understanding of developmental theories to scaffold our students along the way. This has made a significant impact on my classroom."

And a special education teacher wrote, "Develop-a-Child helps me now to understand where my students are in comparison to where the "average" student is in their development. I teach a class of Developmentally Delayed students and it's easier to describe to parents behavior of their child in relation to children who are the same age."

Responses supplied by the TL group centered on implementation of active learning strategies and that students enjoyed the opportunity to work together. In addition, the opportunity to work in cooperative groups enhanced the classroom environment. Responses of the AL group included discussion of the developmental levels of students, learning styles, scaffolding learning experiences, and application of the theories in the classroom. The knowledge learned in the foundations class helped them to understand the developmental levels of students and assisted them in talking with parents. The language used by the four respondents of the AL group was much richer and included terminology learned in the foundations class. These teachers seemed to internalize the concepts learned and were able to transfer the knowledge to their own classrooms on a deeper level than the two respondents of the TL group.

#### **Discussion and Implications for Future Research**

The Develop-a-Child activity implemented the active learning approach through the combination of cooperative learning and problem-based learning strategies. This approach was implemented in the introductory foundations class to enhance teacher candidates' understanding of concepts and theories of human development and diversity and how knowledge of those concepts can impact preK-12th grade student learning. The study focused on three specific research areas: 1) teacher candidates' perceptions of an active learning approach as an instructional strategy, 2) teacher candidates' comprehension of the theories of human development and diversity, and 3) graduates' perceptions of the active learning strategies in their preK-12th grade classrooms as practicing teachers. On the Develop-a-Child Questionnaire administered following the foundations course, the teacher candidates' revealed positive perceptions concerning the use of active learning in all three research areas of the study. Group 2 perceived the activity as more effective than the Group 1 participants. This could be due to changes in implementation of the project after instructors studied Group 1 candidate comments on the questionnaire and reflected on instruction the previous semester. Some respondents were not positive about the active learning

approach implemented with the Develop-a-Child project, noting that not all students participated in the same way and that they preferred a more direct instructional approach.

Results of the Praxis II PLT indicated a statistically significant difference in the content knowledge of candidates who took the course with instructors that modeled the active learning strategies and candidates who took the class in a traditional lecture format. This supports previous research about the use of active learning strategies and the impact on acquisition of course content. The perceptions of the teacher candidates as they completed the course supported this as well.

In relation to the third research area, teacher candidates were not as positive on the initial questionnaire when asked if this activity would impact their own instruction in the classroom. If the study is conducted again, consideration should be given to revising this portion of the survey as it would be difficult for students in an introductory course to determine what strategies they would actually use in the future. Responses on the Follow-up Survey of Practicing Teachers revealed that both groups of participants incorporated active learning strategies into class instruction regularly. Comments from both groups of respondents indicated that courses and experiences in their senior year of the teacher education program helped to strengthen the knowledge learned in the initial foundations course. In addition, professional development and expectations of the school setting where these teachers were employed may be a factor in the use of active learning strategies. And although, both AL and TL groups implemented active learning activities in their current classrooms approximately the same amount of time, responses indicated that the AL groups had deeper conceptual understanding of the theories of human development and diversity taught in the class.

Results of this research revealed that use of active learning strategies in the teacher preparation program did have a positive impact on the conceptual understanding of the participants. More importantly, the results revealed that teacher candidates who participated in active learning instructional strategies during the introductory foundations class applied the theories with greater understanding in their own classrooms when they became teachers. Important information could be gained through researcher classroom observations to examine the effectiveness to which teachers implement active learning strategies in instruction. It would also be interesting to study the impact of the use of these strategies on preK-12th grade student learning.

### Conclusion

The goal of every teacher is to have a positive impact on student learning. This is as true in the college classroom as it is in the preK-12th grade classroom. Proven strategies that engage learners and require them to

cooperate, communicate, and collaborate with peers in problem-solving situations can benefit learners at all levels. Teacher candidates' perceptions of the impact of active learning projects on their own learning is important because they are more apt to use strategies with their preK-12th grade students if they feel the strategies are effective. This study provided encouraging results which supports the use of active learning experiences in the university classroom. The results also support the idea that teacher educators can positively influence prospective teachers through modeling appropriate instructional practices. But perhaps the most significant finding is the impact these experiences in an introductory education course can have on the interactions between future teachers and their students.

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Appendix A  
Develop-A-Child Questionnaire

This survey will require you to reflect on the develop-a-child activity. Respond to the following items by circling either Yes or No and explain your answer in the space provided.

Explain your response:

1. Did the develop-a-child activity help you learn the course content (examples: emotional, social, physical, cognitive developmental theories)?	Yes No	
2. Did the activity help you make connections between developmental theories and your K-12 field experiences?	Yes No	
3. Did the activity inform your decision making as a teacher?	Yes No	
4. Did the activity have an impact on how you interacted with students in your field experiences?	Yes No	
5. Did participating in the activity motivate you to learn the course content?	Yes No	
6. Did you feel the instructor for the course modeled effective instructional strategies while presenting the course content during the semester (powerpoint, discussion, cooperative learning groups, group presentations, etc.).	Yes No	
7. Do you think all professors in higher education should provide opportunities for cooperative group activities?	Yes No	
8. Did working cooperatively help you learn the content?	Yes No	
9. Do you feel the develop-a-child project was suited to your personal learning style?	Yes No	

10. Did you enjoy participating in the develop-a-child project?	Yes No	
11. Do you think participating in this project will impact your decisions about implementing group projects in your future classrooms?	Yes No	
12. Do you feel there were drawbacks or negatives to participating in this project?	Yes No	

Appendix B  
Follow-up Survey

Mark your response to the items and include additional comments related to your experience in EDCI 352-Education, Society, and the K-12 Learner.

1. How often do you incorporate active learning strategies into your curriculum during a grading period (6-weeks, 9-weeks, etc).
  - a. More than nine times
  - b. 5-9 times
  - c. 1-4 times
  - d. Never
  
2. Which of the following active learning strategies do you use in your classroom? (May choose more than one.)
  - a. Problem-based learning
  - b. Cooperative groups
  - c. Group presentations
  
3. Instruction in the EDCI 352 class prepared me to make connections between developmental theories and my current students' learning styles.
  - a. Strongly agree
  - b. Agree
  - c. Maybe
  - d. Disagree
  - e. Strongly disagree
  
4. Participations in activities in the EDCI 352 class positively influenced my decisions about implementing group projects with my current students.
  - a. Strongly agree
  - b. Agree
  - c. Maybe
  - d. Disagree
  - e. Strongly disagree
  
5. In which of the following academic areas do you teach? (May choose more than one.)
  - a. Elementary
  - b. Middle school
  - c. Secondary
  - d. Special education

Additional Comments:

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