

# Re-conceptualizing Early Childhood Teacher Education: Enacting a Paradigm Shift to Bring Developmentally Appropriate Practice to Higher Education

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#### Introduction

Faculty in early childhood teacher preparation find themselves with two major challenges. First, there is a struggle to articulate a professional knowledge base for early childhood education that will best prepare educators to face the demands of teaching in an increasingly dynamic, technological, and diverse society. Simultaneously, there is the challenge to design instructional models that will effectively help teachers acquire the common core of knowledge and abilities that they will need to teach young children now and in the future. Many teacher education programs are exploring the promises and practices of developmentally appropriate pedagogy for preparing pre-service teachers.

Developmentally appropriate practice (DAP) consists of the dimensions of age-appropriateness and individual-appropriateness (Bredekamp & Copple, 1987; Copple & Bredekamp, 2009). An understanding that development occurs along a number of different dimensions—physical, social, emotional, cognitive, and linguistic, among others—and that development along these dimensions does not necessarily occur at the same age for each child, is the essence of DAP (Horowitz, Hammond, & Bransford, 2005). This understanding serves as a framework from which teachers prepare experiences and the learning environment. Although most early childhood professionals agree that DAP works for young children, does it make sense in the context of higher education and teacher preparation?

Reviewing the literature provides both historical and practical information and researchbased support for programmatic efforts that facilitate teacher educators' understanding and practice of developmentally appropriate pedagogy. For example, Rogers and Sluss (1996) propose that early childhood teacher education use the National Association for the Education of Young Children (NAEYC) document, Developmentally Appropriate Practices for Early Childhood Program (Bredekamp & Copple, 1987, 1997; Copple & Bredekamp, 2009), as a basis for discussion of practices that are developmentally appropriate across the life span. They go on to state that curriculum in higher education should be developmentally appropriate in the sense that it provides active, concrete and culturally competent learning experiences, as well as facilitates social interaction with cooperative learning groups. Bufkin and Bryde (1996) advocate for the use of a developmentally appropriate, constructivist approach in early childhood teacher education. They assert that the premises of a constructivist approach—choice making, student-driven curriculum/meeting individual needs, critical thinking, and active learning—should be infused into the coursework for early childhood pre-service teachers. More recently, Rainer, Dangel and Guyto (2004) identified an emerging conceptualization of constructivist higher education in their review of 40 different constructivist teacher education programs. They discovered ten common

elements among the programs that include: (1) reflection, (2) learner-centered instruction, (3) collaborative learning, (4) posing questions/problem solving, (5) cohort groups, (6) relevant field experiences, (7) authentic assessment/professional portfolios, (8) inquiry/action research, (9) content, and (10) personal engagement.

There appears to be strong support for DAP in higher education, both in and outside of teacher education. Of special note is the ground-breaking work of Barr and Tagg (1995) who advocate that higher education "create environments and experiences that bring students to discover and construct knowledge for themselves, to make students members of communities of learners that make discoveries and solve problems...and...to create a sense of ever more powerful learning environments" (p. 15). Kolb and Kolb (2005) stress the use of experiential learning and learner-centered methodologies in business management coursework. Psychological research for effective pedagogy in higher education reminds us that we must not overlook the well-established understandings of college students' development when considering curriculum transformation (Myers & Beringer, 2010). Finally, from the education field, Dart et. al., (2000) argue that learning is about developing meaning and understandings. They state that deep approaches to learning occur through the creation of learning environments that are safe and supportive for students and provide opportunities for exploration, inquiry, and experiential learning.

Although research supports the use of DAP, developmentally appropriate constructivist classrooms are not the norm in higher education (Fear, et. al., 2003). Many institutions of higher education cling to the paradigm of transmission of knowledge through teacher-directed instruction, including readings and lecture, and artificial authority (Chryst & Oneonta, 2007). In fact, it has been found that instruction is delivered with little emphasis on learning outcomes or mastery of content (Barr & Tagg, 1995). This is especially worrisome given Eddy's (1969) pivotal research that states our experience as a student is what defines our concepts of education. In addition, Zeichner and Tabachnick (1981) argue that the thousands of hours that pre-service teachers spend as students in classrooms shape their beliefs about teaching and education. Further, these conservative beliefs remain latent during formal training in pedagogy at the university and become a major force once the candidate is in his or her own classroom. Research also suggests that DAP must not only be stated, but must be viewed in daily classroom activities (Dart, et. al., 2000). Lack of congruency between theory and practice does not provide teacher candidates with the learning skills necessary to implement deep learning experiences on their own.

#### The Premise

This project emerged from informal discussions with early childhood pre-service teachers during their content area methods courses at a large, Midwestern four-year university. Students stated they needed personal experience with materials and practices that they will be expected to use in classrooms during field experiences, student teaching, and in their future classroom. Students stated they felt comfortable with the theory supporting DAP; however, they needed to *experience* DAP as well as put theory into practice.

These discussions spurred the classic ethnographic question, "What is going on here?" What the students described is a breach between theory and practice. This breach made it evident that the early childhood teacher preparation program needed to "practice what they teach" by implementing a more learner-centered, developmentally appropriate, constructivist pedagogy. Enacting this was an opportunity to reflect on current practices and make improvements through a meaningful inquiry project. A developmentally appropriate approach would provide students

with two-tiered scaffolding (i.e., students are given the opportunity to learn how to create and use DAP, and then learn from personally experiencing the process; Gafney & Anderson, 1991).

This study involved addressing candidate concerns and the implementation of a more developmentally appropriate, constructivist approach by the instructor of the methods courses. Three main objectives were established for the teacher candidates: (1) Students will examine and analyze materials used to implement developmentally appropriate curriculum, (2) Students will develop lessons/activities that will incorporate a variety of materials introduced in the early childhood methods courses, and (3) Students will implement a developmentally appropriate lesson/activity during their field experience. Additionally, the instructor will enact a more learner-centered approach through a developmentally appropriate, constructivist curriculum.

### Method

This single-site study was conducted with students of junior and senior status enrolled in the content area methods block. These candidates had been accepted into the selective early childhood program. All students were Caucasian and female, which represents a typical student sample for the program. Traditional techniques of ethnography were used, such as field notes, collection of artifacts, as well as formal and informal discussions with participants (Reeves, Kuper, & Hodges, 2008). Both formal and informal observations were conducted during university class time and field experiences in public schools. Various sources of qualitative data (e.g., cooperating teacher evaluations, student end-of-semester reflections, course assignments, final examination responses) were considered. Quantitative data were analyzed from pre- and post-intervention surveys that also contributed to the holistic picture an ethnographic study attempts to portray.

#### **Procedure**

In this university program, the early childhood methods courses encompass a block of three courses taught in a 16-week semester. These courses are (1) Emergent Literacy/Communication Arts, (2) Social Studies/Sociomoral Development, and (3) Mathematics and Science for Young Children. Ten students completed a survey (see Appendix A) on the first and last day of class. A paired-sample *t* test was used to analyze the results of the surveys. Syllabi for the methods courses were revised to reflect a more developmentally appropriate approach. For example, since one of the principles of DAP is to use an integrated curriculum to optimize children's learning (Copple & Bredekamp, 2009), the syllabi for these courses force integration and have shared assignments, including a field experience or practicum. Classroom activities were designed to provoke disequilibrium, offer variety and balance, create ambiguity, and necessitate interaction. Experiences included many opportunities for small group activities, mini lessons, guest-speakers of current classroom teachers, role-playing, active engagement with learning materials, and experiences in learning centers for all content areas.

A university grant was written that funded the purchase of nearly \$2,500 in materials and supplies to enhance the early childhood methods courses. The materials included a variety of manipulatives for mathematics, games and learning center supplies for teaching science and social studies, as well as literacy materials including a teaching easel, pocket chart, magnetic letters and other manipulatives, and games. Many of these materials would be utilized across learning

domains. For example, a teaching easel could be used for literacy instruction as well as science, mathematics, and social studies.

To meet Objective 1 (The students will examine and analyze materials used in the primary grades to implement developmentally appropriate curriculum), students were provided numerous opportunities throughout the semester to interact with and examine the materials that were purchased through the grant. Students were also encouraged to use the materials with children during their field experience. In one class activity, students were exposed to a variety of materials, both developmentally appropriate and inappropriate. The activity provided an opportunity for students to practice certain second-grade skills for communication arts, mathematics, science, and social studies, first, by completing a worksheet, followed by participation in center-based learning that utilized developmentally appropriate materials and hands-on activities.

For Objective 2 (Students will develop lessons/activities that incorporate a variety of developmentally appropriate materials introduced in the early childhood education methods courses), the students' ability to plan developmentally appropriate activities was confirmed when they were assigned to create math centers that addressed specific mathematics concepts/skills identified by the National Council of Teachers of Mathematics (NCTM) and the Grade Level Expectations defined by the state. Students incorporated many of the hands-on materials they had been introduced to throughout the semester.

For Objective 3 (Students will implement a lesson/activity, using developmentally appropriate materials introduced in class, during their practicum placement in a primary classroom with a group of children), students were required to plan and implement two lessons or activities while involved in their field experience. One lesson was to incorporate a science objective while the second was free to be chosen by the student and cooperating teacher.

Finally, to determine if a more developmentally appropriate, constructivist approach was enacted in the methods block, spring (pre-funding) and fall (post-funding) end-of-semester student course reflections were coded using the four constructivist principles identified by Buffkin and Bryde (1996) and the principle of socio-moral atmosphere identified by Rainer-Dangel and Guyto (2004).

## **Results**

## **Analyzing Classroom Materials**

Students were asked to rate their confidence level regarding their ability to analyze materials for appropriateness. The pre and post survey responses (Question 6; M = 2.00 & 5.00, SD = .84 & .00, respectively) reveal a significant difference between the students' responses [t(10) = -9.00, p < .05]. Qualitative data taken from question 2 of the survey (Identify a list of materials that you consider developmentally appropriate for teaching young children) support the quantitative finding. On the first survey, students listed very broad and general categories of items (e.g., art supplies, writing materials, blocks, books). When listing items for the second survey, students gave more specific examples (e.g., pattern blocks, unifix cubes, counters, calendar math). The second survey responses also indicated an understanding of the appropriateness of playing to learn (e.g., math games, board games, dramatic play materials) as well as using center-based learning (e.g., space for learning centers, materials for hands-on exploration of science materials).

These combined data indicate students' level of confidence in their ability to analyze materials for developmental appropriateness increased significantly over the semester. It appears that the students' interactions with various materials allowed them to hone their skills to analyze the appropriateness of such materials. Student responses tend to confirm this: "I didn't realize how disengaged I was while doing worksheets and how engaged I was doing learning centers even though the skills were ones I have already mastered." "I can see how being physically involved in an activity is much better for children (and for me)—it's more appropriate—than simply doing a worksheet." "Learning centers made school work fun. I wish I would have learned like this." Statements like these indicate that when given an opportunity to interact with appropriate materials students can identify developmentally appropriate materials/activities.

# **Planning Appropriate Lessons/Activities**

A significant difference was found between students' pre and post survey responses (M = 3.20 & 5.00; SD = .63 & .00, respectively; [t(10) = -9.00, p < .05] regarding their ability to plan developmentally appropriate lessons or activities. This analysis suggests that students became more confident in their ability over the semester. Qualitative data gathered from lesson plans created for class assignments and the students' thematic units support the ability to plan developmentally appropriate activities. Each student (N = 10) included the use of learning centers in their thematic unit, planned for active, hands-on learning in their lesson plans, and integrated over 75% of the lessons included in their thematic units with at least three content areas and the arts.

# **Implementing Appropriate Lessons**

Although there was a numerical difference between students' pre and post survey responses (M = 3.4 & 4.4; SD = 1.20 & .96, respectively) regarding their ability to implement developmentally appropriate lessons, the difference was not statistically significant [t(10) = -1.86, p < .05]. The cooperating teacher evaluations stated that all students implemented developmentally appropriate lessons/activities while working in the practicum classrooms. In addition, all observed lessons met the criteria for developmentally appropriate practice.

### **Further Survey Results**

Two additional questions were asked on the survey, one (Question #5) dealt with the students' confidence level regarding the utilization of developmentally appropriate materials in a primary classroom. The data analysis revealed no significant difference between the pre and post survey responses (M = 4.00 & 4.80; SD = 1.05 & .65, respectively; t(10) -1.80, p < .05). Students had a relatively high confidence level for using developmentally appropriate materials when they entered the course (M = 4.00, SD = 1.05). Student confidence remained high throughout the semester and even increased slightly (M = 4.80, SD = .65). This confidence can be documented through student's appropriate responses to several questions on the final examination for *Mathematics and Science for Young Children* that indicated students' knowledge and understanding of the use of developmentally appropriate materials. Specifically, "Your principal tells you to use your science text instead of hands-on experiences with your second grade students. Write a memo to your principal defending your use of these experiences for teaching sci-

ence"; and "You are about to open a new kindergarten classroom in an elementary school. The principal has informed you that she has received a grant for math and science materials and you will be allowed to spend \$500.00 for your classroom. Using school catalog pages, document how you would spend the money. You will need to list the materials, quantity, price, and a justification for why you would purchase the item." Ten appropriate responses to these two questions indicate students possess the knowledge and understanding of using developmentally appropriate materials/activities. The survey results may indicate a level of insecurity in their abilities at this particular point in their teacher preparation training.

A final survey question (Question #7) revealed positive results for this project. This question asked: What is your confidence level regarding your ability to "transform" an inappropriate curriculum into one that is developmentally appropriate while meeting state and district standards? There was a significant difference between student responses on the pre and post surveys (M = 2.60 & 4.60; SD = .84 & .84, respectively; t(10) = -4.74, p < .05). This indicates students feel confident in their ability to, first, identify inappropriate curriculum when they see/experience it, and, secondly, they feel confident that they can plan and implement a curriculum that is more developmentally appropriate.

### **End-of-Semester Reflection**

Two semesters of student reflections were considered for comparison. The first semester (spring pre-intervention) had 10 students enrolled with similar demographics as the 10 students enrolled the following semester (fall post-intervention). Coding of student's end-of-semester reflections about the methods courses block revealed statements that addressed the instructional approach implemented during both semesters. Table 1 presents the comments of students by the coded characteristics.

*Table 1: Student comments by constructivist principle.* 

Constructivist	Spring Semester	Fall Semester
Principle	(pre-intervention)	(post-intervention)
Choice Making	I appreciated being able to	Many choices were made
	choose when I was going to	available; Choices were given
	present my lessons; we	even for little things like what
	got to choose who we worked	color construction paper we
	with in groups.	wanted, to bigger things like
		when our assignments would
		be due; We were always being
		asked to make choices; I
		thought it was cool that I got
		to make so many choices in-
		stead of always being told
		when and how I would do
		something; This was the first
		time since I've been in college
		that I felt like I was an active
		member in my education be-

		cause I was allowed to make choices about my education; We were always being asked to make choices; I couldn't believe I was actually asked to make choices for myself; We were given a steady diet of choices throughout the semester.
Student-driven curriculum/meeting individual needs	(She) would have us write down what questions we still had for a topic and then would take the next few classes to answer those questions;  I felt like class topics were geared to answer questions I still had about a topic.	We were asked what questions we still had that could be addressed in class; I felt like these courses were designed just for me; We not only learned about student-centered classrooms – we experienced it; I felt like I was a critical player in the design of these courses; We were asked what we wanted to learn about; I felt like I could ask questions that were only important to me and they'd be answered; You could tell that student interests were important
Critical thinking	No comments coded for this principle.	I liked having opportunities to think for myself instead of always being told the answers; Sometimes I would think "just tell me" but I always knew if I had to think through a problem then I'd know it; (She) made us think for ourselves and figure things out; Answers weren't "poured into our brains" – we were made to think; I have become a better thinker instead of a better memorizer; Sometimes I would think that my brain just couldn't "think" anymore; She gave me opportunities to think and reason; I think I'm a better student because I had to be a critical thinker in these courses.

class – it was cool to experi-

#### I liked that we were able to I loved using so many differ-Active learning use many children's books; I ent materials; Hands-on learning isn't just for children anthought it was awesome that we got to do activities that we ymore; I wish all my classes might have our students do; could be so engaging; It was we learned about teaching in a great to get to be physically "hands-on" way - I wish we interactive with materials; could have done more and lis-What a wonderful feeling to tened less. experience activities like your students will; We were constantly given experiences to be hands-on and minds-on; We actually played in class iust like kids; I'm a believer in center-based learning after getting to see it and do it; Playing in centers helped me understand why they're important for children; After having opportunities to play games and do centers I get why people say kids learn through playing. What a wonderful community We worked in cooperative Socio-moral atmosphere groups a lot; I liked all the diffor learning we had; It's a ferent ways we worked in great feeling to know there is groups. mutual respect in a classroom; We had such a positive learning environment; We all cared about each other and knew (she) cared about us too: We were human beings with emotions and out-of-class lives and (she) acknowledged that; I felt as though we were expected to take risks but felt very comfortable doing so; I always felt nurtured – I hope I do the same for my students; It was "our" classroom; Such a trusting, respectful setting; I think socio-moral is (her) middle name; (She) called a class meeting to talk about a problem we were having in

	ence it so I know how it might
	work in my own classroom.

#### **Discussion**

The infusion of developmentally appropriate materials, activities, and instructional approach appears to have had a positive impact on student learning. Although the pre- and post-intervention surveys produced interesting and positive results, it is expected that pre-service teachers will become increasingly confident in their abilities to be more teacher-like as they move through their program coursework. It is the qualitative data that support the quantitative results that provide a richer, more detailed picture of the learning that occurred. Pre-service teachers demonstrated through multiple outlets that they had a deeper understanding of developmental appropriateness.

In reviewing the results of this inquiry, the most impressive quantitative data were that students felt confident about "transforming inappropriate curriculum" to be more developmentally appropriate. Unfortunately this reality may well face the majority of new teachers when they are hired into a school district. The ability to identify what is appropriate and what is not is important, but more critical is the ability to change it. New teachers may find that providing developmentally appropriate teaching and learning opportunities will meet resistance. Perhaps going into these types of situations with high confidence in their abilities to be developmentally appropriate will enable new teachers to overcome the barriers that might be constructed by colleagues and school administration.

Further, the qualitative data gathered from the two semester's student reflections provide insight into the instructional practices being used in the content area methods courses. Clearly, the pedagogy enacted in the fall semester was more developmentally appropriate and constructivist. Far more student comments aligned with the constructivist principles in the fall semester than in the spring. Perhaps the incorporation of the developmentally appropriate materials and practices helped to provide students with the high levels of confidence they indicated through their end-of-the-semester survey results. Application of the research-based concepts regarding first-hand experiences with DAP (Dart, et. al., 2000; Loucks-Horsley et al., 1998), as well as learner-centered and experiential learning opportunities (Kolb & Kolb, 2005; Myers & Beringer, 2010) may indeed influence the teacher candidates from this study. Perhaps these pre-service teachers will be more apt to enact DAP in their own classrooms because of their own DAP classroom experiences as advocated by Dart et. al., (2005) and Eddy (1969).

#### Limitations

It is acknowledged that the power of the statistical data for such a small group (N = 10), is not generalizable. However, the comments from the students' reflections provide more compelling impact. Even as a preliminary study, the quantitative data from the surveys suggest some important ideas. In addition, these ideas were supported by student comments about their experiences.

#### Conclusion

If early childhood teacher preparation is to improve practice, then it must be reconceptualized. Such a reconceptualization needs to be transformational rather than additive; that is, to look at core values, content, delivery structures, and the like, rather than simply adding more to the current system. A transformed way of providing teacher education must be developed if collectively the early childhood profession is going to be successful in promoting positive developmental outcomes for children. It seems evident that we must do this by translating theoretical and empirical knowledge into changed practice at the higher education level.

Transformation will require a paradigm shift from the current belief that college is an institution that exists to provide instruction. Barr and Tagg (1995) declared that subtly but profoundly we must shift to a new view—that college is an institution that exists to produce *learning*. To ensure this transformation occurs, there must be a reconceptualization of practice to instill a more developmentally appropriate pedagogy. To make learning meaningful to students, we must be aware that adults, like children, are at different developmental levels, and have different background experiences, levels of motivation, and learning styles. Although adults may have achieved formal operations, this does not mean that they no longer need experiential learning. When asked how they prefer to learn, college students stated hands-on or experiential activities were best. Students went on to declare that experiential learning helped them make connections from theory to practice (Dart, et. al., 2005; Slotnick et al., 1993).

The goal for this project was to involve pre-service teachers in the process of active experimentation so they might begin to see the endless possibilities of developmentally appropriate curriculum. When pre-service teachers have personally experienced an engaging, participatory preparation program, they begin to know their own abilities and value them. They are then more likely to be motivated to find interesting ways to provide an atmosphere in their classrooms where children will discover their own potential through developmentally appropriate curriculum. The more developmentally prepared teachers are, the higher the probability that each child will learn and grow successfully.

To transform the curriculum in our nation's early childhood classrooms first requires transforming the curriculum in our early childhood teacher preparation programs. Hence, if it is a goal to have developmentally appropriate early childhood classes, we must first take it upon ourselves to bring developmentally appropriate practices into the college classroom.

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# Appendix A

# Developmentally Appropriate Practice Survey

1. Define developmentally appropri	ate practice.	
2. Identify a list of materials that ye children.	ou consider developmentally	appropriate for teaching young
3. What is your confidence level rethematic unit?	egarding <i>planning</i> a develop	mentally appropriate integrated
minimal	average	high
4. What is your confidence level regintegrated thematic unit?	garding the <i>implementation</i> of	a developmentally appropriate
minimal	average	high
5. What is your confidence level rerials in a kindergarten-third grade c	0	elopmentally appropriate mate-
minimal	average	high
6. What is your confidence level reg developmental appropriateness?	garding the process of analyzing	ng classroom materials for their
minimal	average	high
7. What is your confidence level re lum into one that is developmentally		11 1
minimal	average	high
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