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Student Understanding and Utilization of Developmentally Appropriate Practice

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Early childhood educators need to understand developmentally appropriate practice (DAP) to be effective. This study was designed to address teachers' perceptions related to the delivery of instruction related to DAP as well as student understanding of this practice. Teachers' perceptions were compared with students' proficiency scores from the Career and Technical Education Early Childhood I North Carolina State Assessment. Early Childhood I is a workforce development course that focuses on teaching practices. It is one of two courses offering high school students the opportunity to earn the Early Childhood Education Credential Equivalency, enabling completers to serve as lead teachers in child care settings in North Carolina.

Developmentally appropriate practice, or DAP, is a teaching method based on research about early childhood development and early education. DAP focuses on holistic education that provides academic rigor to lay the foundation for future education (Pierce Brown, Smith, Mowry, 2015). A child's development is influenced by experience and biological maturation as well as cultural and social context (Copple & Bredekamp, 2009). Teachers need to understand DAP to meet student's diverse needs.

This study was designed to address teacher's perceptions of student understanding of DAP in comparison with student proficiency scores on the North Carolina Career and Technical Education *Early Childhood I State Assessment*. *Early Childhood Education I* is a high school family and consumer sciences (FCS) course on the human development pathway. This study aimed to answer the following research questions:

1. To what extent do teachers feel that their students understand the concept of DAP?
2. To what extent do high school students demonstrate understanding of the components of DAP on the final assessment?
3. What methods are useful in helping students understand and utilize DAP?

Review of Literature

Developmentally Appropriate Practice

A position paper was adopted by the National Association for the Education of Young Children (NAEYC) in 2009 related to DAP with the goal of "promot[ing] excellence in early childhood education by providing a framework for best practice." NAEYC's paper noted the importance of quality early childhood education (ECE), specifically connecting it with students' future achievement in the areas of literacy, mathematical, and social-emotional development (NAEYC, 2009).

While the importance of early education is understood, best practices are difficult to understand and utilize. Kim and Han, (2015) found that while most teachers can identify DAP for children, external pressure can cause practitioners to revert to worksheets and teacher directed practices. To utilize DAP, teachers must consider age, culture, and personal knowledge (NAEYC, 2009).

Some arguments against DAP are based on inconclusive research and arguments related to a lack of cultural consciousness. Van Horn and Ramsey (2003) found there was no evidence of educational impact for students taught using DAP. In a later study, they also found that DAP did not result in better outcomes based on parent rating scales (Van Horn, Karlin, & Ramsey, 2015). Brown and Yan (2015) conducted a qualitative metasynthesis of data from international sources and found discrepancies between DAP, cultural beliefs, and practices. Some critics indicate that DAP may not adequately consider concessions for cultural backgrounds (Brown & Yan, 2015).

However, a study by Hegde and Cassidy (2009) found that DAP is often reinterpreted based on the cultural context. In this study, Hegde and Cassidy interviewed early education teachers in India on cultural impact, class size, and teaching methods and found that understanding and utilization of DAP differs: This was also a finding in Kim and Han's (2015) study in the United States. Therefore, some obstacles related to DAP were associated with the practitioner's education and understanding rather than culture.

It is imperative that teachers are taught to recognize, teach, and evaluate their classroom DAP. Staff education promotes program quality. Nelson (2005) evaluated Kamehameha preschool programs in Hawaii and found that teacher education and professional development had major impacts on the success of the programs. Based on this research, the recommendation was made that staff educational requirements across the state be increased. While higher educator education is important, other researchers found that this is not the sole factor influencing teacher practices (Jisu & Neuharth 2010). Jisu and Neuharth (2010) compared lead and assistant teachers' beliefs and practices and found that both categories of teachers could identify DAP and teachers' assistants could be trained for implementation.

Teachers' Belief and Practice

Some studies note differences in teacher belief and practice (Hedge & Cassidy, 2009; Kim & Han, 2015). Kim and Han (2015) compared preservice and in-service teachers and found that preservice teachers' beliefs were influenced by cultural beliefs and real-world feasibility in their classrooms. To build on the connection between teachers' beliefs and praactices, teacher support and professional development related to DAP were recommended by these authors to make connections in additional areas:

> When a teacher holds stronger beliefs about appropriate social activities, individualization, and literacy activities, they believed the social competence instructional strategies are more acceptable and feasible. They also believed that they utilized more instructional strategies when compared to those who possessed weaker beliefs about developmentally appropriate practice (p. 492).

Early Childhood Education I

Early Childhood Education I is not designed like a traditional high school course. The first difference is that this course is offered for two credits, where most high school courses are offered for one credit. It also includes an internship that places high school interns at sites working with children from birth through age twelve. The internship comprises fifty percent of the total course time.

This course may be offered in one semester, or it may be taught throughout the year. It also may be offered as an honors course. For a CTE course to be an honors credit instead of standard credit, a teacher must write a curriculum addendum that reflects increased rigor for 25 percent of course weight. The teacher must then seek approval from their local education agency (LEA) and gather data from this elevated portion of their curriculum. Although labor-intensive, when a CTE course is weighted as an honors credit, students who seek to increase or maintain their grade point average are more likely to take it. While some high-level students will take standard CTE courses that interest them regardless of the credit, it is much harder to attract such students into *Early Childhood Education I* since it is the equivalent of two standard credits.

At least five of the ten major objectives in this course, about 68 percent of the total content weight of *Early Childhood Education I*, deal directly with teaching DAP. DAP is foundational to early childhood educational practices; therefore, it makes sense that more time would be spent on this topic. As noted by Williams, Ballard, Johnson & Hegde (2012) many students in ECE classes need participation and engagement with young children to assess their understanding of DAP. It is imperative that students are not only taught the concept, but also that they understand and can implement it in their own classrooms.

Methodology

Data were collected through a survey available through the Career and Technical Education (CTE) listserv to *Early Childhood Education I* teachers. An online Qualtrics survey was utilized to maintain anonymity, prevent errors, and encourage participation. The survey was easily accessible via a link on computer or mobile devices. Twenty-four surveys were completed and comprise the sample for this study.

The survey included questions to gain information about the teacher's experience, teacher education, and existing program structure. Each teacher was asked to rank selected *Early Childhood Education I* teaching methods by classroom utilization frequency using a 5-point Likert scale (always, most of the time, about half the time, sometimes, never). Teachers then ranked their perceived effectiveness related to offering this content in the classroom using another 5-point Likert scale (extremely effective, very effective, moderately effective, slightly effective, not effective at all). Finally, teachers rated student participation and achievement.

This study also examined proficiency scores for each objective in the final assessment data for *Early Childhood Education I* from the 2015-2016 school year for the State of North Carolina. This assessment is a 100-question multiple choice test designed to measure student understanding in course objectives. The number of questions per objective is based on the course

objective weight. For example, objective 3.01 "understand how to select and use observation methods" is four percent of the course, and, consequently, there will be approximately four questions from this objective on the exam. State scores were used to verify whether the teachers' beliefs and practices were meeting the standards in the curriculum for *Early Childhood Education I*. Since this measure is considered an unbiased assessment of student data, it provided a true picture of the understanding students possess of DAP.

Results

Demographics

Respondents were a fairly-homogenous group of women. A total of 59 percent of the participants were 51 and older. Sixty-two percent of respondents had a bachelor's degree, while the remainder possessed master's degrees. None of the teachers in the 23 to 30 age group had a master's degree. Half of responding teachers graduated from accredited teacher education programs: The remaining 50 percent received lateral entry certification, a process that allows those with career experience to teach content related to their experience and degree while seeking teaching certification. Fifty-six percent of teachers indicated that they had taught Early Childhood for most of their teaching career.

Since *Early Childhood Education I* is a two-credit course, it is set-up in different ways. The approach shared by 71 percent of respondents, is to schedule both class periods during the same semester. This schedule means that students have larger blocks of time in their internships. The other set-up, used by 5 participants, is to have the students for an entire year during one class period. This allows the students to intern throughout the entire year, but for a shorter time frame each day. Two respondents selected "other." Program structures may vary due to transportation, on-site child care, principal discretion, etc.

When questioned about course credits, most (82 percent) of teachers taught their *Early Childhood Education I* course as a standard course. Two respondents taught the course as an honors course, and two participants taught both standard and honors courses. This combination could mean that they are either teaching two separate sections or combining their honors and standard students in one class period.

North Carolina sets maximum capacities for most CTE courses. The recommended maximum number for this course is sixteen students, and 75 percent of participants had the recommended number while 25 percent had a higher number. Interestingly, seven of the 18 who had the maximum or less actually had classes of less than ten students.

While FCS teachers are certified to teach in all areas (such as foods, clothing, parenting etc.), many are content specialized. Of respondents who selected other courses they taught, 70 percent also taught *Parenting and Child Development*, a recommended but not required prerequisite for ECE. Seventy-five percent of the participants also taught *Early Childhood Education II*, a course that examines administrative issues in early education. *Early Childhood Education II* is needed to finish the pathway, but students can also enroll at a community college and use Education 119 "Introduction to ECE" to complete their high school pathway and earn their Early Childhood Credential. Fifty percent of participants taught classes other than those previously listed, with 45 percent teaching FCS courses and one teaching courses outside of FCS.

Classroom and Internship Practices

Frequency Used.

The second part of the survey asked teachers to rate the frequency at which they utilized common classroom and internship practices to teach students about DAP using a 5-point Likert scale. Responses are summarized in Table 1. Five of the ten teaching practices would have only occurred in the classroom and the other five directly related to the internship. When data are combined, 95 percent of teachers selected "interacting with children at internship" and used either "always" or "most of the time" to teach DAP. Other frequently-used practices included "observations of children at internship," "observations of internship teacher," "planning lessons for internship" and "discussing DAP with their internship teacher." For in-class activities, "discussing DAP" was most frequently used. Least-used practices, included "reading from a textbook and answering questions from the text" and "completing worksheets in the classroom."

Table 1
Teaching Practices for Developmentally Appropriate Practice

	Always		**Most of the time**		**About half of the time**		**Sometimes**		**Never**	
Methods for teaching DAP	***f***	**%**	***f***	**%**	***f***	**%**	***F***	**%**	***f***	**%**
Observations of children at internship.	14	58.33	7	29.17	1	4.17	2	8.33	0	0.0
Taking notes on DAP in the classroom from presentations	6	25.00	8	33.33	8	33.33	2	8.33	0	0.0
Completing worksheets in the classroom	4	16.67	3	12.50	4	16.67	12	50.00	1	4.17
Discussing DAP in the classroom	16	66.67	5	20.83	2	8.33	1	4.17	0	0.0
Reading a textbook and answering questions from the text	2	8.33	0	0.0	3	12.50	15	62.50	4	16.67
Watching videos about DAP	2	8.33	4	16.67	9	37.50	8	33.33	1	4.17
Planning lessons for internship	11	45.83	6	25.00	2	8.33	4	16.67	0	0.0
Interacting with children at internship	21	87.50	2	8.33	0	0.0	1	4.17	0	0.0
Discussing DAP with their internship teacher	8	33.33	7	29.17	4	16.67	4	16.67	1	4.17
Observations of internship teacher	14	58.33	6	25.00	1	4.17	3	12.50	0	0.0

Perceived Effectiveness of Methods.

Participants were also asked to rank effectiveness of the ten methods using a 5-point Likert scale. Table 2 summarizes their responses. The results of this question related to the results from the previous question. Methods used most frequently by the participants were

Table 2
Teacher Perceptions of Effectiveness of Teaching Methods for DAP

	Extremely Effective		**Very Effective**		**Moderately Effective**		**Slightly Effective**		**Not at all Effective**	
Methods for teaching DAP	***f***	**%**	***f***	**%**	***f***	**%**	***f***	**%**	***f***	**%**
Observations of children at internship.	14	58.33	7	29.17	1	4.17	2	8.33	0	0.0
Taking notes on DAP in the classroom from presentations	6	25.00	8	33.33	8	33.33	2	8.33	0	0.0
Completing worksheets in the classroom	4	16.67	3	12.50	4	16.67	12	50.00	1	4.17
Discussing DAP in the classroom	16	66.67	5	20.83	2	8.33	1	4.17	0	0.0
Reading a textbook and answering questions from the text	2	8.33	0	0.0	3	12.50	15	62.50	4	16.67
Watching videos about DAP	2	8.33	4	16.67	9	37.50	8	33.33	1	4.17
Planning lessons for internship	11	45.83	6	25.00	2	8.33	4	16.67	0	0.0
Interacting with children at internship	21	87.50	2	8.33	0	0.0	1	4.17	0	0.0
Discussing DAP with their internship teacher	8	33.33	7	29.17	4	16.67	4	16.67	1	4.17
Observations of internship teacher	14	58.33	6	25.00	1	4.17	3	12.50	0	0.0

perceived as most effective while the methods used the least were considered the least effective. The only exception was the practice of "watching videos about DAP." While only 45 percent of teachers rated this practice "extremely effective" or "very effective," only 25 percent used the practice frequently in their classrooms. This response might be explained by limited access to technology or an inability to locate quality videos.

Student Performance on State Assessment by Course Objective

While all participants responded that students received an A or B overall in their courses, it is important to consider standardized, unbiased data before making assumptions about the effectiveness of teaching practices in these courses. The ECE Blueprint and North Carolina State Assessment data for *Early Childhood Education I* from the 2015-2016 school year represents proficiency scores for DAP objectives on the state assessment.

Overall, 92 percent of the 1,654 students in North Carolina achieved proficiency status on the *Early Childhood Education I* assessment (FCS NC State Coordinator, personal communication, March 16, 2017). Of the DAP- related objectives, 7.01 "Understand techniques for communicating expectations and setting limits" was the highest correct response and 89 percent of related questions were also answered correctly. Objective 7.02 "Understand techniques for guiding behavior" was the second highest at 84 percent. The two objectives, each only answered correctly by 56 percent of students, were 3.01 "Understand how to select and use observation methods" and 5.01 "Classify developmentally appropriate activities for infants and toddlers within the domains of child development."

Teacher Perceptions of Student Understanding

Surveyed teachers were also asked questions related to their perceptions of student understanding of DAP. Most teachers indicated that their students "definitely" (54 percent) or "probably" understood DAP. Overwhelmingly, the teachers in this study believe that the content taught in this course prepares students for ECE by equipping them with an understanding of DAP. This corresponds with teachers' statement of the final grades students achieve in their courses, as well as overall student performance on the state assessment.

Discussion

Acquisition and Utilization of DAP

Utilizing DAP in early education is important for students' future achievement in school (Pierce Brown, Smith, & Mowry, 2015). This action research project involving reports from a small sample of teachers and student scores on a statewide exam provides promise for the assertion that *Early Childhood Education I* students understand and apply DAP.

Teachers involved in this study came from a variety of backgrounds, but all worked to prepare their students using similar teaching strategies and methods. Most *Early Childhood Education I* teachers who responded to the survey indicated that they use internship activities, observations, and lesson plans, with the perception that these increase understanding of DAP. These activities help foster skill-development to align beliefs about appropriate practices and actual instructional practices, which is a discrepancy cited in research (e.g. Brown & Lan, 2015; Hegde & Cassidy, 2009; Jisu & Neuharth, 2010; Kim & Han, 2015).

Survey respondents rated internship activities as more effective in teaching DAP than classroom activities. This fits with research by Williams et al. (2012) that looked directly at internship activities including lesson plans, videotaping, and personal reflections. The internship, when utilized correctly, provides interns opportunities to use learned skills.

The in-class teaching method preferred by these teachers is presentation note taking. Presentations are easy to make and are already included in the curriculum guide. Most classrooms do not have a full set of up-to-date textbooks. Additionally, while worksheets can serve as good reinforcement, it is more logical to let the internship activities serve as reinforcement.

According to Nelson (2005), staff education impacts the quality of the program. This course makes up half of high school level Early Childhood Credential Equivalency requirements, and is the only course focused on DAP. Therefore, students must be educated in DAP to prepare their own students.

Implications

This research has several implications for FCS educators. Based on survey results, teachers indicated that they understood the importance of DAP for students taking courses in ECE and indicated that teaching methods they were using were working. By utilizing a variety of methods from both the classroom and internship site, students can demonstrate proficiency in DAP on the state final assessment.

Another implication of this study is the importance of internships and work-based learning experiences in FCS education. In many FCS classes, internships and other forms of work-based study are key components in overall student understanding. ECE is no exception as its content is highly specialized for the workplace. It is, therefore, logical that students get workplace experience.

Suggestions for Further Research

Further studies could involve gathering data from students employed in early education settings and their employers regarding the adequacy of students' understanding of DAP in their work environments. Internships provide practice, but whether these practicums truly increase students' understanding beyond other educational avenues is unknown.

Another option for future research would be a closer examination of the differences in teacher experience and education. In the last few years, due to the shortage of students in teacher education programs, specifically FCS, lateral entry is becoming a popular way to find teachers to fill positions.

Conclusion

Research demonstrates the importance of education in DAP for ECE educators. Various sources cited throughout this paper highlight the importance of educating early education teachers in DAP. ECE courses appear to meet this need based on the responses from the educators involved in this study as well as results from statewide testing. The purpose of these courses is to meet a vital need in the workplace, and they are fulfilling their purpose. Utilizing the internship as an equal component in education helps to foster student understanding based on teacher perceptions of effectiveness of methods.

References

Brown, C. P., & Lan, Y. (2015). A qualitative metasynthesis of how early educators in international contexts address cultural matters that contrast with developmentally appropriate practices. *Early Education & Development, 26*(1), 22-45. doi:10.1080/10409289.2014.934176

Copple, C., & Bredekamp, S. (Eds.). (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8* (3rd ed.). Washington, DC: National Association for the Education of Young Children.

Journal of Family and Consumer Sciences Education, 65(Fall), 30-39.

Hegde, A. V., & Cassidy, D. J. (2009). Kindergarten teachers' perspectives on developmentally appropriate practices. *Journal of Research in Childhood Education, 23*(3), 367-381. doi:10.1080/02568540909594667

Jisu, H., & Neuharth-Pritchett, S. (2010). Beliefs about classroom practices and teachers' education level: an examination of developmentally appropriate and inappropriate beliefs in early childhood classrooms. *Journal of Early Childhood Teacher Education, 31*(4), 307-321. doi:10.1080/10901027.2010.523775

National Association for the Education of Young Children. (2009). *Developmentally appropriate practice in early childhood programs serving children from birth through age 8.* Washington, DC: Author. Retrieved from https://www.naeyc.org/sites/default/files/globally-shared/downloads/PDFs/resources/position-statements/PSDAP.pdf

Nelson, R. (2005). *Developmentally appropriate practice and teacher development*. Paper presented at the annual meeting of the National Association for the Education of Young Children, Washington, DC.

Pierce Brown, C., Smith Feger, B., & Mowry, B. (2015). Helping others understand Academic rigor in teachers' developmentally appropriate practices. *YC: Young Children, 70*(4), 62-69.

Van Horn, M. L., Karlin, E., & Ramey, S. (2012). Effects of developmentally appropriate practices on social skills and problem behaviors in 1st through 3rd grades. *Journal of Research in Childhood Education, 26*(1), 18-39. doi:10.1080/02568543.2012.633843

Van Horn, M. L., & Ramey, S. L. (2003). The effects of developmentally appropriate practices on academic outcomes among former Head Start students and classmates from first through third grades. *American Educational Research Journal, 40*, 961–990.doi: 10.3102/00028312040004961

Williams, V. A., Ballard, S., Johnson, C.A., & Hegde, A. V. (2012). Secondary family and consumer sciences students teaching young children: Importance of using developmentally appropriate lessons. *Journal of Family and Consumer Sciences Education, 30(1),* 17-26.

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