Engaging Students: An Authentic Undergraduate Research Experience

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Abstract

Engaging students in valuable undergraduate research can be an arduous task to craft outside of the regular schedule of both staff and students. This paper describes a successful research experience that was part of an ongoing methods class for undergraduate pre-service education students. Participants simultaneously engaged in community service while experiencing firsthand learning about emergent literacy as companion learning to their ongoing coursework. Self-reflection targeting the student's future in higher education as researchers and students was an intentional part of their experience, as was reflection about their authentically acquired new learning about emergent literacy.

The existing body of literature related to the impact of undergraduate involvement in research is substantial and growing. The Boyer Commission Report (1998) recommends that colleges and universities infuse research-based learning as part of the curricula. Studies show the benefits of undergraduate research to include increased critical thinking, refined communication skills, clearer organizational skills, healthy sense of self-efficacy and competence, and collaborative learning (Bandura, Wre, Davis, & Smith, 2000; Hunter, Laursen, & Seymour, 2006; Lopatto, 2006; Seymour, Hunter, Laursen, & Deantoni, 2004; Voight, 1996). The researchers in this study were interested in two areas linked to the involvement of undergraduates in a study: whether being involved in the data collection portion of a research project impacted students' perceptions about engaging in research and graduate study, and whether this activity (data collection) impacted their perception about emergent literacy. The data collection portion of the study included students interacting and collecting data with children (0–60 months), families, and caregivers. Therefore, the purpose of this study was to examine whether helping to collect data in a research study impacts student self-perceptions as researchers and their understanding of emergent literacy as future teachers and parents.

It should be noted that this study was situated within a larger study dealing with emergent literacy and owning a book (Alderton & Manzi, in progress). The larger study involves approximately 90 participants, ages 0-5, who receive one book a month free of charge sent to their house in conjunction with the Dolly Parton Imagination Library program sponsored by the United Way in this community. The larger study examines how receiving and owning one book a month impacts the child's emergent literacy, parental involvement in and understanding of the importance of literacy, library use, and the child's recreational reading. This larger study is a two-year study that is currently in progress.

Literature Review

Research supporting the benefits of undergraduate students participating in research projects is documented and intentionally impacts academics. One early national position paper encouraging universities to include research-based learning as a part of their undergraduate curriculum was the Boyer Commission Report (1998). In their 10-point plan, the Commission encouraged a more comprehensive

curriculum, with one deliberate intention directed at the development of a standard in research-based learning. The intention was to position students to learn from professors who teach courses that facilitate learning through discovery rather than by transmitting knowledge (Abrams et al., 2009). Falconer and Holcomb (2008) add that research experience is a very powerful learning tool and complements conventional classroom learning, providing students with invaluable preparation for graduate programs or career choices, aiding them in understanding their chosen discipline. This review covers student benefits in terms of enhanced critical thinking and knowledge, collaborative learning, refined communication and social skills, increased self-efficacy, improved student-faculty relationships, and graduate school admittance and choices.

Lopatto (2010) simply states, "… a good research experience helps one to be a better student" (p. 3). Lopatto found that students who engaged in research projects and continue in their coursework report enhanced classroom experiences and understanding (2010). Kuh (2003) reiterates this point, noting that students involved in their learning are more apt to have richer, evocative, educational experiences. Students who are more fully invested in educational activities they can connect to feel more purpose-driven and a discover a sense of ownership in the learning process, a sense of ownership which in turn shifts the responsibility for learning from professor to student in regard to the learning situation.

Many undergraduate research programs take place in the summer months. Upon completion of these programs, Lopatto (2010) notes that the Summer Undergraduate Research Experience (SURE) survey is then administered. The results of this survey often indicate the majority of research experiences improve specific intellectual skills such as inquiry and analysis, reading and comprehending literature, communication, and working collaboratively (Lopatto, 2010). Undergraduate students experience and learn "… tolerance during obstacles during the process, how knowledge is constructed, independence, increased self-confidence, and a readiness for more demanding research." (Lopatto, 2010, p. 1). Guterman (2007) supports this in stating, "… it is just these unexpected problems—and the troubleshooting required to solve them—that catapult students involved in undergraduate research past the cookbook-style class experiments with step-by-step instructions and expected outcomes" (p. 2).

Studies that support the cognitive and affective benefits of research participation are directly related to retention rates, grade point averages, and clarification of academic and career goals of undergraduate students (Newby & Heide, 1992). Students who participate in undergraduate research are further motivated to remain in the chosen program due to the opportunities the research presents for hands-on training, mentorship, and the supplemental income to aid in financing their tuition (Eagan, Sharkness, Hurtado, Mosqueda, & Chang, 2010).

Many studies (Bandura, Wre, Davis, & Smith, 2000; Hunter, Laursen, & Seymour, 2006; Lopatto, 2004; Seymour, Hunter, Laursen, & Deantoni, 2004; Voight, 1996) show the benefits of undergraduate research reach beyond academia. These benefits include increased critical thinking, refined communication skills, clearer organizational skills, a healthy sense of self-efficacy and competence, and collaborative learning.

Lopatto (2003) hypothesized that students specifically appreciate issues of consideration, such as the relationship that develops between the student and mentor as well as relationships between peers in the research process. Also, factors such as a sense of community, understanding other disciplines, and pace setting are all benefits reported by the students. It is for these reasons that Falconer and Holcomb (2008) maintain that social and communication skills can be fostered by undergraduate research activity. Students indicated via surveys that making friends and connecting with others is imperative and valuable in the research process. In feeling this sense of community, students felt challenged and supported by each other. Lei and Chuang (2009) believe that things such as "self-confidence, self-efficacy, teamwork, leadership,

time-management, and social relation skills" result from the above process and that these skills are imperative in any career choice that they may choose in the future (p. 4).

Embarking on a research experience can be a daunting task. In responding to a survey measuring personal research experiences of undergraduate students, several individuals noted the pride they experienced in the entire process of the research project, from start to finish (Abrams, Potter, Townson, Wake, & Williams, 2010).

An additional noteworthy benefit afforded by undergraduate research experiences includes a closer, more meaningful relationship between student and faculty members (Abrams, Potter, Townson, Wake, & Williams, 2010). Participating in undergraduate research often assists in the development of relationships between students and faculty. Ekrut and Mokros (1984), Folse (1991), and Waldeck, Orrego, Plax, and Kearney (1997) define the mentoring experience as "… an experienced professional trains the newcomer about profession or discipline specific practices, expectations, and norms" (p. 26). These relationships often lead to encouragement of students to pursue graduate school, as well as presenting them with personal contacts and connections that prove to be critical in future work and endeavors (Collins, 2006). Employers and graduate schools place value on research, presentation, and publication experience, and in fact, a study of clinical psychology programs found that graduate admission directors viewed research experience or having a commitment to research as a factor in whether a student would be likely be admitted to graduate programs (Munoz-Dunbar & Stanton, 1999).

Eagan, Sharkness, Hurtado, Mosqueda, and Chang (2010) noted that faculty who choose to engage in a mentor relationship with undergraduate students alludes to the notion that they hold a more positive view of undergraduate students and hold a certain level of respect for them, decreasing the chances of a power dynamic forming, which occurs in some institutions. It also shows that these professors have a stronger commitment to their university, endorsing the mission and values as they may align with their own.

Brown, Collins, and Duguid (1989) discuss the importance of students having opportunities for self-expression and reflective thinking encouraged by a senior researcher in order to have essential participation in the research process. Additionally, Brown et al. (1989) recognize how through the process of mentorship, students are able to "gain more self-confidence and control as they move into a more autonomous" situation (p. 39). During this process, an epistemological shift occurs, which affects the students' cognitive and personal development where their knowledge and sense of self shift from outside sources to reliance on one's own internal measurement of knowledge and identity. This is also called *self-authorship*.

Theoretical Framework

The literature about the benefits of undergraduate research along with theories relating to student development and the impact of college involvement experiences was foundational to the design of this study. A theoretical framework situated in involvement theories provided a lens from which this study examined student learning and development as a result of a research experience. Tinto's (1993) integration framework and Astin's (1984) theory of involvement clearly convey the benefits of student involvement in academic opportunities such as undergraduate research experiences with faculty. Astin and Tinto both theorize that students learn more and are more successful the more involved they are, both socially and academically at the college level. Additionally, Astin (1984) specifically notes the importance of student interactions with faculty. Thus, it is believed that the integration of undergraduate research experiences enhances student learning.

The Boyer Commission (1998) challenged the university to tap into the undergraduate population and invite them to become engaged in problem solving and research with their mentors, the faculty, for the common good that extends far beyond campus corridors. This study positioned students to work with children, their families, and caregivers in a problem-solving situation, which Guterman (2007) defines as important when students are engaged in research. Students were trained to collect the data, and in order to do this they interacted with the approximate kind of population they would be working with as future teachers (children and families or caregivers). Internalizing the task at hand and communicating about it is a social communication activity described by Falconer and Holcomb (2008) as a benefit of student research.

Students were enrolled in a class directly linked to informing their thinking about the population from whom they were to collect data. Students were trained to take data, collaborate, and practice with peers prior to data collection. The literature, especially Abrams et al. (2009) and the Boyer Commission (1998), points to problem solving being heightened through undergraduate research experiences. In this study, undergraduates interact with very young children as they respond to a book and story. Because children are very unpredictable, students were prepared to continue in engagement and data collection when a child enjoyed the brief encounter, or stop immediately and happily at a wide variety of possible junctures, and then turn to the parent and caregiver with a brief interview scale. This opportunity provided what Guterman (2007) described as the opportunity to troubleshoot and problem solve. The literature points to this research experience as leading to increased self-reliance and a transition from the position of mentor-mentee to an epistemological shift (Brown et al., 1989) that comes with a sense of knowing the environment and depending on one's self-reliance. This shift occurred during the data collection process in this study with live subjects. The study and research questions posited were crafted in a coming-to-life experience based on the previously described literature.

Methodology

Through the use of qualitative measures, the following research questions were examined:

1) Does involvement in research and collecting data change student self-perceptions as a future researcher and graduate student?
2) How do student perceptions about emergent literacy change after collecting data and learning about research?

On the first day of their undergraduate literacy course, students participated in a training about the larger research study. Students were given background about the study and were trained to administer a concepts-of-print assessment based on the model developed by Marie Clay (1989). Students had several days to practice with one another and alone before administering the assessment with inter-rater agreement being 90%.

Initial data was collected in the form of a survey based upon the findings from a faculty pilot study. Based on that pilot study, the survey instruments for this research were created. The pre-experience online survey used had a total of 7 questions that included Likert as well as open-ended questions. The Likert questions were used as forced response questions to serve as a qualitative measure, with simple descriptive intent. The open-ended questions focused on the students' research history, perceptions about themselves as researchers and future graduate students, and their perceptions about emergent literacy of young children.

During data collection, undergraduate students interacted with approximately 90 participant parents/ childcare providers and approximately 90 children ages 0–5 years. During these interactions, students administered the concepts-of-print assessment to the children and answered questions from parents.

Undergraduate students then completed a post-experience survey online with 10 questions, similar to the initial pre-experience survey instrument that was administered.

The Likert question data was analyzed looking for pre- and post-differences. The open-ended qualitative data was analyzed separately by two faculty researchers. Text analysis was used to look for keywords and phrases. Participant responses were coded and collated. Researchers looked for themes and discrepancies while reviewing the data. All discrepancies were discussed between the researchers to guarantee a 100% agreement in the analysis, interpretation, and categorization of the data.

Participants

Participants in this study were students who have been admitted to an undergraduate elementary education teacher preparation program. The students enrolled at a Midwestern, predominantly white, teaching university of about 12,000 students. In this study, 47% of the participants were first generation college attendees, 40% were second generation, and 13% were third generation. The students engaged in data collection alongside faculty were all variations of the middle class. Selection of the students was based on the fact that they had already successfully completed one class in elementary reading and were continuing their elementary education studies. Many students were involved in community service projects involving children even before coming to the university. None had previously worked closely with a child at the emergent literacy stage. Additionally, none of the students had ever taken part in research as a student researcher. This project positioned students to be apprentice data gatherers. Participation in this data collection research activity was a required part of the class in which students were enrolled, and the experience itself was within the realm of course material studied that semester. However, participation in this research study was completely voluntary. The 15 participants were female, matriculating at approximately the sophomore-junior level in their overall academic program; all were traditional students.

Results and Discussion

While looking at the open-ended question data from this study, five broad categorical themes emerged from the analysis and were also supported by the Likert forced response question data (see Table 1). The categories include: 1) personal interest in research, 2) understanding cognitive abilities, 3) parental implications, 4) connecting theory and coursework to practice, and 5) personal learning.

Table 1
Themes

Theme	Pre-survey Questions	Post-survey Questions	Type of Questions
Personal Interest in Research	I have thought about or am interested in conducting research. I am interested in participating as a student researcher. Describe your feelings about this research study.	I am interested in conducting future research. This experience influenced my self-perception as a graduate student in the future. Describe your personal perception about this experience after participating in research collection.	Forced response and open-ended

Theme	Pre-survey Questions	Post-survey Questions	Type of Questions
Understanding Cognitive Abilities	Based on what you know, do you believe young children (ages 1-5) will be able to effectively participate in this literacy assessment?	After conducting the research, do you believe young children are able to effectively participate in literacy assessments? Do you believe this experience was beneficial to you as a future educator?	Forced response and open-ended
Parental Implications		As a future parent, do you believe this experience has provided insight into the emergent literacy of young children? Comment.	Forced response and comment
Connecting Theory and Coursework to Practice	Based on what you know, do you believe young children (ages 1–5) will be able to effectively participate in this literacy assessment? Do you feel you are prepared to conduct this research literacy assessment after being trained?	In retrospect, do you feel the training helped prepare you in conducting the literacy assessment research? Do you believe this experience was beneficial to you as a future educator? Comment.	Forced response and comment
Personal Learning	Do you feel you are prepared to conduct this research literacy assessment after being trained? Describe your feelings about this research study.	What did you learn from this experience? Describe the highlight of this experience. Has this experience influenced your perception of yourself as a graduate student and attending graduate school in the future? Do you believe this experience was beneficial to you as a future educator? Comment.	Forced response, comment, and open-ended

Interest in Research

The first theme, personal interest in research, was identified by survey questions administered to undergraduate students (see Table 2). The majority of students in the class (93%) were interested in learning about the research study and how it impacted children. When asked about their interest in conducting research, about one-third of the class reported being neutral about being a student researcher, while 67% of the participants reported that they were somewhat or very interested in conducting research. However, only 40% of the class had ever thought about or wanted to conduct research prior to this opportunity. This difference between thinking about conducting research and then showing an interest in

research when being presented with an opportunity points to a need for research to be offered to students at the undergraduate level. This is then supported by the fact that after participating in the research experience, 93.3% of these same undergraduate students reported that they were somewhat or very interested in conducting future research. This theme extends further when it was noted that participating in this research experience led these undergraduate students to think about graduate work. In the post survey, 66.6% of the students reported that this particular experience influenced the way they perceived themselves as a graduate student and attending graduate school in the future. One student summed it up by saying, "I would love to get my masters in Special Education." The opportunity of experiencing research along with faculty opened the eyes of these undergraduate students through their own learning experiences as well as what the future might hold.

Table 2

Student Perceptions

Student Perception Questions	Agreed or Strongly Agreed
I have thought about or am interested in conducting research. (pre-experience result)	40.00%
I am interested in participating as a student researcher. (pre-experience result)	66.60%
I am interested in conducting future research. (post-experience result)	83.30%
This experience influenced my self-perception as a graduate student in the future. (post-experience result)	66.60%
I believe this research experience was beneficial as a future educator. (post-experience result)	86.00%
This research experience provided insight into the emergent literacy of young children. (post-experience result)	93.30%

Understanding Cognitive Abilities

A second major theme, understanding cognitive abilities, showed a transformation in student understanding of emergent literacy and the cognitive abilities of young children. According to the post survey, 93.3% of the students felt that this experience provided insight into the emergent literacy of young children. Comments from students related to the ability and intelligence of children included statements such as, "there are many intelligent children," "I learned that even the smallest-age kids might know a few things about a book," and "younger children know more about reading and books than I originally thought." Additionally, these students learned that their preconceived awareness about the ability of young children was enhanced to include new learning as a result of participation in this study. One student discussed how the experience helped her as she saw "kids that (she) thought were too young to respond with a lot of insight." Another student stated, "I learned that although a child may be very young, I should not assume they won't know anything, because I was proved wrong after participating in this study." As a result of this research project, it is obvious these undergraduate students gained additional new learning about emergent literacy and the cognitive abilities of young children. More importantly, gaining insight through reflection about how personal preconceived notions may impact beliefs about children is an essential learning experience for these future educators. It should be noted that this learning was presented

in an earlier course about the way young children in the emergent literacy stage function. It was apparent that new learning was gained more by participation in the hands-on research than in the course learning, even though the course was taught by one of the study instructors and had many options for learning the material and addressing students' learning styles. The participation provided them with an "aha moment."

Parental Implications

An interesting outcome of the data relates to the caregivers of the children participating in the larger study and the theme of parental implications. Most undergraduate students at this level have not had many experiences with parents of young children in a formal education setting. While these pre-service teachers are taught in classes that there is a need to include parents in the education of children, they do not truly see the importance until a situation like this one allows them to personally make connections. Numerous undergraduate students discussed the reactions of the parents in the research setting. While students may have internalized these concepts in prior learning and education courses, it became evident that these hands-on experiences with children and families brought this learning to life. One student stated, "I loved how interested the parents were, and it shows that they are concerned about the future of their children and their reading skills." Another student noted that a highlight of the research was "watching the parents get excited when finding out what their children can do." Helping these future teachers deepen their understanding of the importance of the home-school connection is very beneficial.

Connecting Theory and Coursework to Practice

The emerging theme of connecting theory and coursework to practice was brought forward by survey results, informal remarks collected as part of the survey, and informal remarks made in class during training and at other times. The application of prior knowledge became evident during training as this wholly unfamiliar kind of experience merged with students who had information about the topic/subject being studied. It is postulated that this knowledge, their curiosity, their sense of teamwork as a group, and interest in seeing if they could put into practice what they understood, made it a successful experience for this group of 15 students. Brown, Collins, and Duguid (1989) advance that undergraduate students display a sense of uncertainty as they enter the research arena and need coaching from senior researchers. This tenuousness may be somewhat leveraged by prior learning about the topic studied and a desire to know more. An awareness that there is a sense of uncertainty was documented in responses to a post-survey question about being prepared to conduct this particular research following the training: 33% responded "neutral," and about 60% indicated they felt prepared about the pre-experience training. During training in class, students' questions were predicated on awareness about emergent literacy. The difference among young children with regard to their reactions to books and story was brought up when one student commented on what she thought might happen: "what if a child is not talking yet and just points to what we want to know?" The student was expressing her awareness of the variety of communication styles in toddlers and wanted confirmation that pointing was a valid toddler communication response to a question about the animal in the story. It was. It was exciting to see students able to think on their feet and formulate the application of theory as they processed training.

It is postulated that student awareness about emergent literacy supported and enhanced their curiosity as they moved forward. When the students were asked what they did to prepare for the assessment on their own, one drew on her background knowledge and replied, "I thought about the different kind of things children would know and understand about books and the ways I could get them to express that knowledge." Another student reported, "I read over the questions several times (in the Modified Marie

Clay Concepts of Print set of prepared questions) and thought about how I would ask them." Another student revealed her prior awareness about parent involvement, which was a part of the basic elementary reading course: "Working with young children … that reading at an early age is so important. When asking younger children the questions, even though they couldn't read, they could point out parts of the book. This means their parents had exposed them to books, and I hope they continue to do so."

Articulating basic awareness about the differences in children, the potential wide variety of responses they might be faced with, and also their need to elicit a response from the child in a variety of ways, was an indication of prior learning about the emergent learner and the wide variety of talents and abilities they would encounter in their subjects. Awareness that a parent may have spent time reading with their child prior to this event pointed to the student's ability to notice children who had these experiences.

These kinds of responses, combined with about 93% of the students reporting that they were somewhat to very interested in conducting research after experiencing this project, with no negative interest having been reported, points to students' desire to become more deeply involved in inquiry in a familiar area. It is posited that this interest is based on prior learning now realized while participating in the study. It is as if "lights went on" for the students and a sense of excitement at discovery became evident. Theory to practice produced an additional dimension, that of discovery through inquiry. With about 99% of students reporting that they were personally excited by this experience after it was over, it is posited that the students' affinity with their field became more exciting and even gripping.

Personal Development and Self Reliance

It is documented that personal development and self-reliance is a factor of participation in undergraduate research (Abrams et al., 2009; Boyer Commission, 1998). The five emerging themes of this study crescendo, pointing to this fifth area with clarity. The activity required engagement in this microstudy for 15 undergraduate students alongside their two instructors, which brought to life the tenets of the Boyer Commission (1998). When the students were formally face-to-face with the subjects, children and their families whom they had never before met, in a familiar setting, students were advancing their careers and options for their future (Abrams et al., 2009; Boyer, 1998). By virtue of participation, personal self-development was documented. About 93% of the students responded that they were interested in conducting research and 100% describing the experience as exciting. This carries impact with regard to the students' dimension of educational experience, sense of personal development and fulfillment, and ability to be self-reliant.

Each student received a formal letter of thanks from the professors directing the study, copied to the Dean, and other community partners. Students have placed these letters in their required graduating portfolios, and some have written reflections about this experience. This letter will be documented in their resumes as they apply for positions. It is a point of pride and of personal development in serving their field and in the process of discovering new learning through research.

One student responded informally to a question to describe the highlight of this experience: "The smile on one child's face when he was answering questions correctly and I was praising him for doing so … it was great to see children so excited to be reading with us." The sense of having accomplished a successful interaction with the child is evident, as is her sense of personal accomplishment. Another student indicated her happy surprise about a two-year-old: "… watching kids I thought were too young to respond with a lot of insight." Yet another said, "… watching parents get excited when finding out what their children can do." These statements about the students' highlights of this experience all point to experiences outside of themselves as being incredibly rewarding. They were highly motivated to be engaged with children and

families, and from this window into their highlights as student researchers, their personal growth as future teachers and citizens is documented. They provided children and their families with a unique experience (engaging in the study) and took away fulfillment in the accomplishments of their subjects.

The area of self-reliance was woven into the activity (data collection). While the two professors and several librarians were on hand during the data collection, each student became a data collector with a prepared protocol focused on her family. The possible variations within each data collection scenario were numerous, and while the researchers covered all of the student concerns and more that were suggested, the ability to rely on one's self, think on one's feet, apply past learning to the current situation, and be creative were paramount. This all came into play once the families and the students met. Some children immediately began to run around the library, leaving the student to figure out what to do next (children were within a safe enclosed section of the library with their parent or guardian close by). Some children cried, and some not only did what was asked of them but wanted to go on and on. This variety of activity was daunting. No student came to the researchers or the librarian indicating they could go no further. Of the 15 students, 20% reported on the survey that they believed the children were unable to participate in a literacy assessment, yet the data collection activity continued until the students reasonably discontinued the activity and thanked the parents for participating. The students were self-reliant and able to draw upon their personal "tool box" to figure out the many possibilities of behavior that they might encounter. They all successfully collected data.

Conclusions and Implications

This research study provides supporting evidence as well new insight into the body of literature related to undergraduate student involvement in research experiences. The Boyer Commission Report (1998) encourages universities to include research-based learning as part of their undergraduate curriculum as a venue for students to learn through discovery. According to Newby and Heide (as cited in Eagan, Sharkness, Hurtado, Mosqueda, & Chang, 2011), research participation is directly related to retention rates, grade point averages, and clarification of academic and career goals of undergraduate students. This study supported this literature in that 86.7% of the students felt the research experience was beneficial in their careers as future educators. Additionally, 93.3% of these undergraduate students reported that they were somewhat or very interested in conducting future research, which in the world of education, data-driven instruction is a must. Finally, 66.6% of the students reported that this research experience influenced their thoughts about possibly attending graduate school. Moving beyond simply thinking about their undergraduate career goals, students in this study thought about longer-term professional goals.

Lei and Chuang (2009) target "self-efficacy" among other personal self-reliant kinds of outcomes as a benefit of undergraduate research. Students in this study experienced increased self-efficacy as documented in the survey and in their informal remarks. There can be little doubt that positioning undergraduate students to engage with faculty in research-based activity produces identified intentional academic benefits, such as increased problem-solving skills, improved student-faculty relationships, and graduate school interest and admittance (Abrams et al., 2009). Life benefits also result from this undergraduate research experience, especially in the areas of critical thinking and knowledge, collaborative learning, refined communication and social skills, increased self-efficacy, improved student-faculty relationships, and graduate school choices. These characteristics were not only observed in the students, but some were documented in the study surveys and from the students' informal remarks.

Lopatto (2010) found that students who engaged in research projects and continue in their coursework report enhanced classroom experiences and understanding. Additionally, Kuh (as cited in Falconer &

Holcomb, 2008) notes that students involved in their learning are more apt to have fuller, more meaningful educational experiences. This research study found evidence that undergraduate perspectives about young children developed, which adds new evidence to the body of literature supporting the benefits of student research. Over 93% of the students felt that this research experience provided insight into the emergent literacy of young children. More importantly, reflective opportunities during this research experience allowed future educators to uncover and redefine preconceived notions about the cognitive abilities of young children. Additionally, undergraduate students on their own discovered during the research process the importance of the home-school collaboration and communication. The research opportunity richened the learning experience for these undergraduate students.

From the researchers' analysis, it is evident that these 15 undergraduate students benefited from being involved in a collaborative research project with university faculty. Students in this project showed a deeper understanding of their personal interest in research, their perceived understanding of the cognitive abilities of young children, the importance of parental involvement, their ability to connect theory and coursework to practice, and their own personal learning.

Because this research study and the students' research experience was tied to an ongoing class, the arduous task of developing research outside of the classroom for undergraduate students was neutralized. During undergraduate preparation, various courses present many opportunities for researchers to engage students while serving the community. The joy and excitement of the students involved in this experience was telling, and the supporting data indicates that much of the heart of what is suggested in the Boyer Commission Report (1998) became reality during the time students and faculty joined together to plan for and collect data.

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