Inquiry and Reflection Engages Student Voice

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ABSTRACT: *This paper investigates the effectiveness of inquiry and reflection as learning strategies to increase student engagement and allow the transferof learning to new situations. The qualitative research project was conductedwithin an Early Childhood Education class and a Business Management class at a medium Midwestern polytechnic university.Inquiry is a change management process which identifies what is happening currently to help pursue what is possible in the future. Reflection involves active contemplation, including: reflection in action, reflection of self, and reflection of dialogue. Following a discussion of methodology and findings, the paper offers the following conclusions: a) Inquiry has provided Early Childhood Education and Business Management students with a positive action process which includes reflective practice; b) Inquiry provides a framework to describe teaching and management challenges while encouraging learners to take risks and develop new skills. c) Inquirywhen modeled by the teacher can advance self-awareness and emerge as a reflection tool by using student voices to increase student engagemen*t.

KEYWORDS: *reflection, inquiry, student engagement*

I. INTRODUCTION

Engaging students in the learning process appears to be a challenge teachers'face each day in their classroom. Educators may pull from theoretical frameworks to design and deliver information using a method of instruction that will support two principles of learning: how to engage studentsthrough the use of their voice as they question and challenge one another's thinking and how to reflect on those perspectives and insight to make learning occur.

When an individual examines the level of engagement in any given situation they have experienced, it is likely that their level of involvement was more extensive when the experience allowed for elements of exploration, conversation, making connections and questioning to occur. Based on this realization, teachers search for strategies which integrate these elements and convey to students that learning should be more than earning a final grade. They strive to help students attain deep learning that is promoted by using inquiry and reflection that is modeled by the teacher and peers during the learning process.

Inquiry has been defined in the literature as; a seeking for truth, information, or knowledge -- seeking information by questioning (retrieved from
http://www.thirteen.org/edonline/concept2class/inquiry/index_sub1.html). Inquiry often includes the process of asking and pursuing generative questions (retrieved from
http://www.cfkeep.org/html/stitch.php?s=76160188183338&id=52796060827371). Inquiry includes many instructional strategies that are varied and can also be labeled as problem-based learning, case method instruction, active learning, discovery learning and team-based learning (Malone, 2008).

A classroom of inquiry holds different expectations for the teacher and the student than the classical teaching paradigm. The teacher is regarded as a facilitator of student learning rather than the "sage on the stage." The role of the teacher is to deliver course content in a way that allows exploration and questioning while being mindful of the interests and abilities of each student. The process of inquiry requires students to play an active role in their learning and welcomes their voices to express their own perspectives as they become actively engaged in the learning process.The curriculum involves more than just facts and skills. The content is constructed using the knowledge which is created within an inquiry community based upon the interests and needs of the learners (Broderick & Seong, 2005; Wolk, 2008).

Generally speaking, the process of inquiry involves the following basic steps:
a) Questioning and sensing the problem, b)locatinginformation, c)organizing and summarizing information,d) seeing the relationship between ideas and reflection, and e) reaching conclusions (Krogh & Morehouse, 2007;

Wolk, 2008).Within the community of learners utilizing the inquiry process, students openly share what they are thinking, discovering, and questioning as they make connections to their world.

The term reflection was first introduced in 1933 by Dewey. Since that time, the definition of reflection has evolved but the process of reflection is on-going and meaningful to learning. With the focus on outcomes in education and in business, reflection in a classroom is best taught by modeling how members within a community of learners can dig deeper to uncover, examine and explain why they think, act or feel the things they do (Sparks-Langer and Colton, 1991; Webb, Yuetwong, Wong, Kember, Leung&Jones 2000).

In inquiry classrooms, instructors strive to develop the voices of students to share their thoughts and perspectives about their learning, assist them to question the content being delivered and help them transfer the learning to their own practice. Learning is not driven by memorizing facts but becomes meaningful when students are asked to analyze and reflect with purpose on the information presented.Students need to observe and participate in the process of inquiry and reflectionbeing modeledin order to be effective practitioners.

In this article, two university professors; one from the College of Management and one from the School of Education, developed strategies within their disciplines that utilized the process of inquiry and engaging student voices. Specifically, the objectives of this study included: 1) measuring student understanding of inquirythrough the use of student voice and 2) determining, through reflection strategies, how the method of inquiry created meaningful learning experiences which were transferred to practice. Bi-monthly meetings with one another provided the instructors time to examine the process of inquiry and share the various ways the process was being modeled to students in each discipline. The journey of these two professors is presented in the following sections: introduction, methods and data analysis, results, faculty lessons learned, and conclusion.

Teachers who believe that inquiry is at the center of students' own learning work within the classroom to connect students to resources and activities that engage them in the learning process. Modeling how to investigate, dialogue, and work to understand difficult material facilitates meaningful learning. Being physically present to guide discussion keeps the focus directly on the learning process. Navigating complex concepts among individual students and within a group setting raises student confidence as demonstrated within class discussion and individual reflection essays. When teachers encourage student discovery, aclassroom climate encouraging positive learning outcomes builds.

Two groups of students were involved in this study. There were 32 undergraduate Management students enrolled in an introductory business principles course and 17 early childhood undergraduate students enrolled in an introductory course for the major. For clarification throughout the paper, these groups will be referred to as Management students and ECE students.

The tasks of each group varied according to their disciplines but each had a common goal which was to understand the role of inquiry and reflection through meaningful learning experiencesSO THAT THEY COULD transfer their knowledge into effective practice.

II. METHODS

Management Students

Inquiry. In the introductory Management course, students engaged in a variety of interactive exercises throughout the semester. The activities divided the fifteen week semester into three sections: the first five weeks included interviewing practicing managers; the next five involved participating in active and empathetic listening scenarios; the final five weeks included industry site visits and individual management mentoring sessions.

The interactive exercises for the Management students were incorporated into a team facilitation project with three required components: 1. Providing a working knowledge of the weekly management topic and its relationship to inquiry within business settings; 2. Explaining how three corporations profiled in the media utilized the chosen topic to solve an identified issue; 3. Coordinating an interactive problem-solving activity involving all classmates.

Each week began with the instructor using a class session to model inquiry and reflection of the theory grounding the facilitating team's management topic. The next class period involved a student team leading a class discussion of their assigned project topic. Instructor and peer feedback was provided immediately in both oral and written form to reinforce learning and an open exchange of ideas. "Finding information by questioning"

was a phrase used daily to help students remain active participants in the pursuit of implementing inquiry to engage their voices.

Reflection. Three in-class reflections were written during the semester. The first involved describing the inquiry process in terms of a meaningful learning experience in any facet of the student's life. This reflection took place during the third week of the semester, asan interactive classroom climate appeared to have been established after participating in two ice-breaker activities.

The second reflection occurred during the midpoint of the semester and shared how inquiry was used to formulate and carry out school or work-related activities. Attending a polytechnic university whose mission stresses applied learning and teamwork appeared to familiarize students with this practical concept, based on the detailed descriptions within the reflective essay.

The third reflection was due the last week of the semester and outlined how the process of inquiry was used to plan and execute a team presentation for the management class all students were attending together.

Sharing the process of learning and its relevance to daily living and future careers was the focus of the three reflection essays.

Data was analyzed by the instructor determining themes contained within the project, peer evaluations and the three individual reflection essays.

ECE Students
Inquiry. During this ECE introductory course students were shown examples of inquiry artifacts and the instructor modeled higher level questioning for the first three weeks of class. Students were then asked toshare an artifact that would spark the questioning and inquiry of young children. They were instructed to: 1. identify the curricular area the artifact supported and2. develop a higher level question related to the artifact using Bloom's Taxonomy that would ignite thinking, questioning, and transfer of learning.

Additional activities and strategies modeled and used to support the process of inquiry to create meaningful learning for students included: 1) articles and text chapters discussing inquiry, 2) the midterm exam where the topic of inquiry was researched by choosing an article that involved inquiry with young children, and 3) the developing a lesson plan that would synthesize the inquiry process and address each of the steps in the process:

1. Questioning and Sensing the Problem (identifying ideas children have about the topic).
2. Locating information (how the children will investigate the problem), materials, questions, discussions, how the environment will be set up and support questioning.
3. Organizing and summarizing the information (create something to show what was discovered)
4. Seeing the relationship between ideas and things (posing higher level thinking questions which support children making connections and relationship).
5. Reaching Conclusions (reflection from the children).

Reflection. At three times during the semester students were asked tospecifically reflect upon the readings, discussions and inquiry artifacts and to define the term inquiry. "Seeing the relationship between ideas and things" was key, and the phrase which assisted them in transferring knowledge about inquiry to their practice.

Data was analyzed by the instructor extracting themes about inquiry derived from student definitions and from the final lesson plan.

III.   RESULTS
Management students and ECF students appear to have transferred learning to new situations both inside and outside of the classroom after participation in the project.

IV.   MANAGEMENT STUDENTS
Management students' team project findingsand peer evaluations were shared in class sessions at the end of the research study. Students reported a clearer understanding of the importance of thinking through possible ways to resolve identified problems. Examples of this as it relates to school work or daily life were discussed in class and described within reflection papers. Local small businesses were mentors for the project,

allowing for numerous modeling opportunities by practicing managers throughout the semester. Students voiced an appreciation for the applied learning taking place when real-time issues are carefully considered and resolved using the most accurate information available at the time. Creativity was stressed during the design phase; with actual project outputs including: student-created videos, guest speakers invited into class,and using technology (Skype) to converse with business managers and industry mentors about their use of the inquiry process. Industry professionals discussing how inquiry is used to solve management problems complemented the traditional learning process.

In addition to the management analysis work, students wrote three in-class reflections throughout the semester. The first reflection involved describing the inquiry process in terms of a meaningful learning experience in any area of the student's life. The 32 student reflections sorted into four themes: learning from others was discussed by 4 students; learning from hands-on experiences by 10 students; applying learning scenarios to real life situations by 16 students; and changing personal attitudes/views by 2 students.

The second reflection shared how inquiry was used to formulate and carry out school or work-related activities. Themes included: ease or difficulty of commuting discussed by 3 students, changing plans by 4 students; work demands by 8 students, financial constraints by 8 students, and issues with family and friends by 9 students.

The third reflection outlined how the process of inquiry was used to plan and execute a team presentation in management class. Student feedback on the value of using the process of inquiry sorted into five themes: increased communication was discussed by 8 students; positive teamwork by 5 students; expanded ideas by 6 students; organized thought by 3 students;and the importance of well-defined goals by 10 students.

The combination of a semester-long strategy project utilizing the inquiry process and three opportunities to share written reflections resulted in students identifying multiple ways to solve real-world issues.

Student voices appeared to validate the use of the inquiry process throughout the semester as evidenced by Management students:

- *"Talking about experiences we have had and applying them to different things we're learning and to real-world activities is a must-have. Otherwise we are left wondering why we needed this information in the first place."*
- *"What I learned from this inquiry experience is that everything will not always go right when trying to plan and organize activities, but it's important to be flexible and keep asking questions to resolve issues."*
- *"Learning ways to become comfortable with group members made it much easier to ask questions and figure out a game plan to move forward to solve problems related to our project. Being comfortable with each other while asking questions and feeling respected are key aspects to doing quality work of any kind."*

V.   ECE STUDENTS

Selecting the artifact which would spark inquiry for young children proved to be achallenge for some students. Most of the chosen artifacts supported thecurricular areas of math and science. While the majority of students were successful at choosing artifacts which prompted discovery and inquiry, the question thataccompanied the artifact often inhibited further inquiry and questioning. For example, one student brought in several balls which could be examined. The question on the board was, "do you own one of these balls?"This necessitated a yes/no answer which did not encourage any discussion. After a discussion regarding the higher level questioning, the question was restated and posed, "Describe a type of ball you own and its use".
These introductory students were not familiar with Bloom's Taxonomy to pose higher level questions and discussions.
Students defined the term inquiry three times throughout the semester. Common themesextracted from their responses showed students gained a deeper awareness about inquiry across time. Student's first definition was a short statement as seen in a dictionary such as: *Inquiry is using a question to search for information.* However, by the end of the semester students' definition was often two-three sentences which included deeper meaning: *Inquiry is the process of using questioning to gain new information. The process of inquiry involves the use of all five senses and questioning that promotes a higher level of thinking; Inquiry provides students with the chance to look beyond a simple answer and come up with the reasoning behind their belief. It is a chance to hypothesize, question, discuss and conclude what they believe in and find the answers to their questions.* As a

teacher it is our job to help facilitate this learning and to provide students with the opportunities to question and explore.

Students were asked to write out three higher level thinking questions for young children. The results showed that while some students were moving toward a deeper understanding of creating higher level thinking questions, many struggle with the higher level thinking questions.

Throughout the semester, students were asked to reflect on their learning about inquiry. One student commented, "The living in the moment for me this week was inquiry. The last time I did inquiry and brought in an artifact, I had a difficult time thinking of a higher level learning question and I struggled with the inquiry piece itself. This time it came almost second nature to me when I was both developing the inquiry piece as well as coming up with a higher level thinking question. I finally think I have grasped one aspect of inquiry."

The project results indicate that most students were able to reflect upon children's learning and describethe conclusions children would come to from the inquiry lesson.

VI.   DISCUSSION

After a semester of being engaged in learning about the process of inquiry through dialogue, assignments and reflections, the majority of the Management and ECE students were successful in transferring their knowledge about inquiry and were effective in selecting artifacts that engaged the voices of one another in learning about inquiry. ECE students demonstrated their ability to transfer knowledge about inquiry to their teaching practice by developing a final lesson planthat integrated the five step process of inquiry for young children. Management students demonstrated an understanding of inquiry by developing recommendations for business managers to solve identified problems within actual companies.

Faculty Lessons Learned

Role modeling the use of inquiry on a daily basis by the instructor helped students to achieve a clear understanding of its value. Purposefully setting a climate of exploring the possibilities for problem-solving, including an explanation of the collaborative inquiry research to be conducted throughout the semester, appeared to set the stage for buy-in and willing cooperation by the diverse group of 32 students taking the introductory Management course. Defining the process of inquiry, discussing it daily over the first three weeks of class to assist in comprehension and retention of the process, then applying it to interactive exercises and a team project resulted in positive comments on the value of the inquiry process via reflection papers and during weekly team presentation/feedback sessions. The primary purpose of the study which included engaging student voices to enrich learning was demonstrated when students could describe the benefits of classroom learning and transfer that knowledge by applying it to other areas of their life, including the workplace.

While Early Childhood students were able to define inquiry as a process which included higher level thinking and questioning, some students still had difficulty creating questions which promotedhigher level thinking. These students struggled with understandingBloom's Taxonomy.Furthermore, some students were challenged when selecting artifacts which would prompt inquiry for young children. Through dialogue and reflection about this challenge it became evident that many students see the role of the teacher as one who gives the answers to questions, not one who facilitates learning through questioning.

VII.   CONCLUSION

In the two undergraduate courses, Early Childhood Education and Business Management, results of this study showed that through modeling inquiry and reflective practices and engaging student voices to share new knowledge, students were able to transfer their learning and apply it to new situations. Through the inquiry activities used in both courses, students were successful in defining inquiry at a deeper level.

The Management and ECE students' use of inquiry assisted them in seeing the varying connections that occur when actively reflecting on issues and determining appropriate actions.Reflecting on the process and sharing these thoughts with others appear to build confidence in applying inquiry activities outside of a college classroom.

In summary, the process of inquiry is a philosophy of learning which may be contrary to the way some students have previously learned. We found that when the inquiry process is modeled for students and resides in an environment that encourages the sharing of student voice and reflection of learning, students transfer the knowledge to new situations.

We teachers who choose this philosophy as the "cornerstone" of our teaching realize that our role is that of a facilitator and guide who models learning by questioning and recognizes that personal reflection within the community of learners results in deeper learning for all.

REFERENCES

[1]. Broderick, J. & Hong, S. (2005). Inquiry in early childhood teacher education Reflections on practice. The Constructivist, Vol. 16, No. 1.
[2]. Bruner, J. (1987). Actual Minds, Possible Worlds. Cambridge, MA: Harvard UniversityPress.
[3]. Cooperrider, D. L. & Srivastva, S. (1987). Appreciative inquiry in organizational life. In Pasmore, W; Woodman, R. (Eds.) Research in organization change and development (Vol. 1) Greenwich, CT: JAI Press. Education Broadcasting Corporation, (2004). Retrieved from
[4]. http://www.thirteen.org/edonline/concept2class/inquiry/index_sub1.html
[5]. Falk, B. (2006). Developing an inquiry stance toward teaching. Retrieved from: http://insideteaching.org/quest/collections/sites/falk_beverly/site/
[6]. Gardner, H. (1999).The Disciplined Mind. New York, New York: Simon and Schuster. Joyce, B; Weil, M; Calhoun, E. (2000). Models of teaching. Needham Heights, MA:Allyn&Bacon.
[7]. Krogh, S., & Morehouse, P. (2007). The early childhood curriculum. New York, New York:McGraw-Hill.
[8]. Ludema, J; Whitney, D;.Mohr,B; and Griffin, T.(2003). The Apprentice Inquiry Summit: APractioner's Guide for Leading Large-Group Change. San Francisco: Barrett Koehler.
[9]. Malone, M. (2008). Inquiry-based early childhood teacher preparation: The personal
[10]. learningplan method. Early Childhood Education Journal, 35:531-542.
[11]. Schein, E.(1969) Process Consultation: It's Role in Organizational Development.
[12]. Reading, MA:Wesley Publishing Company.
[13]. Sparks-Langer, M. G., & Colton, A. B. (1991). Synthesis of research on teachers' reflective thinking. Educational Leadership, 48(6), 37-44.
[14]. Webb, C., Yuetwong, F. K., Wong, M., Kember, D., Leung, D. Y. P., & Jones,
[15]. A.(2000).Development of a questionnaire to measure the level of reflective thinking. Assessment and Evaluation in Higher Education, 25(4), 381-396.
[16]. Wolk, S. (2008). School as inquiry. Phi Delta Kappan, October, 115-121.