

An Action Research Model: Using Dispositions to Enhance the Diverse Classroom Practices of In-service and Pre-service Teachers

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Introduction

Action research and reflection involve teachers actively participating in persistent professional growth and careful consideration of teaching appropriate practices as well as the possible consequences for student's optimal growth. In addition, pre-service and in-service teachers who use reflective thought are characterized as being (a) optimistic and flexible in their behavior, (b) open-minded and free to consider new problems and ideas, (c) self-directed in acquiring teaching knowledge necessary to meet learners' needs, and (d) wholehearted in pursuit of sound and reasoned thinking (Elder & Paul, 2006).

The dispositions of teachers have a direct impact on the achievement of students (Brantley, Hicks, & Ford 2000). Action research can be thought of as a self-development process designed to enhance the professional knowledge, skills and dispositions of teachers so that they must elevate the achievement of all students. Teachers must develop and assess their current teaching problems and provide scientifically-based research intervention strategies to resolve classroom problems, issues, and concerns. Research studies (Yost & Forlenza-Baily, 2000; Arhar, Holly, & Kasten, 2000; Brantley, Hicks, & Ford 2000) demonstrate that teachers' beliefs are resilient, but not impossible to change, and they must change to close the achievement gap in rural and low performing classes.

In low-achieving classrooms, students yearn for caring, supportive teachers who respect them for what they bring to the learning environment and challenge them to learn according to their needs. Research (Bevevino & Snodgrass, 2000) indicates that students do not feel that their teachers demonstrate these humanistic and culturally responsive attributes during lessons. Many teachers need to seriously enhance their dispositions in responding to students' abilities, backgrounds, cognitive developmental levels, and interests during the teaching and learning process. Pre- and in-service teachers must believe that they have the 21st century dispositions to turn students on and not off to learning in culturally diverse settings. Darling-Hammond (2005) indicated that well-qualified teachers who can teach diverse student population serve as role-models, peer teachers, and collaborative team members.

Fenimore-Smith (2004) stated that collaboration and reflection among teachers, principals, and students ensure a stronger organizational culture for the enhancement of action research by providing a systematic inquiry framework. The study indicated that the

most important component of organizational culture is the organization of efforts to increase interaction and communication among teachers and between teachers and school administrators. Collegial collaboration is based upon research that shows that effective schools and classes are marked by productive communication and joint work among pre- and in-service teachers (Darling-Hammond, Aness & Ort 2002). This project sought to answer the following research question: Can action research activities change the disposition of teachers in diverse class settings?

Methodology

Subjects

The project took place in 5 middle schools in South Carolina. Ten pre-service teachers were matched to ten in-service teachers. They were matched according to grade level and subjects. Three university professors provided assistance during the summer institute and weekly seminars with the interplay between action research and content to assist teachers in thinking about how action research could support their instructional materials, resources, and learning activities. The teachers learned how to orchestrate a diverse class setting in which students were engaged in challenging learning experience using the Action Research Reflection Model.

Instrumentation

A multi-method approach using both quantitative and qualitative methods was used to gain a better understanding of the teachers' disposition through an action research disposition chart, rubric and survey.

Teachers' Self-Assessment Survey

The teachers' application and ability to use action research and reflection in their current teaching practices were assessed using a "Self-Assessment of Action Research and Disposition Survey." The thirteen-item Survey requested participants to indicate their degree of agreement with the statements on a 5 point Likert-type Scale. The teachers rated the items from strongly disagree (1) to strongly agree (5). To examine the validity of the scale, five teachers trained in the area of action research were asked to: (a) review the format of the scale, (b) analyze each item for relevancy and clarity, (c) make comments about adding or deleting items, and (d) rewrite specific items if necessary.

Action Research Disposition and Reflection Chart

The Action Research Disposition and Reflection Chart provided a framework to guide teachers toward using scientifically-based research to enhance classroom practices. The chart provided a visual representation of the problem under investigation. It allowed teachers to see clearly the relationship among the routines and how to use scientifically-based research to achieve the successful classroom practices in the areas of discipline, assessment and teaching.

The Action Research Observation Rubric

The Action Research Observation Disposition Rubric was utilized to provide a record of activities that occurred in the classroom. It focused on instructional methods, interpersonal interactions, interaction between and among teachers and students in the classroom environments.

Teacher Training

The pre- and in-service teachers agreed to participate in a one week summer institute. They received training in action research, the nine disposition routines, and selection of scientifically-based research materials. In addition, they were matched according to an identified class problem, issue, or concern. During the fall semester, all teachers attended a bi-monthly seminar to discuss and share their action research activities. Coaching and feedback were provided by the action research project.

The Action Research Disposition Model

The model required all teachers to progress through nine structured routines and addressed their niche, class problems, issues or concerns during teaching. In addition, teachers were required to routinely collaborate and discuss their activities around each of the Action Research Routines. As shown in Chart 1, each routine is accompanied by an explanation to help guide the teachers in conducting activities according to the model.

Routines	Identification
Routine 1	Identification of a research niche area, class problem, or concern.
Routine 2	Development of compelling questions surrounding the niche problem or concern.
Routine 3	Using scientifically-based research, analyze “best practices” and theoretical concepts using a variety of resources.
Routine 4	Create a road map to include qualitative collection of information using a variety of assessment strategies.
Routine 5	Modify, adapt and adjust lessons making them culturally sensitive using analysis of multiple data sets.
Routine 6	Create data driven finding including themes, patterns and trends.
Routine 7	Design data driven decision making using reflections.
Routine 8	Collaboration and reflect on decisions and activities.
Routine 9	Chart the impact on student achievement.

Survey Results

In routine 1, a total of 87% of the in-service teachers provided a rating of strongly agree and agree in being able to define and explain the process of action research. In routine 7, 75% of the in-service teachers said they could discuss the similarities and differences between action research and reflection, while 87% of the in-service teachers said they could discuss the interrelationships of action research and reflection. In addition, 100% of the in-service teachers said that they can evaluate and select thinking materials as a result of action research and reflection. In routine 5, a total of 87% of the in-service teachers said that they could model reflective skills; 50% of the in-service teachers said that they could define the different levels of action research and reflection and describe the differences; 87% of the in-service teachers said that they could discuss the relative importance of process and product in action research and reflection; and 87% of the in-service teachers knew what skills and techniques were involved in effective action research and how to use them in the content areas. In routine 4, a total of 50% of the in-service teachers said that they could explain the rationale for including action research and reflection in their subject area. In routine 8, 100% of the in-service teachers said that they could use action research and reflections to develop skills and understanding in other areas of the curriculum, while 100% of the in-service teachers said

that they could engage in collaborative self-reflection and action research. In routine 6, 87% of the in-service teachers said that they could explain the process of action research, reflection and apply it in their teaching. In routine 3, 100% of the in-service teachers said that they could explain the importance of involving students in the evaluation of their learning.

A Teacher's Practice Using the Action Research Disposition Chart

The Action Research Chart included the classroom observation of Khaleelah Stroman, a middle school teacher teaching several math classes. The researcher observed and noted several of the disposition routines. For example, Routines 4 and 5 became common classroom practices for Khaleelah Stroman's class activities. The Chart assisted Ms. Stroman with seeing the whole picture while simultaneously employing Routine 6 and 7. Although Routine 5 and 7 became a critical anchor for adaptation, modification and adjusting classroom instruction, the remaining routines enhanced her plan for action, especially in elevating achievement in her students. (See the Action Research Classroom Disposition Chart in Appendix A). "Most of what I do is affected by my beliefs about teaching, and the expectations I have for my students. The Action Research Disposition Chart provided the vehicle in aiding me in seeing the research connected to the class practice. It is a wonderful way to increase my professional growth and respond to the needs of my students."

Teachers' Testimonies

Another teacher, Tracy Brown, stated, "I am constantly searching for answers and solutions to my students' success." A middle school teacher, Ms. Brown is engaged in an Action research and Reflection Project that keeps her energized, reflecting and seeking new ideas to try different strategies with her students. "Sometimes I use the process to solve the problem of one student, a group of students and even my inability to teach a technique successfully," she said. Ms. Brown indicated that during most lessons, she is able to apply all nine of the Action Research Routines. "Among the many benefits of this approach in my classroom learning are greater in-depth questions by my students, collaborative learning in groups, improved analytic abilities, and a greater likelihood that my students participate in class discussion freely and willingly."

Mr. Aiken indicated that the key question assisted him in appreciating the Action Research Dispositional Model. He said, "After engaging in the research, I geared my attention on the activities that enabled me to assist a significant number of low achieving rural students to increase their rates of comprehension to such a degree that their scores on the standardized achievement test improved."

Mrs. Betty Anderson, a teacher in an all gender middle grade class provided the following testimony of one of her experiences during the project.

For the first time, my aggressive boys are enthused about learning. Each article I read on motivating male students discussed engagement of the lesson (Routine 3). For example, during class, many of them wanted to operate the Microsoft PowerPoint. Also I taught a lesson on Ancient Egyptian Culture, and they loved it. Many of the students asked questions, and brought in their

ideas and experiences. In another lesson on the industrial age, students connected to their own experiences. For example, they saw a cast iron in their text, a student said, "My grandmother has this iron and is using it as a door stopper." The Microsoft PowerPoint appeared to have stimulated and motivated them. With the help of the pre-service teachers, I made sure all of my active boys were involved with the hands-on materials or Microsoft PowerPoint. For example, the most aggressive student operated the Microsoft PowerPoint Presentation; the others actively took part by asking questions and telling me what to do with graphics and the words on the PowerPoint slides. Routinely during the lesson, my students were able to relate the activities to authentic experiences (Routines 3, 5 and 9). The students are now excited about learning and working together. Many of them are able to relate some of the artifacts from the Microsoft PowerPoint to their background during the homework assignments (Routine 5). I am going to present all my lessons in Microsoft PowerPoint. I have demonstrated to my colleagues' one of the successful lessons. Many of them, now, see the benefits of using Microsoft PowerPoint on a regular basis (Routines 5 and 8). The pre-service teacher worked side-by-side with me to conduct the research and prepared the "best practice" lessons. The collaboration assisted me in my reflection and professional growth.

Mrs. Adrienne Johnson, one of the teachers in Orangeburg School District Five, indicated that she learned from the collaborative experiences with the pre-service teachers. "My pre-service teacher conducted the research and developed a behavior modification plan according to the "best practices." The data-driven findings lead me to utilize differentiated activities. "Students were challenged to use their styles of learning to activate prior and authentic knowledge. In addition to being collaborative learners which allowed for sharing, exploration and critical thinking, they saw the need for being responsible for their own learning." In addition, pre-service and in-service teachers modeled the behavior they expected of the students in their classes.

Conclusion

Disposition habits of action research and reflection are developed through and in classrooms with pre-service, in-service teachers and students. One implication that can be drawn from the project is that low-achieving students are more challenged and stimulated when teachers employ culturally sensitive disposition in their teaching. The survey results indicated that teachers were able to exhibit consistently, Routines 5, 6, 7, 8, and 9. These routines required teachers to make positive differences in growth and development of ideas, subject and students. The Action Research and Reflection Model demonstrated the need to use multiple forms of dispositional measures to gain an accurate picture of abilities and needs (Stiggins, 2005). For example, Ms. Stroman's interaction with her class involved her facilitating and guiding the class decision since many of the students were very comfortable in working with technology to solve math problems. Additionally, she was able to share and to discuss her class activities in many different professional settings with, not only content professionals, but media-specialists, counselors, social

workers and parents. . “Each situation provided me the opportunity to add to my professional repertoire,” said Ms. Stroman. The beauty of the experience was in the win-win relationship between teachers and students. This works to immediately and positively influence class activities and student outcomes.

Additionally, the teachers in the Action Research Projects were empowered to create collaborative classroom settings that were always ready to change and to optimize achievement. Routinely, the development of effective research practices using culturally sensitive criteria promoted professional development that allowed ongoing reflection and growth in pre-service and in-service teachers who never quit asking questions about practices that promoted teaching and learning (Sockett, 2006).

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Appendix A

The Action Research Disposition Routines in the Classroom Ms. Khaleelah Stroman

Comments Students Make Associated with Learning Mathematics	Problems Associated with Learning	How Best to Teach aligned to the Nine Routines	Align Classroom Teaching, Problem, and Concern Associated with Identified Learning Target with Resources	"What the Research Says"
1. "I hate Math."	Most students see mathematics as an isolated subject area and don't understand the connections with the real world or the language used.	Actively engage students in higher-order thinking problems and real-life situations through technology, games, puzzles, and role-playing (Routines 3, 4, 5, 7, 8 & 9).	Make Math Fun - Search the Internet for Brain teasers to share with students. Create learning centers for early finishers that will include Bloom's Taxonomy activities. Also have informal discussions on how to relate the math concept to real-life situations.	In teaching problem solving and mathematics, the alignment of curriculum, instruction, and assessment is needed if students are going to experience success. Using authentic experiences and teaching the curriculum in a way that help students connect to the real-world provide them with a useful subject as opposed to a set of rules to memorize. http://www.mdk12.org/instruction/curriculum/mathematics/index.html
2. "Math is boring."	Students' ideas of Mathematics relevance is impeded if content is taught in a strictly conventional manner.	Create an environment that changes periodically. Study centers with workbooks, games, electronic lessons, and peer teaching (Routines 2, 3, 4, 5, & 7, 8 & 9).	Use various Modalities - Incorporate the use of technology and use it to recreate the concept in which you are teaching using graphing calculators. Utilize various styles of learning.	Measure students' progress early and regularly, so they have a clear idea about where they stand academically. This may involve quizzes, constructive response problems, or some kind of weekly assignment which gives the teacher some indication of their level of understanding. http://lep.uoregon.edu/resources/fags/presenting/facilitatediscussion.html
3. "This is too hard."	The ability levels within the students are diverse.	Acquire good management routines and techniques to involve all students in challenging classroom activities. (Routines 1, 2, 3, 4, 5, 6, 7, 8 & 9).	Create alternative Approaches to Learning - Incorporate the use of technology and peer teaching. Most students understand better from their peers. Create after school workshops that will allow individual help for students.	Accomplished mathematics teachers, whether they teach number families to kindergartners or AP Calculus to high school juniors and seniors, share several traits. They lead their students in an exploration of the world of mathematics, provide appropriate learning opportunities for all of their students, and serve as advocates for each student in the mathematics classroom. http://newall.apple.com/ali_sites/ali_exhibits/1000328/Math.html
4. "This problem is too long and time consuming."	Most students do not want to use their critical thinking skills or "Think Outside the Box." They feel that they working aimlessly and without a purpose.	Mathematics is graded on procedure and strategies. Therefore, give the students the answer. This will provide them with a goal in solving the problem. (Routines 3, 4, 5, 7, 8 & 9).	Make Multiple Examples Available - Provide students with the varied answers on informal assessments and allow them to strategize and find different approaches in solving problems. This leads to classroom discussions on several techniques in solving one problem. It also provides students with the responsibility for their own learning.	Students must make connections across the curriculum as active participants in learning by doing, making, writing, designing, creating, and solving. Motivate them to use their creative math skills and math curiosity. http://honolulu.hawaii.edu/intranet/committees/FacDevCom/guidebk/teachtip/motiv.htm
5. "I don't have a pencil. Can I borrow a pencil?"	Limits voluntary participation. Gives the perception of being a valid excuse for noninvolvement in activities.	Involve students who are less likely to express their ideas than students who are more assertive. (Routines 5 & 9).	Collaborative Groups - Use an activity in an open-ended way by saying, "Everyone will form partner groups or form groups of 3 or more to work with." Continue by saying, "Make sure you have all of your tools prior to joining the group. Should you need a pencil, please take one from the pencil holder and place five cents in the jar. How many activities can each group work with today? " This shows the importance of each student's perspective and encourages the overall participation in a class setting.	
6. "I don't understand how to do this."	Lack of interest and the ability levels within the classroom.	Create at least five different techniques to approach one concept. (Routines 5, 6, 7, 8 & 9).	Create Mathematicians - Have students to pretend they will create different situations, use different subjects and activities to solve community problems as math experts. Provide them with Excel spreadsheets, surveys, and other community databases to conduct the project.	Accomplished teachers allow students to work to their strengths. They employ peer teaching to reinforce key concepts and develop critical thinking skills with all ages. They have challenged their students to teach each other and to develop a sense of ownership over the material to be learned. http://atl.apple.com/ali_sites/detr/exhibits/1000348/Peer_Teaching.html