Action Research in Montessori Classrooms

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AMS Research Committee White Paper Series: Action Research in Montessori Classrooms

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AMS is providing this White Paper to encourage research on Montessori education to further its role in the broader education community. One of the goals of AMS is to support efforts which give Montessori education a voice in scholarly dialogue about educating children.

Overview of Action Research

Action research is sometimes called "teacher research" or "teacher-as-researcher" (Gay and Airasian, 2003). The formal definition of action research is "the process of using research principles to provide information that educational professionals use to improve aspects of day-to-day practice" (McMillan and Schumacher, 2006, p. 414). In other words, action research involves educators engaging in structured information gathering to improve instruction and learning within their own classrooms or schools. Some of the benefits of action research include:

- encouraging change in schools,
- empowering individuals through collaboration with one another,
- encouraging teacher reflection,
- developing greater understanding and appreciation of student needs, and
- examining new methods and ideas (Gay and Airasian, 2003).

Action research usually focuses on a specific problem, issue, or concern within a particular school or classroom (Gay and Airasian, 2003). Action research is a structured process in which educators identify, examine, and improve their practice. Thus, effective action research integrates theory, practice, and practical applications of research results (Gay and Airasian, 2003).

Much of the current interest in action research stems from an emphasis in the field of education on critical reflection about teaching practice. The primary difference between action research and other types of research is that the goal of action research is to generate knowledge that is specifically relevant to the local setting while the goal of traditional research is to produce knowledge that can be generalized to the field. The quality of action research is judged by the extent to which it provides credible data used to successfully change practice (McMillan and Schumacher, 2006).

Action Research in a Montessori Setting

The basic principles of action research apply to any educational setting, including Montessori classrooms. Furthermore, action research aligns well with Montessori education because it:

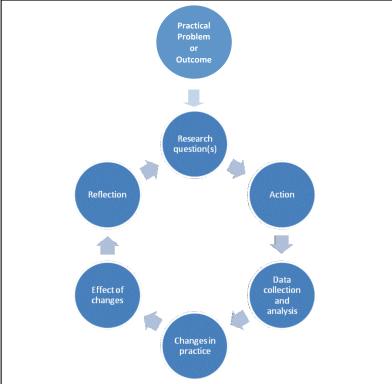
- is participatory and democratic,
- is socially responsive and takes place in context,
- helps teachers examine the everyday taken-for-granted ways in which they carry out professional practice,
 and
- generates knowledge which can liberate students, teachers, and administrators and enhance learning, teaching, and policy making (Gay and Airasian, 2003).

Process of Action Research

The basic steps that comprise the process of action research often occur in a cyclical pattern. The outcomes of one examination often reignite the process as reflection on implementation of previous results sparks new inquiry in an iterative process.

Cyclical Nature of Action Research

Source: McMillan and Schumacher, 2006



1. Research Questions

The teacher-researcher's experiences with the situation usually generate the research questions. When a problem is encountered in the classroom or school, educators often review existing literature to generate ideas for potential solutions. For example, a classroom teacher may investigate alternative strategies for dealing with classroom conflict in a lower elementary classroom.

2. Action

Action takes the form of implementing possible solutions in the classroom. In the example mentioned above, the teacher may decide that the use of a peace table is a promising strategy for addressing classroom conflict. So, s/he creates a plan for introducing the peace table concept to the children.

3. Data Collection and Analysis

Along with planning the implementation of the new strategy, the teacher-researcher must also plan to collect relevant data to help evaluate the relative effectiveness of the intervention. The information gathered in action research can take the form of quantitative data, qualitative data or a combination of the two. Sources can include classroom observation, interviews or recorded conversations, questionnaires and attitude scales, and other naturally occurring data. Different types of information will be appropriate depending on the research question at hand. In the peace table example, the teacher will likely use observation along with possible interviews with the children about their reactions to the experience.

Keep in mind that there are ethical issues to consider any time information is gathered on children. Most often, it is only necessary to explain that research is being conducted in the classroom if the researcher is the regular classroom teacher. Parents should be informed of the information to be collected, that participation is voluntary, and that participation will remain confidential. It is important to check with administrators to determine any other considerations (Gay and Airasian, 2003).

4. Changes in Practice

Results of the research may lead to immediate changes to classroom practice or may lead to additional questions requiring further investigation (Gay and Airasian, 2003). The peace table in the previous example would either be incorporated as a permanent feature in the classroom or not based on the results of the research.

An important step after making conclusions is sharing the results with other teachers and administrators within the school. Identifying a broader network of fellow educators dedicated to continuous improvement can be valuable for professional development and leveraging best classroom practices as a community of educators. For example, the teacher-researcher conducting the investigation of the peace table would have an opportunity to discuss this experience with other teachers at teacher networking sessions held at AMS or other educational conferences.

5. Effect of Changes and Reflection

After implementing classroom changes, teacher-researchers would monitor the program over the long term to see if its impact continues to be positive. Reflecting on the effects of the changes often leads to identification of additional questions for subsequent research. In the peace table example, the teacher-researcher may find that the peace table begins to lose its effectiveness as older children move to upper elementary classrooms. Upon reflection s/he may begin to wonder if reintroduction is necessary each year as the composition of the classroom shifts and younger children enter the community. Or, s/he may wonder if modifying some elements of the peace table may reenergize the children's interest in the resource. These questions can serve to restart the cycle of inquiry which is the basis of action research.

Resources for Action Research

Action Research Network: http://actionresearch.altec.org/
Action Research Online Journal: http://www.arexpeditions.net/

American Educational Research Association Action Research Special Interest Group:

http://coe.westga.edu/arsig/index.html

Jack Whitehead's Living Educational Theory Approach: http://www.actionresearch.net/

Sources

McMillan, James, & Schumacher, Sally. (2006). *Research in education*. Allyn & Bacon. Gay, L., & Airasian, Peter. (2003). *Educational research*. Prentice Hall.

SAMPLE: Embarking on an Action Research Project

Adapted From "The Creation, Implementation & Evaluation of a Learner-Centered Conflict Resolution Program," by Julie Riordan

	Step	Example*
Problem	Problem: Identify an area of your classroom or school where there is a problem or opportunity	The peace table approach to conflict resolution wasn't working effectively
Question	Research Question: Frame your problem/opportunity as a researchable question	How could the approach be improved?
ion	Literature Review: Investigate how others have addressed similar problems/opportunities	Examined research on approaches used in non-Montessori ECE classrooms
Action	Action: Implement a strategy for addressing the problem/ opportunity based on your experience and literature review	Introduced new conflict resolution procedures with Role-playing, Grace and courtesy lessons, Peace activities and storytelling
alysis	Data Collection: Create an instrument to gather data, obtain a baseline measure and a post implementation assessment	Developed a checklist (Acceptance of responsibility; Voice tone; Aggression; Body calming; Empathy, etc.)
Data Collection & Analysis	Data Analysis: Evaluate results: Have problem incidents decreased, more positive behaviors emerged, problems reduced?	Before introducing procedures and after 3 months, assessed children using the checklist
Data (Findings: Was the intervention strategy successful?	Children resolved conflicts more independently and confidently. They created more complex negotiations and resolution
Reflection	Changes in Practice: Should intervention strategy be maintained, modified or new questions explored?	Kept new procedures in place
જ	Effect of Changes: What are long term impacts?	Reassessed at end of year and determined that these practices are beneficial to the classroom, but no further improvement was evident beyond the initial implementation period of 3 months
Discussion	Action Plan: Do opportunities for further improvement still exist?	Determined that based on attending conferences in the past year, other practices may further improve children's ability to navigate conflict, so another cycle of inquiry will be started

Embarking on an Action Research Project

	Step	Your Plans
Problem	Problem: Identify an area of your classroom or school where there is a problem or opportunity	
Question	Research Question: Frame your problem/opportunity as a researchable question	
Action	Literature Review: Investigate how others have addressed similar problems/opportunities	
Act	Action: Implement a strategy for addressing the problem/ opportunity based on your experience and literature review	
nalysis	Data Collection: Create an instrument to gather data, obtain a baseline measure and a post implementation assessment	
Data Collection & Analysis	Data Analysis: Evaluate results: Have problem incidents decreased, more positive behaviors emerged, problems reduced?	
Data C	Findings: Was the intervention strategy successful?	
Reflection	Changes in Practice: Should intervention strategy be maintained, modified or new questions explored?	
ૹ	Effect of Changes: What are long term impacts?	
Discussion	Action Plan: Do opportunities for further improvement still exist?	

Topic Samples- Action Research in Montessori Environments

University of Wisconsin-River Falls

Title or Question	Surname	Year
*Benefits of movement in a Montessori classroom	Akkerman	2014
*Parent involvement that supports children academically and promotes the	Loomans	2014
development of independence		
*Displaying children's art work	Kuhnert	2014
*Incorporating peace education into the school curriculum: building empathy	Lockwood	2014
and self-worth while taking ownership over peace		
*Connecting children to nature in a Montesssori primary environment	Russell	2014
*The influence of autonomy – supporting teaching techniques on intrinsic	Casper-Gohr	2014
motivation in relation to pro-social behaviors in a Montessori primary		
classroom		
*Supporting dual language learners: exploring large group and shared reading	Harris	2015
experiences		
*The benefits of individual, paired and group lessons in a Montessori	Lelei	2015
classroom		
*Practicing reality: play in the Montessori environment	O'Connor	2015
*The path to normalization: finding and measuring essentials of the	Harder	2015
Montessori method		
*The importance of handwriting: how Montessori didactic materials support	McFarland	2015
handwriting		
*Building math vocabulary and math operations recognition in a Montessori	Olson	2015
E1 classroom		
*The Montessori method and Minnesota academic standards in mathematics	Richards	2015
prioritized by Saint Paul Public Schools		
*Parent and familial involvement in the school community	Roth	2015
*Exploring how Montessori education fosters the explosion of writing before	Ryan	2015
reading.		
*Visual literacy and Socratic seminars in a secondary Montessori classroom	Miller	2015
*The influence of a great lesson on secondary English language arts students'	Niemcyzk	2015
oral narrative	TVICINGYZK	2013
*What makes a school Montessori?	Krause	2015
*Benefits of choice in a Montessori classroom on student behavior and focus	Krugerud	2015
*Mindset and the middle school math student	Madden	2015
*Manipulatives in the math classroom	Johnson	2015
*Self-paced individualized learning	Highland	2015
*Using nontraditional text for Socratic dialogue in a middle level Montessori	Bijoch	2015
music classroom	J	
*Effects of online collaborative learning on student engagement and	Humes	2015
academic success		
*Breathing room: time and attention scarcity and the place of mindfulness in a	Aal	2015
technology rich classroom	1141	2013
		1001-
*Usefulness of seminar library to influence effective socratic seminars	Wegwerth	2015

*Multiage learning environments in the secondary Montessori	Simonson	2015
classroom		
Comparing the Minnesota State Math Grade 2 Standards for numbers and	Blehm	2016
operation strand to the Montessori math curriculum and materials		
*Arts integration in Montessori mathematics	Carlson	2016
Positive impact on kindergarten learners through daily exposure to an outdoor	Enerson	2016
learning environment		
*Preparing the environment for independent learning: supporting autonomy in	Freeman	2016
the Montessori classroom		
The Effects of representational math in a Montessori classroom	Horton	2016
Effect of autonomy supportive techniques on intrinsic motivation in the	Kurlander	2016
classroom		
Small group work: Can it be an effective tool towards successful transition for	Nelson	2016
toddlers to a Montessori classroom?		
*Implementing Service-Learning in Elementary E1 Montessori Setting	Smith	2016
Practical life activities, mindfulness and executive function skills	Strampe	2016
The power of storytelling in upper elementary Montessori geometry instruction	Xiong	2016
Increasing fluency through repeated poetry readings	Xiong	2016
Traditional vs. Montessori math manipulatives	Vang	2016
The Effects of practical life exercises on fine motor development	Elcombe	2017
The Effects of guided reading in a Montessori Children's House.	Heeringa	2017
The Impact of a silent area on the social-emotional behavior of the students	Veuilleux	2017
The effects of positive behavior intervention on classroom community through	Davenport	2017
Grace and Courtesy with Upper Elementary Montessori students	_	
Montessori Materials in Multiplication Understanding as Evidenced by	Austin	2017
Teacher Made Assessments		

Westminster

How to be Montessori with Montessorians: the question of co-teaching in	Bornschein	2015
Montessori education		
Implementing a sustainability curriculum in a Montessori early childhood	Nash	2015
classroom		
Essential elements of inclusive Montessori education: examining formal and	Williamsen	2015
informal structures		
Adaptations for success with Montessori math	Castillo	2016
Montessori literacy in the early childhood classroom	Djunic	2016
Dramatic play in an early childhood supplemented Montessori classroom:	Johnson	2016
point of contact		
Home visits for students with special needs in a Montessori classroom	Weis	2016
Motivation and goal setting in Montessori mathematics	Williamson	2016
Cultivating student engagement for a Montessori early childhood classroom	Wilmore	2016
Physical activity and gross motor movement in Montessori: an evaluation of	Reynolds	2017
added movement works in a lower elementary class		
Effectiveness of parent education in an early childhood classroom	McDowell	2017

St. Catherine's

St. Cutherine 5		
*The Effects of interactivity, scaffolding and modeling on children's attention	Agnello &	2015
and engagement during read aloud time	Yengle	
*Increasing intrinsic motivation and reading comprehension in children	Amundson	2015
*Beyond good manners: gratitude and student engagement in lower elementary	Callaghan	2015
*Aligning state developmental standards to toddler and early childhood Montessori practical life and sensorial materials	Conway & Fink	2015
*Working it out together: teaching the steps of conflict resolution to preschoolers	Macsata	2015
*The Effects of a peace curriculum on reducing and resolving conflicts among children ages 3-6 years.	Morningstar	2015
*Creating a normalized Montessori classroom	Somerton- Burkhardt	2015
*The effects of technology on engagement and retention among upper elementary Montessori students	Tosco	2015
*Public school administrators and Montessori education	Wright	2015
*Effects of practical life activities on executive function skills in upper elementary Montessori students	Voreis	2016
The effects of reviewing a school's mission and vision on teacher stress	Adams	
Helping third-grade students with task management in a Montessori classroom	Fabel	2016

Chaminade

Improving assessment scores: Is looping the answer?	Sharon	2015
Montessori in China: history and needs of new education	Karen	2017
Development of order and coordination from practical life in a Montessori	Teresa	2017
classroom		

Please note that studies with a * can be found on the amshq.org site. Search for action research

Linked to this site:

Many additional Montessori action research reports can be found on the St. Catherine's site http://sophia.stkate.edu/maed/

and on the University of Wisconsin-River Falls site: https://minds.wisconsin.edu/handle/1793/209

Recommended Action Research Texts and Resources

<u>University of Wisconsin-River Falls - Gay Ward and Melina Papadimitriou</u> (gay.ward@uwrf.edu and melina.papa@uwrf.edu)

Lillard, Angeline (2008). Montessori: The Science Behind the Genius. Oxford Press

Mertler, Craig A. (2013). *Action Research: Improving Schools and Empowering Educators*. (4th ed.). Thousand Oaks, CA: Sage Publications

Westminster College - Nancy Lindeman

(nlindeman@westminstercollege.edu)

Mills, G. E. (2011). *Action research: A guide for teachers* (3rd edition). Upper Saddle River, NJ:Pearson Education Inc.

Rossman, G. B. & Rallis, S. F. (2012). *Learning in the field. An introduction to qualitative research.* (2nd ed.). Thousand Oaks, CA: Sage Publications.

Manual of the American Psychological Association (6th ed.)

Additional readings:

LeCompte, M.L. (2000). Analyzing qualitative data. *Theory into Practice*. *39*(3), 146-154. Lichtman, M. (2010). *Qualitative research in education: A user's guide*. Thousand Oaks, CA: Sage Publications, Ltd.

Saldana, J. (2015). *Coding manual for qualitative researchers.* Thousand Oaks, CA: Sage Publications, Ltd.

St. Catherine's - Syneva Barrett

(snbarrett@stkate.edu)

Hendricks, C. (2012) *Improving schools through action* research: A reflective practice approach. (3rd ed.) Upper Saddle River, New Jersey: Pearson

Chaminade - Elizabeth Park

(epark@chaminade.edu)

Lewins, A. & Silver, C. (2014). *Using software in qualitative research: A step by step guide.* Thousand Oaks, CA: Sage Publications, Ltd.

Saldana, J. (2012). *The coding manual for qualitative researchers*. (2nd ed.) Thousand Oaks, CA: Sage Publications, Ltd.

AMS Action Research Submission Form (to be completed by author)

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Has the submitted study received approval from your Institutional Review Board? (Please place an X in the appropriate box below.)

Yes (please attach copy of your IRB approval letter)
No

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- AMS Action Research Warehouse Evaluation Rubric (completed by faculty advisor)
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	Below Average (Not acceptable)	Average (Revisions are needed) 3-5 points	Above Average (Acceptable) 6-8 points	Outstanding (More than Acceptable) 9-10 points	Points awarded
Title	•	Acceptable	Good description of	•	
	study	description of study		description of study	
	Insufficient	Limited	Acceptable	Impressive	
Research	Potential to effect	Limited potential to	Some potential to	Much potential to	
	positive change unclear	effect positive change	effect positive change	effect positive change	
Research	Unacceptable:	Concerns about:	Acceptable:	Outstanding:	
Methods	· Instrument	· Instrument	· Instrument	· Instrument	
	 Data collection 	 Data collection 	 Data collection 	 Data collection 	
	· Analysis	· Analysis	· Analysis	· Analysis	
Impact	No clear impact discussed	Limited impact on practice or self- reflection	Some impact on practice or self- reflection	Major impact on practice or self- reflection	
Profession-	Unacceptable:	Concerns about:	Acceptable:	Outstanding:	
alism	 Ethical practice 	 Ethical practice 	 Ethical practice 	 Ethical practice 	
	 Clarity of text 	 Clarity of text 	 Clarity of text 	 Clarity of text 	
	 Grammar or Spelling 	 Grammar or Spelling 	 Grammar or Spelling 	 Grammar and Spelling 	
				TOTAL SCORE:	

Recommendation (place X in appropriate box)

Reject	Provisional acceptance with revisions	Accept	Accept with special
(Below 18 points)	(18-35 points)	(36-53 points)	recognition (54-60 points)

C	comments:				