

Preparing the Environment for Independent Learning:

Supporting Autonomy in the Montessori Classroom

Geoff Freeman

University of Wisconsin River-Falls

Advisor's Signature

Date

A Master's Paper Submitted in Partial Fulfillment of the
Requirements for the Degree of Master of Science in Education – Montessori

2016

Abstract

Independent work is essential to a child's development and an inseparable part of the learning process. Research suggests that children are most successful in independent work when they are in an environment receptive to their interests and questions, when they feel empowered to make choices about their work and when there is a framework that focuses those options so that students are not overwhelmed by the variety of choices. In an action research examining Montessori practices, 27 elementary-age children participated in a study looking at those practices that promote autonomy during and after lessons in a Montessori environment. The research study tracked the effects of using a work journal on patterns of student work and analyzed how different routines for preparing follow-on work prompted students to pursue lesson topics in their independent work. The research study showed that students are inclined to follow with that work which they had the most "say" in preparing, and that those practices that help regulate and reflect on independent work may have a greater role in supporting independent student work. At the end of the research study, students were completing more of the work they started, and reported greater confidence in choosing productive work and accessing those tools that might help them succeed in their independent endeavors.

Keywords: Autonomy; Autonomy Support; Meaningful Learning; Motivation; Student Attitudes

Introduction

One of the more intellectually demanding practices for the child in a Montessori classroom is that of choosing the work that will follow a lesson. Students practice and explore those new things they have learned on their own, in some instances making individual decisions about what that work might look like and in other cases, completing work carefully prescribed by the instructor. Undoubtedly, there are many instances where it is necessary for a teacher to insist that students practice a specific skill or meet a specific standard, but incorporating a student's voice and interests into their work is a demonstrated way to increase student motivation and provide students with a deeper understanding of the content they are studying (Lane, Royer, Messenger, Common, Ennis, & Swogger, 2015). While this methodology allows children to meet the requirements for their projects creatively and differentiated to their individual needs, it can be difficult for some students to complete work independently. The perennial challenge for students and teachers is how to establish and practice the means of supporting a student to do these tasks on their own.

The Montessori philosophy greatly values independence and consequently, the role of the teacher is that of the guide, working cooperatively with the student to prepare work and schedules, and then observes student progress providing lessons and interventions accordingly. In this context, it is pertinent to note that the instructor in the Montessori classroom is called a guide rather than a teacher. That is because it is the job of the Montessori guide not only to teach students new concepts and tools for learning but also to oversee and support the independent work that occupies students for the better part of the day. There is consensus among the Montessori community about the underlying philosophy and values that inform the guide's teaching practice, as well as the content and scope of the Montessori curriculum. However, there

is also extensive and varied debate regarding the structure of this independent work time, and more specifically, regarding the systems and routines that regulate what and how students choose work. What is the measurable difference in follow-up work for lessons that use controlled, co-created and open-ended follow-up work?

Central Question

- What affect does autonomy have on work completion?

Topic Questions

- What methods of supporting autonomy best facilitate meaningful learning?
- What resources do students access to track and monitor independent work?
- How do these attitude about the work, self--perceptions about competency and enthusiasm affect the topic/learning?

Literature Review

Understanding Autonomy

There has been extensive work in determining how teachers can support student choice and autonomy (Davidson, 1986; Evans & Boucher, 2015; Skillings & Ferrell, 2000; Koh, & Frick, 2010). Teachers can have an impact on how independently a child works and the quality of work by preparing the environment and interacting with the child in ways that supports autonomy. Supporting independent work starts by nurturing motivation and interest within the child, communicating in an informational and cooperative manner and acknowledging the richness and limitations of students' interests (Reeve, 2006). Evidence suggests that the guide most effectively supports these conditions by being attentive and listening to the student, communicating the value of the lessons, providing clear expectations, encouraging persistence and praising improvement. Independence may be a set of learned skills, but they are "malleable"

that is, they can be acquired and influenced under the right conditions and with practice over time (Reeve, 2006). For this purpose, studies were reviewed that looked at effective means of supporting autonomy in the classroom.

Constructing Autonomy - Student-Teacher Collaboration for Follow-up Work

Supporting student independence begins before the student is working independently at all. The teacher must gauge what the student needs to be provided with meaningful support by way of formative assessment while the lesson is taking place and extending to the time that the student is working on his or her own.

A student's success working independently begins with the lesson that elicited that work; the questions the instructor asks, the consideration he gives to student ideas and problems as well the feedback he provides. All of these variables contribute to the autonomy a student has in defining their work (Jang, Reeve & Deci, 2010). Studies suggest there is a significant statistical correlation between teacher-students attunement strategies and on-task behavior, finding that those key strategies that give students the impression a teacher is interested and receptive to their ideas and concerns keeps students engaged and tuned into the lesson. (Stevens & Van Werkhoven, 1997).

This particular study examines root causes of disengagement among students and strategies an instructor might employ to engage students. The authors place great emphasis on what they call “attunement strategies” and “responsive instruction”. These are strategies in which the teacher attunes him or herself to the student so that she is more aware of what the child needs so that the child feels they are being engaged and held to high expectations. Attunement is essential in an educational model in which the follow-on work that the teacher and student cooperatively create tunes in specifically with the child’s individual needs and interests.

Attunement strategies capitalize those circumstances where the teacher makes positive eye contact showing the child that she is engaged in that child's learning. This is an empowering and motivating element for individual students and a significant component in preparing for independent work.

Creating follow-up work and setting performance standards in cooperation with the student require identifying autonomous learning when we see it and establishing how we will know if it is meaningful learning. Research in the field of self-directed and project-based learning has identified those attributes that might more appropriately reflect in-depth learning as opposed to learning that is superficial or only reflects what a student can apply to a standardized test. One such study examined blog posts by middle school students in South Korea, studying Japanese culture (Kean, Ang Chooi, & Ngu Moi Kwe, 2014). Researchers used "attributes of meaningful learning" to assess how students were learning according to five distinct criteria:

1. Active Learning, wherein students are interacting with or observing something in real life.
2. Constructive Learning, in which students actively articulate and reflect upon what they are learning.
3. Intentional Learning, that is goal directed and grounded in specific criteria.
4. Authentic Learning that is complex, contextual and relates to real-life.
5. Cooperative Learning that is collaborative and conversational, wherein students reflect on each other's work.

These attributes of meaningful learning were a reference point in preparing a methodology for supporting independent work, granted they often occurred in the classroom independent of one another and in varying degrees. Implications of the 2014 study are that

project-based learning is an excellent platform for meaningful learning, where students can explore and seek knowledge according to their needs and interests without having to depend on an instructor to furnish them with that knowledge (Kean et al., 2014).

The evidence shows that promoting students' intrinsic motivation and specifically their engagement in learning is key to students working independently. Having real choices in their academic plan is also elemental in igniting motivation and engagement (Evans & Boucher, 2015; Lenters, & Mctavish, 2013). A positive impact is observable when the environment promotes student autonomy through "meaningful" and "relevant" choice. Evans and Boucher (2015) argue that principles of self-determination theory could be useful when applied to explaining the role of choice in motivating and engaging the learner.

Research has shown that student autonomy relies on a relationship between how well independent work is structured and subsequently supported by the guide, the latter having the greatest impact on students' self-reported engagement (Sweigart, Simon, Marilyn, Chen, & Baiyun, 2012). Co-creating standards for work quality, prioritizing the students' perspectives during lessons, can create more, not less, structure and empower students to set unique goals and a greater incidence of follow-through in work (Davidson, 1986). The implication of such research is to show how teachers that work collaboratively with students to determine goals and interpret feedback play an essential role in student autonomy (Reeve, 2010).

Reeve confirms some of the proposed advantages of choice in motivating independent student work. However, his study warns against what he describes as "choice overload," as when instructors provide students with too many options or too little guidance or structure. He suggests instead that teachers provide a "limited, and thus, manageable, quantity of choices ... more motivating to students than contexts that over an extensive number of choices" (Reeve, 2010).

The best “amount” of choice may vary among students, as some students prefer, or are capable of managing, a wide variety of options (Iyengar & Lepper, 2000). However, other students may feel overwhelmed by having more than a couple of choices within one task, or by having choices in more than one attribute or dimension of a task (Iyengar et al.). Therefore, defining these expectations is a critical component in preparing the student for independent work.

Measuring Independent Work

Measuring independent work relies on the guide working cooperatively with students to agree on follow-on work. Such work would be unique or differentiated for each student and would promote creativity. In the Montessori program it is important to meet that child at their point of interest and ability and set standards for finished work in daily work-journals.

Intervention using a daily work-journal to record lessons and follow on work is intended to support, rather than impede autonomy by providing an authentic and useful tool for narrowing and specifying choices. In practice, a work-journal may serve as an informational tool whose utility is evident and purposeful (Koestner, R., Ryan, R. M., Bernieri, F. & Holt, K., 1984). A strategy that meets these demands should be useful and not merely a routine performed because it is required. The evidence shows that the choice for supporting independent work should inform the student about what he ought to work on, and by when that work should be completed. Ideally, this engagement encourages the student to interact with the work-journal as a working document, using it spontaneously to track and understand her work in the context of what others are working on (Lenters, K., & Mctavish, M. 2013).

In determining an appropriate methodology, the research focused on studies that sought to understand methods or practices that best supported independent work. The analysis sought studies that looked at teaching practices where teachers and students work together to create

ideas and expectations for work. Skillings (2000) spent two years observing in a classroom in which the teacher instructed and guided students in generating rubrics that established criteria for their work, similar to preparing follow-up work in the Montessori classroom. Skillings and Farrell (2000) found that when students participated in generating the rubrics themselves, they were engaged in, and better understood the expectations of the work they were being graded on or the work on which they were grading themselves or their peers if they generated the rubrics themselves. These rubrics were most successful when students had greater independence in creating them and when those rubrics assessed more open-ended criteria, e.g., “lists four examples of...” “Answers four questions about ...”, “gives four recommendations for...” (Skillings & Farrell, 2000). These prompts provided a framework that served to focus and inhibit choice so that children have a clearer structure and a point of reference, so that they can be more confident and independent in their learning (Skillings et al., 2000).

In a 2002 study on systems that best support self-regulation, Newman found that independent work requires support from systems that facilitate and encourage students to seek out help and ask questions when needed. The author identified three self-system needs for self-regulated learning: relatedness, autonomy, and competence. Children need to feel that their work connects to reality, that they have some choice in that work and that they are going to be successful. Teachers can “buffer” students from the potential embarrassment of asking questions by using anonymous questioning strategies that promote low-pressure discussions that provoke work-related questions (Newman (2002)).

Sustaining Autonomy - The Independent Work Cycle

The focus of this study is to look at those processes that guide students to become independent workers and in this way; it is a study of those tools that teachers and students use to guide future learning. For this assessment to be most successful, it is vital to utilize a system that a student can work with to make instructional decisions and provide feedback that directs learning. In their research on project-based learning, Trauth-Nare and Buck (2011) identify four factors essential to support independent student work:

- Eliciting students' background knowledge and ideas about a particular topic,
- Teaching and reinforcing a system to track work and expectations,
- Collecting and analyzing responses and replying with useful feedback,
- Providing insights to guide learning and clarification of misconceptions.

These factors represent an important distinction in the role of formative assessment as a means of assessing for learning, rather than assessing of learning and as a powerful tool with room for exploration and growth (Trauth-Nare & Buck, 2011).

A significant outcome for students engaged in meaningful learning is that these students have a tendency to “optimize” their engagement with any given topic. That is, they are more likely to fulfill or exceed the objective of the learning target, as they are not limited or constrained by explicit goals set forth by the instructor. The Montessori classroom, in particular, meets the criteria for attributes of learning, providing an environment that supports students in independent work.

The question remains as to what are the characteristics of teacher autonomy support in a Montessori classroom and to what extent students in a Montessori classroom are *intrinsically* motivated to do school work. The Montessori classroom is an example of an environment that supports student autonomy by using these autonomy supports to engage students in independent

work (Koh, Ling & Frick 2010). The Montessori methodology supports student voice, permitting student-attunement and fostering a personal relevance to schoolwork that promotes meaningful work, generated by student interests (Montessori, 1964).

Koh, Ling and Frick (2010) suggest that nurturing student-to-student cooperation with organizational support is essential, as is establishing teacher-to-student cooperation by using a systematic support to engage in goal setting feedback and consultation. The research recommends suppressing overt criticism and providing rationales when setting limits for children so as not to subdue imaginative thinking and spontaneous exploration. These findings seem to reinforce the notion that a teacher supporting autonomy creates a framework for learning self-discipline. In this model, children are learning to regulate themselves and the framework should reinforce a practical routine, whose usefulness should be self-evident and ideally inspire voluntary use (Koh et al. 2010).

Determining whether students are being supported to work independently relies on distinct measures; how students themselves feel about their projects, the choices they made in completing work and whether they feel supported in these. Children who reported experiencing a lack of competence (those less certain of their abilities) or a lack of autonomy (being externally motivated) experienced more “negative affect and withdrawal behaviors than did children who perceived themselves as having the ability or who perceived themselves to be autonomous” (Miserandino, M. 1996). Determining how a given intervention supports autonomy must include an analysis of student perceptions as the perception of the child conveys not just the summative outcome of that intervention, but a likely determinant for how well equipped a student is to participate actively in the classroom, and work independently.

Methodology

Participants

The participants in this particular study are 27 nine to eleven-year-old elementary school students from an upper-elementary Montessori classroom at a public Montessori [school] in St. Paul, Minnesota. The institution is a public, magnet school in the St. Paul Public School District, accepting students from across the city of St Paul and the surrounding area. Three of the students have had less than one year experience in a Montessori environment, 24 of the students have had more than one year in a Montessori school.

13 of these students are female, and 15 are male. The sample consists of 18 nine-year-old students, and 10 participants that are ten years old. The sample roughly reflects the socioeconomic makeup of surrounding neighborhoods. Students are mostly from middle-income families, 3 of whom identify as Asian/Pacific Islander, 7 as African-American, 1 student is Hispanic, and 16 of the subjects identifying as Caucasian. The teacher conducting the action research is a Graduate Montessori Elementary Education program student at a public University, at the University of Wisconsin, River Falls, in elementary Montessori education and is the primary teacher in the classroom. One assistant teacher and two special education teachers worked in the classroom two days a week as well.

The Environment

The classroom in which the action research took place is approximately 1000 square feet, with windows along one wall as well as a small annex that houses two tables for student work, and equipped with a light-table for growing plants. The classroom is lamp-lit throughout with two hanging lamps that illuminate a science and literature shelf. The classroom is located on the west end of the building looking out at the community garden. There are wooden cubbies near

the door where students keep journals, personal materials and the planners referred to in this study. Throughout the classroom are tables with chairs and low platforms to work on the floor with rugs, which many students opt to do. Students may move freely in the environment and choose where they would like to sit and work. In the course of this research, one student left the school, and consequently his data has been omitted because it was incomplete and did not reflect full participation in the study.

Materials

The study relied on a variety of materials to track students while working in their classroom environment. Materials specific to the research include the three-ring binders that students use as “work journals” (Appendix A), to track and organize their workday, an “Assessment of Self-Perceptions for Learning and Work Habits” survey (Appendix B), conducted at the beginning and end of the research period. This study tracked weekly language and history lessons that fall in the domain of the Montessori curriculum.

Procedure

The research study was a quantitative study conducted over an eight-week period. The author obtained permission from the school principal (Appendix C) and families of all twenty-seven participants involved (Appendix D) before the research period began. A pre and post action research survey was used to collect data. Over the course of the research study, students were presented with lessons and expected to complete independent follow-on work. At the beginning of each week, students had lessons on a topic and were prompted to produce a project inspired by that lesson. The themes and content of those experiences were varied, but the procedure for conducting follow-on work consistently fit into one of the three following

categories. Students were either prompted to complete a specific task as prescribed by the instructor (controlled), engaged in a dialogue wherein specific follow-on work was created collaboratively between the teacher and student (co-created) or given total discretion in determining the follow-on work themselves (open-ended). For the purpose of this study, all math and geometry lessons were excluded as these lessons had consistently prescribed follow-on work.

Choice for Follow-on Work: Autonomy Support during the Lesson

The first element of supporting autonomy was the nature of the choices that each student had in selecting follow-on work after a lesson. A category defines each lesson according to the treatment applied to follow-on work for that specific lesson as either: controlled, co-created or open-ended. In doing so, it is possible to look at work completion as a product of the type of follow-on work that suggested after the lesson arriving with a sense for what style of prompting follow-on work about which students are most enthusiastic. For this study, follow-up work is “controlled” if the students must follow a predetermined set of outcomes for that work. A lesson is considered “co-created” if students have input in preparing the goals and standards by which they will abide. Finally, a lesson is categorized as “open-ended” if the child has discretion as to the topic, medium or standard of the follow-on work.

Work-Completion

In determining which follow-on work students were most inclined to complete, it was necessary to look at those works that had the highest rates of completion in a timely fashion. Commensurate with the work cycle in many Montessori classrooms, students got a weekly presentation in history and language intended to prompt independent work. Student work was

collected weekly and following the standard procedure for the classroom. The study accounting for the work that students completed “on time” (in one week), late (two weeks) or work that students failed to complete promptly (did not complete or finished within three weeks of the lesson). I assigned a score to work completed promptly, slowly, or not at all. Work completed promptly earned a high score while work completed after the submission date earned a lower rating. In this case, failure to complete work was assigned a 0, late work assigned a 1 and prompt work completion assigned a 2. Once compiled, data averages were extracted for the class as a whole, showing trends of work as a function of the quality of the follow-on work and the results of the prescribed intervention.

Intervention: Autonomy Support Following the Lesson

“Help-seeking” (Newman, 2002, p. 134) factored into the research by addressing what supports were in place for students to find answers to questions when they are working independently. With this in mind, I introduced students to a formalized procedure during the morning meeting for students to reflect on issues they have with their work. This procedure utilized prompts intended to provoke thoughtful reflection on work. I also introduced an anonymous question box for students to pose questions that they might not feel comfortable asking otherwise.

The study aimed at measuring students for eight weeks, tracking for a four-week period, work students were most enthusiastic about completing. Data collection in the initial four week period established a baseline, after which, students were introduced to an ongoing practice of reviewing and reflecting on daily work and choosing a work to begin each morning. This practice was built into the morning meeting routine as a way to better prepare students to prioritize their time and focus their efforts towards those projects that they wanted to complete

(Table F). The “work journal” reflection provided an opportunity for students to prepare mentally for the work they undertake that day. It also served as a checkpoint at which point the teacher could routinely assess student interest and progress.

Survey: Assessment for Perception of Autonomy and Learning

Twenty-six out of twenty-seven students participated in a survey administered before and after the period of research, rating their personal attitudes about the quality of their work, their confidence working independently, and their feelings about the authenticity and usefulness of their learning on a scale of 1-5 (Table E). The survey is inspired by questions posed in a survey identifying perceived behavioral and emotional engagement and correlations to autonomy and independent work (Miserandino, 1996). Items for the study were designed to elicit student self-ratings of enthusiasm for the work, confidence in completing the work, and an understanding of the student’s knowledge of strategies for independent work based on the work of Miserandino (1996), tailoring language so that it was more understandable to an elementary-age student.

Students received the following survey at the beginning and end of the research period:

1. I worked hard on this project.
2. My class work is challenging.
3. I have enough time to finish my work.
4. I understood what I was supposed to work on.
5. I enjoy the topics of my projects.
6. I like working on projects.
7. I am proud of my work.
8. I tell my parents about my day at school.
9. My schoolwork allows me to be creative.

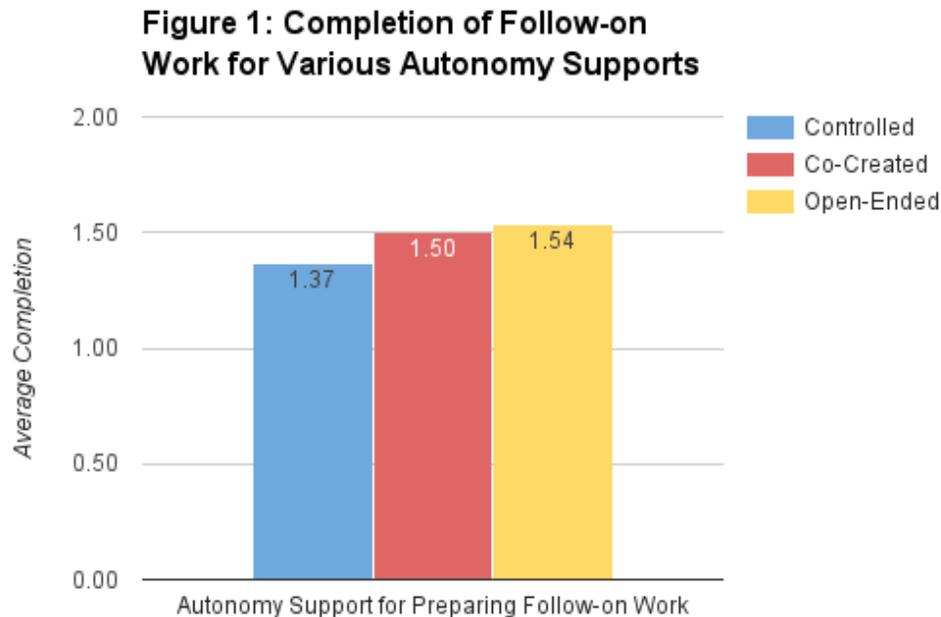
10. My work shows what I am interested in.

11. I can use what I learn in real life.

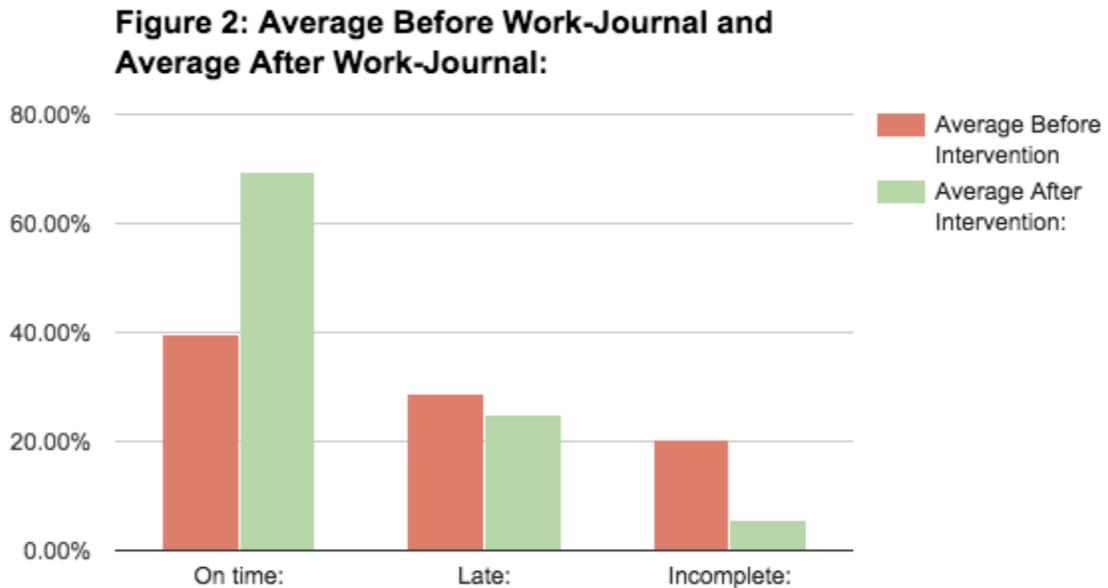
Results and Findings

Data was collected over the course of eight weeks, comparing the results before and after the introduction of an intervention intended to support independent work. Data was also collected examining the relationship between the supports that a classroom provides for independence, the work that students complete and their attitudes about their independent learning.

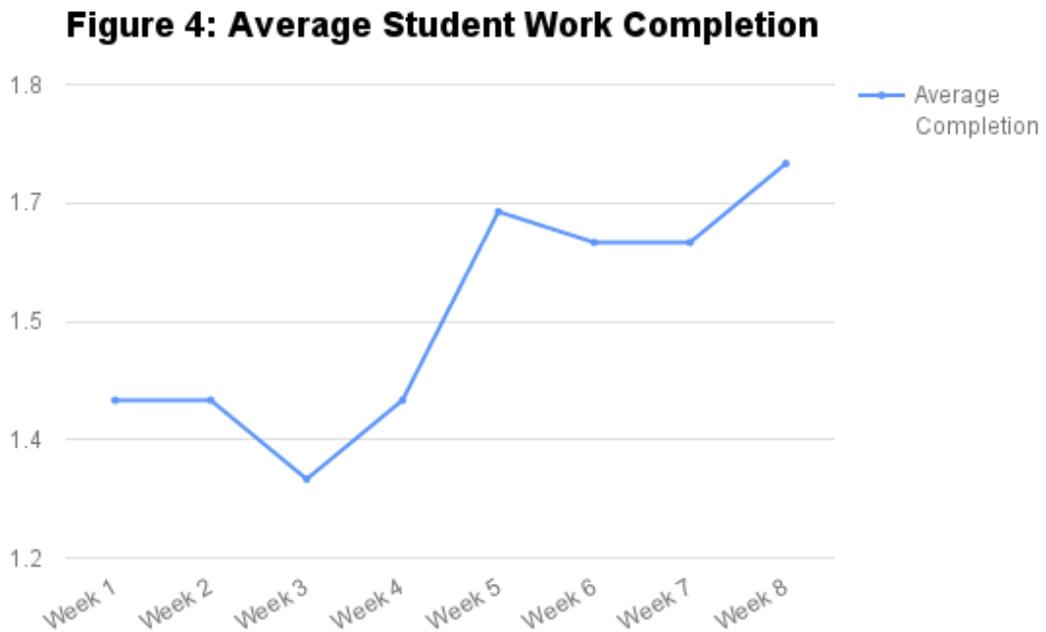
The first data set demonstrates the results of work that students completed as a factor of autonomy in preparing follow-on work to a lesson. The analysis seems to reveal that students are slightly more inclined to complete follow-up work in which they have more autonomy in preparing follow-on work. However, the difference in completing work for co-created lessons versus open-ended lessons does not appear to be significant (Figure 1).



Students were least likely to complete work for prescribed follow-on work, or for which students had little or no input. Students that prepared follow-on work with the teacher were 8.5% more likely to complete that project. Students that had open-ended follow-on work were most likely to complete that work soon after the lesson, but the difference between co-created and open-ended follow-on work was only .04 points (2.6%) in a 0-2 scale measuring work completion (0=incomplete, 1=late, 2=complete). However, on a practical level, what it represents is that in all three treatments, students submitted work late equally (interpret in discussions: confound?).

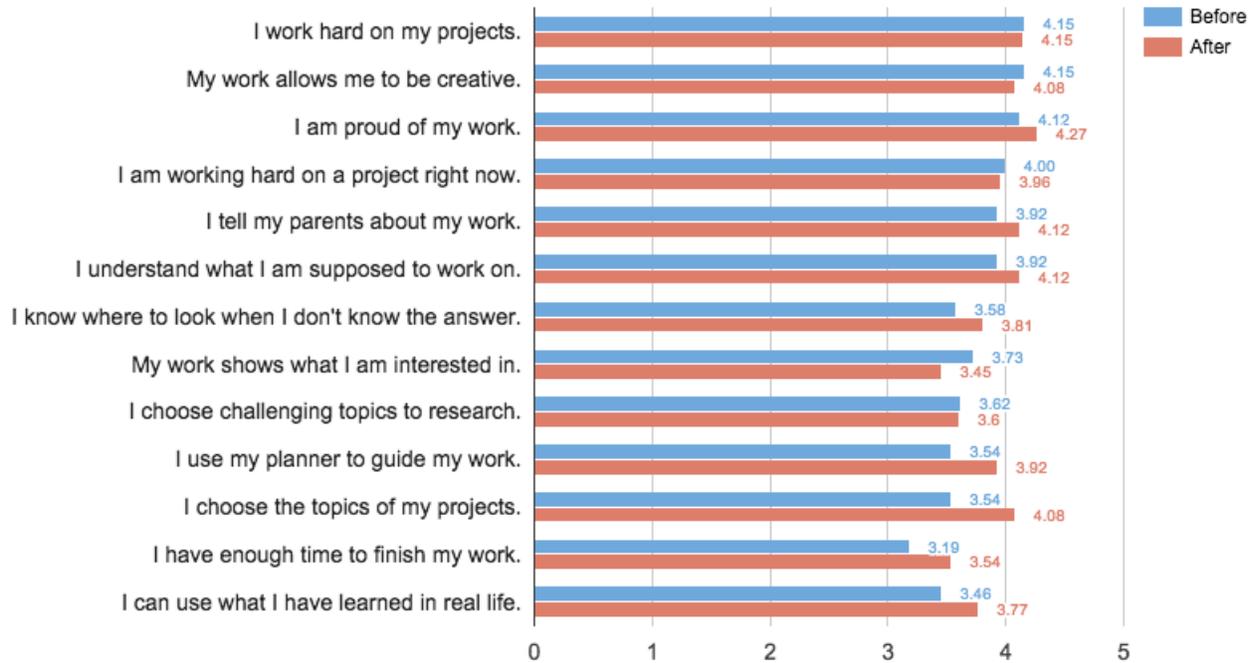


The autonomy support for preparing follow-on work did not show as great an impact on student work completion as the intervention practice of daily reflection with the work-journal, a means of supporting autonomy after the lesson. These data do reveal more suggestive trends about those practices that best support independent projects during and after a lesson. Student work completion, tracked for the four-week period leading up to the intervention, established a baseline dataset for the class with 39.8% work completed within one week of the lesson. 28.8% of the students completed work within two weeks of the lesson, and 20.4% of the work remained incomplete in two weeks of the lesson date. Data tracked during the period practicing work-journal reflection show a marked increase in work-completion with 69.4% work completed in the first week, 94.4% work completed within the second week and 5.5% (Post) work unfinished within the first two weeks of a lesson (Figure 2).



The trend in the period, before and after students' participating in the work-journal reflection, seems to show student work completion increasing overall. This is even more apparent when comparing combined average rates for the research period (recall that work is assigned a score of 0, 1, or 2, depending on rate of completion). In this example, there is a distinct difference in the rate at which students completed work between the first and second four-week periods of data collection with student work completing work greatest in the last week of data analyzed (Figure 4). Comparing cumulative, average completion-rates before and after the intervention, students showed a 23.53% increase when they participated in reviewing and planning daily work plans for the second half of the research period.

Figure 5: Perceptions of Learning Before and After Routine With Work-Journal



The increase in student work may also have correlations to students’ bearings on work and independence. Topics concerning effort, such as “I work hard on my projects”, “I choose challenging topics to research”, and “I am working hard on a project right now” did not show a significant change in the period before and after the study. Those questions that describe confidence in work like “I am proud of this work”, “I tell my parents about my work” and “I can use what I have learned in real life” show an increase in the same period (3.6%, 4.9%, and 8.3% respectively). Students reported a 4.9% increase when asked whether they “...understand what [they] are supposed to work on”. Students were 10% more likely to respond that they “use [a] planner to guide [their] work”, and are 13.3% more likely to respond that they “chose the topic of [their] projects”. The changes in attitude may suggest that the controlling behavior (reflecting on work-journal) did not have a detrimental impact on students’ sense of choice-making, and

may have increased students' perception of independence as they felt more confident keeping track of the work they want to complete independently.

Conclusions

The first measure for assessing the effects of follow-up choice do not suggest that autonomy in follow-up work plays a significant role in how likely students are to complete work. The difference between working with students to create follow-up work and letting them do so independently was negligible. It appears that there are conditions within the classroom, which carry greater weight in determining work completion than the treatment of autonomy in lesson follow-up. While the results of this aspect of the study remain relatively inconclusive, the implications of research that would be valuable in measuring the affects of the treatment of autonomy in lesson follow-up are intriguing nonetheless and investigated further in the following section.

The other factor in supporting independent work is the routine for reflection on work and time-management in the school day. Students were more likely to complete work promptly when they engaged in the daily practice of reflection with daily work-plans, as demonstrated in the research period after the intervention (figure 2). Students also reported feeling that they had more time to finish their tasks, which may correlate to the implementation of a better framework of support for completing independent work. Future research should take into consideration the use of autonomy supports as a means of bolstering confidence in independent work. A more careful articulation of those supports that reduce stress and anxiety as means of cultivating enthusiasm and creativity would be most beneficial. Specifically, a system that removes the guesswork about due-dates, expectations, and how to submit work would be most effective in

boosting autonomy. The findings seem to suggest that interventions which target organization and planning and include input from the students themselves help those children to finish projects they have started and to better understand work expectations and the strategies designed to help meet them.

Next Steps

For the purpose of future research, it would be relevant to focus on more than one classroom environment, looking at various classrooms that utilize one of the lesson follow-on strategies more exclusively as compared to others. It is difficult to extract meaningful data from a relatively small data set, and it would be more consistent if the teacher used only one strategy. By the same token, it would also be advantageous to measure data over a greater time interval. In doing so, the data is less subject to uncontrolled variation, i.e., reflective of events and other work that may have been a factor, capturing data less subject to influence by covarying conditions. It would also be interesting to collect student feedback after each of the follow-on projects themselves as to capturing attitudes that were more specific to each lesson and the independent work that followed.

In regards to measuring the affect that the treatment for follow-up has on student work it would be necessary to examine not only *work-completion*, but also on the *quality* of the work itself. In examining how open-ended follow-up work should be, one must consider the aim of the work. If the aim is to expose students to some particular concept that requires a prepared material or specific questions, then letting students choose problems or create their own way of doing that work may not reinforce the aim of the lesson. If on the other hand, the guide is interested in getting the child engaged and to build on some other lesson or idea, the child is more likely to follow through if s/he has a say in the topic or medium of the follow-on work.

Utilizing a work-journal is a mainstay of the upper-elementary classroom, and it was effective in supporting student work in the classroom. However, in order to collect more meaningful data it would be good to analyze how students use the work-journal outside of the scheduled routine in the morning. Understanding how students access autonomy supports relies upon examining their spontaneous use and how these tools can be effective without direct adult intervention. There is no question that data for students that had trouble tracking work in the first place showed improvement. However, data for students that were completing work more consistently in the first place remained relatively unchanged, posing the question, “is this a valuable routine or a controlling factor that is inhibiting spontaneity and independence of students that do need this additional routine?”

To this end, I observed that students in the classroom were enthusiastically using an iPad app that functioned like a class blog in a manner not dissimilar to the work-journal. The app allowed students to post pictures of work they had completed, comment on each other’s work and ask questions about work as needed. The use of the digital interface was non-compulsory, neither a part of the routine or an explicit expectation and yet, almost every student in the class utilized it. Integrating the practice of diligently recording work and a regular practice of reflecting on the work-journal with the digital interface that allows students to upload work, interact, comment and ask questions of one another opens up some interesting and promising possibilities for supporting independent student work.

References

- Davidson, J. (1986). Teacher-student generated lessons: A model for reading instruction. *Theory Into Practice*, 25(2), 84-90. doi:10.1080/00405848609543205
- Evans, M., & Boucher, A. R. (2015). Optimizing the power of choice: supporting student autonomy to foster motivation and engagement in learning. *Mind, Brain, and Education*, 9(2), 87-91. doi:10.1111/mbe.12073
- Iyengar, S. S., & Lepper, M. R. (2000). When choice is demotivating: Can one desire too much of a good thing? *Journal of Personality and Social Psychology*, 79(6), 995-1006. doi:10.1037/0022-3514.79.6.995
- Jang, H., Reeve, J., & Deci, E. L. (2010). Engaging students in learning activities: It is not autonomy support or structure but autonomy support and structure. *Journal of Educational Psychology*, 102(3), 588-600. doi:10.1037/a0019682
- Kean, A. C., & Kwe, N. M. (2014). Meaningful learning in the teaching of culture: The project based learning approach. *Journal of Education and Training Studies*, 2(2). doi:10.11114/jets.v2i2.270
- Koestner, R., Ryan, R. M., Bernieri, F., & Holt, K. (1984). Setting limits on children's behavior: The differential effects of controlling vs. informational styles on intrinsic motivation and creativity. *J Personality Journal of Personality*, 52(3), 233-248. Doi:10.1111/j.1467-6494.1984.tb00879.x
- Koh, J. H., & Frick, T. W. (2010). Implementing autonomy support: Insights from a Montessori classroom. *IJE International Journal of Education*, 2(2). doi:10.5296/ije.v2i2.511
- Lane, K. L., Royer, D. J., Messenger, M. L., Common, E. A., Ennis, R. P., & Swogger, E. D.

- (2015). Empowering teachers with low-intensity strategies to support academic engagement: Implementation and effects of instructional choice for elementary students in inclusive settings. *Education & Treatment of Children*, 38(4), 473-504.
- Lenters, K., & Mctavish, M. (2013). Student planners in school and out of school: Who is managing whom? *Literacy*, 47(2), 79-87. doi:10.1111/j.1741-4369.2012.00679.x
- Miserandino, M. (1996). Children who do well in school: Individual differences in perceived competence and autonomy in above-average children. *Journal of Educational Psychology*, 88(2), 203-214. doi:10.1037/0022-0663.88.2.203
- Montessori, M. (1964). *The Montessori method*. Massachusetts: Robert Bentley Inc.
- Newman, R. S. (2002). How self-regulated learners cope with academic difficulty: The role of adaptive help seeking. *Theory Into Practice*, 41(2), 132-138.
doi:10.1207/s15430421tip4102_10
- Reeve, J. (2006). Teachers as Facilitators: What autonomy-supportive teachers do and why their students benefit. *The Elementary School Journal*, 106(3), 225-236. doi:10.1086/501484
- Reeve, J., & Jang, H. (2006). What teachers say and do to support students' autonomy during a learning activity. *Journal of Educational Psychology*, 98(1), 209-218. doi:10.1037/0022-0663.98.1.209
- Skillings, M. J., & Ferrell, R. (2000). Student-generated rubrics: Bringing students into the assessment process. *Reading Teacher*, 53(6), 452.
- Stevens & Van Werkhoven, (1997) Stevens, L., & van Werkhoven, W. (1997). Reclaiming kids' motivation. *Educational Leadership*, 54(8), 60-62.
- Sweigart, S., Simon, Marilyn, & Chen, Baiyun. (2012). The Effect of Teacher-Generated and Teacher-Student-Generated Rubrics on Project-Based Learning
- Trauth-Nare & Buck, (2011) Trauth-Nare, A., & Buck, G. (2011). *Assessment for Learning*.

Appendix A: Work Journal



Work Journal 1409

Name _____

Week _____

Name of Lesson	Date	Follow-on / Reflections	Due	
"Example"	xx/xx	<i>"Project about something I'm interested in..." "30 minutes of reading each day..."</i>	xx/xx	✓
Quote and Math		Mon.____ Tue.____ Wed.____ Thur.____ Fri.____	Fri.	

If I do not complete my work by the date it is due, I plan on making up that work by:

Appendix B: Survey of Self-Perceptions for Learning and Work Habits



How do you feel about the work you have done lately?

Read each question and mark whether you agree (5) or don't agree (1) with each statement.

	5 (agree)	4	3	2	1 (don't agree)
I worked hard on this project.					
This work was challenging.					
I had enough time to finish.					
I understood what I was supposed to do.					
I enjoyed the topic of this project.					
I enjoyed working on this project.					
I am proud of this work.					
I will tell my parents about this work.					
This work was creative.					
This work shows what I am interested in.					
I could use what I have learned in real life.					

Appendix C: Permission Letter to Families*J.J. Hill Montessori*

998 Selby Avenue
Saint Paul, MN
55104

651-293-8720 (Office)
651-298-1586 (Fax)
<http://jjhill.spps.org>

"To nurture and empower individuals to be lifelong learners, peacemakers and problem solvers."

Hello families of room 1409,

As many of you know, I am completing my graduate degree in education this year. One component of the graduate program is doing a research study in my classroom on a topic I have developed. I hope that you will be willing to give permission for your son/daughter to participate in this research and help me to complete my graduate work, improve my teaching and enrich your child's classroom experience.

My research is in the area of supporting student choice as it pertains to the child's education experience. Montessori education places a great emphasis on students' choice in work and there is often a conversation between the teacher and student regarding the expectations for that work, where students have input into what the finished product might look like. My research compares the work that students do when the teacher sets rigid expectations versus those projects where students participate in setting those standards to see if there is a difference in engagement of work. I will be collecting data from your children's work, making observations and conferencing with students about their experiences setting standards for their work. This study will fit into the normal class routine/lessons and will pose no risks other than what might be expected in a normal school day. I would appreciate your consent in allowing your son/daughter to participate in this study and in taking a moment to read and sign the form below.

I give permission for my child, _____, to participate in a graduate research study, observations, and surveys with UWRF graduate student Geoff Freeman, for his work in the Montessori Education Course Mont 785 Research. This study will examine the outcomes of student choice in the Montessori classroom. This study will be implemented in the context of the normal Montessori environment/routine and will not interfere with my child's classroom experience or learning. Any data as well your child's name and information will be completely confidential. Results of the study will be published but no names or identifying features will be disclosed. Please note that you may withdraw participation at any time from the study without any repercussions.

If you have any questions regarding this graduate research or would like me to share a summary of findings from the study, I encourage you to contact me, my supervisor Michael Miller, michael.miller@uwr.edu or the Director of Graduate Research at UWRF Molly Van Wagner [(715) 425-3195 molly.van-wagner@uwr.edu].

My child may be recorded for observation: yes no

Parent Signature and Date: _____

Appendix D: Permission Letter to Principal

J.J. Hill Montessori

998 Selby Avenue
Saint Paul, MN
55104

651-293-8720 (Office)
651-298-1586 (Fax)
<http://jjhill.spps.org>

"To nurture and empower individuals to be lifelong learners, peacemakers and problem solvers."

To principal Katherine Holmquist-Burks

As you know, I am completing my graduate degree in education this year. One component of the graduate program is doing a research study in my classroom on a topic I have developed. I hope that you will be willing to give permission for me to conduct this research in my classroom to help me to complete my graduate work, improve my teaching and enrich the child's classroom experience.

The purpose of this research is to help students work independently. I will examine the work that students do following a given lesson depending on the expectations that the teacher establishes regarding the standards for that work, where students have more or less input as to what the finished product might look like.

- My research compares the work that students complete depending on how much voice they have in choosing their work and the supports that help students have to complete work independently.
- I will be collecting data from children's work, observations and surveying with students about their experiences working independently.
- This study will fit into the normal class routine/lessons and will pose no greater risks than what might be expected in a normal school day. I would appreciate your consent in allowing this study and in taking a moment to read and sign the form below.

I approve a graduate research study, observations, and surveys conducted by UWRF graduate student Geoff Freeman, for his work in the Montessori Education Course Mont 785 Research. This study will examine the outcomes of student choice in the Montessori classroom. This study will be implemented in the context of the normal Montessori environment/routine and will not interfere with the child's classroom experience or learning. Any data as well the child's name and information will be completely confidential. Results of the study will be published but no names or identifying features will be disclosed. Please note that child participation may be withdrawn at any time from the study without any repercussions.

If you have any questions regarding this graduate research or would like me to share a summary of findings from the study, I encourage you to contact me, my supervisor Michael Miller, michael.miller@uwrf.edu or the Director of Graduate Research at UWRF Molly Van Wagner [(715) 425-3195 molly.van-wagner@uwrf.edu].

Signature and Date _____