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Incorporating An Assessment of Mastery Motivation In Elementary School Students Within A School Psychological Evaluation

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INCORPORATING AN ASSESSMENT OF MASTERY MOTIVATION IN
ELEMENTARY SCHOOL STUDENTS WITHIN A SCHOOL PSYCHOLOGICAL
EVALUATION

Lesley S. Roberts

Educational Leadership Doctoral Program

Submitted in partial fulfillment
of the requirements of
Doctor of Education
in the Foster G. McGaw Graduate School

National College of Education

National Louis University

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This document was created as *one* part of the three-part dissertation requirement of the National Louis University (NLU) Educational Leadership (EDL) Doctoral Program. The National Louis Educational Leadership Ed.D. is a professional practice degree program (Shulman et al., 2006).

For the dissertation requirement, doctoral candidates are required to plan, research, and implement three major projects, one each year, within their school or district with a focus on professional practice. The three projects are:

- Program Evaluation
- Change Leadership Plan
- Policy Advocacy Document

For the **Program Evaluation** candidates are required to identify and evaluate a program or practice within their school or district. The “program” can be a current initiative, a grant project, a common practice, or a movement. Focused on utilization, the evaluation can be formative, summative, or developmental (Patton, 2008). The candidate must demonstrate how the evaluation directly relates to student learning.

In the **Change Leadership Plan** candidates develop a plan that considers organizational possibilities for renewal. The plan for organizational change may be at the building or district level. It must be related to an area in need of improvement, and have a clear target in mind. The candidate must be able to identify noticeable and feasible differences that should exist as a result of the change plan (Wagner et al., 2006).

In the **Policy Advocacy Document** candidates develop and advocate for a policy at the local, state or national level using reflective practice and research as a means for supporting and promoting reforms in education. Policy advocacy dissertations use critical theory to address moral and ethical issues of policy formation and administrative decision making (i.e., what ought to be). The purpose is to develop reflective, humane and social critics, moral leaders, and competent professionals, guided by a critical practical rational model (Browder, 1995).

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Abstract

The purpose of this project was to explore and determine a systematic way of measuring Mastery Motivation in students. Mastery Motivation is a dimension of intelligence that leads a student to master tasks for the intrinsic feeling of efficacy rather than for extrinsic reasons (MacTurk & Morgan, 1995). The inquiry process was an ongoing collaboration among a group of practicing elementary school psychologists. Conversations were recorded and analyzed. The result was the creation of an informal observational tool for measuring Mastery Motivation to be used a school psychological evaluation. This tool was made available for the participating school psychologists to use at their discretion to widen the scope for reporting indicators of levels of intelligence in elementary age students.

Preface

In the fall of 1995, I began my career as a school psychologist, and for 15 years I dedicated myself to working with students in a diagnostic and therapeutic role. In the course of identifying students with special needs, I realized that the diagnostic process was a narrow one that did not include a reflection of those students with special needs who worked hard, demonstrated Mastery Motivation, and whose futures might be different if their educators could acknowledge and work with this valuable skill reflective of increased intellectual aptitude.

My reflections during my 15-year practice led to the current study. According to Danielson (2007), engaging in reflective practice is an important part of teaching and therapeutic practice, but I realized throughout this study that it is also important for educational leaders to provide the opportunities and tools for staff to master their craft. The collaboration between the school psychologists during this research project provided opportunities for them to move along Danielson's continuum of excellence. While working with the group of school psychologists to create a mastery motivation tool, discussions were rigorous and robust. Creating opportunities for collaboration and creativity among these school psychologists as they sought to improve their skills became an important leadership lesson to apply as an educational leader.

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SECTION ONE: INTRODUCTION

Purpose

The purpose of this study was to determine a systematic method of measuring Mastery Motivation when school psychologists conduct an evaluation of a student's academic potential. Educators have long agreed that students are more likely to attempt a challenging task when they are intrinsically motivated, rather than extrinsically motivated, un-motivated or disinterested (Dweck, 2000). Students who are motivated and persistent in their attempts to problem-solve appropriately challenging tasks demonstrate Mastery Motivation: a dimension of intelligence that has been studied by experts in behavioral psychology (MacTurk & Morgan, 1995). This idea of persistence combined with motivation for challenging tasks is the essence of the definition of Mastery Motivation. Even though this concept has been defined and studied by various researchers since the mid 1970s (Harter & Zigler, 1974; Yarrow, Rubenstein, & Pedersen, 1975), it is not yet systematically used or even referred to by school psychologists in either working assessments of student cognition or in routine observations of student work. Yet research continues to identify Mastery Motivation as an important factor driving student success: in fact, those who subscribe to the idea of intelligence as 'malleable' place a high premium on Mastery Motivation (Dweck, 2000).

School psychologists are relied upon to provide a fair prediction of a student's potential for success in school. As such, they work closely with special education and general education teams, guiding them in the creation of goals that facilitate student success. Given their specialization in student development as well as their unique

observational skills, school psychologists should therefore be an integral part of the creation of any methods for assessing Mastery Motivation.

Given the potential of Mastery Motivation in predicting student success, it is necessary to explore its characteristics and determine an appropriate and useful method of measuring it. Incorporating a measurement of Mastery Motivation into a school psychological evaluation will aid in broadening the educator's perspective of student potential during general reporting to both parents and faculty teams. More importantly, it will broaden the educator's perspective of the potential for success for individual students. Rather than repeating the empty words "all students can learn," in addition to their repertoire of assessment methods school psychologists will have a new paradigm for evaluating students. As a result, general education staff, special educators, and administrators will be able to add another dimension to student assessment that may allow for a broader definition of success for all students. Additionally, this evaluation will increase the awareness of the impact of Mastery Motivation on student success.

Rationale

Unfortunate consequences occur when teachers are only partially aware of a student's potential. The most obvious consequence is that the expectations for learning are lowered. When teachers do not expect high achievement, chances are they will not get it; relying on limited methods of measuring student potential will ultimately limit the student.

Additional consequences follow teachers' limited views: teachers who lack the vision for potential in their students cannot encourage potential they cannot see. Students in turn fail to see their own potential earlier in life. Sometimes mentors tap that potential

for success later in life, but sadly, there is the possibility that students' potential may go forever unnoticed. A review of the literature reveals a primary focus on infants and early childhood students (Harter & Zigler, 1974; Yarrow et al., 1975). Consequently, little has been explored at the elementary levels or beyond, and educators may argue that the importance of Mastery Motivation does not decrease as students get older. On the contrary, it may become more important than ever.

The school psychologist is in a unique position to guide teachers and staff: he or she is usually the professional to whom teachers and other therapists on an educational team (social workers, speech therapists, occupational therapists and physical therapists) turn when there are questions about potential and achievement. By providing school psychologists with a method of measuring Mastery Motivation, the end result may be a wider perspective of student potential for teachers and other therapists working directly with students.

Goals

In the field of education, the role of the school psychologist has been multifaceted, and has indeed varied from school district to school district. School psychologists are in a unique position within the schools to observe and foster Mastery Motivation in students, and are also, given their role on evaluation teams, in a position to guide the work of teachers in the classroom. The following information from the National Association of School Psychologists (NASP) details the complex and far-reaching role of school psychologists:

School psychologists work with students and their families to:

- Identify and address learning and behavior problems that interfere with school success
- Evaluate eligibility for special education services (within a multidisciplinary team)
- Support students' social, emotional, and behavioral health
- Teach parenting skills and enhance home–school collaboration
- Make referrals and help coordinate community support services

School psychologists work with teachers to:

- Identify and resolve academic barriers to learning
- Design and implement student progress monitoring systems
- Design and implement academic and behavioral interventions
- Support effective individualized instruction
- Create positive classroom environments
- Motivate all students to engage in learning

School psychologists work with administrators to:

- Collect and analyze data related to school improvement, student outcomes, and accountability requirements
- Implement school-wide prevention programs that help maintain positive school climates conducive to learning
- Promote school policies and practices that ensure the safety of all students by reducing school violence, bullying, and harassment

- Respond to crises by providing leadership, direct services, and coordination with needed community services
- Design, implement, and garner support for comprehensive school mental health programming

School psychologists work with community providers to:

- Coordinate the delivery of services to students and their families in and outside of school
- Help students transition to and from school and community learning environments, such as residential treatment or juvenile justice programs (NASP, 2000, paras. 4-7)

At the core of that role, the school psychologist is called on to determine student cognition and potential. This has long been reported to staff and parents after thorough data collection of IQ scores, clinical observations, and consultations with teachers, parents, and other staff members. Considerations of achievement, interactions with peers and adults, heredity, health, environmental background, and other exclusionary factors have also been systematic considerations by which school psychologists determine a student's true potential. Within special education, exclusionary factors are those influences that may be considered to be the primary cause of a student's educational difficulties.

Currently, the Individuals with Disabilities Education Act (IDEA) of 2004 lists the specific exclusionary factors that must be considered when educational teams are determining student eligibility for special education services. The federal government provides this list in an attempt to prevent the over-identification of students in special

education programs. Exclusionary factors for the identification of students with learning disabilities as defined by federal law are:

- Vision
- Learning
- Health factors
- Motor disabilities
- Cognitive impairments
- Emotional disturbance
- Cultural factors
- Environmental or economic disadvantages (Illinois State Board of Education, 2012)

If a student is being evaluated for a learning disability, all of the exclusionary factors listed above must be excluded as having a direct and significant impact on the student before he or she made eligible for special education services. If any of these factors can be ruled in as a cause of a student's difficulties, then that student cannot be identified as disabled. This study considered whether it was important to include Mastery Motivation as one of the above exclusionary factors in students' eligibility for special education services, since this would have further state and federal implications that could be explored through advocacy.

This study also remained focused on early childhood and elementary level students given its place as the next developmental level after the more-researched infant and toddler developmental level. Sequential in manner, this study attempts to move the

research along the continuum of development as a student ages and the importance of Mastery Motivation grows.

On a classroom team (i.e., the teacher and all the therapists), the school psychologist is often looked to as the leader when the various components of a case study evaluation are being reported. The psychological evaluation results and the recommendations of the school psychologist regarding moving forward play a large role in determining the levels of the goals set for the student. In effect, once the student's potential for success is determined by the psychologist, the teacher and the rest of the team use these parameters to decide what to expect from the student, and whether or not the student is identified as having special education needs.

School psychologists have long used IQ measures to quantify cognition, checklists and observations to determine levels of attention to task, and additional standardized tests to determine levels of student achievement. Due to a lack of consistent, systematic inclusion of qualitative measures of persistence (such as Mastery Motivation) toward determining a student's potential for success at the elementary level, the goal of this evaluation was to determine the best method of doing so. Providing an indication of a student's level of persistence has the potential to heavily influence their potential for success.

Research Questions

The primary research question for this program evaluation was: how can a school psychologist systematically incorporate an assessment of persistence, via Mastery Motivation, when conducting a school psychological evaluation? This question was at the

heart of a group discussion in which psychologists worked to determine what an observational tool would look like. Secondary questions to be addressed included:

1. How is Mastery Motivation measured?
2. What is the appropriate case context to incorporate a measurement of Mastery Motivation?
3. How will school psychologists report the results of the measurement to educational teams?
4. What recommendations could school psychologists make to parents and educational teams when a student's level of Mastery Motivation is considered to be lower than expected or desired?

A group of school psychologists within the district additionally discussed the appropriate observational methods and context for including an assessment of Mastery Motivation, appropriate reporting methods of this assessment, and appropriate recommendations that could be made to parents and teams when Mastery Motivation is lower than expected or desired for the child's developmental age. The need for Mastery Motivation to be included as an exclusionary factor in assessing cognitive ability in students was also discussed. These primary and secondary research questions formed the basis for the discussions of the participants of this study.

SECTION TWO: REVIEW OF LITERATURE

Introduction

There are many research studies and articles focusing on the components of Mastery Motivation in infants and toddlers (Bandura & Dweck, 1985; Dweck & Leggett, 1988; MacTurk & Morgan 1995; Yarrow et al., 1975). Morgan, Busch-Rossnagel, Maslin-Cole, and Harmon (1992) define Mastery Motivation as “a psychological force that stimulates an individual to attempt independently, in a focused and persistent manner, to solve a problem or master a skill or task which is at least moderately challenging for him or her” (p. 7). MacTurk and Morgan (1995) similarly define Mastery Motivation as “a psychological force that originates without the need for extrinsic reward and leads an infant or young child to attempt to master tasks for the intrinsic feeling of efficacy rather than because of current reward (p. 6).

Though the studies of MacTurk and Morgan (1995) and Morgan et al. (1992) are focused on infants and toddlers, the key features of their common definitions are reflected throughout the literature that extends to older students (Dweck & Legget, 1988; Mueller & Dweck, 1998). Common threads binding the literature together emphasize Mastery Motivation as an important component of student learning.

A review of the literature will clarify the components of Mastery Motivation, the relationship between general intelligence and Mastery Motivation, the connection between persistence with difficult tasks and learning, and the connection between motivation and learning.

Components of Mastery Motivation

There are several constructs of Mastery Motivation (Morgan et al., 1992). First, there is a marked difference between attempts of a task and successful completion of a task. What a child is motivated to do is different from his or her competence or ability. Mastery Motivation has to do with process, effort, and persistence toward a result. Second, Mastery Motivation focuses on a student's independent attempts: these are defined as attempts by a student to solve a problem without assistance from an adult, which gives a student a chance to employ his or her own problem-solving techniques. Third, Mastery Motivation behaviors are persistent and focused on a goal that has not yet been accomplished. Persistence is used as a key observable measure as a student is attempting a task. Fourth, a particular problem, skill or task must be involved—general motivation to learn is not an indicator of Mastery Motivation. Fifth, the task being attempted must be at least moderately challenging as relative to the child's own developmental level. The task should be easy enough for success to be possible, but challenging enough that it cannot be completed in a short amount of time. All of these behaviors are measurable using Mastery Motivation observational tools.

Mastery Motivation and Intelligence

The research on intelligence in older children—beyond the early childhood years—focuses on the characteristics of Mastery Motivation as they relate to intelligence. Carol Dweck emphasizes the importance of Mastery Motivation for student learning in her compilation of essays in *Self-Theories: Their Role in Motivation, Personality and Development* (2000). Though she does not specifically define Mastery Motivation as she discusses intelligence in older children, she describes similar attributes compared to other

researchers in various studies on the topic. Within her essays, Dweck presents two theories of intelligence: the entity theory of intelligence, and the incremental theory of intelligence.

The entity theory of intelligence suggests that intelligence is fixed, and that a student's capacity for learning does not increase beyond this fixed point. Within this theory students believe they should focus on showing their abilities, and they believe they should foster performance goals for themselves (Dweck, 2000). In other words, they should focus on tasks that they believe they can actually accomplish rather than on tasks that may be more challenging and where there is a risk of failure—even if in the end they are able to learn something new with a more challenging task. For these students, obtaining an end goal, rather than engaging in a process, defines success.

The incremental theory of intelligence, which outlines characteristics of Mastery Motivation, suggests that intelligence is malleable, and that students can increase their potential for learning by the promotion of learning goals. Within this theory, intelligence is dynamic and can be increased by learning. Dweck (2008) further explores this theory as a growth mindset: students who subscribe to this theory would be more likely to attempt more challenging tasks and persist with the knowledge that they might fail, but in the end value the learning process rather than mastery itself. Dweck then suggests that we can then begin to enhance students' motivation to learn by influencing their beliefs about their intelligence: failure to accomplish a task is not attributed to ability levels, but instead to other factors, e.g., lack of sufficient training or information, or an insufficient number of attempts.

Persistence and Learning

In a research study of eighth graders conducted by Bandura and Dweck (1985) and Dweck and Leggett (1988), it was discovered that the more students held an entity theory of intelligence, the more likely they were to choose performance goals for themselves. These students were more likely to choose less challenging tasks that allowed them to feel confident, whether or not they learned anything from the task. Learning was not a primary concern. Given their theory of their own intelligence, they were more concerned with achieving success by completing the task than learning. These students holding the entity theory of intelligence avoided risk and worried about failure. In a similar study completed by Mueller and Dweck (1998), students who had an entity theory of intelligence again differed significantly from students subscribing to an incremental theory. A significant number of these students agreed that they would rather perform well in a class than learn a lot, and if they knew that they were not going to perform well on a given task, they would not attempt it. This led concerned researchers to wonder how this group of students would fare when, at some point in the future, they might have to demonstrate ignorance and expose their deficiencies in order to learn an important skill.

Motivation and Learning

Students in the studies (Bandura & Dweck, 1985; Dweck & Leggett, 1988; Mueller & Dweck, 1998) who subscribed to the incremental theory of intelligence demonstrated a different approach to learning altogether. These students appeared to demonstrate the characteristics of Mastery Motivation as described by the various authors—i.e., they were more likely to choose learning goals than performance goals,

they were more likely to take risks, and reported that they were more interested in being challenged than getting good grades.

Both groups of students carried these varying beliefs about their own learning from elementary school onward, affecting their persistence levels in college and producing, for example, a strong helpless reaction from the first group of students when college studies became rigorous. Most notably, college completion and dropout rates were directly affected (Dweck, 2000).

Parents of preschoolers are not likely to complain that their children are unmotivated, but as they grow, however, children fail to invest fully in the experience of learning (Lumsden, 1994). As students age, two different patterned responses to failure were identified: the helpless pattern and the mastery pattern (Dweck, 2000).

In the helpless pattern response, students who experience failure believe that the situation is out of their control, and there is nothing that they can do. Research studies conducted by Diener and Dweck in 1978 and 1980 (as cited in Dweck & Leggett, 1988) that examined these patterns in students noted that students who fit the helpless pattern response denigrated their abilities and blamed their intelligence for their failures. They also reported a greater number of failures of attempted tasks than was correct, as well as demonstrated more anxiety and self-doubt. Their performance levels dropped significantly, and they were likely to give up when tasks became challenging. They resorted to preschool-type problem-solving strategies even though they were in fifth grade. These responses were negative implications that impaired students' ability to be effective thinkers.

In the mastery-oriented pattern (Dweck, 2000), characteristics of which align with Mastery Motivation, students reflecting this response to failure did not blame anything—in fact, they did not consider themselves to be failing. They engaged in directive self-talk on how to improve their performance and maintained confidence they would succeed. They either retained the positive attitude they displayed upon success or they demonstrated an even more positive attitude. They welcomed the opportunity to confront the obstacles presented. In the end, they did not see failure as indicative of who they were, and therefore the risk was not concerning to them. These students were intrinsically motivated to learn, which is markedly different from a motivation to succeed.

Lumsden (1994) suggests that there are specific advantages to intrinsic motivation: First, students tend to utilize strategies that demand more effort and enable them to process information more deeply. They utilize more logical, information-gathering and decision-making strategies than students who are extrinsically motivated. Lumsden also suggests that students with an intrinsic orientation also tend to prefer tasks that are moderately challenging, whereas extrinsically oriented students (those expecting a reward or punishment external to the activity itself) preferred tasks with a low degree of difficulty. According to Lepper (1988), the extrinsically oriented students were inclined to put forth the minimal amount of effort necessary to get the maximum reward possible.

The components of Mastery Motivation are described throughout all of the studies and articles described. As illustrated by the literature, even though student learning and student success are slightly different entities, the components of Mastery Motivation are essential elements for achieving both.

SECTION THREE: METHODOLOGY

Research Design Overview

Most of the research on Mastery Motivation has been focused on infants and toddlers (MacTurk & Morgan 1995; Morgan, et al., 1992; Yarrow et al., 1975). Mastery Motivation has been defined, its importance has been agreed upon by experts in behavioral psychology, and its characteristics in infants and toddlers have been documented (Morgan et al., 1992; Yarrow et al., 1975). The importance of Mastery Motivation in students does not decrease as students age; rather, it becomes even more important than ever for student success.

Research Questions

The primary question for this research was “How can an assessment of Mastery Motivation be systematically incorporated into a school psychological evaluation?” In order to develop a systematic method of incorporating Mastery Motivation into an assessment of intelligence, a group of eight elementary-level school psychologists gathered to determine the characteristics of Mastery Motivation in students in Kindergarten through fifth grade. Utilizing their expert knowledge, this group of school psychologists explored ways of incorporating an assessment of Mastery Motivation into their cognitive evaluations of students as they assisted in determining whether students were eligible or ineligible for special education and related services. Observations of Mastery Motivation could also be incorporated into their work as they assisted teachers in programming for general education students.

Secondary Research Questions

The following secondary research questions were specifically addressed during four separate sessions in which the group and I met:

1. How can Mastery Motivation be measured?
2. What is the appropriate case context to incorporate a measurement of Mastery Motivation?
3. How will school psychologists report results of the measurement to educational teams?
4. What recommendations could school psychologists make to parents and educational teams when a student's level of Mastery Motivation is considered to be lower than expected or desired?

Sessions were approximately one week apart and were recorded through field notes. This data was synthesized in order to create a Mastery Motivation assessment tool as well as develop correlating recommendations.

Participants

A group of eight early childhood and elementary school psychologists were gathered to answer the primary and secondary research questions over four meetings, with an average of six participants on each day. Building principals excused participants from their regularly scheduled staff meetings in order to participate in the research group. Prior to beginning the discussion groups, school psychologists reviewed the definition and key components of Mastery Motivation through literature provided by the researcher. The school psychologists participating in this group are the primary stakeholders who

will utilize this research. An initial discussion of Mastery Motivation also took place during discussion the first session, prior to answering the first question.

The role of the school psychologist has evolved over time as the needs of students have evolved. Due to this complex and comprehensive role, school psychologists are increasingly called upon to assess student functioning and work with educational team members, e.g., teachers, school social workers, occupational therapists, physical therapists, speech and language pathologists, and nurses, to create effective programming for students who are determined to be eligible for educational support services. As noted by NASP, this role continues to extend to families, school administrators, and community providers. Given the scope of their role and their professional expertise, school psychologists are educational professionals who can not only conduct observations and assessments of Mastery Motivation, but also advocate for change in service delivery as well as educational policy.

Data Gathering and Analysis

The primary and secondary research questions were explored through the work of a group of elementary school psychologists. Data were gathered using field notes recorded by the researcher, who was a participant observer (Marshall & Rossman, 2010; Vidich, 1955). The end result of this data gathering was an observational tool to be systematically used in school psychological evaluations by the participating school psychologists.

Creation of the Observational Tool

This group of school psychologists determined the age level of students to be assessed and which characteristics should be targeted at each age level. They also

determined when an observation of Mastery Motivation would enhance a cognitive evaluation, and how to best utilize and report the results of that observation.

Inappropriate or ineffective usage of Mastery Motivation observations was also identified.

Data gathered during the discussion sessions were used to develop and test a Mastery Motivation observational tool for elementary school psychologists. Upon development of the tool, school psychologists participating in the study group were given the opportunity to use the tool in an evaluation. Further outcomes considered Mastery Motivation as an additional exclusionary factor for school psychologists evaluating intelligence (i.e., ruling out low Mastery Motivation when determining a student's overall intelligence), as well as creating a list of possible interventions for students who were deemed as possessing low Mastery Motivation.

SECTION FOUR: FINDINGS AND INTERPRETATION

Introduction

Each of the four discussion sessions resulted in reflective insights as well as noted challenges for moving forward. After the first discussion session, a draft of the assessment tool was created, which was subsequently revised and refined during discussion sessions two through four. Qualitative data and summary field notes from each discussion session were reported, along with any challenges and additional observations (when applicable), and the interpretation of results.

Session One: How Is Mastery Motivation Measured?

During the first discussion session, all participants concurred that Mastery Motivation is a factor to be considered when assessing a student's abilities and achievements. There was additional agreement that Mastery Motivation could be measured and reported. Participants noted that "Mastery Motivation" and "persistence" could possibly be used interchangeably. Based on the results of the first day of discussion, it appears that the participants were creating a vision for an assessment of Mastery Motivation that became larger than what was truly practical. This vision included a separate room where several tasks could be presented to the student in a variety of ways. In this room, managed and manipulated entirely by the school psychologist, computer games and programs, board games, puzzles, and other items that interested the student would be presented at a moderately challenging level for the student. The student's persistence with each task would be documented and reported.

Participants were questioned about the practicality of this type of assessment, particularly when they were responsible for completing several evaluations within a short

period of time. Participants reported that though their vision for an assessment of Mastery Motivation sounded thorough, it was not an assessment they would utilize in reality. They agreed that an observation of a student in his or her natural setting would yield comparable results and would be an easier assessment for the school psychologist to perform. The data produced during the first discussion session was used to create a draft of the observational tool for the participants to revise.

Findings

The following findings resulted from the collaboration of the participating school psychologists:

- The student's interests would need to be identified in order to assist in determining if motivation was intrinsic or extrinsic.
- Parent input would be necessary in determining student interest, particularly in early elementary and early childhood students.
- Input from several different sources was also deemed necessary, particularly from parents, teachers and other adults knowledgeable about the student.
- An environment would need to be contrived or manipulated by the school psychologist so that an appropriate challenge could be created in accordance with the student's developmental level.
- Feedback might need to be obtained from the student either in the form of a formal or informal interview.
- The student's history might need to be explored in order to determine other factors that may be influencing his or her motivation or persistence.

- In a contrived assessment, the number of attempts by the student might need to be documented.
- In a contrived assessment, the school psychologist might need to make the tasks progressively harder.
- In a contrived assessment, the school psychologist might need to document the amount of time spent on each attempt.
- In a contrived assessment, the evaluator should not offer any praise to the student.
- The assessment may be computer based or generated.
- Several tasks should be available for the student to choose from so that he or she is not limited to a single possibility.
- Results should be reliable.
- The school psychologist might need to include a debriefing interview with the student.

Challenges

Participants noted challenges during the course of the discussions:

- Time involved conducting this type of assessment
- Parent or teacher values that might influence the student
- Determining the developmentally appropriate number of attempts
- This form of assessment might not be practical or useful.
- This form of assessment might take years to be identified as reliable.

Topics for Further Reflection

The participating school psychologists additionally reflected on further considerations:

- Mastery Motivation is a valuable trait that could carry over into the area of sports.
- Environmental factors cannot be eliminated or controlled.
- Mastery Motivation for a particular task does not necessarily mean that the task brings joy to the student.
- Mastery Motivation has been observed in the past when school psychologists testing a student were forced to end a timed task due to time limits. During instances when the student chose to continue working to solve the problem on the IQ test—without prompting or encouragement—this was observed to be a noted manifestation of Mastery Motivation.

Session Two: What Is the Appropriate Case Context To Incorporate a Measurement Of Mastery Motivation?

At the second discussion session, the participants commented that because Mastery Motivation influences the areas of both intelligence and achievement, an assessment of Mastery Motivation could be completed in order to supplement both intelligence and achievement measures. Furthermore, the participants all agreed that they no longer completed standardized measures of intelligence and achievement as often as they did in the past: their assessments are now less formal and more embedded in the Response to Intervention (RtI) assessment process. An assessment of Mastery Motivation would therefore need to be practical, especially when incorporated into a broader form of

cognition and achievement assessment. The draft of the observational tool was named the Checklist of Mastery Motivation Indicators (CMMI); participants remarked that it would facilitate a qualitative report of the observations of levels of Mastery Motivation in students.

Specific directions for administering this tool were drafted during the discussion sessions. Participants noted that even though directions were drafted, it would be important to review them for clarity once the tool has been tested in application. Further clarification after an initial application would ensure clear direction for a non-research study psychologist presenting it for the first time. Additionally, participants encouraged the creation of a simulated example in order to provide further clarification for the user. The observational tool was specifically designed to present an observation of student engagement as compared to their classmates. Participants indicated several times throughout the discussion that there were no scores to report; they continued to question what the next step would be once results of an observation were determined.

Findings

The following findings resulted from the collaboration of the participating school psychologists:

- A draft of the Mastery Motivation observational tool—now referred to as the Checklist of Mastery Motivation Indicators (CMMI)—was created and reviewed, guided by secondary research question #2.
- Standardization and reliability might not be necessary to inform an observation of Mastery Motivation.

- Specific directions would need to be available to the administering school psychologist.
- The observational tool would need to be administered to students whose assessment of cognition or academic performance did not match suspected levels of ability.
- The tool should be used as a qualitative supplement to measures of intelligence and achievement rather than as an independent measure of intelligence.
- The tool may be incorporated into a trans-disciplinary play based assessment (Linder, 2008) for younger students, i.e. early childhood (three-to-five year olds).
- The tool may be incorporated into the overall report provided to educational teams for the purpose of assisting with providing recommendations for student programming.
- The tool is designed to be used in multiple settings.
- The observational tool might be informed through the administering school psychologist's observations, as well as teacher, parent, or student reports and interviews.
- Tasks observed or reported would need to be moderately challenging for the student.
- Any comparisons would be between the students and their peers within the learning environment. Comparing students to their typically developing peers might prove problematic since it does not take the actual task being observed into account. In other words, if a student was not persisting on a task the way we

would expect them to for his or her age, it would be more informative to observe how motivated other students are while performing the same task.

Challenges

Participants noted challenges related to administration of the tool:

- All participating school psychologists concurred that they no longer administered as many traditional standardized intelligence measures as in previous years.

Therefore, it is necessary to use the Mastery Motivation tool as a supplement to evolving measures of intelligence as well as achievement.

- The CMMI tool is abstract and there are no scores to present.
- Question: How is this applicable to learning?
- Question: How will outcomes be used?

Session Three: How Will Results Of the Measurement Be Reported to Educational Teams?

As the discussions continued, questions were re-arranged and re-worded for simplification, rankings ('never', 'sometimes', 'often', 'always') were added to the checklist, and methods of reporting were agreed upon. Participants noted that observations may need to be completed in different educational settings in order to obtain a true picture of the student's persistence on tasks and then confirmed by the student, teacher, parent, or a combination of all three. Concerns were also voiced regarding subjectivity; participants felt indicator questions should be crafted in such a manner that subjectivity was reduced as much as possible. Additional concerns, such as the difficulty removing uncontrollable extrinsic factors like grades or praise, were also discussed.

Findings

- The school psychologists felt the need to look more closely at questions #1-4 (see Appendix) of the CMMI so that indicators were clear, concise and logical.
- Participants believed it was necessary to add ‘never’, ‘sometimes’, ‘often’ and ‘always’ (NSOA) as qualifiers for the indicators.
- It should be assumed that all ratings are based on moderately challenging tasks.
- Results should be used to enhance qualitative reporting.

Challenges

Participants identified challenges regarding reporting to educational teams:

- The checklist is subjective.
- Indicator #5: “Student gains an intrinsic feeling of efficacy from problem solving attempts” will need to be supported with a student interview or report by a teacher.
- It might be difficult to judge if motivation is due to preferred, versus non-preferred, tasks.

Session Four: What Recommendations Could Be Made When Mastery Motivation is Lower Than Expected?

At the beginning of the first discussion session, when characteristics of Mastery Motivation were reviewed, the participating school psychologists agreed that Mastery Motivation was important for student success—but they also agreed that if it was determined to be low, they would have an obligation to work with students and other team members to increase Mastery Motivation. Participants reviewed Lumsden’s (1994)

strategies for improving Mastery Motivation, and these strategies were considered as they developed their own educational recommendations.

Participants divided recommendations into strategies for the classroom and strategies for therapy, with the idea that even though classroom strategies would be presented in educational team meetings, a certain amount of follow-up, through consultation with teachers and further observations, would be necessary for a systemic approach.

Additionally, therapeutic recommendations based on attribution retraining (Lumsden, 1994) were developed for the school psychologist. At the conclusion of the fourth discussion session, participants were given the opportunity to use their participation in the research group for their Student Improvement Plan during the supervisory process for the school year. This researcher will not be evaluating the participants in the supervisory process.

Findings

General strategies and educational recommendations were created based on the work of Lumsden (1994). Participants were in agreement with most recommendations, though concerns were noted with Lumsden's negative presentation of certain recommendations. These were divided into teacher instructional strategies to be provided to teachers and other team members and general therapeutic strategies to be implemented by the school psychologist. The majority of the discussion centered on therapeutic strategies, though two teacher strategies, #3 and #4, were clarified. Participants expressed discomfort with Lumsden's presentation of therapeutic strategy #3. Therefore, therapeutic strategies were re-framed for clarity as well as to avoid misinterpretation.

Participants believed that to inspire motivation, even as a recommended strategy, it was necessary to re-frame the strategies in a positive way. Participants further felt that once the observational tool has been tested, it would be helpful to include a completed example for the future intended user.

Teacher instructional strategies included the following:

1. Create an environment where there is a sense of belonging and where everyone is valued and respected.
2. Present tasks that are challenging but achievable.
3. Tasks should be relevant with a moderate amount of discrepancy or incongruity, since they stimulate students' curiosity (Lepper, 1988). In other words, tasks should encourage students to ask questions and dig deeper, rather than lead students to one answer.
4. Define tasks that are specific, with short-term goals, which assist students in beginning to associate effort with success (Stipek, 1988). Verbally note the tasks when introducing them.
5. Use extrinsic rewards with caution.

Therapeutic strategies, i.e., strategies grounded in attribution retraining, included the following:

1. Assist students in concentrating on tasks rather than on the fear of failure.
2. Assist students in responding to frustration by retracing their steps to find mistakes or figuring out alternative ways of approaching problems.

3. Encourage students to attribute lack of success to factors within their control, e.g., perseverance, need for additional intervention, or use of alternative strategies rather than to lack of ability or to external factors.
4. Present effort as an investment rather than a risk.
5. Present skill development as incremental and domain-specific.

Challenges

Psychologists recognized a challenge in applying therapeutic strategies, since it is difficult to remove or control certain extrinsic factors such as grades or praise. Specific recommendations should be provided regarding these factors.

Additional and Unanticipated Findings

In addition to the findings and challenges, the participants additionally found the following:

- Mastery Motivation is closely tied to emotional and behavioral functioning.
- Since Mastery Motivation is so closely tied to anxiety and self-esteem, it should not become an exclusionary factor as defined by the State of Illinois. Further, if a diagnosis such as profound depression, autism or communication disorder exists, Mastery Motivation would not be an appropriate skill to target as an exclusionary factor.

An unanticipated finding of the research was that participants expressed a desire to continue the discussion groups as constructed by the researcher. They believed that their participation was beneficial to their professional duties as school psychologists, and they pondered the possibility of extending the group sessions past their initial commitment to the research.

SECTION FIVE: JUDGMENT AND RECOMMENDATIONS

Judgment

The primary question of the researcher was: How can a school psychologist systematically incorporate an assessment of persistence via Mastery Motivation while conducting a school psychological evaluation? The eight school psychologists participating in the four discussion sessions agreed that Mastery Motivation could indeed be measured and systematically incorporated into a school psychological evaluation. The Checklist of Mastery Motivation Indicators (CMMI) was developed as an observational tool for the purpose of enhancing a qualitative report of the school psychologist's observations of a student's academic and/or cognitive functioning (see Appendix).

The Mastery Motivation indicators presented on the observational tool mirror the constructs of Mastery Motivation as described in the review of the literature (Morgan et al., 1990). The administering school psychologist will be observing the student's effort, and problem solving approaches, as well as independent attempts and persistence on a moderately challenging specific task.

In addition to these basic indicators of Mastery Motivation, the participating school psychologists believed it was necessary to establish multiple observational settings and opportunities in order for multiple raters to provide feedback. This approach guards against making decisions based on a snapshot of student performance, and instead encourages a team approach. This approach also adds robustness to the evaluation of Mastery Motivation, which is not yet reflected in the review of the literature. This added dimension, which augments the observing and documenting of Mastery Motivation in

students, is perhaps the difference between the assessment of school age students and infants or toddlers.

Participants were also asked to consider the need for incorporating Mastery Motivation as an exclusionary factor when determining students' eligibility for educational disabilities. Participants believed Mastery Motivation was too loosely tied to emotional and behavioral functioning, anxiety, and self-esteem to become an exclusionary factor as defined by the State of Illinois. Furthermore, they believed that if a diagnosis such as profound depression, autism or communication disorder were present, Mastery Motivation would not be an appropriate skill to work on.

The outcomes of the research are consistent with the incremental theory of intelligence rather than the entity theory of intelligence (Dweck, 2000). Based on the outcomes of the discussions, the participating psychologists concluded that Mastery Motivation is a component of cognition that can be measured. Moreover, certain strategies, such as teacher strategies and therapeutic strategies, can be implemented to increase this cognitive competence, leading this researcher to believe that levels of intelligence, as well as cognitive function, can be improved. This conclusion anchors the observational tool created in the incremental theory of intelligence, and the end result is that academic performance can be affected by improving a student's level of Mastery Motivation.

Dweck (2000) also describes two different patterned responses to failure: the helpless pattern and the mastery pattern response. In the helpless pattern response, persistence and Mastery Motivation characteristics are non-evident, and students become more anxious and demonstrate poor self-confidence. If students are conditioned to the

mastery-patterned response, in which they do not even consider themselves to be failing, they are more likely to persist with difficult tasks and increase learning. The assessment of Mastery Motivation characteristics is aligned more closely with the mastery pattern response, and recommendations by the participants condition the students along this approach to learning.

In his book *The Global Achievement Gap*, Tony Wagner (2008) describes seven critical skills students will need for global success in the workplace: critical thinking, teamwork, agility and adaptability, initiative and entrepreneurship, effective oral and written communication, accessing and analyzing information, and curiosity and imagination. Initially, this researcher wondered whether an eighth skill—Mastery Motivation—should be added to the list. Upon further examination of the components of Mastery Motivation, all of Wagner’s survival skills require some degree of Mastery Motivation: the teacher and therapeutic strategies presented as recommendations from the participating school psychologists support each of Wagner’s survival skills.

Based on the early discussions of the school psychologists, the CMMI may also be used to enhance the cognitive portion of the Transdisciplinary Play-Based Assessment (TPBA) (Linder, 2008). This is a multidisciplinary method of assessing for developmental delays in early childhood students (ages three to five). While the school psychologists believed that it would be impractical to set up a play-based assessment primarily to observe Mastery Motivation in elementary students, it would be realistic and valuable for a school psychologist to include the checklist in an assessment of cognition during a TPBA. School psychologists participating in this research have a dedicated room

for conducting this form of assessment in a newly built early childhood center within the school district.

However, noted limitations of this tool include the subjectivity of the observations and the lack of standardization. There is an absence of quantitative standardization for the CMMI, and the participating school psychologists worked to clarify the indicators so that they would be succinct, non-leading, and clear. Nevertheless, the checklist created remains subjective to the observations and interpretations of the user.

Another limitation that should be noted is that the CMMI was created by a subgroup of school psychologists in Stafford, Illinois (pseudonym), and its use will be limited to that population. The creators of the tool are the professionals who understand its use, function, and weaknesses; extensive training would need to occur before the tool was more widely utilized.

This research logically builds on research previously examining Mastery Motivation in infants and toddlers. It examines the constructs of Mastery Motivation as they apply to early childhood and elementary students. There are further implications for middle school students, high school students, and college age students, and further research may continue to offer recommendations for continued assessment and intervention at these levels.

Recommendations

Given that the original goal of this program evaluation was to broaden the definition of student intelligence for teachers and educational teams by incorporating a systematic measure of Mastery Motivation, the following recommendations are offered:

1. The participating school psychologists are currently field-testing the Checklist of Mastery Motivation Indicators (CMMI). Once the tool has been administered, it is recommended that the feedback be used for revision purposes.
2. Recommendations for parent strategies may be created in addition to the teacher strategies and the therapeutic strategies created as a result of this program evaluation. Ongoing therapy with the school psychologist may improve student performance in the classroom, but in order to maximize the impact on students, teams should empower parents with strategies they can use with their children at home and in the community.
3. Professional development for facilitating an understanding of Mastery Motivation as well as a systemic awareness for implementation. As a former practicing school psychologist, I understand that an assessment of Mastery Motivation is not usually considered or contemplated as a factor of intelligence to be reported. Therefore, in broadening the definition of intelligence for the school psychologist, it will be necessary to heighten the awareness of the educational team so that Mastery Motivation becomes a routine discussion point during team conversations about students. This professional development may start at the building level, continuing over time to the district level.
4. As aforementioned, an unintended result of the research was the request from the participating school psychologists to continue to meet, in the format that was presented for this research study, to collaborate on projects and topics related to their profession. Participants believed the discussions were beneficial to their work in the classrooms. Continued discussion at the administrative level is

recommended for restructuring the existing meeting time allotted for school psychologist staff development.

Mastery Motivation can indeed be assessed and improved among both early childhood and elementary students, and further revisions of the tool may occur following current field-testing. However, its importance as a cognitive skill has already been established, particularly in the work of Dweck (2000), who describes the entity and the incremental theories of intelligence. The assessment tool created during this research, the Checklist of Mastery Motivation Indicators, supports Dweck's incremental theory of intelligence, and perhaps more importantly, suggests to educators that working to improve intelligence is indeed both possible and vital to students' academic and life success.

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Appendix

Checklist of Mastery Motivation Indicators (CMMI)

Indicator	Observed *(N S O A)	**Reported			Not Observed
		T	P	S	
1. Persists on attempts on a task Task: _____					
2. Student persists with attempts at mastery in his/her educational setting Task: _____					
3. Student utilizes developmentally appropriate problem-solving techniques in order to master the task Task: _____					
4. Attempts on a challenging task are independent of immediate extrinsic rewards or other verbal or physical rewards Task: _____					
5. Student gains an intrinsic feeling of efficacy from problem solving attempts Task: _____					

*N – Never **T – Teacher
 S – Sometimes P – Parent
 O - Often S – Student
 A – Always

Directions For Administering The Checklist

Administer to students whose assessment of cognition or academic performance does not match suspected levels of abilities.

Use as a supplement to standardized measures of intelligence rather than as an independent measure of intelligence.

Use to inform educational observations.

Incorporate into Transdisciplinary Play-Based Assessment (TPBA) for younger students, i.e., early childhood (3-5 year olds).

Incorporate into the overall educational report provided to educational teams for the purpose of assisting with providing recommendations for student programming.

Designed to be used in multiple settings.

Feedback is observational (psychologist) or reported (teacher, parent or student).

Responses are recorded as 'reported', 'observed' or 'not observed'.

Results are reported qualitatively rather than quantitatively.