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Using Rubrics and Self-Monitoring With Young Children

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An Action Research Project Presented
in Partial Fulfillment of the Requirements
For the Degree of Master of Education

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Abstract

This action research project studied the effects of using rubrics with preschool children. Research has shown the benefits of using rubrics with older students. This research project studied the effects of the Teaching Strategies Gold name-writing rubric with preschool-aged children. The literature review shows that young children are capable of metacognitive awareness to determine what needs to be learned. Rubrics can be implemented to aid students in evaluating their progress toward a learning goal. One group of preschool-aged children, three- to five-years of age, used the name-writing rubric to monitor their progress toward independently writing their name and was compared to a control group that did not use the rubric.

Keywords: rubric, metacognition, Teaching Strategies GOLD

Using Rubrics With Young Children

Research by well-known educational practitioner John F. Hattie indicates that student effort, self-efficacy, and ability to evaluate and reflect on one's learning are strong predictors of academic success (2012). Students must believe in their abilities, understand self-reflection and make connections between effort and achievement. It is imperative for educators to implement instructional strategies that assist students in developing these critical skills.

Robert Marzano's book, *The New Art and Science of Teaching*, claims that teachers should provide and communicate clear learning targets, give explicit timely feedback, and implement the use of rubrics and proficiency scales. Students will then be empowered to reflect on their learning, analyze their efforts, and believe in their abilities (2017). When using rubrics and proficiency scales with students, teachers are able to provide the feedback needed for self-reflection.

Not all students are cognizant of the impact effort and self-reflection have on their learning. The authors of the book *Classroom Instruction that Works* claim that by periodically asking students to track their effort and progress, they will begin to make the connection between effort and achievement, leading to self-efficacy. Rubrics are a powerful tool enabling students to make this connection (Marzano, Pickering, Pollock, 2001).

Self-efficacy, the belief in your own abilities, leads to higher self-esteem, self-regulation, motivation, resilience, and confidence (Hattie, 2012). These metacognitive skills are critical components in the learning process. By using clear learning targets, rubrics, and proficiency scales, educators are able to effectively teach and develop these skills in students.

At what age do children develop the metacognitive skills needed for self-efficacy and self-reflection? Most research on the development of metacognitive competencies have relied on

evaluations of school-aged children (Papulus, et al. 2013). If children do not develop this ability until they are in elementary school, would the use of rubrics be beneficial to preschool-aged children? Are they able to self-reflect on their learning? This action research project looks at the recent research on the development of metacognition in young children and the use of Teaching Strategies GOLD name-writing rubric with students.

Literature Review

The ability to distinguish between knowledge and ignorance is a critical component of learning. To be a successful learner, you must be able to distinguish between what you know, and what you do not (Jeong, Frye, 2018). Previous research led educators to believe that this metacognitive development did not occur until children were seven or eight years of age (Papulus, et al. 2013). Recent research has discovered that even young children are able to distinguish the difference between knowing and not knowing.

Jeong and Frye conducted a study with 85 three- to six year olds. Their results determined that when using familiar and unfamiliar items, young children could distinguish between knowing and not knowing (2018). Other researchers believe the development of metacognitive skills may begin in children as young as two and a half. Lyons and Ghetti consider a child's use of words and phrases such as, "I know, I don't know and I think" as evidence of their ability to differentiate between what they do and do not remember (2010). They also suggest young children recognize their knowledge by withholding or volunteering answers based on whether they believe they know the content (2013).

Several studies have concluded that metacognitive development begins during the preschool years. Whitebread and colleagues conducted an observational study with 1,400 three- to five-year-old children. During a two-year period, they observed and recorded both verbal and

nonverbal behavior. They concluded there was significant evidence supporting the belief that young children demonstrate metacognitive behaviors (2007). Shamir and colleagues conducted another study supporting these same results. After a ten-day period studying 64 four- to five-year-old children, they also found evidence of metacognitive behaviors (2009). A study by Marulis and colleagues corroborated the previous results: young children are capable of metacognitive behaviors and articulating their behavior about a task (2016).

Because of the lack of verbal capabilities in young children, a study conducted by Paulus et al. (2013) used an eye-tracking device. By observing pupil dilations, researchers can determine a person's mental processes. When exposing subjects to something they remember from previous learning, pupils enlarge. Results were the same for both adults and children. Things learned and remembered cause greater mental stimulation. These studies indicate that preschool-aged children are able to reflect on their knowledge and exhibit metacognitive capabilities. Researchers Jeong and Frye state, "The current findings show that in early childhood children gain the basic, but important reasoning that individuals need and want to learn knowledge they do not know and they do not need to try to learn knowledge they already possess" (2018).

The realization that young children are aware of their knowledge has an impact on instructional strategies used by early childhood educators. The ability to understand what you know enables you to evaluate and plan what you need to learn. This ability to control and self-regulate your learning begins in early childhood and continues to develop with age (Bronson, 2000; Bryce et al., 2012). These executive functioning skills relate to the metacognitive skills that develop substantially during the early years (Blair, 2016; Zelazo et al., 2003).

Metacognitive skills are necessary to determine when to use executive function. They enable children to demonstrate self-control and actively participate in their learning. Both are

critical for academic achievement. According to Marulis et al (2018), metacognition helps children understand when and how to apply executive function to influence their learning, allowing them to be proactive, not reactive learners. Integrating both metacognition and executive function instructional strategies in the classroom enhance children's learning. Children must learn how to learn.

Executive function helps children plan, set goals, and determine the behavior and actions needed to achieve their task. It allows them to control their learning. In their book *Flourishing in the First Five Years*, Wilson and Conyers stressed that with adult support young children can develop self-control and learn to be critical thinkers (2013). When children are able to use self-control to plan and accomplish goals, it enables them to develop the necessary skills needed for lifelong learning (Goldberg, 2009).

Adults can guide the development of these skills by providing instructional supports in the classroom. Rubrics, designed to evaluate and give feedback on a learning task, are a well-known method of helping students monitor and reflect on their learning (Hoegh, 2020). Using rubrics with young children is one instructional strategy that could be beneficial in the development of both metacognition and executive function. Research by Hattie (2012) has demonstrated that by using rubrics children are able to see their progress and monitor their goal. Rubrics also allow for formative assessment, which aids students in improving their work. However, for rubrics and self-assessment to be beneficial, students must be actively engaged in their use. They must understand the learning goal and the criteria on which to base their assessment (Andrade, Valtcheva, 2009).

Teachers in a university laboratory prekindergarten class developed a simple rubric to help children self-assess their efforts (Warash, Workman, 2016). Although the rubric was

intended for academic tasks, it quickly spread to other areas. Children began evaluating their effort in the classroom. Parents also noted children using the rubric at home to self-evaluate their performance on tasks such as picking up toys or making their bed. Teachers believed the use of this rubric helped reinforce and establish a climate where children were acknowledged for their perseverance. By using the rubric, teachers were able to give students specific feedback related to their goal. Teachers were able to guide children to reflect, self-assess and scaffold to the next level. Vygotsky claims that learning occurs when there is disequilibrium (Vygotsky, 1978). Rubrics enable children to self-assess and evaluate their learning, creating disequilibrium. Hence learning occurs.

Rubrics are also helpful in developing self-efficacy by allowing children to reflect on their effort and their accomplishments. Self-efficacy, the belief in your abilities, is linked to self-esteem, self-regulation, motivation, resilience and confidence. Students' belief in their own abilities greatly contributes to their success (Hattie, 2017). In the book *Classroom Instruction That Works*, the authors stress the value of both reflecting on effort and recognizing achievement. Receiving praise specific to the achievement of a goal can be a strong motivator for students (Marzano, et al. 2001). Rewarding students for achievement toward a specific goal increases intrinsic motivation and the confidence they have in their abilities.

It is important for early childhood educators to foster intrinsic motivation, confidence and resiliency. Resilient children focus on what they are capable of achieving. To create this resiliency teachers must create an environment that values effort, supports goal setting and provides students with tools to aid in achievement (Colett, V. 2017). Teachers must give children feedback specific to their goal and emphasize the process of learning. By encouraging

the process and fostering students' effort, teachers instill the connection between effort and success

Resilient children are able to self-assess their effort and are not dependent on adults for validation. Feedback is also critical in the development of resiliency. To be effective, feedback must be genuine and relate to the student's goal. Children learn to value effort and tenacity when they receive recognition for their hard work, rather than the belief in their ability (Mueller & Dweck, 1998). Rubrics are an instructional tool that can assist both teachers and students in obtaining these objectives.

Rubrics can assist teachers in developing metacognition, executive function and resiliency in young children (Mueller & Dweck, 1998). Rubrics encourage students to set goals and reflect on their progress (Andrade & Valtcheva, 2009). Rubrics enable teachers to provide feedback specific to a child's goal ((Marzano, et al. 2001). They also allow students to self-assess their progress independently of adults (Hoegh, 2020). Rubrics can be developed for assessing effort or specific steps to a learning target. With the knowledge that young children are capable of the metacognitive skills necessary for reflective learning and self-assessment, rubrics should be an instructional tool used in early childhood classrooms.

Because of the link between name writing and future literacy success, a child's ability to write their name was the skill chosen for this action research project. It is the first word typically written by young children. Children's ability to write their name in preschool is a strong indicator of conventional writing skills in later grades (Blatchford, 1991). Studies show that name writing is the beginning of a child's phonetic writing ability (DeVries & Buss 2008; Levin et al. 2005).

Name writing is important for future academic success. Incorporating an instructional strategy that would help children self-assess their process is essential. If rubrics and self-reflection promote self-efficacy and metacognition in children, could incorporating them into the preschool curriculum help children achieve success in their name writing ability?

Name writing rubrics are essential when evaluating a student's level of proficiency. Puranik et al (2014) completed a study to determine the validity of six name-writing rubrics. Five of the rubrics had complex standards requiring training to interpret. The last was a simple rubric easily used by classroom teachers. Multiple data were used for comparison and results suggested no evidence that one rubric outperformed the other. Teaching Strategies GOLD, the required assessment of Statewide Voluntary Preschool classrooms in the state of Iowa, developed the six-part rubric used in this action research project (2016).

Methods

Participants

The participants in this study, depicted in Table 1, consisted of 35 three-, four-, and five-year-old students in an inclusive Statewide Voluntary Preschool Program (Table 1). This program is located in a large public school district in central Iowa. Students attend morning or afternoon sessions four days per week, three hours per day. Data on income levels was not available. Twenty-eight students, fourteen per class, had consistent attendance needed to complete the research.

Table 1: Participant Demographics

	AM Class (%)	PM Class (%)
Female	35.29	38.89
Male	64.71	61.11
Individual Education Plan	17.65	22.22
Black	11.76	5.56
Hispanic	0.00	22.22

Multiple Races	0.00	5.56
White	88.84	66.67

Procedures

Student name-writing samples and rubrics were collected at the end of the study. Each participant was leveled using the Teaching Strategies Gold Rubric (Figure 1). The rubric is designed to analyze name-writing samples and determine student ability. Initial and final name-writing samples were scored. Growth was determined by calculating the number of levels the student progressed.

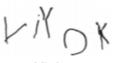
DATA Collection

Data were collected over a five-week period. Participants in the morning program submitted a name-writing sample at the beginning and end of the data collection period. They did not use a rubric or self-monitor their progress. The researcher scored the name writing samples using the Teaching Strategies GOLD Name Writing rubric to analyze student growth during this period. Students in the afternoon program submitted name writing samples bi-weekly and monitored their progress using the Teaching Strategies GOLD Name Writing rubric. Teachers and associates assisted these students in determining where their sample fit in the rubric and marked it with a smiley face sticker and date. Students received name-writing instruction with their teacher during daily arrival procedures. Each child utilized an individual name writing activity page based on ability level. These pages varied from pre-writing strokes to independent writing. Both sessions received the same instruction.

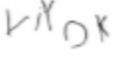
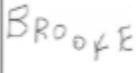
Figure 1: Teaching Strategies GOLD Rubric

Objective 19 Demonstrates emergent writing skills

a. Writes name

Not Yet	1	2	3	4	5	6	7
	<p>Scribbles or marks</p> <ul style="list-style-type: none"> Scribble writes deliberately Makes marks that appear to adults to be in random order 	<p>Controlled linear scribbles</p> <ul style="list-style-type: none"> Scribbles lines, circles, or zigzags in rows Often repeats action and forms 	<p>Mock letters or letter-like forms</p> <ul style="list-style-type: none"> Writes segments of letter forms, e.g., lines, curves May use too many segments to create a letter, e.g., five horizontal lines on the letter E May not orient letter segments correctly 	<p>Letter strings</p> <ul style="list-style-type: none"> Writes some letters correctly Writes letters in unconventional order 	<p>Partially accurate name</p> <ul style="list-style-type: none"> Writes all the letters of own name, although some may not be sequenced correctly Writes all the letters of own name, but some of the letters are not formed or oriented correctly 	<p>Accurate name</p> <ul style="list-style-type: none"> Writes all the letters of own name in the correct sequence, form, and orientation Uses uppercase or lowercase letters (or a combination of both) when writing name correctly 	
	 Carolyn	 Lilly	 Paula	 Emma	 Vicky	 Brooke	

Student Version

1	2	3	4	5	6
					

Findings

Students in both classes independently wrote their name at the beginning and end of the study. Name writing samples were collected and analyzed using the Teaching Strategies GOLD name-writing rubric. Each sample was assigned a level, 1-6, based on the rubric at the start and

completion of the study. Growth was determined by the number of steps a student progressed on the rubric. All student samples, beginning and completion, were analyzed by the researcher and assigned a level. Students in both classes received comparable instruction. Students in the afternoon section incorporated the GOLD rubric throughout the study.

Table 2 Rubric Scores and Growth

Morning Section

Student	February 3, 2020	March 10, 2020	Growth
A	6	6	0
B	5	6	1
C	4	4	0
D	6	6	0
E	3	3	0
F	3	4	1
G	5	5	0
H	6	6	0
I	6	6	0
J	4	5	1
K	6	6	0
L	5	6	1
M	2	3	1
N	2	3	1

Table 2 displays the beginning and final rubric scores plus the level of growth students achieved in the morning session. Six out of fourteen students displayed growth in the morning section.

Table 3 Rubric Scores and Growth

Afternoon Section

Student	February 3, 2020	March 10, 2020	Growth
A	5	5	0
B	6	6	0
C	4	4	0
D	6	6	0
E	5	6	1
F	5	6	1
G	5	5	0
H	6	6	0
I	5	5	0
J	4	5	1
K	6	6	0
L	6	6	0
M	5	5	0
N	6	6	0

Table 3 displays the beginning and final rubric scores plus the level of growth students achieved in the morning session. Three out of fourteen students made displayed growth in the afternoon section.

Discussion

Summary of Major Findings

Six students in the morning class exhibited growth, with three in the afternoon. Students in the morning class began with an average score of 4.5. They ended with an average score of 4.9 resulting in an average growth of 0.4. Students in the afternoon class began with an average score of 5.2 and ended with an average of 5.5. Their growth average was 0.3. A higher score indicates more advanced name writing ability.

According to the results, the use of the Teaching Strategies GOLD rubric with children did not improve the growth in their name writing ability. The results indicate that the use of the rubric is not beneficial in helping students learn how to write their name.

Limitations of the Study

The researcher in this study acknowledges several limitations. This study was conducted with a small sample size. The classroom teacher was absent for four out of five weeks due to a medical emergency. The majority of student instruction was from two long-term substitutes not familiar with the rubric or purpose of the study. Another limitation is the length of time students had for instruction. Students in the morning program had 18 instructional days, and students in the afternoon had 19. The Teaching Strategies Gold rubric is designed to track student development over a longer period of time.

The researcher also observed student confusion with the rubric. The letters and names used in the rubric example did not match individual student names. For future studies, rubrics should be made for individual children displaying the letters in their name for reference. In addition, the name-writing activity was completed quickly during the student's arrival check-in. There was minimum time for self-reflection and discussion on next steps for students. Research indicates that students' need a clear learning goal for success. It is unclear if students understood the purpose of the rubric or why it was being used.

Another possible limitation is that the afternoon class began with a higher average score (5.2) than the morning class (4.5). This variance might have limited their room for growth. It is possible that it is harder to improve once you are at a higher level.

Further Study

Further research should address these limitations. Sample sizes should be larger. Consistent classroom instruction should be used. Rubrics originally designed for educators may not be beneficial to young children. Rubrics should be designed for individual children implementing the letters in their name as reference. Rubrics could also be designed with fewer levels making them more suitable for young children. Specific classroom instructional time should be allowed for self-reflection and goal setting. Increasing student self-reflection from bi-weekly to weekly should be contemplated. Teaching Strategies GOLD is designed for long-term use. Starting the study at the beginning of a school year would allow for a deeper understanding of the benefits of use with children.

Conclusion

The literature revealed that young children are capable of metacognitive behaviors (Whitebread et al 2007, Shamir et al, 2009, Marulis et al, 2016). This ability should influence instruction in early childhood classrooms. Early childhood educators should encourage the development of metacognition, which leads to executive function and self-regulation. Rubrics are one well-known method of providing these instructional supports. More research is needed to determine the benefits of using them with young children.

It is also important for early childhood educators to foster intrinsic motivation, confidence, and resiliency. Children must be taught how to set goals and be given the tools needed to support their achievement (Colett, V. 2017). If rubrics are not valuable with young children, additional research would be needed to determine a beneficial instructional strategy. The question remains, how do we foster goal setting in early childhood and give children the developmentally appropriate supports needed to achieve their goal? Teachers in the university

laboratory prekindergarten developed a simple rubric designed for children to self-assess effort. This rubric was found to be successful and led to other areas of students' lives (Warash & Workman, 2016). Perhaps with young children the emphasis must be on effort, not achievement.

The results of this research could reflect that students were not included in the goal-making process. The goal of name writing was predetermined by the teacher and the requirements of Teaching Strategies GOLD. Perhaps for rubrics to be successful, children must be involved in the goal setting process. Teachers must also give students specific feedback related to their goal. Feedback needs to be genuine to be effective. Rubrics are one tool that help teachers provide these specific comments. What other methods could early childhood teachers use to provide specific feedback to student goals?

If goal setting is important to achievement, perhaps it is more meaningful in early childhood to teach children how to set goals and work toward accomplishment. The goal does not need to be an academic task. Learning how to set and work toward small achievable goals may give students the self-efficacy needed for future objectives.

Research has shown that academic achievement is enhanced when students have clear, communicated goals and receive specific feedback on their progress, empowering students to reflect on their learning, analyze their efforts, and believe in their abilities (Marzano, R. 2017). Early childhood educators must find the method that is both beneficial and developmentally appropriate for young children.

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