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Assessment in Early Childhood Education

Abstract

This study investigated assessment in early childhood education. The action research investigated the effect of familiarity of a test setting on screening scores of pre-kindergarten children. Thirty-two children participated in a pre-kindergarten screening at a local school that they did not attend as students. These same children participated in the same screening at the preschool that they regularly attend. After analyzing and comparing the test scores it was determined that there was a significant difference in the scores of students depending on their familiarity with the test setting.

Document Type

Thesis

Degree Name

Master of Education (MEd)

Department

Graduate Education

First Advisor

Pamela Adams

Keywords

Master of Education, thesis, Christian education, Learning Ship Preschool, Sioux Center Christian School, preschool tests, early childhood education, pre-kindergarten screening

Subject Categories

Curriculum and Instruction | Education

Comments

Action Research Report Submitted in Partial Fulfillment of the Requirements for the Degree of Master of Education

Assessment in Early Childhood Education

by

Gwen R. Marra

B.A. Dordt College, 1990

Action Research Report
Submitted in Partial Fulfillment
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Degree of Master of Education

Department of Education
Dordt College
Sioux Center, IA
February, 2004

Assessment in Early Childhood Education

by

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Acknowledgements

I would like to thank Pamela Adams for her assistance as my faculty advisor. Her guidance and encouragement helped me to complete this project. I appreciate her time and expertise. I would also like to thank Duane Einfeld for his help with analyzing the data for the research portion of my paper.

I would like to thank Judy Feekes (kindergarten teacher at Sioux Center Christian School) and the staff of Learning Ship Preschool who helped me complete this study and the parents of the students who took part in this study.

Finally I would like to thank my husband, Kris, and my children for encouraging me throughout this project.

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Abstract

This study investigated assessment in early childhood education. The action research investigated the effect of familiarity of a test setting on screening scores of pre-kindergarten children. Thirty-two children participated in a pre-kindergarten screening at a local school that they did not attend as students. These same children participated in the same screening at the preschool that they regularly attend. After analyzing and comparing the test scores it was determined that there was a significant difference in the scores of students depending on their familiarity with the test setting.

Introduction

Early childhood education has become a vitally important field in education. Concerned parents want to know how to help their children learn and get ready for school. Working parents need quality environments for their children while they are away. The environment has been shown to have a huge effect on child development. Educators and parents are seeing the benefits of quality early childhood education as it helps prepare young children for future educational experiences. Research has shown the benefits of preschool programs in terms of persistent gains on achievement tests, less grade retention, and lower crime rates (Barnett & Hustedt, 2003).

In the past, intelligence was thought of in a narrow academic sense. It was assessed in the same way using standardized tests, mainly composed of multiple choice, right- and wrong-answers. This narrow view of intelligence is changing. Educators are seeing the importance of educating the whole child, including social and emotional areas. Early childhood education has embraced this movement, shifting from an emphasis on academics, to a balance between academics and social/emotional activities (Hyson, 2003). As a Christian educator, I value children as the whole beings that God created. I see their strengths and their weaknesses, and recognize that God has gifted each person in a unique way. As I teach, I teach the whole child. I cannot teach just the academic areas but I need to focus on social skills as well. I need to educate each child as an image bearer of God--realizing that all areas of creation are under his control. This includes areas such as math and reading, but also social and emotional areas, such as getting along with others and learning how to express emotions appropriately. Assessing student development needs to reflect this holistic philosophy. Academic,

social, and emotional areas need to be assessed so that attention may be given to all aspects of learning.

Assessment of young children must be very different than that of older students. Young children are learning how to communicate and are able to show what they know by doing, rather than by taking a pencil-and-paper test. They have not yet mastered the skills of reading and writing. Assessment of young children needs to include developmentally appropriate activities. It should not include a multiple-choice test, or other formal assessments. It should include assessing the child in natural settings doing the day-to-day activities they normally do (Kulieke, et al, 1990).

The decade of the 1980s is characterized by an educational reform movement. By the end of the decade, many national organizations such as the National Association of State Boards of Education were calling for changes in “teacher education, graduation requirements, school structure, and accountability measures” (Bredenkamp, Knuth, Kunesh, & Shelman, 1992, p. 1) To bring about educational improvement, curriculum reform must be followed by appropriate assessment reform. If the curriculum is improved -- but no changes are made to the means of assessment, the assessment is not valid. It no longer is assessing what is being taught. In early childhood education, this is also true. As curriculum is becoming more developmentally appropriate, with a balance between academics and free exploration, assessment also needs to shift. My literature review will explore: What components are crucial to early childhood assessment? and What does valid early childhood assessment look like? While my action research will specifically focus on this question: Is a child’s score on a screening test affected by his/her familiarity with the test setting?

The following definitions will clarify the terminology used in my paper. In general, early childhood education focuses on children from birth to age 8. *Assessment* is defined as “any method used to better understand the current knowledge that a student possesses” (Dietel, Herman, & Knuth, 1991, p. 1). The National Association for the Education of Young Children (NAEYC) and the National Association of Early Childhood Specialists in State Departments of Education (NAECS/SDE) have developed guidelines for early childhood curriculum and assessment. They have stated that “in early childhood programs, assessment provides a basis for: 1) planning instruction and communicating with parents; 2) identifying children with special needs; and 3) evaluating programs and demonstrating accountability” (Bredenkamp, Knuth, Kunesh, & Shulman, 1992, p. 4). *Checklists* are lists of skills that reflect curriculum standards and goals. *Anecdotal records* are notes reflecting child development taken by teachers or caregivers while observing students in informal situations. *Work samples* are collections of student’s work over a period of time that show growth and development. *Developmentally appropriate practices* have “two dimensions: age appropriateness and individual appropriateness” (Bredenkamp, Knuth, Kunesh, & Shulman, 1992, p. 16). This means that children follow patterns in human development and although there may be individual differences, the educational opportunities that are offered must be of interest to the child and near their developmental level. *Multidimensional Assessment* “means that evaluation of students will be based on a broader concept of intelligence, ability, and learning” (Kulieke, et al, 1990, p. 5).

Early childhood assessment needs to accurately portray the learning that is taking place in early childhood classrooms. It needs to respect students as unique

image-bearers of God. It needs to be developmentally appropriate utilizing a variety of methods such as checklists, anecdotal records, and work samples. Assessment needs to include communication with parents and caretakers in order to reflect more accurately each child's development. Assessment needs to be used to plan future lessons and evaluate curriculum.

Review of Literature

The area of early childhood education is different than elementary and secondary education because young children display different characteristics than older children. Young children are usually in Piaget's sensorimotor and preoperational stages of development. This means that they learn best when they are actively engaged in interesting play/learning activities using all of their senses. They are capable of higher level thinking skills, but they are often involved in egocentric thought (Biehler & Snowman, 1990). Child development levels greatly affect curriculum and teaching strategies, but they also need to affect assessment.

In elementary and secondary education, there have been increased expectations regarding student performance. An example of this is in the area of math. Twenty years ago, algebra was strictly left as part of high school curriculum. Since that time it has made its way into middle school and some elementary classrooms. This "hurried child" phenomenon has worked its way down to early childhood education and there now is an academic push in preschool classrooms. However, in the last few years there are forces seeking to reverse this trend. At this time, many quality early childhood educators embrace a balance between academics and social and emotional growth (Hyson, 2003).

The NAEYC and NAECS/SDE have worked together to develop early childhood guidelines. They believe that curriculum and assessment should be based on knowledge of theories of learning and child development with attention given to children's needs and interests. Recommendations for appropriate early childhood curriculum and assessment have been formulated. The following guidelines are taken from the article: *What Does Research Say About Early Childhood Education?*

(Bredekamp, Knuth, Kunesh, & Shulman, 1992):

- *Children learn best when their physical needs are met and they feel safe* (p. 3).
This means developmentally appropriate classrooms provide learning experiences appropriate to children's attention spans and provide a safe, nurturing environment where children feel accepted and safe.
- *Children construct knowledge* (p. 3). Children are active learners, and they should engage in experiments, make predictions, draw conclusions, and discover answers. They are encouraged to ask questions and to think of ways to answer questions.
- *Children learn through social interaction with other adults and other children* (p. 3). Children are encouraged to build relationships with their parents, peers, teachers, and others. Teachers act as guides and facilitate social development.
- *Children learn through play* (p. 3). Play provides opportunities for children to construct knowledge and try out hypotheses. It encourages them to develop creativity and their imagination. It promotes cognitive, social, and emotional development.

- *Children's interests motivate learning* (p. 4). When children are interested, they are motivated to learn more. They have a “need to know” and they want to discover in order to make sense of their world. This fosters the development of intrinsic motivation for learning.
- *Human development and learning are characterized by individual variation* (p. 4). Each person is a unique individual created by God, growing and developing at his/her own pace. Personal family experiences and cultural backgrounds affect child development.

As the previous guidelines indicate, early childhood education needs to combine academics with social and emotional development. It needs to reflect students as complex individuals created by God. John Van Dyk discusses this in his book *The Craft of Christian Teaching* (2000). He emphasizes valuing each child for who they are as an image-bearer of God. Allowing students to individualize their work to fit their needs makes learning more meaningful. This encourages students to grow in all areas: socially, emotionally, and academically. The curriculum may need to shift to meet these standards, and the assessment tools must also improve.

Assessment needs to change to measure the authentic learning that takes place. Currently our country spends billions of dollars on education, yet there is much dissatisfaction. Many educators criticize standardized testing, but what are the alternatives? Good assessment needs to be assessment that is reliable and valid. It should test what has been taught. According to assessment researchers Bob Linn, Eva Baker, and Steve Dunbar, the following eight criteria

should be met by performance based assessments in order for them to be considered valid (Dietel, Herman, & Knuth, 1991):

- *Consequences* (p. 3): This means teachers do not teach to the test, but instead re-teach lessons when a test shows that a concept has not been mastered.
- *Fairness* (p. 3): An assessment tool needs to allow all students to participate regardless of cultural or socio-economic background.
- *Transfer* (p. 3): An assessment tool needs to determine if students are able to apply their knowledge to solve other problems or deal with other situations.
- *Cognitive Complexity* (p. 3): An appropriate assessment tool encourages students to use higher level thinking skills, rather than simply testing comprehension.
- *Content Quality* (p. 3): The tasks in an assessment need to be important and have value for students and evaluators.
- *Content Coverage* (p. 3): The assessments cover the content that has been taught.
- *Meaningfulness* (p. 3): Assessments help students develop intrinsic motivation for learning.
- *Cost and Efficiency* (p. 3): An appropriate assessment must be conducted in an efficient and cost-effective manner. Assessments need to be completed in a timely manner.

When developing tools for assessment, these criteria offer guidelines as to what is appropriate and what is not. As educators broaden their definition of learning to include social and emotional growth as well as academic achievement, the assessment tools should reflect that shift. This leads to *multidimensional assessment*, or assessment which has shifted from a single test to many assessment tools, and from a cognitive emphasis to a range of talents and gifts (Kulieke, et al., 1990). Just as curriculum is being pushed to be real, relevant, and meaningful for students, assessment must also reflect this movement. Assessment needs to happen as part of instruction, not as an isolated event. It needs to be based on multiple measures that more accurately portray student knowledge. When single tests are used for assessment purposes, it is like taking a snapshot and using it to describe a person's life. When multiple assessments are used, it is like shooting a movie of a person's life. Which more accurately depicts student learning, a single snap shot, or a two-hour movie? Educational assessment needs to be based on multiple assessments in naturally occurring circumstances.

Classroom Applications

Assessment should occur in a natural setting whenever possible. This allows students to behave naturally, without anxiety. In a classroom setting this may be accomplished through the use of anecdotal records taken regularly by caretakers. The records should include the date and the action observed, as well as any other necessary comments. In this way, student growth is recorded accurately. Checklists can also be used to record child development. There are many lists of child development benchmarks that can be made into checklists for students. A list should be made for each student. Caretakers can then enter a date when they have observed the student

meeting the benchmark. Work samples taken once a month will show many steps taken in development as students mature in fine motor skills and writing skills. Teachers need to be looking for evidence of growth and development throughout each day. They need to be hunting for progress and documenting what they see. Photographs taken of students engaged in building block towers or puppet shows as well as other activities may also be added to give a more complete picture of student development. Older children may be asked to record themselves reading a passage from a book. When this is done at monthly or quarterly intervals student progress can be seen. Using multiple assessments encourages students to use their God-given talents and abilities. It encourages them to be the unique creatures that God created. It does not force them to fit into a narrow view of intelligence, but allows them to give glory and praise to God in every area of their lives (Van Dyk, 2000).

A second component that must be present in early childhood assessment is collaboration between parents and teachers. Parents have valuable information about their children, and teachers have a background in child development and learning standards. When these two groups are working together in a trusting relationship, it is the child who benefits. Knowing the parents and understanding their cultural background will be beneficial to the teacher in planning meaningful and relevant lessons. It creates a climate in which to share information regarding each child's development with his/her parents.

Lastly, teachers need to take the information they glean through assessment and use it. Information regarding students' likes and dislikes can be useful for planning interesting lessons. When a teacher observes a student struggling with a concept, the

teacher should take notice and use the information for a future lesson. If teachers realize all of their students have mastered a particular skill, the skill could be reviewed briefly, but should not be the focus of an entire lesson. Teachers also need to evaluate their curriculum to see if its goals are being met. Are students learning what they are supposed to be learning? What areas are lacking evidence of growth? Why is this happening?

Methods of Action Research

My research problem is based on assessment in early childhood education. I asked the following question: Is a child's score affected by his/her familiarity with the testing setting during a screening test?

I received permission from parents of 32 students from Learning Ship Preschool who would be attending Sioux Center Christian School's Kindergarten Round-up. These students became the subjects of my study. The parents gave permission for me to have access to their child's kindergarten round-up score and to hold a similar evaluation in the preschool setting. Kindergarten round-up is a brief screening done by teachers and volunteers from the school. Only children who are eligible for kindergarten in the fall are allowed to participate. Kindergarten teachers have wrestled with how to best be prepared for incoming kindergarten students. This screening is made up of math and reading readiness skills that are common components in early childhood screening tests. Its purpose is to give a brief picture of what a child has learned academically, and it hints at what students may be capable of regarding listening skills, following direction skills, and thinking skills. It tells very little about social and emotional skills (J. Feekes, personal communication, January 12, 2004). Judy Feekes used this tool at Sioux Center

Christian School (an unfamiliar setting) and shared the results with me. I administered the same screening at Learning Ship Preschool (a familiar setting) and compared the results.

The assessment tool is made up of several sub-tests given by a volunteer or teacher to the children on a one-on-one basis. The subtests include the following areas: visual matching, naming colors, detecting rhyme, print awareness, matching initial/beginning sounds, categories, naming of letters, drawing of self/writing name, copying shapes, shape identification, position words, body part identification, context clues, rote counting, number recognition, one-to-one correspondence, story telling order, auditory memory (repeating digits and following direction), and visual memory. These subtests developed by Judy Feekes are common components of kindergarten programs. The pre-reading sub-tests are loosely based on Marie Clay's research about children's concepts about print (Morrow, Strickland, & Woo, 1998). The math readiness activities are based on standards developed by the National Council of Teachers of Mathematics (2000). The assessment tool is found in its entirety in Appendix C. For my study, I used only the components that could be scored, not the verbal fluency, speech sound development, scissors skills, or gross motor skills.

When used as a screening tool, I feel this assessment meets the criteria for validity mentioned earlier in this paper. The data collected will be used to plan effective lessons as students enter kindergarten. It does not contain biased material. It asks students to apply what they know in new situations. It allows students some opportunity to express higher level thinking skills. The content is based on pre-reading and pre-math activities used in kindergarten. It covers content that most students have

come in contact with in other circumstances. Students are eager to complete the evaluation. It is efficient and easily administered.

Hypothesis

1. There will be no difference in student performance when assessment is done in a familiar setting, as compared to student performance when assessment is done in an unfamiliar setting.
2. There will be a significant difference in student performance when assessment is done in a familiar setting as compared to student performance when assessment is done in an unfamiliar setting.

Data Collection Plan

The individuals included in this study are students who attended Learning Ship Preschool during the 2002-2003 school year and also participated in Kindergarten Round-up Screening at Sioux Center Christian School on April 8 and 9. Thirty-two students met these criteria.

This study is made up of two treatments:

Treatment A: Students will be assessed during a 90-minute session at Sioux Center Christian School (unfamiliar setting) using the assessment tool developed by Judy Feekes. The screening took place on April 8 and 9, 2003. This was the students' first exposure to the assessment tool.

Treatment B: Students will be assessed using the same assessment tool at Learning Ship Preschool (familiar setting) between April 10 and April 30. This was the second time completing the assessment for all students involved in the study.

Student performance on the pre-kindergarten assessment done at Sioux Center Christian School will be compared to student performance on the same assessment done at Learning Ship Preschool. The two variables that were kept constant during the testing situation were the students who were tested and the test itself.

There are many possible intervening variables that may have affected student scores. They include, but are not limited to, student familiarity with Sioux Center Christian School, social skills of the student, and the ability of the teacher/volunteer to make the student feel comfortable. Other factors that may have affected student scores include the health of the student, the time of day, the interest level of the student, and the noise level of the testing environment. When the second screening took place students were already familiar with the assessment tool and this may have affected their scores.

Judy Feekes and I scored the tests after they were completed. The detailed scores are found in Appendix B.

Results of the Study

The pre-kindergarten screening done at Sioux Center Christian School had a mean score of 114.8. The median of these students was 118 and the standard deviation was 9.979.

The pre-kindergarten screening done at Learning Ship Preschool had a mean score of 117.4063 and a median score of 120.5. Standard deviation on this screening was 10.52144.

The mean difference in student scores was 2.59375. The standard deviation of the difference of student scores was 5.852263.

Assuming the null hypothesis is true, and using the data for the mean and standard deviation as indicated previously, there is a p-value of .017623. The likelihood of the null hypothesis being true is one- to two- percent. The null hypothesis is rejected. The difference is significant at two-percent.

This means that there is a 98% chance that there is a significant difference in student scores due to the setting in which the screening took place.

Conclusions and Implications

My research indicated that the testing environment does have a significant affect on student scores. There is a significant difference in scores between the familiar and unfamiliar setting. Some students scored higher in the familiar setting, probably because they felt comfortable in their surroundings. They were also familiar with the screening. I was surprised that some students scored lower the second time they completed the screening. Although I don't know exactly why this is, the factors of the noise level of the testing environment and the level of interest of the student being tested are probably important. Students may also have been bored with having to complete the screening a second time. Other factors to consider that may have affected student scores include the fact that some students were familiar with the "unfamiliar setting" from visiting siblings at the school or attending social functions at the school. Additionally some students will do better the second time they take a test. I recommend further research to determine if the testing setting has a significant effect on student scores.

This research has also reaffirmed my belief that communication between educators can be beneficial. Mrs. Feekes and I communicate about the students that I have taught at Learning Ship Preschool before they start kindergarten so that she can be

better prepared to meet the needs of her incoming students. She also communicates with parents in order to get a more accurate picture of the students she will be working with. It is important to realize that this screening is one assessment. It should not be used as the only decision-making tool. When this screening is combined with parent communication and previous teacher communication, it becomes multidimensional assessment, which will more accurately portray the knowledge students possess. This research reaffirms the benefits of multidimensional assessment.

Multidimensional Assessment at the early childhood level may have many faces, but there are key components to make it a more accurate picture of a student's academic, social, and emotional growth. Early childhood education is changing to reflect the complexity of young human beings. It recognizes and values learning in an academic sense as well as social and emotional growth. Assessment in early childhood education needs to happen as part of the natural learning experience as much as possible. It needs to take place as an integrated part of the lesson, rather than an isolated event. It needs to draw on information from parents and caretakers in order to be accurate. Assessment in early childhood education must follow this shift toward authentic assessment that accurately portrays student learning and allows teachers to plan meaningful lessons in the future.

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Appendix A
Participation Permission Form

Dear Parents of Learning Ship Preschool Students,
Some of you are aware that I am working on my Master's degree in Curriculum and Instruction. One of the requirements of my program is to do research. I am working on a research project concerning assessment in early childhood education. I would like to compare the assessment done at preschool with the assessment done at a pre-kindergarten screening. I have discussed my project with Judy Feekes (kindergarten teacher at Sioux Center Christian School). She has agreed to help me with this project. I also need your help. Please check the statement below indicating your willingness to participate in my study by allowing me to view the results of your child's screening. Thank you for your cooperation.

_____ I give Gwen Marra permission to analyze my child's pre-kindergarten screening as described above.

_____ I **do not** give Gwen Marra permission to analyze my child's pre-kindergarten screening as described above.

Parent signature

Date

Appendix B

Table Comparing Student Scores of Pre-kindergarten Screening

Key:**LS Score** refers to score on the screening done at Learning Ship Preschool.**SCCS** refers to score on the screening done at Sioux Center Christian School.

Student #	LS Score	SCCS	Difference	
1	130	115	15	
2	127	124	3	
3	126	118	8	
4	95	83	12	
5	120	126	-6	
6	112	106	6	
7	124	123	1	
8	102	103	-1	
9	115	102	13	
10	123	121	2	
11	123	125	-2	
12	120	118	2	
13	100	104	-4	
14	123	120	3	
15	127	118	9	
16	100	95	5	
17	116	120	-4	
18	119	114	5	
19	107	104	3	
20	114	119	-5	
21	100	108	-8	
22	122	118	4	
23	102	106	-4	
24	110	117	-7	
25	127	119	8	
26	111	112	-1	
27	121	122	-1	
28	127	120	7	
29	131	123	8	
30	126	123	3	
31	128	124	4	
32	129	124	5	
Avg	117.4063	114.8125	2.59375	Test stat t 2.507144
Median				P-value: 0.017623
Std. Dev.	10.52144	9.978808	5.852264	

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(3), 24-27.