

VALIDATION OF TASKS OF MONETARY  
CONCEPTS FOR THREE AND  
FOUR YEAR OLDS

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## TABLE OF CONTENTS

Chapter	Page
I. INTRODUCTION. . . . .	1
The Problem. . . . .	1
Need for Study . . . . .	2
The Purposes of the Study. . . . .	2
II. RELATED LITERATURE. . . . .	4
The Need for Consumer Experiences During Preschool . .	5
Young Children's Knowledge of and Experience With Money. . . . .	7
III. METHOD AND PROCEDURE. . . . .	9
Test I--Money-Sorting Task . . . . .	9
Test II--Coin-Identification Task. . . . .	10
Test III--Comparative Value Task . . . . .	11
Test IV--Equivalent Value Task . . . . .	12
IV. ANALYSIS OF DATA. . . . .	14
Summary of Findings. . . . .	23
V. SUMMARY AND RECOMMENDATIONS . . . . .	24
Findings . . . . .	25
Recommendation for Further Research. . . . .	25
A SELECTED BIBLIOGRAPHY. . . . .	26
APPENDIX . . . . .	29

## LIST OF TABLES

Table	Page
I. Frequency of Correct Responses of Three and Four Year Old Children on Money-Sorting Task . . . . .	15
II. Frequency and Percent of Correct Responses of Three and Four Year Olds on a Money-Identification Task. . . . .	16
III. Frequency of Correct Responses of Three and Four Year Olds on the Comparative Value Task. . . . .	17
IV. Frequency of Correct Responses of Three and Four Year Olds on Equivalent Value Task . . . . .	19
V. Discriminating Items on the <u>Money Concept Tests</u> As Reflected by a Fisher Exact Probability Test Analysis. . . .	20

## CHAPTER I

### INTRODUCTION

#### The Problem

Helping children learn the roles of the consumer at an early age is unique and very necessary in our modern society. McNeal (1964) found that children are actively involved in the consumer process by three or four years of age. This should challenge education to develop consumer understanding and provide opportunities for children to learn basic principles of our monetary system during the preschool years.

Gruenberg (1937) found that the child learns from his early spending not only the necessity of choosing and deciding, but also something of relative values. Money is not an end in itself but a tool, an instrument used in dealing with others. Children learn to use a tool not for the most part, through advice and supervision, but through direct experience with it. It is only by making mistakes with pennies that the child learns to use his money effectively.

Long before a child is able to earn money of his own, he begins to learn some of the important principles that will help him manage money as an adult. Preschoolers are reaching out for knowledge concerning money and how to use it (Alexander, 1964).

### Need for Study

Research is needed to identify the money concepts and experiences which young children, such as threes and fours, can handle without confusion. Even though many educators have written extensively concerning allowances and how to provide money learning experiences and consumer practices for school age children, there is a dearth of material to help the teachers and parents to understand the four and five year old in relation to his ability to understand money concepts and consumer problems.

Managing money is big business. Education for such big business cannot start too early. Each age and stage of a child's development takes insight, understanding, and a willingness to let him have experience that fosters the formation of sound money management practices.

McCarty (1967, p. 30) studied 5-year-olds and recommended:

The preschool child's experience with money should be studied and correlated with his ability to exhibit the skills investigated in order to determine what experiences are effective in developing realistic money concepts. On the basis of such information, recommendations could be made to parents and educators about effective educational methods for the young child.

### The Purposes of the Study

This study was concerned with monetary concepts of three and four year olds identified by McCarty (1967) but not validated for this young age. The specific purpose of this study was to validate the following tasks for three and four year olds: (1) the ability to identify coins as money, (2) the ability to identify coins by name, (3) the ability to identify the value of the coin, and (4) the ability to determine equivalent value.

McCarty (1967) indicated the four tasks were mastered by most of the five year olds which she tested; however, there seemed to be a need to validate the tasks for three and four year olds.



## CHAPTER II

### RELATED LITERATURE

Children enter school with a wide range of concepts about money, from vague, confused ideas to some rather sophisticated understandings. The kindergarten provides young children with experiences and materials which encourage the development of concepts about money; however, some educators believe that the three and four year old child is ready for experiences with money before kindergarten. Leeper (1968) indicated that before a child is ready to handle money on his own, he must understand simple numbers and be able to differentiate between the coins.

Marshall and Magruder (1960) reported on the effects of various money education practices on the child's knowledge of money and made these recommendations: (1) Give children experience in the use of money to develop knowledge of money and its use. (2) Help adults understand that their philosophy influences what is taught to children.

Marshall and Magruder (1960) made the following suggestions for children in learning to use money: (1) Children can learn by watching how parents and other grown-ups manage their money. (2) Children can be told the truth when there is not enough money to buy some of the things they want--and even some which they really need. (3) Children must learn too what money is for--what it can and cannot do.

## The Need for Consumer Experiences

### During Preschool

Piaget (1930) states "that conceptual learnings are spontaneous, independent findings of the child." Piaget and the findings of Robison (1964) indicate that preschool situations could provide excellent opportunities for such independent learning as that in the area of consumer experiences.

If children are to have an opportunity to learn to make wise choices, then kindergarten teachers and those persons working with children under five need to recognize that economic education has a place in the curriculum and provide learning experiences in this area of education. While children are passing through stages of development, they begin to feel a responsibility for the care of their clothing, as well as for the care of property, both private and public, and this would provide opportunity for real life experiences in the curriculum.

Virginia Knauer (1970), Special Assistant to President Nixon for Consumer Affairs, recommended the need for consumer education to be developed in the curriculum for all levels from kindergarten through high school. With this broadening of horizons, the kindergarten teacher has opportunity to provide richer and more comprehensive learning activities. She stated in the foreword to "Suggested Guidelines for Consumer Education K-12," (1970, p. 111), that

A vital part of the reform we are seeking must be the inclusion of consumer education at every level of the educational process. Every effort should be made to help our young citizens become alert, responsive, and responsible consumers.

Consumer education is not merely a rhetorical exercise in buymanship. It is a continuing, lifetime learning experience! For that

reason, we must realize its great potential as an integral segment of our total educational system, supplemented by the informal influences of the home and community and supported by consumer organizations, government, and business.

If economic education is taught by the kindergarten and the primary teachers and continued throughout public school, the high school graduate then should possess a certain level of economic competency. In line with an ancient Oriental proverb, "If you give a man a fish, he will have a single meal; if you teach him how to fish, he will eat all his life" (Knauer, 1970, p. v). The kindergarten needs to accept some responsibility toward economic education so that every child will experience a progressive program regardless of whatever age he may enter school.

McNeal (1964) in "An Exploratory Study of the Consumer Behavior of Children," reported that training children by parents in the actual elements of the consumer role is prevalent during late preschool years and becomes much more intense during elementary school years. Giving the children explanations for refusing to purchase items, as well as seeking the opinions of the youngsters about tentative household purchases, is effective experience in that it acquaints them with factors that the parents consider in purchasing various products.

Children of all ages view the shopping process as exciting. Their comments imply that it contains many pleasure giving things to be discovered. For the pre-schoolers, particularly, going shopping usually will take precedence over any other activity. (p. 66)

Science Research Associates, Inc. (1971, p. 4), in a release "An Overview of Our Working World," reported that:

Children will discover that most things are not free, and that we have to pay a price for them. The children will

practice discerning what is more expensive and what is less expensive. Exercises on how price, tastes, and income affect consumer decisions and how consumer decisions affect price will help them understand the operation of the market economy and the employment theory.

In summary, McNeal (1964, p. 255) wrote "Consumer role behavior does not blossom suddenly with the advent of adulthood; it like many other significant behaviors, is a product of learning that begins with childhood and develops throughout the life cycle."

#### Young Children's Knowledge of and Experience With Money

Prevy (1945) in her quantitative study of family practices in helping children in the use of money found a direct relationship between children's early practice and their ability to manage money wisely in later years. However, money becomes meaningful to the child only when he has an opportunity to use it. Children's early experiences with money provide them with opportunities to make choices and decisions which are similar to the financial problems encountered in adult life. Hanson (1934) in a study of children's use of money, concluded that receiving money according to a well defined plan was more favorable than haphazard methods.

Marshall and McGruder (1960) studied the effects of various money education practices on the child's knowledge and use of money. They concluded: (1) children's knowledge and use of money is related to the quality and extent of experience; (2) providing children with money to spend increases their ability to use it effectively, and (3) the manner in which parents handle money influences children's practices. These

researchers also found that children who received allowances seemed to have no greater knowledge of money than those who did not.

Prevey (1945) pointed out that the handbooks on child-rearing recommended allowances, but the new generation received little useful buymanship information or money management experiences. Each generation is shaped by its own unique experiences and, in a fast changing world, the experiences of one generation and the next may differ greatly. There are educators today who feel that increasing prosperity has created "Gimmie" children and a give-to-the-child atmosphere, with the result being obedient parents and spoiled children. Feldman (1957) studied the money practices of teenagers and those in early marriage and found that money plays an important role in the development of values in individuals. This leads one to believe that children learn through spending money foolishly, and as they grow older in years and experiences, may spend money more wisely! Research is necessary to determine more satisfactorily the best time to introduce various processes and methods and this study is purposed toward understanding the preschoolers' concepts related to money concepts.

## CHAPTER III

### METHOD AND PROCEDURE

McCarty's (1967, Appendix A) tasks were administered to 47 pre-school children, 20 three year olds and 27 four year olds. All subjects were enrolled in the Child Development Laboratories at Oklahoma State University during the spring semester, 1971. A description of the four tasks follows as reported by McCarty (1967).

#### Test I--Money-Sorting Task

The purpose of the money-sorting task is to investigate children's ability to differentiate coins as money.

Materials needed: A small purse containing coins (half dollar, quarter, dime, nickel, and penny) and non-money objects (a plastic fifty-cent piece, a bracelet charm resembling money, a plastic dime, a tin dime, a bus token, and a plastic penny).

Procedure: The child is shown the purse and told, "I have some real pieces of money for a real store and some 'pretend pieces' for a 'pretend store.'" The coins and non-money objects are then taken from the purse and shown to the child. He is then instructed to sort them by saying, "Put the real pieces of money for a real store over here (investigator indicates a place for the coins) and put the 'pretend pieces' for a 'pretend store' over here." (Investigator indicates a place.)

The manner in which the child sorts the objects is recorded.

### Test II--Coin-Identification Task

The purpose of the coin-identification task is to investigate children's ability to identify coins by name.

Materials needed: Two quarters, two half dollars, two dimes, three nickels, and two pennies.

Procedure: The coins are placed before the child in the following pattern:

25-10-25

10-5-1-5-25

1-50-5

The investigator says, "I have some real pieces of money on the table. Can you put your finger on a penny?" When the child responds, the investigator says, "Good." In this manner, the investigator directs the child either to put his finger on (a penny) or on a piece that is (one cent), in the following order:

- |                      |                       |
|----------------------|-----------------------|
| 1. A penny           | 10. A quarter         |
| 2. A nickel          | 11. Ten cents         |
| 3. A dime            | 12. A nickel          |
| 4. A half dollar     | 13. Twenty-five cents |
| 5. One cent          | 14. A half dollar     |
| 6. Five cents        | 15. One cent          |
| 7. Ten cents         | 16. A dime            |
| 8. Twenty-five cents | 17. Fifty cents       |
| 9. Fifty cents       | 18. A penny           |
|                      | 19. Five cents        |

The child's correct responses are recorded. The child is credited with identifying the coin if both his responses are correct, e.g., two responses for a penny or two responses for one cent.

### Test III--Comparative Value Task

The purpose of the comparative value task is to investigate children's ability to identify coins of greater and lesser value.

Materials needed: The half dollar, quarter, dime, nickel, and penny are paired twice in all possible combinations. The pairs are mounted on three by five cards so that the coin of greater value in each pair will appear once on the left and once on the right.

Procedure: The investigator asks the child, "Do you go to the store with your mother sometimes?" (Child responds.) "What do you buy?" (If candy is not mentioned, the investigator again asks, "Do you buy candy sometimes?") The child is then shown the first card of paired coins. The investigator instructs the child to choose the coin of greater value by saying, "Show me the coin that would buy the most candy at the store." In this manner, the investigator instructs the child to choose the coin of greatest value in each of the following pairs:

- |                         |                          |
|-------------------------|--------------------------|
| 1. Half dollar--quarter | 9. Nickel--half dollar   |
| 2. Dime--nickel         | 10. Quarter--penny       |
| 3. Penny--half dollar   | 11. Dime--nickel         |
| 4. Dime--quarter        | 12. Half dollar--quarter |
| 5. Nickel--penny        | 13. Penny--dime          |
| 6. Half dollar--dime    | 14. Nickel--half dollar  |
| 7. Quarter--nickel      | 15. Quarter--penny       |
| 8. Penny--dime          | 16. Half dollar--dime    |



17. Nickel--penny

19. Penny--half dollar

18. Dime--quarter

20. Quarter--nickel

The child's choices are recorded on the score sheet.

#### Test IV--Equivalent Value Task

The purpose of the equivalent value task is to investigate children's ability to match coins with coins of equivalent value.

Materials needed: (1) A variety of small inexpensive toys; four were used for each child, and (2) a four-shelf rack on which the toys could be placed. A coin was glued to each shelf to indicate the price of the toy on that shelf (top shelf, nickel; second shelf, dime; third shelf, quarter; fourth shelf, half dollar); (3) four small purses or containers; one containing seven pennies and one dime for matching the nickel; one containing three nickels and eleven pennies for matching the dime; one containing five nickels, three dimes, and a half dollar for matching the quarter; and one containing three quarters, seven dimes, six nickels, and a penny for matching the half dollar. (It is helpful to match the color of the shelf to the color of the purse.)

Procedure: The child is shown four toys and the investigator instructs him to choose one by saying, "These are the toys I have in my store. You may choose one that you would like to buy." The investigator places the toy chosen by the child on the top shelf and puts the other toys out of sight.

The purse to be used in matching the nickel is given to the child. The investigator points to the toy saying, "Let us pretend that the (toy) costs this much" (indicating the coin on that shelf). "You may buy it with the money in this purse. Give me the money you would need

to buy the (toy)." (The investigator holds out her hand as if to accept the coins.) When the child chooses his coins, the investigator records his choice and says, "Good. You could buy it with that purse, couldn't you? Now let us see if this purse will buy the (toy)." (The purse for the dime is given to the child.) The investigator then moves the toy to the next shelf and says, "Now let us pretend that the (toy) costs this much" (indicating the dime). In this manner, the child is requested to match the quarter and the half dollar with coins of equal value. The child's choices are recorded on the score sheet.

## CHAPTER IV

### ANALYSIS OF DATA

The purpose of this study was to investigate three and four year olds' ability to identify coins as money, to identify coins by name, and to identify the value of coins. The four tests used were those developed by McCarty (1967), which were tests specifically designed to measure: (1) the child's ability to identify coins as money, (2) the child's ability to identify coins by name, (3) the child's knowledge of comparative value of coins, and (4) the child's knowledge of the equivalent value of coins. These four tests were administered to 47 children; 20 three year olds and 27 four year olds.

Table I reflects that four year olds were able to differentiate the real money from the pretend money more often than the three year olds; percentage of responses of three year olds being 83 percent and the four year olds 92 percent. McCarty (1967) reported that five year olds in her study completed this task 86 percent of the time; and the four year olds completed 75 percent. This may reflect the change in mathematical content in early childhood education curriculum over the four years that lapsed between the studies; since the subjects for both studies came from the same laboratories.

As Table II indicates, both the three and four year olds had more success identifying the penny than any of the other money pieces.

TABLE I  
 FREQUENCY OF CORRECT RESPONSES OF THREE AND FOUR  
 YEAR OLD CHILDREN ON MONEY-SORTING TASK  
 (N = 47)

	Three Year Olds N = 20 3:00-3:11	Four Year Olds N = 27 4:00-4:11
<u>Money Items</u>		
Half Dollar	19	27
Quarter	17	26
Dime	18	24
Nickel	17	25
Penny	18	25
<u>Non-Money Items</u>		
Plastic Half Dollar	12	25
Bracelet Charm	12	21
Plastic Dime	17	25
Tin Dime	17	24
Bus Token	16	25
Plastic Penny	19	26
Total	200	298
Percentage of Correct Responses	83%	92%

TABLE II  
 FREQUENCY AND PERCENT OF CORRECT RESPONSES OF THREE AND FOUR  
 YEAR OLDS ON A MONEY-IDENTIFICATION TASK  
 (N = 47)

Coin	Three Year Olds	Four Year Olds
	N = 20 3:00-3:11	N = 27 4:00-4:11
Half Dollar	13	11
Quarter	10	8
Dime	12	9
Nickel	9	15
Penny	15	26
Total Correct Responses	59	69
Percentage of Correct Responses	27%	20%

Data presented in Table III indicates that four year olds are more advanced in identifying the value of coins when confronted with choosing a coin of greater value in a judgement situation.

While McCarty (1967) found no correct responses among four year old children to the task designed to measure money concepts, the present study (Table IV), using identical task, found four correct responses among four year olds. This suggests that preschool children are receiving more experience with money; however, data from the present study, as well as McCarty's (1967) findings, indicate this was the most difficult task of the four studied. Table V indicates the items in this task did not discriminate between high and low scoring children.

TABLE III

FREQUENCY OF CORRECT RESPONSES OF THREE AND FOUR YEAR OLDS  
ON THE COMPARATIVE VALUE TASK  
(Identification of Greater and Less Value)  
(N = 47)

	Three Year Olds N = 20 3:00-3:11	Four Year Olds N = 27 4:00-4:11
<u>Paired Coins</u>		
50¢ - 25¢	12	22
50¢ - 10¢	10	22
50¢ - 5¢	16	24
50¢ - 1¢	15	23
25¢ - 10¢	11	23
25¢ - 5¢	11	21
25¢ - 1¢	12	22
10¢ - 5¢	7	11
10¢ - 1¢	10	18
5¢ - 1¢	9	20
25¢ - 5¢	11	21
25¢ - 1¢	12	22
10¢ - 5¢	7	11
10¢ - 1¢	10	18
5¢ - 1¢	9	20

TABLE III (Continued)

	Three Year Olds N = 20 3:00-3:11	Four Year Olds N = 27 4:00-4:11
<u>Paired Coins</u>		
5¢ - 25¢	8	17
1¢ - 25¢	8	20
5¢ - 10¢	6	12
1¢ - 10¢	11	15
1¢ - 5¢	9	14
Total	204	376
Percentage of Correct Responses	51%	69%

TABLE IV  
 FREQUENCY OF CORRECT RESPONSES OF THREE AND FOUR  
 YEAR OLDS ON EQUIVALENT VALUE TASK  
 (N = 47)

Coin	Three Year Olds (N = 20)	Four Year Olds (N = 27)
Half Dollar	3	2
Quarter	1	1
Dime	0	1
Nickel	0	0
Total	4	4

An item analysis was undertaken of each of the items on the Money Concept Test in order to ascertain which items differentiate high and low scoring children, i.e., those children whose responses were classified above and below the median. The Fisher Exact Probability Test was utilized in order to obtain probability values. As noted in Table V, the items did not generally differentiate high and low scoring children.



TABLE V  
 DISCRIMINATING ITEMS ON THE MONEY CONCEPT TESTS AS REFLECTED  
 BY A FISHER EXACT PROBABILITY TEST ANALYSIS

	Three Year Olds' Level of Significance (N = 20)	Four Year Olds' Level of Significance (N = 27)
<u>Money-Sorting Task</u>		
<u>Money Items</u>		
Half Dollar	n.s.	n.s.
Quarter	n.s.	n.s.
Dime	n.s.	.01
Nickel	n.s.	n.s.
Penny	n.s.	n.s.
<u>Non-Money Items</u>		
Plastic Half Dollar	n.s.	n.s.
Bracelet Charm	n.s.	n.s.
Plastic Dime	n.s.	n.s.
Tin Dime	n.s.	n.s.
Bus Token	n.s.	n.s.
Plastic Penny	n.s.	n.s.
<u>Coin Identification Task</u>		
Half Dollar	n.s.	n.s.
Quarter	n.s.	.05
Dime	n.s.	.05
Nickel	n.s.	n.s.
Penny	n.s.	n.s.
Fifty Cents	n.s.	n.s.

TABLE V (Continued)

	Three Year Olds' Level of Significance (N = 20)	Four Year Olds' Level of Significance (N = 27)
<u>Coin Identification</u>		
<u>Task</u>		
Twenty-five Cents	n.s.	n.s.
Ten Cents	n.s.	n.s.
Five Cents	n.s.	n.s.
One Cent	n.s.	n.s.
<u>Comparative Value</u>		
<u>Task</u>		
<u>Paired Coins</u>		
50¢ - 25¢	n.s.	n.s.
50¢ - 10¢	n.s.	n.s.
50¢ - 5¢	n.s.	n.s.
50¢ - 1¢	n.s.	n.s.
25¢ - 10¢	n.s.	n.s.
25¢ - 50¢	n.s.	n.s.
10¢ - 50¢	n.s.	n.s.
5¢ - 50¢	n.s.	n.s.
1¢ - 50¢	n.s.	n.s.
10¢ - 25¢	n.s.	n.s.
25¢ - 5¢	n.s.	n.s.
25¢ - 1¢	n.s.	n.s.
10¢ - 5¢	n.s.	n.s.
10¢ - 1¢	n.s.	n.s.

TABLE V (Continued)

	Three Year Olds' Level of Significance (N = 20)	Four Year Olds' Level of Significance (N = 27)
<u>Comparative Value</u>		
<u>Task</u>		
<u>Paired Coins</u>		
5¢ - 1¢	n.s.	n.s.
5¢ - 25¢	n.s.	n.s.
1¢ - 25¢	n.s.	n.s.
5¢ - 10¢	n.s.	n.s.
1¢ - 10¢	n.s.	n.s.
1¢ - 5¢	.05	n.s.
<u>Equivalent Value</u>		
<u>Task</u>		
Half Dollar	n.s.	n.s.
Quarter	n.s.	n.s.
Dime	n.s.	n.s.
Nickel	n.s.	n.s.

### Summary of Findings

1. Both three and four year olds scored high on the money-identification task; with four year olds scoring slightly higher than the three year olds.

2. None of the three and four year olds were able to identify all of the coins in Task III. Both three and four year olds identified the penny and nickel more often than the dime, quarter, and half dollar.

3. Four year olds were more advanced than three year olds in identifying the value of coins, regardless of the coin.

4. Both threes and fours had difficulty with the Equivalent Value Task. They were not able to determine the coin that would purchase a specific item.

5. Only five items (Table V) discriminated between the high and low scoring individuals.

## CHAPTER V

### SUMMARY AND RECOMMENDATIONS

This study was concerned with monetary concepts of three and four year olds identified by McCarty (1967) but not validated for this young age. The specific purpose of this study was to validate the following tasks for three and four year olds: (1) the ability to identify coins as money, (2) the ability to identify coins by name, (3) the ability to identify the value of the coin, and (4) the ability to determine equivalent value.

The subjects for this study were 20 three year olds and 27 four year olds enrolled in the Child Development Laboratories at Oklahoma State University during the spring semester, 1971.

This investigator followed the procedures developed by McCarty (1967) for use with the four monetary concepts as presented in Chapter III by this thesis i.e.: Test I--Money-Sorting Task; Test II--Coin-Identification Task; Task III--Comparative Value Task, and Test IV--Equivalent Value Task.

Data were reported by frequency of correct responses by item and age level for three and four year olds to determine if the items on the money concepts differentiated between high and low scoring children. The Fisher Exact Probability Test was utilized.

### Findings

1. Both three and four year olds scored high on the money-identification task; with four year olds scoring slightly higher than the three year olds.
2. None of the three and four year olds were able to identify all of the coins in Task III. Both three and four year olds identified the penny and nickel more often than the dime, quarter, and half dollar.
3. Four year olds were more advanced than three year olds in identifying the value of coins, regardless of the coin.
4. Both threes and fours had difficulty with the Equivalent Value Task. They were not able to determine the coin that would purchase a specific item.
5. Only four items on the Money Concept Tests (Table V) discriminated between the high and low scoring individuals.

### Recommendation for Further Research

The following suggestions are made on the basis of the findings of this investigation.

1. Study children younger than three years of age.
2. Study children using a larger and more representative sample which would include children from various socio-economic levels; children from the various subcultures; and children from rural areas.

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SCORE SHEET

NAME

AGE

DATE

## TEST I--MONEY-SORTING TASK

50	25	10	5	1	1	p50	C	p10	t10	BT	p1
Money Items						Non-Money Items					

\* Check each object correctly sorted as a money-non-money item.

## TEST II--COIN IDENTIFICATION TASK

Half Dollar	Quarter	Dime	Nickel	Penny	50	25	10	5	1
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\* Step one - Check each coin correctly identified.  
Step two - Circle each coin correctly identified.

## TEST III--COMPARATIVE VALUE TASK

50	25	25	50	25	5	5	25
50	10	10	50	25	1	1	25
50	5	5	50	10	5	5	10
50	1	1	50	10	1	1	10
25	10	10	25	5	1	1	5

\* Check the coin chosen in each pair.

## TEST IV--EQUIVALENT VALUE TASK

COIN	CORRECT RESPONSE	INCORRECT RESPONSE
Half Dollar		
Quarter		
Dime		
Nickel		

VITA

Annie Alexander West

Candidate for the Degree of

Master of Science

Thesis: VALIDATION OF TASKS OF MONETARY CONCEPTS FOR THREE AND FOUR  
YEAR OLDS

Major Field: Family Relations and Child Development

Biographical:

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