

MONETARY CONCEPTS OF URBAN
KINDERGARTEN CHILDREN:
VALIDATION OF A TEST

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CHAPTER I

THE PROBLEM

This study was concerned with the monetary concepts of white, urban kindergarten children. Children today are faced with a complex and interdependent society which demands an ever-increasing amount of business transactions at an early age (Warren, 1935). McNeal (1964) found that children are taking an active part in the consumer process at the age of five. Porter (1955) stated that the average five-year old is beginning to be aware that one goes to work to possess the objects one needs and enjoys. Strauss (1952) found that children of five and older realize the buying power of money. This is further supported by Lindberg (1968) who reported that children are aware of their parents' purchases and the money transaction which accompanies the receiving of goods.

A child, in order to develop monetary concepts and desirable consumer practices, needs actual experience in acquiring and in spending money. Grojean (1972) in her study of preschool children age four years to five years, eleven months, found that: (1) all the children had some experience in obtaining money either by allowance, dole, gift and/or earnings, and (2) all children had some experience in spending money. Hurlock (1946) stated that even though children know about money, money is relatively insignificant if the child has not had experience in using it. He further states that in the development of

monetary concepts that the amount of money the child spends is not as important as the way in which he spends it. Jackson (1970) reports that children need experience in the actual use of money to develop knowledge of monetary concepts.

The early involvement in the consumer process by the age of five suggests the importance of researching the basic monetary concepts and the consumer practices held by young children. Most research in consumer behavior has been conducted with children over the age of six. Since children of preschool age are involved in the consumer process, it becomes important to conduct research with this age group and to use the information to develop pertinent consumer units for the young child.

McCarty's (1967) findings showed that the few five-year olds she tested were able to master most of the tasks. However, she recommended that there needed to be a larger sampling of children to further establish the validity and reliability of the tasks. West (1971) tested children three and four years old and found: (1) that both age groups had difficulty in identifying all of the coins in Task II, (2) that the four-year olds were more successful in identifying the value of coins, (3) that both groups had difficulty with the Equivalent Value Task, and (4) that both three- and four-year old children scored high on the money-identification task.

Purposes of the Study

The specific purposes of this study were to validate the Monetary Concepts Task Test developed by McCarty (1967) utilizing white, urban kindergarten children (ages 5.3-6.5) and to compare the responses of boys and girls to the four tasks.

The monetary concepts tasks which were tested were: (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.

CHAPTER II

RELATED LITERATURE

The literature related to the monetary experiences and consumer practices of young children is discussed as follows: (1) Development of Monetary Concepts; (2) Young Children's Knowledge of and Experience With Money; (3) The Need for Consumer Education; and (4) Implications for the Present Study.

Development of Monetary Concepts

Children develop a desire for money as they become aware of the value adults appear to attach to it (Neisser, 1970). Robinson (1964) tested two groups of twenty-five, five-year olds from high socio-economic levels on their ability to identify six denominations of money. Four children in each group were able to identify all the money which included a dollar bill, a check, a quarter, dime, nickel, and penny, while four children in each group identified correctly five out of six items.

Strauss (1952) found that children as young as three could distinguish money from other objects. This was restricted to the identification of a penny. If asked to choose between two coins, the selection was based on chance or because, in the selection of a higher value coin, the relative size was greater than that of a lower value coin,

The very young child is usually not able to connect money as a medium of exchange, rather he sees money as something that makes other things happen, such as putting a penny in a gum machine and receiving a piece of gum (Pope, 1965). Strauss (1952) also found that children between ages 4.8-5.11 years understand that money has to do with purchasing power, yet they do not know that specific coins must be used for buying different things. He reported that at the age of six, the children could correctly name all of the coins and show an understanding of their comparative value.

McCarty (1961) found the following in her investigation of children's concepts of money: (1) children's ability to identify coins as money increases with age; (2) children's ability to identify coins by name increases with age and coins of smaller denominations are correctly identified more frequently than coins of larger denominations; (3) children's ability to identify the comparative value of coins increases with age.

Young Children's Knowledge of and Experience With Money

The child's earliest learning experience with money is that of using money as a means of a purchase and from his early spending he learns something of relative values (Gruenberg, 1933). Dunsing (1956) stated that the experience a child has in acquiring and spending money will influence the child's ability to use sound consumer practices in adolescence and adulthood. Many authors (Alexander, 1964; Andrews, 1932; Danziger, 1959; Eliot, 1932; Gavian, 1939; Gruenberg, 1932; Nickee, 1959; Ojemann, 1933; Prevey, 1945; Wohlner, 1971) have stressed

the importance of providing children with money they can use as a tool in developing consumer awareness and competency. Grojean (1972) in a study of preschool children found that all the children had experiences in both obtaining and in spending money.

The Need for Consumer Education

The free enterprise system in our country has provided the American consumer with the greatest amount of choices in the market place. However, the consumer is often lost in the perplexities that have resulted from our complex economy and are deceived into billions of dollars of losses as a result of fraud and deception in the market (President's Committee on Consumer Interest, 1970).

As the market place continues to expand and more choices are presented, it becomes vitally important for the consumer to develop a sound decision-making process by which he can make intelligent, competent purchases (Natella, 1968). McNeal (1964) found that five-year old children were significantly engaged in the consumer process, indicating the need for consumer education in the preschool program.

Robinson (1964) provided kindergarten children with consumer experiences by the use of free play activities. Robinson's findings indicated that as the children became more familiar with the use of money transactions, they developed a growing understanding of coin differences, money equivalences and values. They also showed more interest in the denominations of money and in prices and explored the change-making process. The planned, yet unstructured learning experiences provided by Robinson (1964) indicated the effectiveness of providing preschool children with experiences pertaining to economic concepts.

Implications for the Present Study

The following findings from the literature have implications for the present study: (1) children are involved in the consumer process at a very young age; (2) the development of monetary concepts depends upon the actual experience children have in the use of money; (3) children's experience in the acquisition and spending of money will influence later consumer behavior practices; and (4) there is need for research to determine the levels of monetary ability and knowledge of consumer practices of the child in kindergarten.

CHAPTER III

METHOD AND PROCEDURE

The Monetary Concepts Task Test developed by McCarty (1967) and further validated by West (1971) was used to determine the monetary concepts of the sample for this study. The tasks test was administered to 60 girls and 60 boys enrolled in kindergartens in the elementary schools in Stillwater, Oklahoma.

Subjects

A total of 120 children were selected from the six kindergarten classrooms in the school system, which has an enrollment of 243 children in the spring semester, 1972. In each kindergarten class, ten boys and ten girls were randomly selected and tested. All the children who were selected and tested were included in the study. The distribution of children tested by age and sex are included in Table I.

Monetary Tasks

A description of the four tasks as reported by McCarty (1967) follows.

Test I--Money-Sorting Task

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

TABLE I
CHILDREN BY AGE AND SEX
(N = 120)

Age	Boy	Girl	Total
Five-year olds (5.3-5.11)	36	33	69
Six-year olds (6.0-6.5)	24	27	51
Total	60	60	120

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 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:

25-10-50

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 | 11. Ten cents |
| 2. A nickel | 12. A nickel |
| 3. A dime | 13. Twenty-five cents |
| 4. A half dollar | 14. A half dollar |
| 5. One cent | 15. One cent |
| 6. Five cents | 16. A dime |
| 7. Ten cents | 17. Fifty cents |
| 8. Twenty-five cents | 18. A penny |
| 9. Fifty cents | 19. Five cents |
| 10. A quarter | 20. A quarter |

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 | 11. Dime--nickel |
| 2. Dime--nickel | 12. Half dollar--quarter |
| 3. Penny--half dollar | 13. Penny--dime |
| 4. Dime--quarter | 14. Nickel--half dollar |
| 5. Nickel--penny | 15. Quarter--penny |
| 6. Half dollar--dime | 16. Half dollar--dime |
| 7. Quarter--nickel | 17. Nickel--penny |
| 8. Penny--dime | 18. Dime--quarter |
| 9. Nickel--half dollar | 19. Penny--half dollar |
| 10. Quarter--penny | 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.

Treatment of Data

An item analysis was undertaken of each of the items on the Monetary Concepts Task Test in order to ascertain which items differentiate high and low scoring children, i.e., those children who scored in the upper and lower quartiles in terms of their total scores on the test. A Chi Square Test was utilized in order to obtain probability values.

CHAPTER IV

ANALYSIS OF DATA

The purposes of this study were to validate the Monetary Concepts Task Test (McCarty, 1967) on urban kindergarten children, and to compare the responses of boys and girls. The four monetary concepts were: (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 120 children; 60 boys and 60 girls.

The vast majority of the items on the money-sorting tasks were correctly identified by the urban kindergarten-age children (Table II), indicating that these tasks were too easy for this age group (5.3-6.5). Previous studies by McCarty (1967) and West (1971) did not find this with three- and four-year olds.

Table III reveals that 9 out of the 10 items involving the identification of money were discriminating, suggesting the usefulness of these tasks in assessing the monetary concepts of five-year-old urban children.

Table IV reveals that 11 of the 20 items involving tasks of recognizing coins of comparative value were discriminating, suggesting that slightly over half of the items were useful.

TABLE II
 ITEM ANALYSIS OF THE MONEY-SORTING TASKS AS REFLECTED BY CHI SQUARE
 ANALYSIS OF RESPONSES OF URBAN KINDERGARTEN CHILDREN*
 (N = 120)

	Correct Responses	χ^2	Level of Significance
<u>Money Items</u>			
(1) Half Dollar	113	n.a. **	
(2) Quarter	117	n.a.	
(3) Dime	112	n.a.	
(4) Nickel	117	n.a.	
(5) Penny	115	n.a.	
(6) Penny	113	n.a.	
<u>Non-Money Items</u>			
(7) Plastic Half Dollar	99	1.84	n.s.
(8) Bracelet Charm	110	n.a.	
(9) Plastic Dime	117	n.a.	
(10) Tin Dime	113	n.a.	
(11) Bus Token	112	n.a.	
(12) Plastic Penny	106	n.a.	

* df = 1

** n.a. = not applicable

TABLE III
 ITEM ANALYSIS OF THE MONEY-IDENTIFICATION TASKS AS REFLECTED
 BY CHI SQUARE ANALYSIS OF RESPONSES OF URBAN
 KINDERGARTEN CHILDREN
 (N = 120)

	χ^2	Level of Significance
<u>Coins</u>		
(13) Half Dollar	23.25	.001
(14) Quarter	17.77	.001
(15) Dime	16.70	.001
(16) Nickel	22.25	.001
(17) Penny	n.a.	
<u>Cents</u>		
(18) 50¢	7.95	.01
(19) 25¢	10.41	.01
(20) 10¢	28.70	.001
(21) 5¢	30.24	.001
(22) 1¢	41.71	.001

TABLE IV
 ITEM ANALYSIS OF THE COMPARATIVE VALUE TASK AS REFLECTED
 BY CHI SQUARE ANALYSIS OF RESPONSES OF URBAN
 KINDERGARTEN CHILDREN
 (N = 120)

<u>Paired Coins</u>	χ^2	Level of Significance
(23) 50¢-25¢	n.a.	
(24) 50¢-10¢	16.70	.001
(25) 50¢-5¢	10.41	.01
(26) 50¢-1¢	15.02	.001
(27) 25¢-10¢	n.a.	
(28) 25¢-5¢	n.a.	
(29) 25¢-1¢	16.60	.001
(30) 10¢-5¢	n.a.	
(31) 10¢-1¢	23.72	.001
(32) 5¢-1¢	5.45	.05
(33) 25¢-5¢	15.00	.001
(34) 25¢-1¢	n.a.	
(35) 10¢-5¢	3.45	n.s.
(36) 10¢-1¢	25.45	.001
(37) 5¢-1¢	n.a.	
(38) 5¢-25¢	16.60	.001
(39) 1¢-25¢	15.00	.001
(40) 5¢-10¢	.74	n.s.
(41) 1¢-10¢	20.32	.001
(42) 1¢-5¢	n.a.	

Only one item on the equivalent value tasks section of the test successfully discriminated high and low quartile groups (Table V). The vast majority of the children gave incorrect responses to this section. Because of this, the equivalent values tasks would seem to be inappropriate in terms of differentiating high and low scoring children, but it seems apparent that material included in this section of the test should be included in curriculums designed for five-year-old children because the majority of children of this age are unfamiliar with these concepts.

TABLE V
ITEM ANALYSIS OF THE EQUIVALENT VALUE TASK AS REFLECTED BY
CHI SQUARE ANALYSIS OF RESPONSES OF
URBAN KINDERGARTEN CHILDREN

	χ^2	Level of Significance
<u>Coin</u>		
(43) Half Dollar	n.a.	
(44) Quarter	n.a.	
(45) Dime	25.71	.001
(46) Nickel	n.a.	

Sex Differences

Table VI reveals no significant differences between boys and girls in their responses to the Monetary Concepts Task Test. This finding

reflects the curriculum for boys and girls need not be different.

TABLE VI
CHI SQUARE VALUES REFLECTING DIFFERENCES BETWEEN KINDERGARTEN
BOYS AND GIRLS TO MONETARY CONCEPTS TASK TEST

Item	Number of Correct Responses		χ^2	Level of Significance
	Male (N = 60)	Female (N = 60)		
<u>MONEY-SORTING TASK</u>				
<u>Money Items</u>				
(1) Half Dollar	56	55	n.a.	
(2) Quarter	58	59	n.a.	
(3) Dime	54	58	n.a.	
(4) Nickel	58	59	n.a.	
(5) Penny	56	59	n.a.	
(6) Penny	54	59	n.a.	
<u>Non-Money Items</u>				
(7) Plastic Half Dollar	49	50	.27	n.s.
(8) Bracelet Charm	55	55	n.a.	
(9) Plastic Dime	59	58	n.a.	
(10) Tin Dime	55	58	n.a.	
(11) Bus Token	57	55	n.a.	
(12) Plastic Penny	54	52	.33	n.s.

TABLE VI (Continued)

Item	Number of Correct Responses		χ^2	Level of Significance
	Male (N = 60)	Female (N = 60)		
COIN IDENTIFICATION TASK				
(13) Half Dollar	39	33	1.25	n.s.
(14) Quarter	18	18	.04	n.s.
(15) Dime	34	42	2.29	n.s.
(16) Nickel	40	36	.57	n.s.
(17) Penny	56	57	n.a.	
(18) Fifty Cents	9	6	.29	n.s.
(19) Twenty-Five Cents	8	7	0.0	n.s.
(20) Ten Cents	17	16	.04	n.s.
(21) Five Cents	20	13	1.48	n.s.
(22) One Cent	25	21	1.39	n.s.
COMPARATIVE VALUE TASK				
<u>Paired Coins</u>				
(23) 50¢-25¢	56	54	n.a.	
(24) 50¢-10¢	51	51	.06	n.s.
(25) 50¢-5¢	55	48	2.60	n.s.
(26) 50¢-1¢	52	51	0.0	n.s.
(27) 25¢-10¢	55	51	1.29	n.s.
(28) 25¢-50¢	55	53	n.a.	
(29) 10¢-50¢	55	49	1.90	n.s.
(30) 5¢-50¢	56	52	n.a.	
(31) 1¢-50¢	55	50	0.0	n.s.
(32) 10¢-25¢	54	52	.09	n.s.

TABLE VI (Continued)

Item	Number of Correct Responses		χ^2	Level of Significance
	Male (N = 60)	Female (N = 60)		
(33) 25¢-5¢	49	51	.69	n.s.
(34) 25¢-1¢	56	54	n.a.	
(35) 10¢-5¢	13	15	1.86	n.s.
(36) 10¢-1¢	37	38	0.32	n.s.
(37) 5¢-1¢	59	55	n.a.	
(38) 5¢-25¢	54	50	n.a.	
(39) 1¢-25¢	52	54	n.a.	
(40) 5¢-10¢	10	12	n.a.	
(41) 1¢-10¢	38	41	n.a.	
(42) 1¢-5¢	56	54	n.a.	
EQUIVALENT VALUE TASK				
(43) Half Dollar	6	1	n.a.	
(44) Quarter	4	4	n.a.	
(45) Dime	12	12	0.05	n.s.
(46) Nickel	10	11	0.06	n.s.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

This study was designed to obtain information concerning the validity of the Monetary Concepts Task Test developed by McCarty (1967) on urban kindergarten age children (5.3-6.5), and to identify differences between boys and girls of this age.

The four tasks used in this study were: (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 60 boys and 60 girls randomly selected from the kindergarten classes in the Stillwater Public Schools during the spring semester, 1972.

The researcher followed the procedures developed by McCarty (1967) for use of the four monetary concepts tasks which were: Test I--Money-Sorting Task; Test II--Coin-Identification Task; Test III--Comparative Value Task; and Test IV--Equivalent Value Task.

The data were reported by number of correct responses. The Chi Square Test was utilized to determine the items on the money concepts tasks which differentiated between high and low scoring children.

Findings

1. The majority of the items on the money-sorting task tests were

correctly identified by the urban, kindergarten children, suggesting that this section is inappropriate for use with kindergarten children.

2. Nine out of the 10 items involving the identification of money were discriminating, suggesting the usefulness of this test in assessing the monetary concepts of kindergarten children.

3. Slightly over half of the items involving tasks of recognizing coins of comparable value were discriminating.

4. Only one item on the equivalent values tasks section of the test successfully discriminated high and low quartile groups. The vast majority of the children gave incorrect responses to this section suggesting that material in this section would be valuable to include in the programs designed for kindergarten children.

5. There was no significant difference between boys' and girls' responses to any of the tasks.

Recommendations for Further Research

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

1. Study children older than those in kindergarten to determine at which level each of the monetary concepts is accomplished.

2. The curriculum in consumer education should be examined in pre-schools and elementary schools to determine what monetary concepts are being taught, as well as what should be included in the educational programs.

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APPENDIX

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

Mary Margaret Dunkin

Candidate for the Degree of

Master of Science

Thesis: MONETARY CONCEPTS OF URBAN KINDERGARTEN CHILDREN: VALIDATION
OF A TEST

Major Field: Family Relations and Child Development

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