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ABSTRACT

The development of economic reasoning in young children is examined from the theoretical perspective of Piaget's work on cognitive development. To determine a possible correlation between grade level and the type of reasoning children use to approach economic problems, 70 urban children, preschool through grade 3, answered questions which measured understanding of basic economic concepts--scarcity, choice, opportunity costs, monetary value, price and exchange, and advertising. Responses were categorized as indicating either unreflective reasoning (characterized by linear, literal responses) or emerging reasoning (characterized by flexible responses and an awareness of reciprocal relationships). Findings indicated that the type of child's reasoning was statistically different by grade level for all concepts except exchange and scarcity. Moreover, the pattern of responses in all cases but opportunity costs showed an upward progression from simple to abstract reasoning by grade level. Thus, the hypothesis that economic understanding develops in a way reflective of Piaget's theory is supported. Results also indicate that economic understanding varies, depending on children's experience. This suggests that children's economic reasoning could be enhanced through class activities and field trips. The report concludes with a table illustrating study findings. (LP)

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The Development of Children's Economic Reasoning

College and University Faculty Association of the
National Council for the Social Studies

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Concerns about low levels of economic literacy in the United States has led to increased interest in teaching economics at the elementary grades. Many elementary social studies textbook series give attention to economic concepts such as needs, wants, specialization, and division of labor beginning in the primary grades. A survey by Yankelovich, Shelly, and White (1981) found that 16 states require or recommend that economics instruction be included at the K-8 or K-12 levels. The Joint Council on Economic Education has produced primary grade (Davison, 1977) and intermediate grade (Kourilsky, 1978) curriculum materials for teaching economics. The National Center of Economic Education for Children produces and distributes nationally the Elementary Economist which contains specific teaching suggestions for teachers in grades K-2, 3-4, 5-6. In addition, the Primary Industry Education Project in England (1983) has developed an economics program for the elementary grades.

These curriculum materials are produced without the benefit of extensive research about how children think about economic problems and ideas. Studying the development of children's economic reasoning can help insure that there is a better "fit" between economic curriculum materials and the approaches

teachers use with the children's understanding of economic ideas. Some recent studies have found evidence that children's economic reasoning develops in a manner similar to what might be expected according to the cognitive development theory of Jean Piaget. Burris (1976) found discrete stages in children's thinking about the economic ideas of exchange, value, and property rights. In her study of children's understanding of pricing, Fox (1978) found that the reasoning of eight-year-old children was qualitatively different from that of younger children. Studies by Schug (1983) and Armeto (1982) found some evidence to support the notion that economic reasoning develops in a manner consistent with cognitive development theory.

The present study was designed to extend earlier research on the development of economic reasoning by having as its central purpose the examination of the economic reasoning of young children (preschool, grade one and grade three). While some earlier studies have included young children as part of the sample, they have not been the central target of any investigation. The result is that we know very little about how young children reason about basic concepts.

The theoretical basis of the study was drawn from the work of Jean Piaget. It was felt that qualitative differences in the types of reasons children use to approach economic problems by grade level would be supportive of Piaget's theory of cognitive development. In addition, it was anticipated that the participants' reasoning would move from simple at earlier ages to more complex for older children.

Research Design

Participants in this study included a total of 70 children who were randomly selected from classes in an urban preschool and two nearby elementary

schools. Twenty-five children were four-five years of age, 23 children were six-seven years old, and 22 children were eight-to-nine years old.

A structured interview protocol served as the main instrument for the study. The interview consisted of a series of questions and hypothetical problems intended to elicit responses illustrating children's reasoning about basic economic concepts. Scarcity, choice, opportunity cost, monetary value, price, exchange, and advertising were the concepts selected for investigation. Six of these concepts--scarcity, choice, opportunity cost, monetary value, price and exchange--were selected because they are widely recognized as being basic economic ideas (Hansen et al., 1977). Advertising was added because of interest in how ideas about personal economics might develop. The interview protocol was an adaption of an earlier version used by Schug (1980) and included some modified questions from Burris (1976).

Each of the 70 individual interviews was tape recorded. The audio tapes were used to prepare verbatim transcripts. Data from the interview transcripts were coded into descriptive categories by two independent readers using a code manual developed for the project. Differences between the readers were discussed and a consensus was reached on the coding of all responses. Next, the descriptive categories were inspected and reclassified on a theoretical basis into broad categories approximating stages of cognitive development. Finally, the percentages of student categorical responses were tested for statistical significance by a series of chi square tests. Chi square tests were judged to be an appropriate form of analysis due to the limited size of the sample and the nominal nature of the data in this study.

Students' responses were classified into one of two theoretical categories--unreflective reasoning and emerging reasoning. Unreflective



reasoning was characterized by ideas which were highly literal, linear, or tautological responses. Often, unreflective responses were based upon the physical properties of the object or process being discussed. Also included were responses wherein students were unable to give a reason beyond a yes or no response or were unable to give reasons beyond their own immediate individual needs. Emerging reasoning was considered to be a higher order of reasoning wherein the participants were able to identify reciprocal relationships, see the viewpoint of others in a concrete context, and were less literal, more flexible in their responses. The following paragraphs describe specific examples of unreflective and emerging reasoning about the economic concepts used in this study.

Results and Discussion

To explore children's thinking about the concept of scarcity, the participants were asked to imagine that they had one hundred dollars to spend and to identify some of the things they would like to buy. The participants were next questioned about whether they felt they had all the things they wanted. About 35 percent of the participants' responses were unreflective statements which tended to be tautological in nature or failed to elaborate any supporting reasons beyond a yes or no statement. "I have everything I want but I don't want anymore" was an example of this type of thinking. Other unreflective statements suggested that economic needs and wants could or could not be met due to the rules or guidelines established by their parents: "Cause my mom says no," or "you have to live with that," were typical responses.

Table 1 indicates that emerging reasoning was a common type of response among a large percentage of the participants at each grade level. Chi square

tests revealed no meaningful grade differences. Many children in the study were able to recognize that their economic wants could not always be met either because their income was limited or because their own economic needs and wants would continue to be unfulfilled. The following are typical responses.

"My mom don't have that much money to spend for me."

"I might want something and it might cost more [and I won't] have enough money."

"I want a doll house--a big doll house."

"I'd like an expansion module so that I could play other cartridges that are on Atari."

The relatively high percentage of participants using emerging reasoning at each grade level is noteworthy because it suggests that the concept of scarcity might be more highly developed in children than was reported in earlier research. Data reported by Schug (1983) suggested that the concept of scarcity was slower to develop among children in the early grades.

The concept of choice was investigated by asking the participants how families, when they are unable to buy all that they want, decide what to buy now and what to buy later. This concept was apparently a difficult one for many children in this study. Table 1 shows that emerging reasoning develops in a statistically meaningful way by grade level and was widely used only among the grade three participants.

The most common unreflective response about the concept of choice (19 percent) was that the participant simply did not know how such a decision would be made. In 16 percent of the unreflective responses the participants list the things the children or their family wanted rather than describe a

decision-making process. "[I want] a purse and a dress," was a typical response. Other unreflective responses suggested that the families should just get more money. Characteristic comments were, "they can buy money" and "get more money from the bank."

Emerging reasoning about the concept of choice was represented by responses which involved establishing economic need or want as criteria for decision making. The following are examples of responses characterizing emerging reasoning.

"They would buy things that they really need now and buy things that they don't really need . . . later."

"If you have enough money for what you need to buy, like for food and stuff, it comes first."

"The things that we'd need more we'd get, but the things that we didn't desperately need, we'll get later."

"I think that the gas bill and the telephone bill and electric and other sorts of things would come first to their minds."

The concept of opportunity cost is a fundamental idea in economics. It refers to the idea that whenever a choice is made, a cost is incurred. That cost is the foregone alternative or the opportunity. To study this concept with children, each participant was presented with a box filled with similarly priced, inexpensive items such as paper pads, stickers, pencils, and felt tip pens. The children were asked to identify which two items they would like to keep and why. Next, the participants were asked if they gave up anything when they selected one item over another.

Unreflective reasoning about opportunity cost was characterized by the failure to recognize that one alternative was foregone when the decision was

made. The most common unreflective responses were the statements of yes or no answers with no supporting reasons or a simple "I don't know."

Emerging reasons regarding opportunity cost were those wherein the participant was able to recognize that something was given up when the decision was made. The following is an example of emerging economic reasoning regarding opportunity cost.

Q - When you picked the stickers instead of the note pad, Nathan, was there anything that you were giving up?

A - Yeah. I was giving up having a note pad that I could really use. Cause I like to draw and all that.

Q - When you selected the game instead of the stickers, Rachita, was there anything that you were giving up?

A - Yes

Q - How were you giving something up?

A - Because, these I need to put in my sticker collection, but I really could play the game.

Table 1 shows that there is a significant pattern in the development of emerging reasoning by grade level. However, emerging reasoning about opportunity cost is the only concept in the study which doesn't show steady upward progression by grade level. The emerging responses of the first grade students declined from the level of the preschool/kindergarten participants before increasing again at grade three. It is difficult to explain this result. One explanation might be that the concept of opportunity cost is a fairly difficult one to measure and that our set of questions did not measure children's reasoning as effectively as we would have liked.

The concept of monetary value was studied by presenting the participants with a real dollar bill and a play dollar bill. They were asked which dollar they preferred to have. All of the participants selected the real dollar. It was pointed out by the interviewer that the real dollar and the play dollar were alike in many ways. Next, the participants were asked why the real dollar was considered to be valuable while the play dollar was not.

Two types of responses were characteristic of unreflective reasoning which declined significantly with grade level ($\chi^2 = 6.63; p < .05$). The most frequent unreflective response (over 50 percent) was the simple assertion that one dollar was real and the other was not. "This one is just pretend and this one is real" and, "this one is a fake dollar and this one is not" were common responses. Thirty-six percent of the unreflective responses suggested that the participants were distracted by the physical characteristics of the dollars and used those to describe why the dollars were valuable or not.

Typical responses were the following:

- "This one has more one's."
- "This one has George Washington on it."
- "Children would like this one better cause it says \$90."
- "This one is green and this one is red."

Table 1 shows that the percentage of emerging reasoning increased with grade level but not significantly. The type of reasoning used by the participants is, however, still of interest to help understand how young people think about why money is valuable. Over three-fourths of the emerging responses suggested that value was associated with the fact that the real dollar was functional. It could be used to purchase things which people want while the play dollar could not be used for anything. The importance of

functionality is reflected in responses such as "this dollar is not real because you can't buy anything with it" and "I can buy real stuff with this but not with this."

Reasoning about the concept of price was investigated in two ways. First, the participants were asked to name some things which cost a lot of money. They were then asked to explain why the items listed cost so much. Second, the participants were asked to name some things which were inexpensive. The children were then asked to explain why the items mentioned cost so little

Unreflective reasoning about price was characterized by two types of responses. First, about 40 percent of the total responses suggested that price was related to the physical characteristics of the item. Some goods were expensive because of their large size. "Some games [cost a lot] and some lazer pistols [cost a lot] because they're big" and "a bed [costs a lot] because they're so big" were typical responses. Similarly, inexpensive products were those which were small in size. Characteristic reasons were "Penny candy [costs a little] because it's a little bitty thing" and "gum costs a little 'cause it's little." A second common unreflective reason was a single tautology. "A new phone [costs a lot] because of the price tag" and "[a play car costs a little] because of the price tag says it doesn't cost a lot of money."

Table 1 shows that emerging reasoning about price developed in a statistically meaningful way by grade level. Characteristics of emerging reasoning included mentioning factors of production such as labor and tools or the function of the product as criteria which make an item expensive or inexpensive. Emerging reasons related to higher prices were "a lot of things are hand made and now adays they make things more by machine than by hand" and

"a refrigerator [costs a lot] because . . . it's cold and you can really put your food in there and make it cold." Emerging reasons related to lower prices were "a pencil cost a little because it's not that big and it doesn't take that much to put it together and make it" and "It's just candy--they don't have to make it."

The preceding paragraphs correctly suggest that the types of reasoning used by the participants to explain high or low prices of particular products were very similar. It is important to note that emerging reasoning was 20 and 26 percentage points higher for the younger children in the study when they were discussing why some products cost more. Perhaps because these children have lived through some periods of difficult inflation, they are more mature in their responses regarding higher prices rather than lower prices. It should also be noted that the types of reasons children used in this study regarding price are supportive of earlier research by Burris (1976).

The concept of exchange was explored by asking the participants first about their experiences shopping at stores. The participants were then asked why people give money when they buy things at the store. A follow-up question was then posed to probe the participants' understanding of economic exchange relationships beyond simple store transactions. The participants were asked what the store owner did with the money after he/she received it. These interview questions were adapted from earlier research done by Burris (1976).

Unreflective responses about why we give money at the store were most often yes or no responses which were not supported by reasons. In about one-third of the unreflective responses the participants tended to focus on the superficial aspects of the transaction. They saw money changing hands but

did not understand that an exchange was taking place. This kind of reasoning was suggested in comments such as, "we give money, then, when other people get their's they can still get some money back," and "you pay money and get money back."

Emerging responses about why we give money at the store showed no grade level differences and began at a high level (64 percent) for the preschool/kindergarten participants. Emerging reasons recognized that an exchange was taking place. The most frequent reason from all the responses mentioned that money is given at the store in order to purchase merchandise. "So we can get the things we want," and "because if you don't pay, then you probably won't have any food at home to eat" were typical responses. The next most common emerging response suggested that money is given at the store in order to provide income to the store owner and the workers or enables the store owner to purchase merchandise. Representative comments here include: "so people at the store can pay their rent," and, "the store wants to have a lot of money to buy more stuff."

The most advanced type of emerging reasoning recognized that money was the basis for transaction in which both parties receive some benefit. This type of reasoning was rare, making up only eight percent of the total responses and was present only among the first and third grade participants. The following are quotes suggestive of this type of reasoning:

"It's like a trade. If you want to trade--give somebody something--and if they have a really neat thing, and you want that, you ask them ... I'll trade you this for that."

"This is like trading. When you trade, they're not going to give you a box of stickers--they're not just going to give it to you--you have to give them something back."

The question used to further explore the participants' thinking about exchange asked what the store owners did with the money they received. Unreflective reasoning was characterized by a literal or superficial interpretation of what happens. Over 25 percent of the unreflective responses suggested that the store owner simply puts the money into the cash register. "Put it in the cash register" and "she puts it in a little box" were typical responses. Another type of unreflective response stated that the store owner takes the money and "keeps it" or "puts it in the bank."

Emerging reasoning regarding the store owner's use of money developed in a statistically significant pattern by grade level and involved an understanding of additional exchanges and interdependent relationships. Three-quarters of the reflective responses mentioned that the money was used to purchase additional merchandise, pay employees, or pay other expenses. Fifteen percent of the responses implied that the owner took a profit. The following are some representative comments:

"They do a lot of things: they buy more merchandise, they fix up the store more. Like if its Easter [and] the store has nothing they buy Easter decorations for it."

"Buys some more new things and then he sells them and gets more money."

"He gives some of it to the place that makes the things and keeps some for paying his workers and then keeps a little for himself."

Table 1 shows that there is a dramatic shift between the youngest children in the study and those in grades one and three. Virtually none of the preschool kindergarten participants used emerging reasoning. At grade one, however, over 40 percent of the participants were at this level and by grade three, the percentage is still higher. It appears that children's experiences in the early grades are highly influential in expanding their understanding of the exchange relationship. These findings are also supported by research conducted by Burris (1976).

Reasoning about the concept of advertising was studied by asking the participants about commercials they see on television. The participants were questioned about what commercials they liked and why. Next, they were asked why we have commercials and if commercials always tell the truth.

Unreflective comments about the purpose of commercials were most common in the youngest children in the study. Over 40 percent of the unreflective responses indicated difficulty in distinguishing television commercials from other types of programming, often confusing commercials with news or weather shows. "because you know how cold it is outside," and "there's a house on fire--they're talking about that," were typical comments. Another type of unreflective response suggested that the purpose of commercials was to give television viewers a break from regular programming. "You can't go right ahead without having a rest . . ." was an example of this type of comment.

Emerging reasoning about the function of television advertising developed in a meaningful fashion by grade level and was characterized three-quarters of the time by the idea that commercials provide consumers with information about available goods and services. Some comments also reflected a suggestion that

commercials manipulate consumers by making them want to buy things. The following are some typical responses:

"So people know what's in the store and what flakes they can get and how much money they would need."

"So they know what to buy."

"To make people buy something. To make you want to go to the store and buy that kind of thing."

"So they can show things, so they don't surprise people when they go to the store. They can advertise them on TV commercials."

It is noteworthy that two third grade participants used the more abstract idea that the purpose of television commercials was to support other television programming. The following are their comments:

"Cause the TV commercials help the TV show that it's on. Like when they have to take breaks, and that's how they stay on, I think. Like the TV commercials pay them to cut into the show."

"Well, sometimes they are to keep the TV show running. You know, so it stays on TV. Like we saw this one show. Now, it's not on television cause it didn't have enough commercials supporting it."

Unreflective reasoning about the truthfulness of television commercials most often involved statements about the correct information provided by advertising. These comments suggested that the individual had actually seen the advertised product at the store and, therefore, the commercial was accurate. The following quotes are examples:

". . . I go to the store and I see that food that they show on the commercials."

"In the toy commercials they really tell us the truth because I believe them because I've seen the He Man figures before."

"Cause a commercial said something and I thought it was true so I went to the store and it was true."

Emerging reasoning about whether commercials tell the truth developed in a statistically meaningful way and was overwhelmingly characterized by responses suggesting that advertised products do not measure up to claims or that commercials provided information which was not correct. The following are some typical comments:

"They said that Fiesta, that new soap called Fiesta, that it will make you sing, and I tried it and it never made me sing."

"The last time they had a toy out and I bought it--it was a slinky--and then I tried to make it go downstairs and it don't."

"Like Era Plus or something like that ... they have a protein and they have all this thing. I had a big stain here and I put some Era Plus on this right away. I got it all over and it won't come out cause my Mom tried it, and it won't come out at all."

Table 1 shows that over one third preschool and kindergarten children in this study were becoming aware of the purpose of advertising and that this understanding increased dramatically for the children in grade one. Few, however, of the youngest children in this study challenged the truthfulness of television advertising. This changes for the first and third grade students. The percentage of emerging reasoning about the truthfulness of commercials increases markedly between preschool/kindergarten and grade one and between grade one and three. It appears that between grades one and three young consumers and their families are having some unsatisfactory experiences with products they or their families purchase. Some cynicism toward marketing practices begins to develop already in the primary grades.

Conclusions

This paper has presented a description of how young children think about basic economic ideas and problems. We think that several important conclusions can be drawn from this information. First, it seems clear that economic understanding develops in a manner supportive of aspects of cognitive development theory as defined by Jean Piaget. For example, the type of the participants' reasoning was statistically different by grade level for five out of seven concepts in the study. In addition, the pattern of responses in all but one case showed an upward progression from simple to more abstract forms of reasoning by grade level as characterized by what has been defined as unreflective and emerging economic reasoning.

Second, the findings of this study suggest that economic understanding varies somewhat depending upon children's experiences. Understanding about ideas related to aspects of exchange and television advertising, for example, develop more quickly than such fundamental economic concepts as choice, opportunity cost, and monetary value. This implies that young children's economic reasoning can be enhanced by providing them with personal economic experiences. Primary grade teachers can introduce economic related experiences involving stimulations of stores, banks, and assembly lines. In addition, community based experiences, such as a visit to a factory, bank, police department, or fire station can be redesigned to emphasize the economic ideas involved.

A third and perhaps most difficult conclusion from this study relates to what economic education is appropriate for young children. Some children as early as preschool/kindergarten and grade one are already developing a basic understanding of some economic ideas such as scarcity and the purpose of

advertising. Clearly, some instruction in basic economic concepts can begin at this level especially if tied to children's personal economic experiences. Yet, the majority of children in these young age groups are still reasoning about economic problems in a literal and superficial fashion. The majority of children in grade three are beginning to use more advanced types of economic reasoning. One reason for this may be that young consumers in grade three and above are having more economic experiences and are starting to make some economic decisions. The present study, reinforced by earlier research (Schug, 1983) suggests that the upper primary or the intermediate grades are an appropriate level at which to emphasize instruction about fundamental economic concepts.

Table 1
Chi Square Tests of Emerging Economic Reasoning
By Concept and Grade Level

Economic Concept	Percentage			df	χ^2
	Preschool Kindergarten	Grade 1	Grade 3		
Scarcity	44	44	55	2	.71
Choice	12	22	68	2	18.66 ***
Opportunity Cost	36	22	68	2	10.47 **
Monetary Value	36	44	64	2	3.78
Price (High)	24	35	68	2	10.04 **
Price (Low)	4	9	55	2	21.06 ***
Exchange (Store)	64	78	77	2	1.55
Exchange (After initial transaction)	0	44	82	2	32.81 ***
Function of Advertising	36	74	77	2	10.67 **
Truthfulness of Advertising	8	44	82	2	32.36 ***

* $p < .05$
 ** $p < .01$
 *** $p < .001$

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