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AN EMPIRICAL STUDY OF THE SYMBOLIC
AND OBJECTIVE WORLD OF THE PRESCHOOL CHILD:
A NEW METHODOLOGY AND SOME PRELIMINARY FINDINGS

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ABSTRACT

This paper discusses the division within symbolic interactionism today into the Iowa and Chicago Schools. Taking the position that the differences are potentially reconcilable, the authors present a study which demonstrates some methodological extensions of the positivistic Iowa School in conjunction with some of the insights of Blumer's phenomenological Chicago School. The research employed a quasi-experimental design, the aim of which was to investigate the relationship between cognitive organization of behavior and conditions of age and educational program. Subjects were 117 three and four year old children observed naturalistically in three preschool programs: a Montessori Class, a Parent-Child Center, and a Day Care Center. Quantitative and qualitative measures were obtained through the instrumentation termed the Direct Object Count and by classifying the acts themselves. Via cross-sectional and longitudinal analysis significant differences were found on indices of age and educational program. The overall findings suggest that race and class are not sufficient to explain such differences. The authors conclude that a large part of the behavior of preschool children is determined by the children themselves who appear quite capable of organizing their behavior in accordance with the objective and symbolic conditions with which they are presented.

Both as a theory and a methodology, symbolic interactionism stands second only to structural-functionalism in its impact on sociologists. Yet, symbolic interactionism is anything but a unified body of knowledge. There is a common starting point in the work of George Herbert Mead during the

early 1920's. However, since the death of Mead, there has been a substantial division within the work of symbolic interactionists. Meltzer and Petras (1972) have noted that there are two distinct schools of symbolic interactionism.

The Chicago School is associated with the perspective of Herbert Blumer. Blumer (1969) has tended to emphasize the more subjective and phenomenological aspect of Mead's work. He sees man as essentially spontaneous, unpredictable and free. Blumer places a great deal of weight on the importance of the "I" in formulating behavior, the "I" being impulsive, almost animalistic. The data gathering techniques of Blumer are built around observing and understanding behavior rather than predicting or controlling it. In contrast, the late Manford Kuhn founded what has come to be called the Iowa School of symbolic interactionism. In contrast to the neo-idealist philosophy of Blumer, Kuhn (1964) was much more methodologically and positivistically oriented. Kuhn believed that Mead's work and concept had to be operationalized if they were to have any utility. Kuhn essentially did away with the implied dialectic between the "I" and "me" by eliminating the former as unmeasurable. By concentrating on the "me", Kuhn was attempting to measure the relatively stable aspects of social behavior.

Thus, the Iowa School of symbolic interactionism has tended to emphasize the objectivistic, positivistic element of Mead's work. In keeping with this concern, Kuhn and McPartland (1972) developed the TST, or Twenty Statements Test, which is in essence a measure of objective social self. It assumes that an individual is capable of articulating social self and that self is basically a reflection of role taking behavior. In its simplest form, the TST is a highly reliable, easily scored testament of Kuhn's belief in the measurability of self.

There is no particular unifying methodological orientation in the Chicago School. In fact, it would appear that adherents of this orientation are presently drifting into a kind of phenomenological perspective, as indicated by the recent work of Goffman (1974), in particular, on Frame Analysis, and Cicourel (1974) on Cognitive Sociology.

It is the contention of this paper that symbolic interactionism, in particular the symbolic interactionism employed in a kind of social welfare context, must push forward on

charting the objective and measurable aspects of the social environment. We feel that the kind of thinking that lead to the development of the Twenty Statement Test can profitably be extended to developmental aspects of childhood. However, we also feel that the attempt to objectify should take into account some of Blumer's contentions about the nature of the symbolic act and the importance of language.

In particular, we propose some specific methodological extensions of the Iowa School approach into the realm of the symbolic environment of the child. This extension will be facilitated by also incorporating some of the insights of Herbert Blumer and the Chicago School. This methodology involves an application of the Meadian distinction between "play" and "game" and between significant and non-significant symbols. We assume that classes of social acts can be meaningfully charted and objectively measured.

Symbolic interactionism has until recently had little to say about child development. It has essentially left this area to developmental psychology and the corresponding emphasis on intra-psychic change. Perhaps the reason for this failure has been its inability to develop a parallel to the TST for categorizing the social acts of children.

We believe such an instrument is now available. The rest of this paper will illustrate how the use of two tools, the Direct Object Count and second-order acts, can be utilized in understanding the manner in which children interact with and impose meaning on their social environment. We will report on a research effort by one of the authors (Malon, 1975) which we think demonstrates that greater specificity of concepts can be achieved and objective measurement obtained without detracting from the richness of Meadian theory. We hope that it will also illustrate that it is possible to draw from the best of both schools of symbolic interactionism in designing research which has methodological and practical significance for a given social problem area.

THE STUDY

The research involved the use of a quasi-experimental design without random assignment of subjects to comparison groups. Its purpose was to study the ways in which preschool children organize their behavior. The subjects were 117 three and four year old children observed in the Fall of 1972,

Spring of 1973 and again in the Spring of 1974. The subjects were enrolled in three different types of preschool programs: 45 in a Montessori Class, 27 in a Parent-Child Center, and 45 in a Day Care Center. The children in the Montessori Class (MC) were white and had parents relatively high in income and education, while the children in the Parent-Child Center (PCC) and Day Care Center (DC) were black and had parents relatively low in income and education. The educational programs also differed in terms of the amount of learning structure and the number of instructional objects present, with the MC having the greatest amount of each. On the other hand, the PCC and DC programs provided a greater amount of time in playful interaction with people and play objects than did the Montessori Class. The MC and PCC subjects were observed at all three time periods. The DC children could only be observed at times 2 and 3.

The aim of the study was to investigate the relationship between cognitive organization of behavior and two indices of the conditions under which the behavior was organized: age and educational program.

The research was guided by Mead's (1970: 77) dynamic conception of human behavior in terms of acts which generate objects and take on meaning during the process of interaction with other persons and things. The concept of the organization of behavior was employed to capture the interplay of acts generating objects. A person's behavior is viewed as organized to the extent that it has meaning, the meaning being generated by the culturally defined objects with which a person interacts.

More specifically, this focus on the interactional field leads us to define the organization of behavior as the observable effect of information processing (Bruner, et al., 1971; Miller, 1969). This can be measured empirically by the qualitative and quantitative coding of the act, and this was done in two ways: through an instrumentation termed the Direct Object Count (DOC) and by classifying the acts themselves.

INSTRUMENTATION

As a method of coding and measuring the amount of information in the act, the Direct Object Count was developed by Thomas McPartland and first introduced by Dobrofsky (1971) and Kveskin (1971). The method consisted of counting every

object indicated or referred to in each complete act of a subject during a sample period, usually about 15 minutes. This coding method is based on the logical assumption that when children incorporate a growing number of objects or attributes of objects in their acts, their behavior is correspondingly more organized. This incorporation involves the totality of the immediate physical and social environment. Thus, the child constitutes the effective field of his action by whatever he attends to, in whatever way he attends to it.

One example should help to clarify the counting procedure where more complex acts are involved. The following is a partial recording of a five year old subject's act which ended up as an eighty four object act:

Child goes to bench, takes paste from box, asks boy, "Where's the paper?" (boy points to paper); takes paper, circle pattern, oval pattern, scissors, and brush; sets them on floor; gets up quickly and runs to pencil box, takes pencil and returns; places pattern on paper, with pencil draws around pattern . . . takes lid off paste jar, puts paste on brush, brushes paste on back of paper, sticks oval paper to background paper . . .

The above act is one containing a number of sequences or "nodes," all of which make up one large act. The final object-count is an accurate measure of the act's complexity because it represents the continuous, unbroken and uninterrupted action in which all of the nodes are related to the end of the act. A less complex version of the above act would be the example of a child, who, after the second or third sequence, joins a group of children playing with blocks. His lower object-count could be taken as an accurate direct measure of the lesser complexity of his act.

In the research of Dobrofsky and Kveskin and later by Endress (1972), the DOC had been shown to discriminate between the levels of behavioral organization of children up to two years and of mentally retarded children. It was found that the ability to implicate objects in acts grows with the development of syntactical speech and to some extent with age.

The second coding method involved the classification of acts. The major classification entails the distinction between what we term first-order and second-order acts. In

setting forth this classification, we were guided by Vygotsky's (1962: 116) observation that it is the lack of distance from immediate experience which is the factor which accounts for the peculiarities of child thought. Thus, a first-order act is defined as one in which the child organizes his behavior by acting with direct reference to objects. That is, the concrete objects act as stimuli which evoke responses that refer directly to the objects. A second-order act, on the other hand, is by definition an act containing indirect reference to objects. It should be clear that the symbol, the heart of symbolic interactionism, is the mechanism for indirect reference. The facility to act with indirect reference to objects means that the child supplies an organization which the objects alone do not have. For example, the child building a tower out of blocks is in charge of the blocks and, therefore, farther removed from immediate experience than another child who simply stacks the blocks with no indication of some larger end-in-view. This notion of first and second-order acts was influenced by Blumer's (1969: 9) distinction between non-symbolic and symbolic acts.

Six categories of second-order acts were devised, each characterized by some form of indirect reference to objects: 1) acts containing non-verbal indirect reference, 2) acts containing verbal indirect reference, 3) acts organized by use of verbal indirect reference, 4) acts in which intent is signalled verbally, 5) joint acts, and 6) acts of role-play. The second-order acts are defined as follows:

Non-verbal indirect reference is defined as that feature of an act whereby the child leaves the situation in which he is working at an act and moves to a different place or a different person to get an object which is used to facilitate the ongoing act. e.g., Tina leaves work table, walks to bench to retrieve jar of paste; returns to table and applies paste to back of paper.

An act containing verbal indirect reference is defined as an act in which the objects or attributes of objects verbally referred to are not immediately present in the act. Verbal here means syntactical utterance (more than one English word in a recognizable English sentence). e.g., Peering into an empty jar, Antoine says, "That's where they put flies."

An act organized by verbal indirect reference is an act containing a syntactical utterance which refers to the motor act which follows. e.g., Tony blurts out while sitting at table, "We gonna eat."

An act in which intent is signalled verbally is an act preceded by a syntactical utterance which consists of a self-reference followed by a statement of intent to perform the act. e.g., After asserting, "I'm making a tower," Jackie begins to stack blocks.

A joint act is an interdependent act in which the child's behavior complements or is complemented by another's behavior. e.g., Joey lifts cup toward Jane who makes pouring motion with coffee pot.

An act of role-play is defined as an act in which an identifiable pattern of role behavior can be observed, and although one or more objects associated with the role behavior are actually not present, the child behaves as if they are present. e.g., Lisa "feeds" doll with empty nursing bottle.

Data collection for the research involved the direct observation and written recording of each child's acts during a fifteen-minute sample period.¹ Such "passive participant observation," (Schwartz and Schwartz, 1955) although time-consuming and costly, satisfies Blumer's (1969: 46) preferences for the kind of investigation which "preserves the natural, ongoing character of the empirical world."

We think it also achieves what Blumer (1969: 177) terms the intimate relation between the scientific concept and empirical fact. This kind of relationship, in which a measurement procedure is logically derived from the theory

¹It was not possible to obtain a formal, quantitative measure of reliability in coding the observed acts. However, during the trial period of observer training and during the research observations, the observer had the opportunity to periodically check his coding with an outside consultant and judge. Dr. Thomas McPartland, who was largely instrumental in developing or proposing most of the coding procedures, served as consultant and judge.

being tested, meets the criteria for construct validity (Selltiz, 1959).

RESULTS

Direct Object Count. As a quantitative, objective measure, the Direct Object Count (DOC) proved productive. The DOC was found to discriminate between behavioral acts of children from 33 to 63 months of age. Cross-sectional analysis indicated that increases in the organization of behavior, as measured by the DOC, occurred concomitantly with increases in age. The Spearman rank order correlation coefficients between age and the DOC in each of the three programs are as follows: for Montessori children, .61; for Parent-Child, .64, and for Day Care, .74. Further analysis showed that this relationship was not confounded by length of time in the program.

An attempt was also made to detect program effects as measured by the DOC. It was expected that, since the Montessori program placed greater stress upon exposure to teacher instruction and instructional objects than did the Parent-Child and Day Care programs, increases in the organization of behavior would be greater for MC than for PCC and DC children. The findings tended to bear out that expectation. While controlling for the effect of age by matching subjects across programs, the Montessori children had significantly higher object-counts than children in the other two centers during the early observation periods.²

Interestingly, it was found that the assumption of the compensatory education programs was accurate, namely, that children from low-income, low-education families would enter the programs at a disadvantage relative to children from high-income, high-education families. The MC children entered their program with significantly higher object-counts and simply maintained their advantage through the duration of the program. However, for the PCC subjects, the differences toward the middle ($p = .27$) and end ($p = .09$) of the program year were no longer statistically significant. The DC children, on the other hand, did not improve significantly in relation to the MC children, although they did improve

²Analysis of 26 matched subjects at Time 2 with the Friedman two-way analysis of variance resulted in $\chi^2 r = 10.23$ and $p = .01$.

sufficiently to demonstrate a non-significant difference in relation to the PCC children.³ The most extreme difference was that between the MC and DC subjects at time 2; in Table 1., that comparison is displayed along with time 3 data.

TABLE 1. DIFFERENCES ON DOC BETWEEN MATCHED PAIRS OF MC AND DC SUBJECTS AT TIMES 2 AND 3

Signs ^a	Time 2	MC	Time 3
+ ^b	26		14
0	2		0
-	5 (p = .0002)		5 (p = .032)

^aSign Test

^bMC is the point of comparison; thus, the values for the DC subjects are obtained by applying the opposite sign to the tabled values.

The above findings present an interesting challenge to interactionist theory in trying to account for the observed differences between children in the three programs. Since there were initial differences, race and social class remain plausible, competing explanations. However, the fact that the differences did not remain constant over the brief span of six or even three months suggests that race and class are not the major bases for explaining the differences.

We would suggest that the most obvious explanation involves the very process of interaction which links the children to the physical and social objects within each program. Because there were differences between the programs in the degree to which they stressed instruction and instructional objects as opposed to play and play objects, these differences appeared to elicit differences in behavior organization. The Parent-Child subjects increased their object-counts midway through the program year because of improvements in the level of instruction and the increased availability of instructional objects. While the Day Care Center made some such improvements, it still preserved the high level of play activity, high emphasis on sociability, and heavy expression of affect.

³The Sign Test for differences between PCC and DC: at Time 2 with N = 20, p = .012; at Time 3 with N = 17, p = .50.

It should be emphasized that the above between-groups analysis was not longitudinal, since it proved difficult to observe the same matched pairs at each point in time. However, it was possible to obtain some longitudinal data within each educational program, although most of the N's were small. Table 2. shows whether the object-counts of subjects in each center increased (+) or decreased (-) over observation periods.

TABLE 2. CHANGES IN THE DOC OVER THREE OBSERVATION PERIODS IN EACH EDUCATIONAL PROGRAM

Center	Sign ^a	Observation Period		
		Time 1-2	Time 1-3	Time 2-3
MC	+	7	5	19
	0	1	1	2
	-	4 (p = .27)	2 (p = .23)	15 (p = .31)
PCC	+	6	8	6
	0	0	1	1
	-	6 (p = .61)	5 (p = .29)	7 (p = .50)
DC	+	b		18
	0			7
	-			11 (p = .13)

^aSign Test

^bDay Care subjects were not observed at Time 1.

Table 2. is a longitudinal presentation of the DOC over time by type of center. The key comparisons are those between Time 1 and Time 3 for MC and PCC and between Time 2 and Time 3 for DC. The data indicates a clear trend for the DOC to increase in all three centers. One has to be cautious about the findings in that the changes over time are not statistically significant; the non-significance of the results being primarily a function of the small number of cases in each center available for longitudinal analysis. The trend in this data does, however, support the contention that these programs can effectively increase the DOC. Age alone could not account for the sharp increase in the DOC in all centers in that only six months elapsed between the Time 1 and Time 3 measures.

Second-Order Acts. In our research, the second-order act did not evidence the same discriminatory power as the Direct Object Count. It was discovered that children performed second-order acts at all age levels and that the frequency of such acts did not increase with age. Only two of the six second-order acts varied significantly with age. However, we discovered that the second-order act may have some utility if viewed as a qualitative measure.

Viewed thusly, this approach of classifying acts resulted in two qualitative findings which we could not have gotten from the more objective DOC. Younger children were found significantly less likely ($p = .02$) to signal their intent verbally than older children, with most of the variance accounted for by the Montessori children. This finding would lead us to conclude that in speech communities like the Montessori Center, the tendency to signal intent verbally comes later rather than earlier. The other finding was that older children were significantly less likely ($p = .004$) to perform an act of role-play than younger children. This adds support to Mead's contention that the child progresses from a "play" stage to a "game" stage. Through the pretending involved in role-playing, the child mimics others until he is able to perform without mimicking.

The second-order categories were also useful in detecting differences in the behavior of children both within and between the three programs. Coding and observing the children's acts told us something about how the child's preschool world was organized. It goes beyond a simple objective count of objects and attempts to capture some of the qualities of the act. While not as clear-cut in its interpretation as the DOC, it provides some of the "richness" of everyday life. In this case, the data suggests something about not only how the children organized their behavior, but also about the ways in which the programs themselves were organized.

Table 3., represents in summary form the changes within each center over the three- and six-month observation periods on performance of the second-order acts. It should be clarified that in the "before-after" analysis, subjects were only included who could be observed at both time periods, so the N's range from 8 to 36.

TABLE 3. CHANGES IN PERFORMANCE OF SECOND-ORDER ACTS ACROSS OBSERVATION PERIODS.

Act	Center	Observation Period ^a		
		Time 1-2	Time 1-3	Time 2-3
Non-Verbal Indirect Reference	MC	Decrease*	Increase	Increase*
	PCC	Increase	No Change	Decrease
	DC	^b		Increase
Verbal Indirect Reference	MC	Decrease	Increase	Increase
	PCC	Decrease	Increase	Increase
	DC			Decrease
Organized by Verbal Indirect Reference	MC	Increase	Increase	Increase
	PCC	Decrease	Increase*	Increase*
	DC			Increase
Signals Intent Verbally	MC	Increase	Increase	Increase
	PCC	Decrease	No Change	Increase
	DC			Increase
Joint Act	MC	Decrease	Decrease	Increase
	PCC	Increase	Increase*	Increase*
	DC			Increase
Role-Play	MC	Decrease	Increase	No Change
	PCC	Decrease*	Increase	Increase*
	DC			Decrease

*Change is significant beyond .05 level.

^aN's are as follows: Time 1-2: MC = 12, PCC = 12;
Time 2-3: MC = 36, PCC = 27, DC = 36.

^bDay Care subjects were not observed at Time 1.

In the Montessori Center, children tended to show a consistently varied repertoire of acts through the duration of the program. On only one category was there significant change toward the end of the program year, namely, in performance of acts with non-verbal indirect reference ($p = .025$). It seems noteworthy that increases in this non-verbal second-order behavior did not coincide with any decrease in the amount of

verbal indirect reference and it clearly appeared to result from the concerted effort by the teacher and assistants to gradually encourage completion of assigned tasks and experimentation with instructional objects. Furthermore, the consistently minimal amount of expressed affect and role-play along with a moderate amount of joint acts, in combination with the above findings, suggests a pattern of predominantly task-oriented behavior.⁴

The DC children showed a pattern of activities somewhat different from that of the MC children, as the acts of the former were not as varied, especially in the program's beginning. By the end of the program year, however, there was a significant increase in the kinds of second-order acts performed ($p = .005$). Nevertheless, the DC children demonstrated consistently high amounts of certain acts across time periods - acts with verbal indirect reference, acts organized by verbal indirect reference, joint acts, and acts expressing affect. The tendency to signal intent verbally was minimal, and non-verbal indirect reference was almost non-existent. This pattern of activity seemed to follow logically from program conditions which emphasized sociability, play, vocabulary, and group-centered and age-segregated instruction.

Of the three educational programs, the Parent-Child Center showed the greatest amount of change. By the last part of the program, the children showed significant increases in the number and kinds of second-order acts ($p = .02$ and $.005$), acts organized by verbal indirect reference ($p = .008$), joint acts ($p = .04$), and acts of role-play ($p = .05$). While these children were more likely to be selected for the program because of their need for compensatory education than Day Care children, we cannot say with any certainty that the dramatic change was evidence of the children's initial level of need. In reality, the program itself was in somewhat of a "disadvantaged" state initially and only in the last three months underwent a reorganization resulting in more space, more staffing, and more play and instructional objects.

In actuality, over time the activities of the PCC children came to resemble those of the DC children. As in the case of the latter, the former's acts became more varied, more verbal,

⁴ A non-second-order category termed expression of affect was included to note possible differences in the overt expression of emotions such as anger, joy or irritation.

and more sociable, with few acts of non-verbal indirect reference and the signalling of intention verbally. The program conditions were sufficiently similar to those of the Day Care Center to account for this pattern of behavioral organization.

Difference within the separate programs obviously give rise to differences between the programs. The brief description of the latter should sharpen our appreciation of the discriminatory potential of the second-order acts as qualitative categories. Table 4. gives a crude summary of the children's performance of second-order acts in each of the three time periods.

First of all, midway through the school year, the MC children were performing significantly more second-order acts than PCC children ($p = .05$) and more kinds of second-order acts than DC and PCC children ($p = .025$ and $.05$). Also, the MC children were significantly more likely to perform an act of non-verbal indirect reference and to signal their intent verbally than were children in the other centers ($p = .001$).

By the end of the program year, there were no longer differences in the number or variety of second-order acts. However, DC and PCC children had not erased the differences in performance of non-verbal indirect reference and in the signalling of intent verbally. These two types of acts clearly appeared to follow from the Montessori program's emphasis on individually accountable behavior reinforced by the pattern in which children consistently reported to an adult on completion of assigned tasks. We do not know whether the greater expression of the pronoun "we" rather than "I" among the DC and PCC children is an indication of a "restricted" language code (Bernstein, 1969) with its source in the social structure of the intimate community of others. We do know, however, that there was no observable structural condition such as was present in the Montessori program which could encourage the children to verbally signal their individual intentions.

Finally, in keeping with its emphasis on play and sociability, at midway through the program the DC children were

⁵The data in Table 4. is cross-sectional and not intended to be interpreted as longitudinal.

TABLE 4. SUMMARY OF SECOND-ORDER ACTS PERFORMED
AT THREE OBSERVATION PERIODS.

Act	Center	Observation Period ^a		
		Time 1	Time 2	Time 3
Non-Verbal	MC	High ^b	Moderate	High
Indirect Reference	PCC	Moderate	Moderate	Moderate
	DC	^c	Low	Low
Verbal	MC	High	High	High
Indirect Reference	PCC	High	High	High
	DC		High	High
Organized by Verbal Indirect Reference	MC	Moderate	High	High
	PCC	Low	Low	High
	DC		High	High
Signals Intent Verbally	MC	Low	High	High
	PCC	Low	Low	Moderate
	DC		Low	Moderate
Joint Act	MC	Moderate	High	High
	PCC	Low	Moderate	High
	DC		High	High
Role-Play	MC	Low	Low	Low
	PCC	Moderate	Low	High
	DC		Moderate	Low

^aN's are as follows: Time 1: MC = 12, PCC = 12; Time 2: MC = 45, PCC = 27, DC = 45; Time 3: MC = 36, PCC = 18, DC = 36.

^bTable values are defined as follows: High - score is above the median for sample group; Moderate - score is between the first quartile and the median; Low - score is at or below the first quartile.

^cDay Care subjects were not observed at Time 1.

significantly more likely than both MC and PCC groups to perform a joint act ($p = .01$), an act of role-play ($p = .05$), and to express affect ($p = .001$). Toward the end of the program, the DC group no longer surpassed the PCC group in performance of

joint acts and acts or role-play, although they continued to significantly out-perform both groups in the expression of affect ($p = .01$) and the MC group in joint acts ($p = .025$). Interestingly, the Parent-Child children had by then come to out-perform the other two groups in acts of role-play, having become accustomed to new surroundings, new classmates, and a larger assortment of familiar objects.

CONCLUSIONS

Methodological. In keeping with a symbolic interactionist orientation, the research findings tend to demonstrate, on the one hand, the power of objective events to affect the behavior of preschool children, and on the other, the power of the children themselves to organize their own behavior, thereby giving meaning to it. In this orientation, we have not lost sight of either of the key issues in the social psychology of human action, the person acting on his physical and social environment and being influenced by the objective conditions in his environment. Thus, we would conclude with Blumer (1969: 11) that to understand our preschool subjects, we had "to identify their world of objects," and with Mead (1970: 70), we had to identify the "programs of action" under which the children would generate the objects of their own action. And finally, we would agree with Kuhn that one can measure such phenomena.

The methodology employed here has been pragmatic and straightforward. We believe the concepts have "logically clear and meaningful referents," and that the operational tools are sufficiently naturalistic to allow for direct interpretations and programmatic remedies (Blumer, 1969). In a study of child development, this methodological orientation allows us to treat the middle ground between the mentalistic denotation of the concept intelligence and the other extreme of environmental determinism. In this endeavor, we are guided by Mead's (1970: 39) injunction, "to state the intelligence of the individual in terms which will enable us to see how that intelligence is exercised, and how it may be improved."

Our measures of cognitive development, the Direct Object Count and the second-order acts placed us in direct touch with the child's physical and social world. We found that the DOC correlated highly with age (33 months to 63 months) yet also varied with type of preschool program. The second-order acts,

as indicators of certain qualities inherent within the act, provided us with a description of how children organized their behavior within the three educational centers.

Program. In attempting to assess the differential effects of three types of preschool programs, it was discovered that the programs did make a difference and that the differences were greatest for the black, low-income children attending the Parent-Child and Day Care Centers. In spite of initial differences, three major trends were noted over the brief spans of three and six months: (1) the behavior of all three groups became more organized; (2) the groups became developmentally more alike; and (3) certain differences between groups persisted, coinciding with program differences.

While social class or other background factors could have accounted for the initial differences between groups, clearly their possible effects are not linear and constant, since they diminished over time. To the contrary, the above trends suggest that once the child enters the confines of the preschool setting, the school rather than the home appears to make the major difference in his cognitive development.

From another perspective, the finding of initial differences does not allow programmers in compensatory education to rest on the assumption that "disadvantaged" children require special treatment to compensate for their developmental deficits. True, it has been found that low-income persons learn best by doing; that is, through motor expression (Riessman, 1964). However, we saw no evidence that the low-income children in our study required special treatment. In fact, children in all three centers learned by doing. This is not surprising; it simply follows logically from the age-related learning needs of these children.

However, in observing program conditions, our impression was that the PCC and DC programmers tried so hard to overcome the children's presumed learning deficits that they unwittingly underestimated the real capabilities of their low-income subjects. An overemphasis on motor expression through play and group sociability as well as a too generalized stress on vocabulary had the effect of not fully challenging the children's capability for behavior which is task-centered and personally and syntactically accountable. Thus, the differences which persisted between the MC, PCC and DC children on the DOC

and certain second-order acts relate directly to program capability rather than to differences in learning capability between the groups.

The MC children persisted in showing higher object-counts and a pattern of second-order acts which included high amounts of non-verbal indirect reference and signalling of intent verbally. This pattern of behavior related directly to program conditions which encouraged individual, task-centered effort and personal accountability through individual and group instruction and heavy use of instructional objects. Children in the MC program, no less than children in the PCC and DC programs, simply demonstrated the capability of adapting effectively to the kind of preschool program presented to them.

We do not suggest that Montessori education is superior to that of a Parent-Child or Day Care Center. We simply suggest that the developmental outcomes obtained by the Montessori program in our study can be achieved in other preschool programs to the extent that programmers value them. They can be achieved by simply varying the conditions which relate to what we called the Direct Object Count and second-order acts. Because the second-order acts have an internal logic which makes them naturalistic and situation-based, changes in the acts relate to changes in the social situations, that is, in the program conditions. If programmers in the Parent-Child and Day Care Centers were to choose outcomes similar to those of the Montessori Class, we believe that the persistent differences found between children in the three centers could be eliminated entirely by the following changes in program conditions: (1) more exposure to a variety of instructional objects; (2) less emphasis on group-centeredness with consequently more emphasis on individual performance; (3) more emphasis on syntactical accountability; and (4) provision of more social objects through mixing children of different ages and through more adult direction and assistance.

These recommendations are straightforward suggestions for enlivening the interactional field of the child. Out of the resulting increase in program organization should come an increase in the child's own behavioral organization. In Meadian fashion Asbell (1972: 156) has captured this conclusion as he suggests:

It may be better to forget about intelligence and find out what makes each child exercise his inborn eagerness to learn, feed his individual style of curiosity, and then watch his intelligence, by almost any measure, expand.

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