

Institutional Care and Developmental Outcomes of 6- and 7-year-old Children: A Contextualist Perspective

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This paper examines effects of institutional settings on cognitive, affective, and personal development of children. Two samples consisting of 52 children, living in orphanages, and 45 kindergarten students, living with their families, were selected in Moscow, Russia; children's ages were between 70 and 88 months. The children in both samples were compared with respect to their Wechsler scores, empathy, and level of conformity. It was found that the kindergarten children had higher Wechsler scores, a higher level of empathy, and a lower level of conformity. It was also found that the age of placement in an institution and the amount of time the child spent there were associated with Wechsler IQ score and studied measures of affective and personal development. The proposed interpretation of the detrimental institutional effects suggests that the institutions differ from the family in both the organisation of their context and in the roles of their participants. Institutional organisation is considered as a set of factors affecting the behaviours of the participants (both the children and the staff), and the process of the children's development.

HISTORY AND BACKGROUND

Developmental studies of the socially isolated, in general, and institutionally raised children, in particular, are usually presented as direct or indirect evidence for the impact of the social environment on the process of human development (Bowlby, 1951; Fromkin, Krashen, Curtiss, & Rigler, 1974; Goldfarb, 1955; Hunt, Mohandessi, Ghodssi, & Akiyama, 1976; Maas, 1963; Provenca & Lipton, 1962; Rutter, 1981; Spitz, 1945; Tizard, Cooperman,

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Joseph, & Tizard, 1972; Tizard & Hodges, 1977; Tizard & Rees, 1974; Tizard, Sinclair, & Clarke, 1975; Yarrow, 1961). Although virtually everyone admits that institutional care has some detrimental effect on human development, the nature and quantity of this effect is still unclear. The interest in the effects of institutionalisation was initially evoked by Spitz's (1945) study on children who were placed at an early age in institutions and thus separated from their families. This study revealed that institutionalisation has profound effects on the physical, cognitive, social, and emotional development of children. Both Spitz's findings and the proposed explanations have produced active discussions. Spitz and others (e.g. Bowlby, 1951; Goldfarb, 1955; Provence & Lipton, 1962) proposed that the major cause of the detrimental effects of institutionalisation is the separation of children from their mothers or other primary caretakers. It was claimed that such a separation negatively affects emotional bonding between the child and the mother (or other primary caretaker), and prevents a child from developing a secure attachment to the mother. This explanation was questioned by Casler (1961) who pointed out a number of methodological flaws in works of proponents of the maternal deprivation approach. The most important one is that the variable of separation is confounded with other variables, such as the quality of cognitive stimulation (which in an institution is allegedly not as good as in a home) and the reason for the separation (such as the fact that it is more likely that parents would give up ill or unwanted children). Casler (1961) proposed an alternative explanation of institutional effects on development of children, connecting the effects of institutionalisation to the institutional environment and the poor cognitive stimulation of children in these institutions.

The issue of institutional effects on children's development was re-approached in the early 1970s, when the question of maternal care and its importance for a child's well-being were again raised (Rutter, 1981). This time, the debate leaned more toward Casler's arguments that attributed institutional effects to quality of care in the institutions, and particularly, to the quality of cognitive stimulation (e.g. Tizard & Hodges, 1977; Tizard & Rees, 1974).

Proposed ideas related to the effects of institutionalisation on the developing children could therefore be reduced to two approaches: (1) those researchers who advocate the view that institutions have unavoidable long-lasting detrimental effects on human development (e.g. Bowlby, 1951; Goldfarb, 1955; Spitz, 1945); and (2) those who advocate the view that institutions (if they are of reasonable quality) do not irreversibly affect human development (e.g. Tizard et al., 1972; Tizard & Rees, 1974), that the effects are short term (e.g. Maas, 1963), and could be removed by early intervention (e.g. Hunt et al., 1976).

Representatives of both approaches tried to develop a single-factor model with the particular factor responsible for institutional effects; the first

approach focused on the “emotional factor” and the second approach focused on the “cognitive factor”. Considering the detrimental effects of only one factor, proponents of both approaches have ignored some other potentially significant variables. One such variable is the amount of time a child spends in an institution. Representatives of the “emotional” approach presumed that if a child was separated from the mother (or the other primary caretaker) for a certain amount of time during the first and second years of life, the detrimental effects of such a separation would be in place, and would basically not change, no matter how long the separation continued afterwards. Representatives of the cognitive approach presumed that if the cognitive environment in an institution is not organised properly, the institution would have some detrimental effects on children’s development (e.g. Tizard & Rees, 1974). These effects were not considered, however, as related to a child’s age of placement or the duration of time spent in an institution.

In developmental research, however, time is considered an important variable (e.g. Wohlwill, 1973). If time is important for development within normal environments, it is reasonable to suggest that time is equally important for development within environmental constraints. Therefore, it could be predicted theoretically that developmental outcomes of institutionally reared children are related to the duration of institutionalisation.

THEORETICAL FOUNDATIONS

The reported study assumes a theoretical approach to human development that considers environments, or contexts, as complex multicomponent systems. There is an assumption of an active interaction between developing individuals and their environments, as well as between the components of the environment, which jointly affect the process of human development (Barker, 1978; Bronfenbrenner, 1979; Vygotsky, 1987). The contextualist perspective presumes that the process of development takes place within certain microcontexts, or immediate settings, such as the home, classroom, playground, etc., and macrocontexts, such as the culture.

From the contextualist perspective it is believed that either the presence or absence of an immediate setting, such as the family, can be the factor that profoundly changes the context of development, and therefore its process. This theoretical perspective presumes that the development of children who do not have families is not equal to the development of those who do have families minus the family factor, but should be considered to be a different process of development within a different context.

Institutions differ from families in both the organisation of their context and in the roles of their participants. These factors affect the behaviours of the participants, both children and staff, and the process of the children's development.

The major contextual characteristics of the institution that make it different from a home are that the institution is a work place for the staff and a permanent place of living for the children. This type of institutional organisation, with inmates permanently living within the institution separated from the outside social world, and the staff living outside the institution and integrated into the social world, were qualified by Goffman (1962) as total institutions. Major characteristics of a total institution as proposed by Goffman are as follows:

1. A total institution establishes barriers to social intercourse with the outside world.
2. It is difficult to leave a total institution.
3. All aspects of life in a total institution are conducted in the same place under the same single authority.
4. Everybody is obliged to act and to live together with his/her inmates.
5. Officials in a total institution schedule and control all phases of inmates' activity.
6. There is a basic split between a large managed group (inmates) and a small supervisory staff.
7. Inmates have restricted contacts with the outside world, whereas staff members are socially integrated with the outside world.

In contrast, the family is an open setting where each family member participates in some other settings (e.g. school, day care, playground, work place, peer group, church, etc.) (Bronfenbrenner, 1979). As a system, the family consists of a number of dyads and multiads (e.g. marital couple, children, older members of the family, etc.) (Belsky, Rovine, & Fish, 1989; Belsky & Volling, 1987; Bronfenbrenner, 1979, 1986; Crouter, MacDermid, McHale, & Perry-Jenkins, 1990; Crouter, Perry-Jenkins, Huston, & Crawford, 1989). Participation in these dyads and multiads determines the roles of family members (husband and father, son, brother, and grandson, etc.). Each of these roles is activated by a certain context (Bronfenbrenner, 1979, 1986) which contributes to the development of the child. Thus, in families children witness multiple roles of family members (father and husband; mother and wife; sister and daughter; etc.). In contrast, an institutional staff functions in fixed social roles with strictly defined social behaviours.

Another important difference between the family and the institution is that the former is a self-supporting system, but the latter is not. The family

may or may not rely on the outside world for help, but the majority of life-supporting activities originate within the family and are carried out by family members, both adults and children. Mothers and fathers combine roles of providers, cooks, servants, educators, and caretakers in the mutual process and mutual context of life, and are assisted by their children. In an institution, these life-supporting activities are distributed between many staff with little or no participation by institutionalised children.

Theoretical analysis has led us to the hypothesis that developmental outcomes of institution-reared children differ from those of family-reared children, as the developmental processes in these two groups take place in profoundly different contexts. It was hypothesised that the institutional context, characterised by social isolation, lack of exposure to diverse social interaction and diverse human response, lack of strong emotional ties with adults, and lack of alternatives to a teacher as a dominant authority, detrimentally affects children's cognitive development, their social competence, understanding others and their feelings, and their independence of adults and their pressures.

For purposes of this study children who live in institutions were compared to those who live in families. As it was not feasible to match exactly family backgrounds in both samples, children with similar socioeconomic characteristics were selected. Children in both samples were primarily from working class families.

The study specifically addressed the following questions: (1) What is the extent of institutional effects on the cognitive, social, and emotional development of children? (2) Is the development of children who live in institutions related to the time they have spent in an institution, and/or to the age when the child was placed in an institution?

In order to answer the first question, children living in institutions were compared to family-raised children; the family-raised children spent approximately 10–12 hours a day outside their homes in day care. Children in both groups had approximately the same educational experience. The underlying rationale for such a comparison was the view that those children who attend day care and spend many hours outside their homes still maintain strong emotional ties with their families (Rutter, 1981), as opposed to children in institutions who do not maintain such ties.

In order to answer the second question, the contribution of the institutional experience to the development of children living in institutions was estimated.

As "institution" is a generic name for a variety of residential care facilities (Tizard et al., 1975); in the current work it specifically relates to orphanages. The reported study was carried out in orphanages and kindergartens in Russia.

METHOD

Settings

Orphanages in Russia, as well as in the former Soviet Union in general, are special residential institutions for child care and education. Statistics of the total number of children enrolled in these institutions were supplied by the educational authorities of the former Soviet Union. According to disclosures made in the late 1980s, the total enrolment in these institutions across the former Soviet Union was about 200,000 children (Sloutsky, 1988). In Russia alone there are approximately 50,000 institutionally raised children, about 0.15% of all children in Russia.¹ There are three different types of orphanages: (1) for children without severe physical or mental handicaps; (2) for severely physically handicapped children; and (3) for severely mentally handicapped children. Each type deals with children of one of the following age groups: (a) children from birth to 3 years of age, (b) children from 3 to 7 years of age, and (c) children from 7 to 16 years of age.

The current study was carried out in institutions housing children 3 to 7 years of age who were without severe mental or physical handicaps. Such an institution usually enrolls 120–150 children who are divided into the following groups: (a) 3–4 years of age, (b) 4–5 years of age, (c) 5–6 years of age, and (d) 6–7 years of age. There are 15–20 children in each group and orphanages usually have one or two groups of each age level. There are four major reasons for children to be placed in these institutions: (1) children abandoned by their parents (30–35% of all cases); (2) children removed from their families by the authorities due to child abuse, drug or alcohol abuse, or crime (40–45% of all cases); (3) children placed temporarily in an orphanage by their parents due to economic constraints on the family (20–25% of all cases); (4) children placed due to death or illness in the family (less than 5% of all cases).

Many orphanages are situated in three-storey buildings of a standard design. The design is very similar to the buildings of regular preschools and kindergartens. Each group of children occupies two rooms; one room is used as a communal bedroom (it has access to a bathroom) and another is used as a combination living room, dining room, and classroom. The multipurpose rooms usually contain 10–12 desks (each desk is designed for two children and is used as a desk and as a dining table), a teacher's table, a blackboard, a rug area with a television set, and a closet with toys and books. The whole design of these buildings does not resemble "a home". Signs reading "Director", "Kitchen", "Laundry", "Storage Room", and billboards

¹These data as well as data appearing later in the text in relation to the number of children attending kindergartens have been acquired via personal communication of the author with an official at the Ministry of Education of the Russian Federation.

explaining “Who is on duty today”, “The employee of the month”, and “What to do in case of fire”, etc. emphasise that this is an institution and not a home.

Due to various reasons (traditions, fear of sexual abuse, etc.), the institutional staff in the studied settings has consisted only of females. Thus, children in the studied settings were not exposed to a variety of gender roles. Many children who have spent their entire childhood in an institution have never seen a male. Thus, the children expressed amazement that the researcher and one of the assistants were males. They constantly asked them: “Are you my father?” They were fascinated that one of us had a beard and another a moustache. The children did not understand what a beard or moustache was, what they were made from, or their purpose.

Each group is staffed by a teacher and an assistant. The teacher is in charge of everyday activities (meals, naps, outdoor and indoor activities, keeping the room in order) and education. The assistant usually helps in serving meals, dressing and undressing the children, and carrying out other routine activities. Orphanages are rarely understaffed as staff salaries are 30% higher than the salaries in regular educational institutions. In order to control staff–children relationships (e.g. to avoid sexual abuse of children) and to prevent children from becoming attached to a particular adult (to avoid emotional traumas if the adult leaves or if a child is transferred to another institution), personal relationships are not allowed. For example, staff members must not communicate with children outside the orphanage, take children to their homes, or give personal presents.

Children have four meals: breakfast, around 8 a.m., dinner, around 1 p.m., snack, around 4 p.m., and supper, around 7 p.m. All the children also have a midday nap from 2 p.m. to 4 p.m. Every morning, except for weekends, holidays, and summer vacations, children have about an hour and a half to two hours of classes. During this time 5- to 7-year-olds do some reading, writing, math, and art activities. They also have two music classes, two classes of physical education, and two or three speech therapy classes each week (these classes last 30–45 minutes). The rest of the time is divided between outdoor and indoor activities that include structured and free play or watching TV. Three- and four-year-olds participate in basically the same activities, but have a less structured learning experience.

Kindergartens in Russia enrol children from 3 to 7 years of age. Like orphanages, kindergartens are often situated in standard buildings. A typical kindergarten usually consists of 120–150 children who are divided into the same groups as the orphanage children: (a) 3–4 years of age, (b) 4–5 years of age, (c) 5–6 years of age, and (d) 6–7 years of age. There are 25–35 children in each group and kindergartens usually have one or two groups of each age level. The interior design and distribution of space is very similar to that of an orphanage. Check-in time is 7.00 a.m.–7.45 a.m., and check-out time is

6.00 p.m.–7.00 p.m. Kindergartens are used as a form of child care as well as education. Although kindergartens and preschools are not compulsory, they are attended by the majority of children in Russia, as both parents are employed in the majority of urban families in Russia. Approximately 69.5% of almost 16 million children aged 1 to 7 years attend kindergarten, totalling approximately 10.8 million children. Kindergartens used to be readily affordable, and a waiting list would exist in almost every kindergarten. Monthly fees for kindergarten at the time of this study were less than 5% of the average monthly salary. The routines in the kindergarten include three meals (breakfast, around 8 a.m.; dinner, around 1 p.m.; and snack, around 4 p.m.); outdoor activities; midday nap; free play; and lessons in reading, writing, math, art, music, and gym. Lessons in reading, writing, and math are given to children aged 5 to 7. They have no more than four lessons per day; each lesson is 30 minutes long.

Both orphanage and kindergarten teachers are required to have at least two years of college training. No certificate is required. Assistant teachers are not required to have (and rarely have) any education beyond high school level. Speech therapists are required to have a four-year college education.

Subjects

Fifty-two children living in orphanages and 45 kindergarteners living with their families were studied. The orphanage sample consisted of 26 boys and 26 girls, the kindergarten sample consisted of 22 boys and 23 girls. All children were between 70 and 88 months of age. Samples were taken as follows. The contacts were made with educational authorities in Moscow, Russia, in order to get access to the list of orphanages and kindergartens located in the city. Two orphanages and two kindergartens were selected for the purposes of the study. The orphanages were selected at random from the list of orphanages in Moscow. The kindergartens were selected in working class populated areas in order to match (or at least to approximate) the background characteristics of the children in orphanages. Because there was no access to the families of children in the orphanages (the records provided only background characteristics of the parents, such as occupation or age, and in some cases even this information was not available) made it difficult to control the variable of family. That fact has to be considered a limitation of the study.

In both settings, all children between 70 and 88 months were tested. In both samples, a few children who were ill when the testing took place were excluded from the study. Table 1 summarises some sample characteristics of the orphanage and kindergarten children.

TABLE 1
Sample Characteristics of Orphanage and Kindergarten Children

<i>Sample Characteristics</i>	<i>Orphanage</i>		<i>Kindergarten</i>	
	<i>M</i>	<i>(SD)</i>	<i>M</i>	<i>(SD)</i>
Age (months)	73.12	(8.73)	74.29	(6.79)
Wechsler IQ	86.35	(11.85)	107.42	(9.65)
Wechsler Verbal IQ	77.56	(11.31)	96.00	(16.66)
Wechsler Performance IQ	98.95	(12.76)	116.07	(10.04)
Length of stay in an institution (months)	46.11	(25.10)	-	-
Age when placed in an institution (months)	27.09	(23.33)	-	-

Procedures

All children were met individually by a male or female researcher. Researchers were provided with a small room in the orphanages and kindergartens. Children were called to this room to “talk to a psychologist”. Each child was met three times. On each occasion a child was exposed to only one measure of development. Thus, all measures of children’s development were made separately. All three meetings took place within a month. Children in both settings expressed extreme willingness to participate, so that researchers organised a special “waiting list”. Prior to the testing the researchers had informally talked to the children in order to establish trusting relationships.

Measures

In order to study some components of the cognitive, effective, and personal development of the two groups of children the following methods were used.

(RWISC) Russian Adaptation of Wechsler Intelligence Scales for Children. A Russian adapted and standardised version of the Wechsler Intelligence Scales for Children (Panasiuk, 1973) was used as a measure of cognitive development. RWISC was administered individually to the children of both groups.

(MSE) Method for Study of Empathy (Identification of Emotions of Others). This method was designed for the purposes of the current study. It employs six pictures of emotionally explicit faces, expressing various emotions. A child is presented with six consecutive stories in which characters experience strong emotions. Then the child is asked to show the picture of an expressive face that is relevant to the character’s feelings.

This method was developed in previous studies with a sample of kindergarten children living in families. These children identified the feelings of the characters in the stories and of the faces on the pictures as

anger, disgust, fear, joy, love, and sadness. Only those stories and pictures where characters' feelings were consistently identified as anger, disgust, fear, joy, love, and sadness were selected for the study. MSE was administered to children of both groups individually. A researcher showed pictures of emotionally expressive faces to the children. Faces of a boy were shown to boys, and those of a girl were shown to girls. Children were then told stories about a character experiencing emotionally intense circumstances. After each story a child was asked to identify the face that reflected the emotional feelings of the character. An example of such a story could be as follows: "It was around New Year time. A boy was playing in a room. Suddenly a door bell rang. He opened a door and realised that it was Grandfather Frost (Russian version of Santa Claus). Grandfather Frost opened his sack and presented the boy with a new nice toy car."²

(MSC) Method for Study of Conformity (Change of Opinion under Pressure). This method was also designed for the purposes of the current study. Each child was presented with 10 4cm × 4cm cards containing reduced prints of Rorschach plates. Each child was asked which plate he/she liked the most and which one he/she liked the least, then one of the three following treatments was applied: (1) a brief 2–3 minute talk with a research assistant during which the child experienced no adult pressure; (2) the research assistant informed the child that he/she would have made the opposite choice; and (3) the orphanage teacher informed the child that she would have made the opposite choice. Children were randomly assigned to the treatments. Next, each child spent 15 minutes playing and talking with the research assistant. Then they were asked to repeat their choice in the presence of both the research assistant and the teacher. MSC was administered to the children in both groups individually. Forty-three orphanage and 43 kindergarten children participated in this part of the study.

RESULTS

Russian Adaptation of Wechsler Intelligence Scales for Children

The study revealed that the Wechsler scale scores of the orphanage children were significantly lower than those of the kindergarten children. Figure 1 compares Wechsler profiles of the two groups of children.

²All the stories were created in a manner that they were relevant to the experiences of orphanage and kindergarten children.

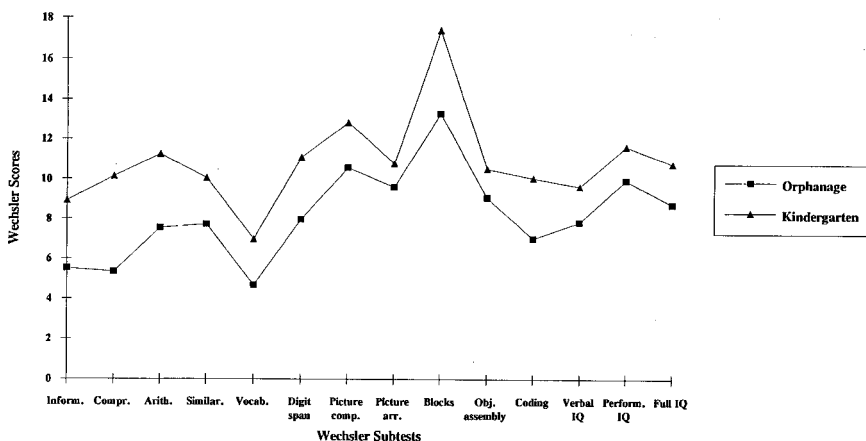


FIG. 1. Comparison of Wechsler profiles of orphanage and kindergarten children.

A multivariate analysis of the profiles (Johnson & Wichern, 1992) was used to compare Wechsler scale profiles of the two groups. These profiles are significantly different ($\lambda = .393$; [$F(13,83) = 9.869, P < .001$], [λ (lambda) refers to Wilk's multivariate criterion], and not parallel ($T^2 = 59.99, P < .001$), so that differences between the two groups for each subject vary.

The largest d -ratios (differences between the group means divided by an estimate of the population standard deviation derived from pooling the estimates taken from each of the two groups) (Becker, 1991) of kindergarten and orphanage children scores were found in the scales Information (1.04) and Comprehension (1.55), which supposedly reflects the effects the sheltered institutions have on children's knowledge and understanding of the outside world.

It was also found that Verbal, Performance, and Full-scale Wechsler IQ scores positively correlated with the age when children were placed in an orphanage, and negatively correlated with a child's length of stay in an orphanage. Table 2 contains correlations of Verbal, Performance, and Full-scale Wechsler IQs with the age when children were placed in an orphanage (AGEORPH) and with the length of their stay in an orphanage (LSTAY).

These findings support the notion that orphanage children differ in the studied measures of cognitive development from their kindergarten peers. The findings also reveal strong connections between the age when children were placed in an orphanage, the length of their stay, and the measures of their cognitive development.

TABLE 2

Correlations of Verbal, Performance, and Full-scale Wechsler IQs with Age when Children were Placed in an Orphanage (AGEORPH) and with Length of Stay in an Orphanage (LSTAY)

<i>Measure</i>	<i>AGEORPH</i>	<i>LSTAY</i>
Verbal Wechsler IQ	.312*	-.291*
Performance Wechsler IQ	.373**	-.313*
Full-scale Wechsler IQ	.398**	-.359**

* $P < .05$; ** $P < .01$.

Method for Study of Empathy (MSE)

There were profound differences found between the kindergarten and the orphanage children in their identification of the emotions of others. In two-dimensional contingency tables, the factors of "status", or the type of setting (i.e. kindergarten vs. orphanage) and "emotion", or the type of emotion to be identified (i.e. Anger, Sadness, Love, Disgust, Fear, or Joy), with frequencies of identification within cells, revealed main effects of the status and "emotion" variables. The analysis of standardised residuals (Kennedy, 1992) confirmed that the orphanage children identified emotions significantly less frequently than the kindergarten children.

Table 3 contains comparisons of frequencies of identification of each emotion by orphanage and kindergarten children. Mantel-Haenszel chi-square was calculated [$MH \chi^2(5) = 23.13, P < .001$], followed by the analysis of standardised residuals. It was found that orphanage children identified significantly less frequently Anger, Love, Fear, and Joy [$\chi^2(12) = 150.23, P < .001$]. Figure 2 compares percentages of identification of each emotion by orphanage and kindergarten children.

Data contained in Table 4 shows significant correlations between the total scores of identification of emotions (TOTEMO) and many cognitive and sample variables. TOTEMO of the orphanage children is strongly related to Arithmetic, Similarities, Vocabulary, Blocks, Object Assembly, Verbal IQ,

TABLE 3

Frequency of Identification of Emotions by Orphanage and Kindergarten Children

<i>Emotion</i>	<i>Orphanage</i>		<i>Kindergarten</i>	
	<i>Identified</i>	<i>Not Identified</i>	<i>Identified</i>	<i>Not Identified</i>
Anger	24	18	34	9
Sadness	24	18	28	15
Love	23	19	42	1
Disgust	19	23	16	27
Fear	23	19	37	6
Joy	32	10	41	2

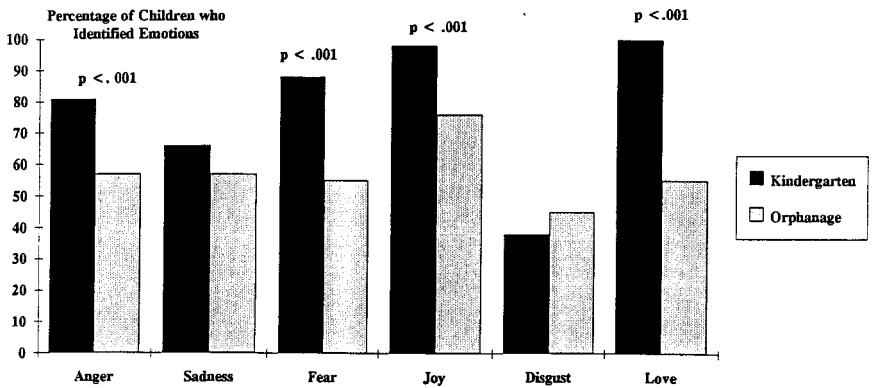


FIG. 2. Identification of emotions by orphanage and kindergarten children.

Full IQ, AGEORPH, and LSTAY. TOTEMO of the kindergarten children is related to Arithmetic, Vocabulary, Digit Span, Picture Completion, Verbal IQ, and Full IQ.

Table 5 contains correlations between frequencies of identification of each emotion and Wechsler scales, AGEORPH, and LSTAY among kindergarten and orphanage children. It should be noted that among

TABLE 4
Correlation between Total Score of Identification of Emotions (TOTEMO) and Cognitive and Sample Variables among Orphanage and Kindergarten Children

Variable	TOTEMO	
	Kindergarten	Orphanage
Information	.118	.281
Comprehension	.298	.263
Arithmetic	.438**	.456**
Similarities	.05	.451**
Vocabulary	.394*	.404*
Digit span	.332*	.282
Picture completion	.303*	.257
Picture arrangement	-.094	.068
Blocks	.156	.526**
Object assembly	.205	.494**
Coding	.153	.105
Verbal IQ	.355*	.489**
Performance IQ	.273	.51**
Full IQ	.41*	.552***
AGEORPH	-	.47**
LSTAY	-	-.349*

* $P < .05$; ** $P < .005$; *** $P < .001$.

orphanage children, frequencies of identification of all emotions but Fear are related to AGEORPH and/or LSTAY. Although correlations between LSTAY and frequencies of identification of other emotions are nonsignificant, they show a common pattern in that all frequencies negatively correlate with LSTAY. Wechsler subtests also relate to frequencies of identification of emotions. There is a significant difference between the two groups in the number of correlations between the frequencies of identification of emotions and the Wechsler scores. Among orphanage children there is a greater number of significant correlations between Wechsler scales and Anger [$\chi^2(1) = 11.2, P = .001$], Love [$\chi^2(1) = 3.6, P = .053$], and Sadness [$\chi^2(1) = 8.023, P = .005$] than among kindergarten children.

From Table 5, it can be seen that some of the identifications of emotions by orphanage children (e.g. Anger, Disgust, Joy, Love, and Sadness) are confounded with the Full-scale Wechsler IQ that correlates with children's institutional experience measured by age of placement. Therefore, it was deemed important to evaluate the contribution of the factor of age of placement in an orphanage to identification of emotions, while statistically controlling the Full-scale Wechsler IQ. Logistic regression analysis (Hosmer & Lemeshow, 1989) was applied to the data with one outcome dichotomous variable (identification of each emotion) and two explanatory variables (age of placement in an institution, broken down into 10-month intervals, and Wechsler IQ). The estimated regression coefficients (adjusted for Full-scale Wechsler IQ) are shown in Table 6.

Data in Table 6 suggests that the age of placement in an orphanage, adjusted for the Full-scale Wechsler IQ scores, is related to identification of emotions by the orphanage children.

Data analysis reveals differences between orphanage and kindergarten children in their identification of Anger, Fear, Joy, and Love. To provide additional evidence that children who stayed in the orphanage longer less correctly identified emotions, a one-way ANOVA of length of stay (LSTAY), as a factor, and a number of identified emotions, as a dependent variable, was carried out. There were significant differences found between those children who spent four to six years in the orphanage and those who were there less than two years ($F = 4.73, P < .015$). Figure 3 represents relationships between the mean percentage of the identified emotions (empathetic response) and years in the orphanage.

The findings reveal: (1) differences between the orphanage and family-raised children in the quantities of identified emotions; (2) relationships between the age children were placed in an orphanage and/or the duration of their stay there and the quantity of identified emotions; and (3) relationships between identification of emotions by orphanage children and measure of their cognitive development.

TABLE 5
Correlations between Scores of Identification of Each Emotion and Cognitive Variables, AGEORPH, and LSTAY among Orphanage (O) and Kindergarten (K) Children

Variable	Anger		Disgust		Fear		Joy		Love		Sadness	
	K	O	K	O	K	O	K	O	K	O	K	O
Information	.007	.217	.089	.36*	.224	.304*	.065	.083	.094	-.056	.061	.292
Comprehension	.218	.317*	.318*	.098	.164	.24	.182	.29	-.041	.165	.123	.04
Math	.237	.312	.41*	.44*	.481**	.274	.192	.339*	.247	.142	.076	.466*
Similarities	-.091	.396*	.029	.285	.144	.336*	.115	.244	.155	.313	-.02	.36*
Vocabulary	.197	.479**	.291	.11	.353*	.393*	.145	.293	.135	.212	.209	.258
Digit span	.093	.173	.34*	.219	.319*	.163	.294	.329*	.255	.062	.059	.289
Picture comp.	.039	.1	.289	.236	.211	.085	.132	.186	.127	.132	.275	.373*
Picture arrang.	.057	.117	-.071	.159	.095	-.07	.135	-.004	.326*	.242	-.395*	-.159
Blocks	-.029	.618***	.266	.35*	.022	.349*	.324*	.185	.111	.372*	-.009	.369*
Object assembly	-.028	.394*	.269	.408*	-.022	.352*	.24	.325*	.188	.329*	.133	.323*
Coding	.027	.165	.227	.024	.26	-.057	.218	-.037	.184	.258	-.128	.084
Verbal IQ	.031	.424*	.421**	.35*	.207	.39*	.14	.357*	.112	.206	.267	.387*
Perform IQ	.018	.457**	.358*	.415*	.16	.28	.339*	.25	.29	.408*	.035	.375*
Full IQ	.111	.468**	.436**	.447*	.349*	.356*	.355*	.327*	.296	.334*	.101	.441*
LSTAY	-	-.21	-	-.383*	-	-.183	-	-.234	-	-.234	-	-.264
AGEORPH	-	.314*	-	.402*	-	.27	-	.295*	-	.378*	-	.366*

* $P < .05$; ** $P < .005$; *** $P < .001$.

TABLE 6
 Logistic Regression Coefficients of AGEORPH* as an Explanatory Variable (Adjusted for the Full-scale Wechsler IQ Scores) and Identification of Emotions as an Outcome Variable

<i>Emotion</i>	<i>Estimated Coefficient</i>	<i>Wald's W</i>	<i>P-value</i>
Anger	.012	0.4	n.s.
Disgust	.06	2.01	< .05
Joy	.05	1.25	< .05
Love	.051	1.47	< .05
Sadness	.02	0.70	< .05

*Measured in months.

TABLE 7
 Comparison of Opinion Change under an Adult's Pressure among Kindergarten and Orphanage Children

	<i>Treatment 1</i>		<i>Treatment 2</i>		<i>Treatment 3</i>	
	<i>Change</i>	<i>No Change</i>	<i>Change</i>	<i>No Change</i>	<i>Change</i>	<i>No Change</i>
Orphanage ^a	0	14	6	7	4	12
Kindergarten ^b	1	13	1	12	1	15

^aN = 43; ^bN = 43.

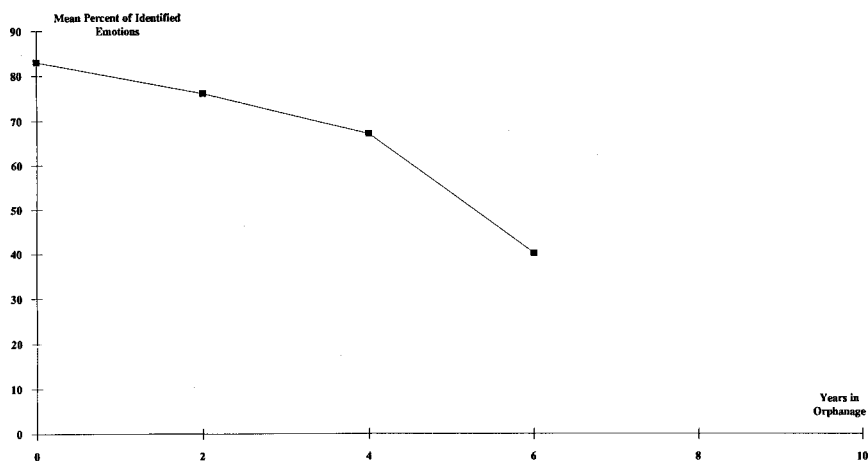


FIG. 3. Years in orphanage and mean percentage of identified emotions.

Method for Study of Conformity (MSC)

Among the orphanage children about 25% of all participating children (10 children out of 43) changed their opinions under an adult's pressure, whereas in the group of kindergarten children less than 5% of all participating children changed their opinions (2 children out of 43). Table 7 contains comparisons of opinion change among the orphanage and kindergarten children under different treatments. The analysis of standardised residuals reveals significant effects of treatment and setting variables [$\chi^2(6) = 49.92$, $P < .001$]. Orphanage children changed their opinions more often than kindergarten children. They did so significantly more frequently under treatments 2 and 3. A relatively small number of subjects who changed their opinion does not justify analysing the difference between treatments 2 and 3 or analysing associations between the opinion changes and AGEORPH, LSTAY, or previously analysed cognitive and emotional measures.

DISCUSSION

Comparisons of children in both groups show that orphanage children differ from their kindergarten peers in all the examined measures. What are the sources of these differences? Before answering this question, it should be explicitly stated that the "*ex post facto*" design used in the study is far from ideal. However, it is the only possible design for this type of research as one cannot randomly assign children to institutional versus family rearing. Because there are many potentially confounding variables that are impossible to control in this type of design (e.g. heredity of children in both studied groups), the best we can do is to try to eliminate possible rival explanations of the findings.

Comparisons of Wechsler scores might be dismissed on the basis that sample characteristics might account for these differences; however, the major arguments against such a dismissal are that the age when a child was placed in an orphanage (AGEORPH) and the length of stay in the orphanage (LSTAY) correlate with a child's Wechsler scores. Positive correlation between AGEORPH and Wechsler scores, and negative correlation between LSTAY and Wechsler scores, support the notion that orphanages have negative effects on children's cognitive development. This correlation is intentionally used as evidence for causal relations on the following grounds. As the reverse causal effect (Wechsler scores—Age of placement in an orphanage) can be easily excluded, the only real rival explanation is that there is a certain common factor that affects AGEORPH, LSTAY, and Wechsler scores. Although there were no visible significant differences found between the parents of those children who were placed in an orphanage earlier and the parents of those who were placed in an orphanage later in life, the explanation dealing with differences in parental

backgrounds could not be eliminated in the present study. The children were placed in the orphanages due to a variety of reasons; therefore, the reason for placement in an institution could explain these relationships as a third factor that affects both LSTAY and AGEORPH and the studied measures. There were no significant differences found in Wechsler scores of those children who were placed in an orphanage at the same age but due to different reasons. Thus, it was concluded that the reason of placement has no relationship to measures of cognitive development.

These findings suggest that the orphanage as a context of human development affects children's cognitive developmental *outcomes* (e.g. lower Wechsler scores in the group of the orphanage children) and the *process* of their development (e.g. the influence of the time of placement in an orphanage and the length of stay there on the outcomes of cognitive development).

The fact that frequencies of identification have significant positive correlations with AGEORPH and correlate negatively with LSTAY supports the notion that the age when a child is placed in an orphanage (AGEORPH) and the length of stay there (LSTAY) affects children's empathetic responses. As in the study of cognitive development, the correlation is intentionally used as evidence for causal relations on the same grounds as in the studies of cognitive development.

The fact that in the group of orphanage children there are more measures of empathetic response that correlate with Wechsler scales than in the group of kindergarten children could signify that there is a certain common factor influencing both empathetic response and cognitive development. It is hypothesised that this third factor is the factor of the orphanage which, in the form of AGEORPH and LSTAY, significantly correlates with both emotional and cognitive measures.

Comparisons of opinion change under adults' pressure shows a greater vulnerability of orphanage children to the adults' pressure than that of kindergarten children. These findings support the notion that the influence of an orphanage is not limited to cognitive development and that the orphanage as a context has profound impacts on the social development of children.

Even though some differences in biological parents of the two groups of children might be claimed, the findings can not be solely explained by these differences. The fact that measures of both cognitive and affective development strongly related to the age when children were placed in an orphanage and to the duration of their stay in the orphanage, suggests that the orphanage must be considered as a strong factor affecting the development of children. Age correlated positively, whereas duration correlated negatively with the indices of cognitive and social development. Thus, the study supports the idea that the time a child spends in an

orphanage is also a very significant variable affecting the process of development. Furthermore, a significantly greater number of correlations between the measures of cognitive and emotional development was found among the orphanage children than among the kindergarten ones. A proposed explanation is that the orphanage context is a third “common factor” that affects both the cognitive and emotional development of orphanage children and is therefore responsible for correlations between the measures. The fact that the age of placement in an orphanage and the time a child spent there are important factors in the development of the orphanage children, supports the view that there is not an “all or nothing” change in the developmental outcomes of these children, as was claimed by the proponents of the “emotional factor”; rather, there is gradual change in the process of development, and gradual changes in the developmental outcomes.

Comparisons of children living in families and in orphanages allow us to hypothesise that these contexts have more differences between them than has been claimed by the single-factor models. In the family, children are surrounded by various objects and have an opportunity to explore them. There are plenty of household objects both within and outside the house that could be explored. An orphanage environment sharply constrains the children’s exploratory behaviour. In order to prevent children from harming themselves, and the institutional property, children are denied exploration. Their play, their social activities, and their spare time are strongly controlled and regimented, especially at the initial stages of their development. That type of control can block cognitive activity, which is perceived to be essential for the process of development and learning.

In the family, children witness various behaviours of various people in various contexts, whereas in the orphanage children are exposed to strictly regimented and standardised behaviour of the staff. Orphanage children have contacts with adults within one context, where adults have and exercise almost absolute power over the children. Thus, it is not surprising that the orphanage children are more likely to conform to adults’ opinions than the kindergarten children. As it is deemed inappropriate for staff members to display human emotions in the work place, orphanage children are not witness to these behaviours. Therefore, the institutional environment can hinder the process of translation of cultural patterns from adults to children. Orphanage children do not acquire cultural patterns of expression and understanding of human emotions and are therefore unable to understand and express these emotions.

In the family, children are exposed to various social relationships between family members. They witness processes of negotiation, co-operation, empathy, and many other processes. In orphanages children are shielded from social interactions, as staff members are discouraged from explicit expression of their social relationships with each other.

All these factors can have separate as well as joint effects on the process of development of orphanage children. As the majority of research on children in institutions (including the reported one) are limited to investigation of developmental outcomes, further inquiry is needed to specify the institutional factors, their effects, and mechanisms of their influence on the development of children. It seems that the combination of factors rather than a single one constitute organisational differences between the family and the institution. But in order to test this assumption, both settings should be systematically compared.

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