Construction of the Scale of Child's Attachment to his/her Kindergarten Teacher (CAKT)

*Zlatka Cugmas**
University of Maribor, Faculty of Education, Maribor, Slovenia

Abstract: In the theoretical part of this paper, the author gives answers to the question of whether a real attachment relationship can exist between a child and a non-maternal caretaker. She mentions the established methods of measuring the child's attachment to the kindergarten teacher. She presents *The scale of child's attachment to his/her kindergarten teacher* (CAKT), which is based on authors previous findings and the experience of other authors in the forming of psychological instruments of this type. The scale was tested in a research which involved twenty-five kindergarten teachers who participated in the evaluation of 178 children (49.4% boys). Children ranged in age from 3 to 6 years. The purpose of the study was to investigate the dimensionality and internal consistency of the Scale. It was established that the psychometric characteristics of the Scale were adequate. This paper also presents the limitations of the research, which should be considered in the interpretation of the obtained results. Replication studies using clinical groups and samples from different cultures will be needed to assess a possible generalization of the presented results.

Key words: preschool children, kindergarten teachers, attachment, measurement, scales

Izdelava Lestvice otrokove navezanosti na vzgojiteljico (CAKT)

Zlatka Cugmas
Univerza v Mariboru, Pedagoška fakulteta, Maribor

Povzetek: V teoretičnem delu prispevka avtorica odgovarja na vprašanje, ali lahko obstaja navezanost med otrokom in osebami, ki zanj skrbijo, a niso njegova mama. Avtorica omenja uveljavljene metode za merjenje otrokove navezanosti na vzgojiteljico v vrtcu. Predstavi *Lestvico otrokove navezanosti na vzgojiteljico v vrtcu* (CAKT), ki jo je razvila na osnovi lastnih predhodnih raziskav in izkušenj drugih avtorjev v zvezi z oblikovanjem psiholoških instrumentov tega tipa. Lestvica je bila preizkušena v raziskavi, v kateri je sodelovalo 25 vzgojiteljic, ki so ocenile 178 vrtčevskih otrok (49,4 % dečkov). Otroci so bili stari od 3 do 6 let. Problem raziskave je bil preučiti dimenzije navezanosti in notranjo zanesljivost lestvice. Ugotovljene so bile ustrezne merske karakteristike lestvice. V prispevku so predstavljene tudi omejitve raziskave, ki jih je treba upoštevati pri interpretaciji dobljenih rezultatov. Da bi lahko rezultate posplošili, bi bilo treba ponoviti raziskavo s klinično populacijo in v različnih kulturah.

Ključne besede: predšolski otroci, vzgojiteljice, navezanost, ocenjevalne lestvice, merjenje

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*Naslov / Address: red. prof. dr. Zlatka Cugmas, University of Maribor, Faculty of Education, Koroška cesta 160, 2000 Maribor, Slovenia, e-mail: zlatka.cugmas@uni-mb.si

Children's Attachment to their Kindergarten Teachers

In modern societies most children interact, during the day, with more than one caregiver. Not only mothers, but also fathers and kindergarten teachers may be salient figures in the life of a child (Cassibba, Van IJzendoorn, & D'Odorico, 2000). In the present Slovene society, preschool children also have at least three primary caregivers: the mother, the father, and the kindergarten teacher.

Attachment behaviors reflect the children's sense that they can trust the adult to take care of them in a responsive and sensitive manner (Ainsworth, Blehar, Waters, & Wall, 1978). Research on children enrolled in kindergarten suggests that kindergarten teachers as well as parents function as attachment figures (Goossens & van IJzendoorn, 1990; Howes, Phillips, & Whitebook, 1992). The nonparental caregiver functions as a substitute parent: He or she plays with the child but is also responsible for keeping the child physically and emotionally safe in the absence of the parent (Howes & Hamilton, 1992). If the child is part of a network of attachment figures, separation from one attachment figure, such as the mother, may not mean separation from every secure base. On the contrary, a separation from the mother during part of the day may imply the presence of the father or a kindergarten teacher to fulfill the role of attachment figure (van IJzendoorn & Tavecchio, 1987, in van IJzendoorn, Sagi, & Lambermon, 1992).

At the same time, a multiple caretaker arrangement does not necessarily mean that children relate to more than one figure in a way that may be called "attachment" (van IJzendoorn et al., 1992). The quality of attachment is often established in a standardised stressful situation – the *Strange situation procedure* – in which the child is confronted with two brief separations from the attachment figure (Ainsworth et al., 1978). One may doubt the validity of the non-maternal attachment measures; more radically, it may even be doubted whether a real attachment relationship can exist between a child and a non-maternal caretaker. The *Strange situation* (Ainsworth et al.) and the *Attachment Q-Sort* (Waters & Deane, 1985) might assess aspects of the child-caretaker relationship other than attachment (van IJzendoorn et al.).

Bowlby (1984, p. 371, in van IJzendoorn et al., 1992) wrote: "To say of a child that he is attached to, or has an attachment to someone means that he is strongly disposed to seek proximity to and contact with a specific figure and to do so in certain situations, notably when he is frightened, tired or ill." From this definition, it may be derived that in a stressful circumstance such as the *Strange situation*, infants should show differential attachment behaviour to their kindergarten teacher compared to a stranger. To evaluate the validity of infant-caregiver *Strange situation* classifications, van IJzendoorn and coworkers described five criteria: (1) infant-caregiver samples should not show an over-representation of avoidant classifications; (2) infant-caregiver samples should not show an over-representation of unclassifiable cases; (3) infant-caregiver classifications are independent of infant-parent classifications; (4) caregiver's sensitivity is related to the infant-caregiver classification; and (5) infant-

caregiver classifications predict later socio-emotional functioning. Van IJzendoorn et al. (1992) researched all these criteria of attachment to kindergarten teachers and concluded that children are able to develop an attachment relationship to their kindergarten teachers. Even more, their analysis revealed that infants can establish attachment relationships with different caregivers who care for them on a regular basis for a long period of time (Cassibba et al., 2000).

Goossens and van IJzendoorn (1990) reported that the attachment classification distribution of infant-caregiver dyads did not differ significantly from infant-mother or infant-father attachment classification distributions.   From their study it can be derived that kindergarten teachers do not have more insecure attachment relationships with the infants in their kindergarten than parents do. Although kindergarten teachers have several infants in their charge at the same time, they appear to be able to compensate for their spending less time with each infant than parents do.

Howes (1999) concluded that the small but growing literature on attachment formation to alternative caregivers suggests that this process is similar to that of infant-mother attachment. Although the developmental context is different for relationships formed when children are toddlers rather than infants, children in both periods construct their attachment relationships on the basis of repeated interactions with caregiving adults.

The quality of infant-caregiver attachment was independent of both infant-mother and infant-father attachments (Goossens & van IJzendoorn, 1990). Attachment classifications are assumed to be a reflection of the specific history of interaction within a given dyad (Ainsworth et al., 1978). Even when infants are involved in completely insecure family attachment, they may still develop a secure attachment relationship to their caregivers. Children with prior relationship difficulties, when moved to settings with sensitive caregivers, appear to be able either to reorganize their attachment representations when they encounter caregivers who respond sensitively or to construct independent relationships based on experiences with the new caregivers (Howes, 1999).

In the study of Goossens and van IJzendoorn (1990), kindergarten teachers with more than one infant did not have similar types of attachment classifications to all the infants they were observed with.

Instruments for Measuring Attachment in Kindergarten Children

The study of the relationship between the child and his/her kindergarten teacher implies a basic question which concerns the development of valid measures of child-kindergarten teacher attachment in the context of child care. In fact, several studies have been carried out to assess quality of attachment to kindergarten teachers (Cassibba et al., 2000).

The *Strange situation procedure* (SSP) has been the established measure of

the infants' attachment security (Ainsworth et al., 1978). In the SSP, the children's attachment behaviour toward a parent or some other caregiver is observed in a laboratory playroom where they encounter an unfamiliar adult and are twice briefly separated from their attachment figure. The SSP entails an artificial and stressful laboratory procedure that has been criticized for its lack of ecological validity and that has raised some ethical concerns. Furthermore, the SSP was developed for use with toddlers in the 2nd year of their life, which led to the relative neglect of attachment during later stages of life (van IJzendoorn, Vereijken, Bakermans-Kranenburg, & Riksen-Walraven, 2004).

Waters and Deane (1985) introduced another method for assessing attachment security in infants and toddlers, that is, the *Attachment Q-Sort* (AQS). The AQS consists of a large number of cards (75, 90, or 100). On each card a specific behavioural characteristic of children between 12 and 48 months of age is described. The cards can be used as a standard vocabulary to describe the behaviour of a child in the natural home or in kindergarten, with special emphasis on secure-base behaviour (Vaughn & Waters, 1990, in Cassibba et al., 2000). After several hours of observation the observer ranks the cards into several piles from "most descriptive of the subject" to "least descriptive of the subject." The number of piles and the number of cards that can be put in each pile are fixed. By comparing the resulting description with the behavioural profile of a prototypical secure child as provided by several experts in the field of attachment theory, a score for attachment security can be derived. In fact, the AQS security score is the correlation between the Q sort of this specific child and the expert sort describing the prototypically secure child (in van IJzendoorn et al., 2004). Cassibba and coworkers adapted and validated the standard *Attachment Q-Sort* (AQS; Vaughn & Waters, 1990, in Cassibba et al., 2000) to the specific child-rearing context of the kindergartens.

Without denying the numerous strengths of the SSP, the AQS has some advantages over the SSP. Firstly, it can be used for a broader age range (12–48 months) than the SSP. Moreover, because it is based on the observation of children in their natural contexts, the AQS provides a more ecologically valid assessment. Furthermore, because the application of the AQS does not require the stressful separations used in the SSP, the method can be applied in cultures and populations in which parent-infant separations are uncommon. Because the AQS is less intrusive than the SSP, it may be used more frequently with the same child, for example, in repeated measures designs and in studies on children's attachment networks. Finally, the application of the AQS in divergent cultures or populations may be attuned to the specific prototypical secure-base behaviour of the children from those backgrounds. The AQS may even be used to assess infant security in extremely disturbed groups such as autistic children (Rutgers, Bakermans-Kranenburg, & van IJzendoorn, 2004, in Cassibba et al., 2000). It should however be noted that the AQS is time consuming (in the study of Cassibba et al., 2000, mothers spent about 2.5 hours to sort the AQS), its observational database is usually not videotaped for archival purposes and for

review, and it fails to differentiate between types of insecurity (in van IJzendoorn et al., 2004).

It may be concluded that the SSP and the AQS assess overlapping but different dimensions of the same security construct. The SSP emphasizes the dynamics of the attachment behavioural system in stressful situations and focuses on the child's expectations of caregiver's protection in times of stress and anxiety, whereas the AQS emphasizes the interplay between the attachment and exploratory systems in the natural setting and addresses the child's expectations of caregiver's guidance in more regular circumstances (Solomon & George, 1999, in van IJzendoorn et al., 2004).

The present investigation is designed to construct a new scale for measuring the child's attachment to the kindergarten teacher as his/her caregiver. It is *The Scale of Child's Attachment to his/her Kindergarten Teacher* or in short: CAKT. In Slovenia no other such scale exists for measuring attachment. The Scale measures the intensity of expression in different patterns of attachment rather than categories. Contemporary attachment research is based on the assumption that at least three types of child's attachment patterns exist: secure, avoidant, and resistant. It has not yet been established, however, whether individual differences in attachment organization are more consistent with a continuous or a categorical model (Fraley & Spieker, 2003).

Characteristic features of the CAKT:

−   in order to achieve the adequate psychometric features of the scale, numerous items (170) were included;
−   the items were chosen on the basis of free descriptions, provided by the observers, of the children's behaviour toward the kindergarten teachers (see Cugmas, 2003);
−   the items comprise various domains of the children's relations with the teacher, namely: the first encounter between the children and the kindergarten teacher on his/her arrival at kindergarten; when the child is tired, sick or frightened; when the child is not tired, sick or frightened and therefore not in a stressful situation, when the child trusts the teacher with his/her problems and talks about various events; the child's behaviour during the absence of the teacher from the playroom;
−   the evaluation of the scale is fast, precise and unambiguous.

The second goal of the research was to establish the dimensionality of children's attachment to the kindergarten teacher, the reliability (Cronbach's alpha) of the Scale, and the differences in how patterns of attachment are expressed in different more or less stressful situations.

The third goal was to evaluate gender and age differences in the types of children's attachment to his/her kindergarten teacher, and the relation between the number of months the children attended the same kindergarten group and his/her attachment to his/her kindergarten teacher.

Based on attachment literature, it is hypothesized that security and insecurity would be the major dimensions of the teacher-child relationship.

As the system of attachment maintains the appropriate closeness and contact, the behaviour of attachment decreases. But when the system of attachment is characterized by being threatened, the behaviour of attachment is activated. If the child is tired or sick or finds the environment unfamiliar, his/her goal becomes to increase the closeness and the contact with the caregiver (Goldberg, 1991). Ainsworth carefully distinguished the use of attachment figures as a "secure base" from the use of attachment figures as a safe or "secure haven". At times when the wariness/fear system is more activated than the exploratory or affiliated systems, infants retreat to the caregiver for comfort and courage in the presence of the fear-inducing stimulus. Once comfort and reassurance are sufficient, "the attachment figure shifts from being a secure haven to being a secure base from which to explore" (Ainsworth et al., 1978, p. 265, in Fraley & Spieker, 2003). It is to be expected that the pattern of children's attachment toward the kindergarten teacher will be more expressed in the child's behaviour toward the kindergarten teacher in stressful rather than in stress-free situations, which means that the correlation between the patterns of the children's attachment toward the kindergarten teacher expressed in different situations will be moderate, but nevertheless positive.

Relating to the different results obtained in studies on the correlations between the gender of the children and their patterns of attachment, significant differences were not expected here regarding expressions of different patterns of attachment with boys on the one hand and girls on the other, as well as not with children of various age groups. Significant relations between period the child spent in his/her kindergarten group and his/her attachment to kindergarten teacher were not expected either.

Method

Participants

Twenty-five kindergarten teachers (all females, secondary school graduates, of different ages) participated in the evaluation of 178 children (49.4% boys and 50.6% girls). Children ranged in age from 3 to 6 years ($M = 55.59$ months, $SD = 13.74$, $Me = 60.00$, $Min = 36$, $Max = 83$). The kindergarten teachers were recruited from different kindergartens in different Slovene regions. The kindergarten groups and the children in these groups were chosen at random. The children chosen were a maximum of the first seven or eight names (four boys and four girls) on the kindergarten teachers' alphabetized classroom rosters (some of the chosen kindergarten groups could not provide eight but only six or seven children of the required age). The following requirements were taken into account: the children were no younger than 3 and no older than 6 years, they had been participating in the kindergarten teacher's group

for at least 3 months continuously ($M = 12.88$ months, $SD = 12.59$, $Me = 4.00$, $Min = 3$, $Max = 60$), and they were all enrolled full time in kindergarten (the final sample see in Table 1). In Slovenia, most infants spend at least a year at home with their parents before entering preschool institution. The kindergarten teachers participating as observers in this study attended part-time courses in the first year of the program *Teachers of Kindergarten Children* at the *Faculty of Education* in Maribor. They were blind to the hypotheses of the study.

Table 1. *The frequency distribution of children by their age*

Age (years)	3	4	5	6	Total
f	63	24	69	22	178
%	35.4	13.5	38.8	12.4	100.0

Instruments

The Scale of Child's Attachment to his/her Kindergarten Teacher (CAKT)

The CAKT is a 129-item instrument measuring the kindergarten teacher's observations of the child's attachment behaviour in relation to herself/himself in more and less stressful situations (during the morning encounter between the child and kindergarten teacher; when the child is tired, sick and frightened; when the child is not tired, sick or frightened and therefore not in a stressful situation; the child trusts the caregiver with his/her problems, talks to her about things that had happened; the teacher leaves the playroom). Items were selected in order to assess both security and insecurity in the kindergarten teacher-child relationship. All items were written in a 5-point Likert-type scale (from 1 = he/she is absolutely not like that to 5 = he/she is absolutely like that) with the kindergarten teacher endorsing the extent to which the item was true of the behaviour of individual child. Kindergarten teachers were also provided with a "not applicable" response option to be used when the child had not been observed in the situation described.

Procedure

Construction of the CAKT. The items of the Scale were developed on the basis of a preliminary study in which 58 students of the *Faculty of Education* in Maribor in their own words described three children from the kindergarten unit in which they were included as observers five hours per week for a period of five months and a half. They were asked to describe the child who had a good relationship toward the teacher and the two who had a bad relationship toward her.

Students were given the following instructions: "We are interested in the be-

haviour of kindergarten children toward their kindergarten teachers. We are going to ask you a question about the children in the kindergarten group, in which you have been observing the interaction between the children and their kindergarten teacher. In answering this question, you may use as many words as is necessary to give a complete picture of the child's behaviour. There are no right or wrong answers. All your statements are confidential and will be used for research purposes only."

Each student was then asked to answer the question: "Tell me what you think is characteristic of the child's behaviour toward his/her kindergarten teacher." The descriptors (namely individual words with which the referential persons described the children's characteristics, Zupančič, 2001), discerned in the free-descriptions of the child's relationship with his/her kindergarten teacher, were classified into two main categories: Secure and Insecure, and into 13 sub-categories. On the basis of these categories and sub-categories of the descriptors of the children's relationship toward their kindergarten teachers, the 170 items of the CAKT questionnaire were formed.

Data-collection procedure. The kindergarten teachers selected the children during practical courses in developmental psychology on the basis of the criteria for sample taking (see Participants) and they filled out the CAKT questionnaires. It took them about 30 minutes to fill it out. They had no prior knowledge of the theory and development of child's attachment. Privacy and confidentiality of data were provided for.

Data analysis. The statistical analyses consisted of an evaluation of the psychometric properties (factor structure and internal consistency reliability) of the teachers' responses on the CAKT, of relations between types of child's attachment to his/her kindergarten teacher in different situations, grade and gender differences in the types of children's attachment to their kindergarten teachers, and relation between the period the child spent in the kindergarten group and in his/her attachment.

Results

Construction of the CAKT Scales

A factor analytical check of the data was conducted to evaluate the dimensionality of children's scores on the CAKT. To determine the optimal number of factors needed to represent the children's CAKT scores, many different criteria were used to guide decisions. The first is the eigenvalue distribution (i.e., Cattell's scree test). This was followed by accounting for the number of items, which were significantly saturated with more than one factor, and the interpretability of varimax-rotated solutions. Note that the re-rotation of these factors to an oblique solution produced similar results. I decided in favour of the six-factor solution. These six factors explained 60.75% of the entire variance (the first factor explained 20.26%). The naming

of the items was based on an analysis of their content, that is: Secure, Resistance, Disorganized, Avoidance, Dependence, and Trustfulness. The items were reasonably saturated with factors. In a further analysis a total of 41 items were eliminated. The final version of the CAKT comprises 129 items.

The structure of the six extracted factors is presented below. The items that belong to a certain factor are written in abbreviated form. The saturation of each item with the factor is written in parenthesis.

The first factor *Secure* includes the items: At the first reunion in the morning, the child ... accepts my approaching him (e.g., by touch) (.47), obeys me, can be guided (.53), expresses a warm friendly attitude toward me (.60), gives initiative for conversation with me (.61), responds kindly to my greeting him/her (.65), kindly greets me (.56), gives me a pleasant smile (.62), is glad to see me (.65). If the child is tired, sick or frightened, he/she ... seeks my help or advice (.67), obeys me, can be guided (.55), expresses a warm friendly relationship toward me (.55). If the child isn't tired, sick or frightened, ... he/she is considerate toward me (0.73), he/she likes to fool around with me (in the positive sense) (.74), he/she is concerned for me (.65), he/she is glad that I am around (.79), he/she is sensitive to my feelings (.55), he/she enjoys my company (.73), he/she likes to share things with me (.77), he/she accepts my approaching him (e.g., by touch) (.61), he/she is relaxed in my presence (.55), he/she likes talking to me (.77), he/she seeks my warm embrace (.63), he/she obeys me, can be guided (.70), he/she laughs a lot when I am around (.67), he/she likes playing with me (.75), he/she is considerate toward me (.68), he/she asks me when it comes to a lack of knowledge (.66), he/she expresses a warm friendly relationship (.77), he/she wants to comfort me when I am sad (.62), he/she is delightful toward me (.71), he/she cuddles when I embrace him/her (.50), it is fun for him/her to be with me (.73), he/she gives suggestions to me (.60), I am his/her role-model (.55), he/she is in a good mood when in my company (.73), he/she listens to me if I have something to say to him/her (.66), he/she is interested in my opinion (.80), he/she seeks my help or advice, if he/she needs it (.68), he/she observes me as I work (.66), he/she expresses respect toward me (.79), he/she finds it important for me to praise him/her (.73), he/she cooperates with me (.77), he/she does what I ask of him/her (.72), he/she imitates me (.67), he/she likes to help me (.78), he/she while playing pretends to be me (.49), he/she is encouraged by my praising him (.61), he/she accepts my help or advice (.63). If I leave the playroom, he/she calmly accepts it, but wants to know where I am going and when I will be back (.72).

The factor *Resistance* includes the items: At the first reunion in the morning, the child ... angrily rejects physical contact with me (.49), responds to my greeting with anger, reluctance and resistance (.53), is physically violent toward me (.74), threatened me (.58), is accusing toward me (.81), attempts to drive me away from him/her (.71), if the child is upset, responds with anger to my comforting him/her (.58), responds to my instructions with anger and resistance (.66), orders me around (.72), wants to punish me (.80). If the child is tired, sick or frightened, he/she ... angrily

rejects physical contact with me (e.g. touch, embrace) (.52), accuses and blames me for things (.75), expresses anger and reluctance toward me (.71), makes fun of me (.79), orders me around (.68), wants to punish me (.83), threatens me (.74), tries to drive me away from him/her (.70), is demanding and impatient toward me (.58), is violent toward me (.73), is verbally unpleasant toward me (.57), says he/she sneaks on me to his/her parents (.75). If the child isn't tired, sick or frightened, he/she … is demanding and impatient toward me (.57), orders me around (.64), threatens me (.73), wants to punish me (.71), wants to blackmail me (.72), is offensive toward me (.81), wants to have a row with me (.70), rejects my physical contact (e.g. touch) with anger, rebellion (.59), is stubborn towards me, wants to rebel (.64), wants to drive me away from him/her (.52), is verbally unpleasant toward me (.77), is impertinent toward me (.84), accuses and blames me (.79), teases me (.66), is violent toward me (.77), expresses anger and hatred toward me (.72).

The factor *Disorganized* includes the items: At the first reunion in the morning, he/she … is scared of me (.76), starts to cry as soon as he/she sees me (.81). If the child is tired, sick or frightened, he/she … bites his/her nails, hits his/her head, masturbates, etc. in my presence (.59), misses his/her parents (.51). If the child isn't tired, sick or frightened, he/she … wants to go home all the time (.79), is scared of me (.68), can't wait for his/her parent to come to get him/her (.67), behaves confused in my presence (.57), appears to be worried in my presence (.65), has a stiff posture in my presence (.64), cries because his/her parents are not there (.75), appears shy in talking to me (.61).

The factor *Avoidance* includes the items: At the first reunion in the morning, he/she is more interested in toys than in me (.58). If the child is tired, sick or frightened, he/she ignores me (.87). If the child isn't tired, sick or frightened, he/she … is more interested in toys than in me (.63), ignores my help or advice (.87), ignores my criticism or reprimand (.87), doesn't listen to me (.91), doesn't consider my expectations, opinions (.84), ignores my requests (.86), avoids physical contact with me (.88), pretends not to hear my instructions and demands (.76), shows no initiative to communicate with me (.83).

The factor *Dependence* includes the items: At the first reunion in the morning, he/she … "sticks" to me and follows me wherever I go (.66), demands that I always pay attention only to him/her (.62). If the child is tired, sick or frightened, he/she … "sticks" to me and follows me wherever I go (.72), demands that I pay attention only to him/her (.47). If the child isn't tired, sick or frightened, he/she … wants me to pay attention to him/her individually (.53), is very dependent on me (.65), is exceedingly and superficially polite (.44), "sticks" to me and follows me wherever I go (.70), accuses me of not loving him/her enough (.60), wants all my attention to himself/herself (.69). If I leave the playroom, he/she becomes upset and not easily comforted (.48).

The factor *Trustfulness* includes the items: The child tells me … if something

unpleasant happens at home (e.g., he is punished or his cat dies ...) (.42), if something hurts him (e.g., tooth, tummy ...) (.49), when it comes to a lack of knowledge (.57), if a minor accident happens to him/her (e.g. if he/she pees in his/her pants, spills water) (.59), if he/she doesn't want to do something that I expect of or want from him (.60), if he/she doesn't want to eat some food (.67), if he/she can't sleep (.73), if he/she wants a toy which I hadn't offered him/her yet (.67).

The clear six-factor structure that emerged from the principal-components analysis of the 129 CAKT variables is mostly consistent with others reported in the literature. The patterns of attachment Secure, Resistance, Avoidance, and Disorganized have been confirmed on countless occasions. Normally the researchers classified the child's behaviour in the Strange situation into one of the following categories defined by Ainsworth et al. (1978): A: absence of security – avoidance, B: security, and C: absence of security – resistance. Some authors add one more category, D: absence of security – controlling/disorganization (Shouldice & Stevenson-Hinde, 1992, for example). The novelty of the present research is in the fact that two additional factors came into shape, namely Dependence and Trustfulness.

Internal Consistency

The internal consistency of the CAKT subscales, obtained by factor analysis, was calculated on the basis of Cronbach's coefficient alpha. The results are presented in Table 2. The internal consistency of the six CAKT subscales is satisfactory.

Table 2. *Descriptive analyses of the subscales of CAKT obtained on the basis of factor analysis*

Scales	No. of items	α	% of Var.	N	M	SD	Me	Mo	Min	Max
I. Secure	49	.98	20.26	150	3.76	0.66	3.84	3.65	1.92	4.92
II. Resistance	38	.97	16.56	145	1.32	0.45	1.13	1.00	1.00	3.47
III. Disorganized	12	.88	7.34	172	1.47	0.53	1.33	1.25	1.00	4.58
IV. Avoidance	11	.96	7.04	175	3.27	1.16	3.55	3.91	1.00	5.00
V. Dependence	11	.89	5.44	169	1.97	0.69	1.82	1.73	1.00	4.18
VI. Trustfulness	8	.90	4.11	139	3.88	0.80	4.00	4.00	1.00	5.00

As can be derived from Table 2, the kindergarten teachers estimate that children from 3 to 6 years of age express mostly verbal trustfulness and security. There is also a relatively strong expression of the pattern Avoidance, to a lesser degree of Dependence, Disorganized, and the least of the pattern Resistance.

Intercorrelations among CAKT Subscales

Table 3 presents the intercorrelations for the six CAKT scales. The scale scores were computed by taking the unweighted average of the children's responses to the items in each domain. It was not necessary to change the positive to the negative and vice versa in any item. The obtained correlations between the subscales of the CAKT were in most cases the expected ones.

Table 3. Intercorrelations among the CAKT subscales

	Secure	Resistance	Disorganized	Avoidance	Dependence
Resistance	−.51*				
Disorganized	−.47*	.41*			
Avoidance	−.10	.04	−.05		
Dependence	.40*	.05	−.07	.30*	
Trustfulness	.61*	−.15	−.41*	.43*	.17

*$p < .001$.

Surprising are the positive correlations between Avoidance and Dependence on the one hand and Avoidance and Trustfulness on the other. Howes, Matheson, and Hamilton (1994) found that independence and attachment security were orthogonal characteristics of the infant-caregiver relationship. Cassibba et al. (2000) also found that the emphasis on independence does not necessarily involve a preference for avoidant attachments. The results of this study, furthermore, show positive correlations between Dependence and Avoidance. One would also expect that children, who are more avoidant in relation to the caregiver/teacher, would trust her less, but the results of this study proved the opposite. The obtained results could be explained with the age of the children, which will become evident in the following.

Children's Attachment to their Kindergarten Teachers in Different Situations

This section deals only with the expression of the patterns of attachment Secure and Resistance in different situations. Other subscales of the CAKT were not taken into consideration since they do not contain enough items.

Children express significantly more security during the first morning encounter with the teacher than in situations when they are tired, sleepy or sick (for situation 1 – situation 2, $t[168] = 3.74$, $p = .000$) and when they are not in a stressful situation (for situation 1 – situation 3, $t[154] = 5.85$, $p = .000$; for situation 2 – situation 3, $t[157] = 1.40$, $p = .165$).

Significant differences exist in Resistance in different situations. The children express the largest amount of resistance toward their caregiver when not in stressful situations (for situation 1 – situation, 3, $t[163] = 4.77$, $p = .000$); for situation 2 – situ-

Table 4. *Descriptive analyses of subscales Secure and Resistance relating to different situations*

	Secure			Resistance		
	Situation 1	Situation 2	Situation 3	Situation 1	Situation 2	Situation 3
N	171	176	160	175	155	165
M	3.94	3.78	3.75	1.27	1.32	1.34
SD	0.79	0.75	0.66	0.43	0.47	0.45
Min	1.75	1.67	1.92	1.00	1.00	1.00
Max	5.00	5.00	4.95	3.40	3.50	3.41

Note. Situation 1: First morning encounter; Situation 2: The child is tired, sleepy or sick; Situation 3: The child

ation 3, $t[141] = 2.48$, $p = .014$), and less when they are tired, sick or sleepy. They show least resistant behaviour at their first morning encounter with their caregiver (for situation 1 – situation 2, t[152] = 2.64, $p = .009$).

Despite the fact that *t*-tests have proven the existence of significant differences in the expression of the patterns of attachment Secure and Resistance in different situations, the calculations of the Pearson coefficients of correlation show significant correlations between the expression of the patterns of attachment Secure and Resistance in different situations (see Table 5). This means that it is possible on the basis of situations unstressful for the child to judge expressions of different patterns of attachment of the child toward his/her caregiver, which corresponds to the findings of other authors (see Pederson & Moran, 1996).

Table 5. *Intercorrelations among subscales Secure and Resistance in different situations*

	Secure			Resistance		
	Situation 1	Situation 2	Situation 3	Situation 1	Situation 2	Situation 3
Situation 1						
Situation 2	.70*			.91*		
Situation 3	.80*	.76*		.86*	.87*	

*p < .001.

Gender and Grade Differences

A series of repeated ANOVA measures was conducted to examine the possible effects of gender and grade on children's attachment in each CAKT domain.

With the exception of the factor Resistance ($F[1, 134] = 6.17$, $p = .014$) and Disorganized ($F[1, 162] = 4.07$, $p = .045$), no significant differences exist in the child's attachment to the kindergarten teacher between the boys and the girls. The boys scored higher than girls on the scale of Resistance (boys: $M = 1.41$, $SD = 0.54$;

girls: $M = 1.23$, $SD = 0.29$) and Disorganized (boys: $M = 1.54$, $SD = 0.61$; girls: $M = 1.37$, $SD = 0.44$). The results correspond to gender stereotypes. The scale Resistance also includes aggressive behaviour toward the teacher, and such behaviour is more characteristic of boys than of girls (Cohn, 1990, in DeMulder, Denham, Schmidt, & Mitchell, 2000). The scale Disorganized includes also fear the child expresses toward the kindergarten teacher and other signs of nonadaptability, which is consistent with the findings of other authors on the larger vulnerability of boys compared to girls (Brookhart & Hock, 1976; Goossens, 1986, 1987, in Goossens & van Ijzendoorn, 1990).

With the exception of the factor Avoidance (F [3, 174] = 3.85, $p = .011$), no significant differences exist between the attachment patterns of children of different age groups. The calculations of the t-tests for Avoidance have shown two significant differences between children from different age groups, namely: for the comparison of 3- and 5-year olds, $t(127) = 3.07$, $p = .003$, and for the comparisons of 5- and 6-year-olds, $t(87) = 2.41$, $p = .018$. Five-year-olds ($M = 2.92$, $SD = 1.16$) express significantly less avoidance in their relation toward the teachers than 3-year-olds ($M = 3.53$, $SD = 1.10$) and 6-year-olds ($M = 3.60$, $SD = 1.11$). It is possible that the high level of avoidance in the case of 3-year-olds is linked with their less developed verbal skills and their not being yet used to their new surrounding – the kindergarten, since they had only just entered it. The high level of avoidance in the case of 6-year-olds could be the result of a greater independence of these children.

Relation Between the Child's Attendance in the Kindergarten Group and the Patterns of Attachment to the Kindergarten Teacher

The results have revealed a statistically significant, but low negative correlation between the number of months the child had been present in the teacher's group and the scale Dependence ($r = -.17$; $p = .000$), namely that the longer the children are in the teacher's group, the less dependence they express in their relation to her. It is assumed that the child needs some time to develop security in relation toward the teacher. Until this happens, the child follows her around and is dependent on her. When the child develops a sense of security, he/she starts keeping a distance from her. A positive middle high correlation between the age of the child in months and the number of months he/she had already spent in the teacher's group was expected ($r = .37$, $p = .000$).

Discussion

The goal of this study was to construct the *The Scale of Child's Attachment to his/her Kindergarten Teacher* (CAKT) and to examine it's psychometric properties: (1) the dimensionality of children's attachment, and (2) the reliability of children's

attachment. This study was also designed to evaluate differences in the expression of different patterns of child's attachment to his/her kindergarten teacher in different situations, gender and age differences in children's attachment, and the relation between the time the child had already spent in the kindergarten group and his/her attachment to the kindergarten teacher.

The results suggest that six patterns of attachment to kindergarten teacher in children age 3 to 6 can be measured reliably with the CAKT. They are: Secure, Resistance, Disorganized, Avoidance, Dependence, and Trustfulness. The internal reliability of the scales is high. Since significant correlations exist between the expressions of the same patterns of attachment in various contexts, it can be concluded that attachment is expressed not only in stressful situations but also in unstressful ones – e.g. the teacher offers a safe basis for research – i.e. games to play.

The determined gender differences in attachment to the kindergarten teacher probably correspond to the gender stereotype. Stereotypes regarding the appropriate role of emotions for boys teach them to be more emotionally restrained and to control their expression of emotion, with the exception of the expression of anger; stereotypes regarding the role of emotional expression for girls teach them to express their emotions openly (Scharf, 2001).

In the present research, only the level of the child's dependence on the teacher can be related with the length of attendance in the kindergarten group.

It may be concluded that with younger children or those who had not been in the kindergarten group for long, there is a stronger expression of the pattern of attachment Avoidance (e.g. with 3-year-olds) and Dependence (with those with a shorter period of attendance in the group). Since the time of the child's attendance in the group is significantly linked with his/her age, the positive correlation between the patterns of attachment Avoidance and Dependence seems logical. The child's age might also explain the positive correlation between Avoidance (which occurs more frequently among 6-year-olds and at least to a certain extent expresses independence) and Trustfulness (which is related to verbal skills, and these are larger with older children than with younger).

Potential Weaknesses of the Measurement Procedure and Suggestions for Further Research

CAKT is the first instrument for assessing the quality of the children's attachment to the kindergarten teacher in Slovenia. Because it is based on the observation of children in their natural contexts, the CAKT provides an ecologically valid assessment. Moreover it offers numerous possibilities for application in research and educational practice. Before general application it would be necessary to carry out the normalization. Despite the numerous strengths of the CAKT, some limitations of the present study should be pointed out.

The samples of the children's attachment to the kindergarten teacher were merely evaluated by the kindergarten teachers and not independent observers. Concerning the reliability of security scores, Cassibba et al. (2000) found that trained observers provide more reliable measures of attachment than both mothers and kindergarten teachers. Although mothers and kindergarten teachers have greater access to their children's behaviour across a wider variety of contexts, their descriptions of the child could at the same time be influenced more easily by subjective impressions, by tendencies toward "socially desirable" responses, and by representations of one's role in the relationship with the child. In fact, observers were inclined to rate the children as less secure than their mothers, who might more easily overlook or under-report anxious attachment behaviours (Cassibba et al.). Vereijken and Kondo-Ikemura (1994, in Cassibba et al.) demonstrated that the low similarity between mother and observer AQS should be ascribed to the different level of mothers' sensitivity. Because insensitive mothers may not perceive and interpret adequately the children's signals, Q-descriptions provided by insensitive mothers may not be valid assessments of their child's attachment (Cassibba et al.). The same might hold for the kindergarten teachers. It is possible that the less sensitive kindergarten teachers to a large extent overlook signs of anxious attachment in children and vice versa.

Generalization of our findings to include individuals with other demographic characteristics (e.g. Roma children attending public kindergartens) and from clinical samples is not possible. Future research should include subjects from more diverse cultural and socioeconomic backgrounds and should examine the distribution of different patterns of attachment to the kindergarten teacher in clinical populations.

Findings from the present study suggest a number of alternative directions for future research. The relation between the child's attachment to his/her kindergarten teacher and other domains of his/her development beyond attachment should be explored. The main topic of this further research work will include establishing the predictive validity of the CAKT for the child's general adaptation in the kindergarten. Future studies should also provide the opportunity to test the test-retest reliability and stability of the CAKT results. It would be interesting to determine the correlations between the child's attachment to his/her kindergarten teacher and to that of the mother. An interesting point would also be the relation between the child's attachment to his/her kindergarten teacher and his/her temperament.

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