ALICJA POTORSKA

Kazimierz Wielki University in Bydgoszcz

ORCID – 0000–0001–8866–196X

OBSERVATION WORKSHEET FOR THE DEVELOPMENT OF SELF-REGULATION OF 2- TO 3-YEAR-OLD CHILDREN (AOS)*

Introduction: This article presents the results of verifying the psychometric validity of a tool developed to investigate the developmental changes taking place in children aged 2 to 3 years attending nurseries. It discusses the theoretical underpinnings of the concept of diagnosing early education environments and the assumptions designating the structure of the questionnaire measuring the effects of development of young children in the scope of self-regulation.
Research Aim: The studies served to empirically validate the concept of the diagnosis of early care and education milieus and verify the validity of the psychometric tools to diagnose the effects of development of children aged 2 to 3 years.
Method: The pedagogical monograph method was used in the study. In order to carry out the longitudinal research with two measurements, 5 tools were developed. A total of 131 children of toddler age attending 10 groups in 4 institutions and 20 caregivers working with them on a regular basis were included in the study.
Results: The results of the verification of the psychometric validity of the tool were presented: Cronbach's alpha reliability coefficient, average correlations between items in both measures, and Pearson's (r) correlation coefficient. The psychometric validity of a scale is confirmed by data concerning high reliability and accuracy.
Conclusions: The psychometric values obtained for the tool suggest that it can be aptly applied to forecast and monitor the development of the self-regulation of young children and may contribute to creating more conducive conditions for the development of this ability.

Keywords: psychosocial development of a young child, scale to observe the development of the self-regulation ability, early childhood education, early interventions for psychosocial development.

INTRODUCTION

The concept of the diagnosis of the conditions for the psychosocial development of children of toddler age being verified by the author of this article is a proposal of a method of assessing the conditions created in early care and education milieus and the effects of the development of children being educated and cared for in such environments. This concept is based on the assumption that the conditions for psychosocial development created in nurseries should be designed on the basis of scientific knowledge concerning the specificity of the course of this development and the social and emotional needs of young children resulting from this. In line with this way of thinking, supporting the psychosocial development of children attending nurseries means creating conditions for them that are conducive to the fulfilment of developmental tasks, constituting a protective factor for their further successful development. The social psychology concept of human development developed by Brzezińska (2000) and Erikson's concept of psychosocial development (1997) were used to describe and analyse the effects and conditions of psychosocial development. Consequently, the presented approach deals with supporting the social and emotional development of young children designed on the basis of diagnoses carried out earlier. The need for studies on the conditions of development created in early childhood education and care institutions and the diagnosis of the developmental possibilities of children attending these institutions has already been raised by Sadowska (2018), Zwiernik (2015), Hornowska, Brzezińska, Appelt, and Kaliszewska-Czeremska (2014), Wieczór (2014), Brzezińska and Czub (2012), and Telka (2009), among others. These authors have pointed out that there is inadequate research on the everyday life of children attending nurseries and insufficient knowledge of the course of development of these children, which limits the fulfilment of the educational and upbringing function of these institutions. This article presents a mere fragment of the project for the diagnosis of selected early childhood care and education milieus. The subject of the article is the presentation of the structure and psychometric validity of the observation worksheet for the self-regulation ability emerging in children aged 2 to 3 years old.

The work on the development of the tools to diagnose the institutional conditions for psychosocial development and the effects of this development in young children was preceded by a systematic literature review. As a result of this review, a battery of tools from the USA was established – The Ages and Stages Questionnaires: Social-Emotional, Second Edition (ASQ:SE-2) (Squires, Bricker, and Twombly, 2015). Observation questionnaires are intended for parents and caregivers of young children as well as healthcare professionals to enable early detection of difficulties in the social and emotional development of children aged from 1 to 72 months. The tool is divided into nine scales for children aged 2, 6, 12, 18, 24, 30, 34, 48, and 60 months, respectively, each of which covers an assessment of the child's development in five key areas for social and emotional skills, namely: self-regulation, the child's ability

to adapt to the instructions given by the caregiver and applicable rules, adaptive behaviour, autonomy, the ability of the child to express feelings, social communication, and interactions with other people. Further tools include: the Emotion Regulation Questionnaire for Children and the Emotion Thermometer for Children, as well as the Adaptive Style Questionnaire (Brzezińska, Appelt, Mielcarek, and Ratajczyk, 2014). They are intended to assess the level of development of children in early childhood in the scope of social and emotional skills and are to help practitioners exercise childcare over young children in nurseries. As Piotrowski (2014) states, the psychometric assessment of the Adaptive Style Questionnaire was carried out in studies on a representative for the country as a whole random sample of 784 parents and legal guardians of children aged 18–66 months. Due to the subject of this article, not being a report on the carried out literature review, the mentioned tools and results of research using them will be characterised in detail in another publication. The results of the literature review led to a confirmation of the need to develop tools allowing practitioners to monitor the course of the fulfilment of the developmental tasks of children of toddler age attending nurseries.

Furthermore, the analysis of literature concerning the course of development of a child's social skills shows that it should occur in sync with the determination and analysis of the course of emotional development. Understanding and explaining a child's behaviour requires the assumption on the existence of a mutual dependency between behaviours reflecting emotions and those recognised as social behaviour (Squires et al., 2003; quoted after: Czub, 2014). According to Czub and Matejczuk (2015), the increasing ability of a 2- to 3-year-old child to socially function independently and to fulfil the most significant needs of this period, in other words, expressing their own will, forces them to face the difficulties of regulating their emotional states evoked by any encountered obstacles in the form of divergent goals of the people from their social milieu and changing conditions and consequences of functioning independently. In this sense, it was recognised that an attempt to establish the correctness of the social functioning of children aged 2 to 3 years in early childhood education and care institutions from the perspective of the fulfilment of a developmental task must also include an assessment of the level of their emotional development, which initiated the work on the tool to study self-regulation presented further on in this article.

RESEARCH AIM, METHOD AND SAMPLE CHARACTERISTIC

In line with Erikson's concept of psychosocial development (1997), between the age of 2 and 3 a child goes through the second of eight developmental crises called autonomy vs shame and doubt. Achieving a relative balance between a sense of autonomy and a sense of shame and doubt is possible through coping with the

tension arising between these states. The social environment and the quality of the conditions created by adults is important for the course and effects of the fulfilment of this developmental task. In the situation when the individuation process does not receive approval and the developing ability to regulate emotional states individually is left unsupported by an adult, the child begins to doubt in their ability to be an autonomous individual who can cooperate with the milieu. The emerging doubts impede their further and successful psychosocial development (Erikson, 2004). This means that the achievement of autonomy by a child of toddler age accompanied by the ability to establish good relationships with others requires the development of the ability to self-regulate emotions and regulate one's own behaviours. Thus, the development of autonomy takes place through transitioning from a dyadic regulation of emotions to self-regulation (Czub and Matejczuk, 2015). For these reasons, both the ability to be autonomous and the beginnings of the development of self-regulation are considered to be the most significant achievements in the social and emotional sphere of development at this stage of a young child's life.

Self-regulation ability means satisfying own needs and fulfilling the set goals in a manner that does not compromise social norms. A child who is developing their ability to control and express the emotions they experience, steer their own behaviours and cognitive processes, is capable of coping with excitation and tension without losing the ability to act effectively (Czub and Matejczuk, 2015). This approach to the self-regulation ability of a 2- to 3-year-old child was adopted to develop the tool studying this variable.

The observation worksheet for the self-regulation ability comprises 19 statements across five sub-scales that will be discussed hereunder. The tool is intended for caregivers working with children of toddler age attending nurseries on a regular basis. In the instructions, the caregiver is asked to assess the frequency of occurrence of examples of the child's behaviours provided in the statements, based on observations of their functioning, using the following scale: 1 – *never*, 2 – *seldom*, 3 – *sometimes*, 4 – *often*, and 5 – *always*. The scale was constructed so that the higher the result obtained, the higher the level of development of the self-regulation ability the child has achieved. According to literature describing the specificity of development of the initial self-regulation ability in children of this age, five dimensions were identified during the development of the scale: *Naming the emotions and states being experienced*, *expressing the emotions and states being experienced*, *controlling pleasant and unpleasant excitation*, *coping in difficult situations*, *coping in situations of conflict with a caregiver or peer*.

The first dimension refers to the verbal description of the emotions and states being experienced by the child in various situations. The verbalisation of emotions constitutes an element of coping with them, particularly when the child is experiencing negative emotions. At this stage, the child is beginning to imitate behaviours that express emotions, to name emotions, and is learning to play them out or pretend them during

play (Czub and Matejczuk, 2015). The following dimension was identified to capture the manifestations of the developing self-regulation ability: *Naming experienced emotions and states*, and the statements relating to it have been presented in Table 1.

Table 1.

Items of the naming experienced emotions and states dimension

Item no.	Statement content
2	In difficult situations, the child names their emotions by stating, for example: "I'm scared when the dog is barking", "I'm angry when you don't allow me do this", and "I feel sad when you're saying this".
13	The child names the experienced states using the following statements, for example: "I'm sad", "I'm angry", "I'm jumping for joy", "I'm clapping because I like this", "I'm laughing", "I miss somebody/something", and "I'm crying because it hurts".

Source: Author's own study.

A manifestation of the developing self-regulation ability is the intentional expression of emotions also using gestures. The need to express more complex emotions such as pride or a sense of shame and guilt also appears, which results from the development of self-awareness during this period in life. What is characteristic of this period is that the child often experiences the co-existence of emotions like a sense of shame and anger. Such a combination of emotions is caused by the emergence of specific needs of the child that stem from the fulfilment of a developmental task as well as the ability to create symbolic representations of earlier events (Schaffer, 2005; quoted after: Czub, 2014). A child can show an adult what states he/she is experiencing and prompt the caregiver to help them satisfy these needs. The indicators for this dimension have been presented in Table 2.

Table 2.

Items of the experienced states and emotions dimension

Item no.	Statement content
3	The child is in a situation where they do not like something or they were forbidden from doing something, for example: throwing a toy, slamming their fists on the table, kicking building blocks, and screaming.
4	The child manifests its dissatisfaction when they do not like something or when they were forbidden from doing something, for example: clenching their teeth, turning their head away, crossing their arms, grimacing, lowering their head, interrupting a conversation, and walking away.
16	The child uses gestures to express satisfaction from a task performed, for example: smiling, clapping their hands, repeating the action – building something once again, taking another piece of paper and creating another drawing.
19	The child shows the adult the states she/he is experiencing, for example: rubbing their eyes, covering their face with their hands, hiding behind furniture, going under the table, lying down on the floor, snuggling up on a sofa/bed, leaning against their caregiver, and cuddling their favourite stuffed toy.

Source: Author's own study.

Another dimension pertains to behaviours that are a sign of the development of a child in the scope of tolerating a high level of negative or positive excitement, as well as maintaining the undertaken actions. A child begins to experience emotions evoked by an expected event and develops the ability to control them, and manifests a variety of behaviours leading to self-soothing (Czub and Matejczuk, 2015). The sub-scale was called: *Controlled pleasant and unpleasant excitation*, and the indicators comprising it have been presented in Table 3.

Table 3.
Items of the controlling pleasant and unpleasant excitation dimension

Item no.	Statement content
1	The child is waiting for their turn or an attractive event announced earlier, for example: the start of a game, their turn to play with a toy or equipment that they want to use.
5	The child finds themselves in a situation where they are facing a problem and they use soothing phrases such as: "Oh! My building blocks have tumbled down... never mind!", "Never mind the spilled juice!".
8	The child can soothe her/himself, for example: to sleep, take a nap or rest.
14	The child is in the middle of doing something and completes their task even if they are experiencing excitation.
15	The child is controlling positive excitation, for example: they are happy when they manage to do something or when they get a prize, but this does not interfere with the activities of other children – they do not shout, they do not comment on their peers not being capable of doing what they have done, they do not snatch prizes or toys away from others, and they do not disturb the game or play activity.

Source: Author' own study.

During this period in life, the child is learning that he/she is capable of inclining other people to do something for them and, by doing so, they are developing their ability to ask for help (Sroufe, 1995; quoted after: Czub, 2014). The beginnings of the self-regulation ability are expressed in the child's selective use of the help of an adult or peer. Through gestures, words or even directing attention, they can obtain the intended reaction of other people. Closer to the age of three, a child achieves the capacity to choose a self-soothing behaviour that is adequate to the situation in which they have found themselves (Schaffer, 2006; Thompson, 2006; quoted after: Czub and Matejczuk, 2015). The dimension called *Coping in difficult situations*, comprising four indicators presented in Table 4, is used to study this component of the developing self-regulation ability.

Table 4.
Items of the coping in difficult situations dimension

Item no.	Statement content
6	A child in a difficult situation uses phrases that motivate her/him to continue acting, for example: "I'll just build the tower again... I can do this!", "I can fix this, Grandpa showed me how to do this", "I have to try again... I should manage to do it now!".
7	A child in a difficult situation asks their peer or caregiver for help.
17	A child in a difficult situation gestures to their peer or caregiver for help, for example: hands a broken toy to them, takes their hand and leads them to where their building block tower tumbled, raises their hand holding a shape that does not fit into the opening in a way that is evident to the adult.
18	The child is capable of asking for something in a situation where the child wants or needs something.

Source: Author's own study.

A child aged 2 to 3 years, when transitioning from the regulation of emotions under the supervision of an adult to self-regulation, shifts from avoiding or ignoring situations that evoke emotions to independently controlling their behaviour and expression of emotions. A child starts to notice that their feelings can be different from the feelings experienced by the people from their surroundings. A change appears in their reactions to this divergence which is related to understanding where it stems from (Schaffer, 2006; Thompson, 2006; quoted after: Czub and Matejczuk, 2015). An expression of this are the behaviours creating the following dimension: *Coping in situations of conflict with a caregiver or peer* consisting of four statements that have been presented in Table 5.

Table 5.
Items of the coping in difficult situations of conflict with a caregiver or peer dimension

Item no.	Statement content
9	The child can listen and maintain eye contact in a situation where the caregiver turns their attention to them.
10	The child can listen in the situation where the caregiver has turned their attention to them but, for example: lowers their head, looks away or starts doing something else.
11	In a situation of conflict, the child walks away to think the event over, calm itself down, and return to the conversation or come back for a hug.
12	In a situation of conflict, the child walks away to think the event over, calm itself down, and go back to the play activity.

Source: Author's own study.

STATISTICAL DATA ANALYSIS AND RESULTS

The developed scale constituted one of five tools that were used during the empirical verification of the concept for the diagnosis of the conditions of psychosocial development created for young children in early education institutions mentioned at the beginning of this article. The research was carried out using a quantitative strategy, in the form of longitudinal studies with two measurements of the effects of development taken in the relevant group of children at a 6-month interval between the first and second measurement. The studies encompassed 10 nursery groups in four early childhood education and care institutions, from which 132 children were selected that met the adopted age criterion, that is, who were aged around 20 months or slightly above 2 years during the first measurement, but not over 36 months in the planned timeframe for the second measurement. An observation worksheet for each child was completed by the two main caregivers, independently from each other, who were working in each of the studied groups of children. The studies were conducted with the written consent of the parents of the children and a positive opinion of the Scientific Research Ethics Committee at the Institute of Pedagogy, Kazimierz Wielki University, ref. no. 4/XII/2017.

Material was collected for each child from two caregivers based on indirect observation, which is why it was decided that the conformity of the behaviour assessment of a given child by the two caregivers independently from each other should be established first, using Pearson's correlation coefficient (r). In the first and second measurement, the value of Pearson's r correlation coefficient was high and came to: $r = 0.74$ and $r = 0.73$, respectively. The interpretation of the values of the correlation coefficients was adopted after Stanisz: $r_{xy} = 0$ – no correlation for variables; $0 < r_{xy} < 0.1$ – dim correlation; $0.1 \leq r_{xy} < 0.3$ – weak correlation; $0.3 \leq r_{xy} < 0.5$ – average correlation; $0.5 \leq r_{xy} < 0.7$ – high correlation; $0.7 \leq r_{xy} < 0.9$ – almost full correlation; $0.9 \leq r_{xy} < 1$ – full correlation (Stanisz, 2006). Based on the outcomes of the correlation coefficient, the decision was made to perform further analyses on the averaged values of the scores obtained from the caregivers. The basic statistics for the self-regulation variable have been presented in Table 6.

Table 6.
Basic statistics for the self-regulation variable

Variable	P	N	M	SD	SKE	K
Self-regulation	I	131	1.68	0.52	0.34	−0.08
	II	131	2.30	0.56	0.22	−0.28

P – measurement; N – number; M – mean; SD – standard deviation; SKE – skewness; K – kurtosis
Source: Author's own study.

The reliability coefficient and mean inter-item correlations were calculated to establish the psychometric validity. Cronbach's alpha coefficient in the first measurement was 0.89 and in the second measurement 0.92, which proves the reliability of the scale. Mean inter-item correlations in the first measurement (0.34) and in the second measurement (0.40) are similar and average. Based on these values, it was concluded that the developmental achievements of children aged from 24.2 months (average age of children in the first measurement) to 29.3 months (average age of children in the second measurement) can be measured through the reliable use of this tool. The validity of the described scale was then checked by analysing the correlations between the age of the studied children expressed in months and the effects of their development in the scope of self-regulation. The following results were obtained: in the first measurement: $r = 0.54$ and in the second measurement: $r = 0.24$, respectively. The result reported in the first measurement means that the strength of the relationship between the age of the studied children and the development of self-regulation is high and the age explains around 29.2% of the variability of the results in the scope of self-regulation (interpretation after: Stanisz, 2006). In the second measurement, however, this relationship is weaker, which may be attributable to the varying conditions of development created for the children in the studied institutions.

In order to determine the structure of the scale, factor analysis was used to check if a more detailed analysis of the developmental achievements of the studied children in the scope of self-regulation is possible. The analysis was carried out separately for the data from the first and second measurements. Table 7 shows the number of factors and their eigenvalues obtained on the basis of the data from the first measurement, identified through an analysis of the principal components.
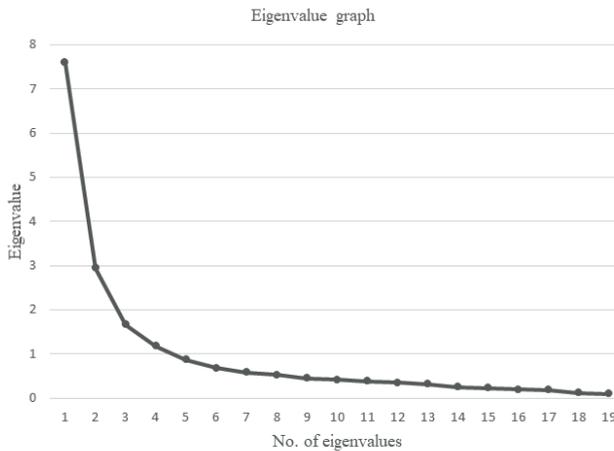
Table 7.
Results of the analysis of the principal components, 1st measurement

Factor	Eigenvalue of factors	Cumulative percentages of total variance
1	7.598	39.988
2	2.937	55.444
3	1.666	64.213
4	1.175	70.394

Source: Author's own study.

The analysis of the principal components revealed that four factors meet the adopted Kaiser criterion, reaching an eigenvalue greater than 1 and explaining 70.4% of the input variable variances. The next step involved an analysis of the scree test (Figure 1).

Figure 1.
Scree plot, 1ˢᵗ measurement

Eigenvalue graph

Source: Author's own study.

The line plot of the eigenvalues of the factors confirms the outcomes of the analysis of the principal components. Thus, using the two criteria for the identification of factors, the assumption was made that the statements of the scale build four dimensions and not five, as expected on its development stage.

Based on the data collected in the second measurement, an analysis of the principal components and the scree test were carried out once again. Table 8 shows the results obtained in the analysis of the principal components.

Table 8.
Results of the analysis of principal components, 2ⁿᵈ measurement

Factor	Eigenvalue of factors	Cumulative percentages of total variance
1	8.679	45.678
2	2.686	59.816
3	1.391	67.138
4	1.133	73.100

Source: Author's own study.

Similarly to the results based on the data from the first measurement, four factors meeting the adopted Kaiser criterion also obtained values greater than 1. All four factors explain 73.1% of the input variable variances (Figure 2).

Figure 2.
Scree test, 2ⁿᵈ measurement
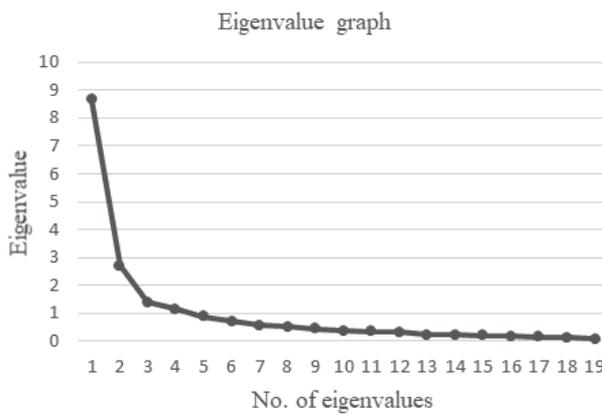
Source: Author's own study.

The scree test confirms the number of four factors identified in the analysis of the principal components with an eigenvalue greater than 1.

The outcome of the analyses carried out on the basis of the data from the first and second measurement is the conclusion that the scale items to measure self-regulation are spread across four dimensions. This was followed by an analysis of the factor loading values using the factor axes rotation method (Varimax normalised) and their interpretation. The factor loading values obtained in the first and second measurement for specific statements enabled the ascertainment of the extent to which the identified factors are in line with the adopted theoretical assumptions concerning the dimensions of the self-regulation abilities of young children. Table 9 shows the adopted assumptions on the stage of scale construction in terms of the allocation of relevant statements to the dimensions, and the results obtained. The allocation of a statement to a given dimension has been marked by grey shading in the table cells corresponding to the item number. An "X" marks the allocation of a given statement to the scale dimension based on the factor loading size. Bold type marks the consistency of the factor analysis result with the assumptions adopted on the scale construction stage. Only one item in the analyses, based on the data from the first measurement, failed to obtain a loading size of 0.50 considered as acceptable. In the analysis performed on the basis of the second measurement, two statements loaded two factors concurrently. These statements have been marked with an "X" and "*".

Table 9.
Structure of the scale established in the studies

The assumed dimension: naming experienced states and emotions (Factor 3 identified in the first measurement, and Factor 1 identified in the second measurement)							
Item no.	2	5	6	7	9	13	14	18
1st measurement	**X**	X	X			**X**	X	
2nd measurement	**X**	X	X	X*	X	**X**	X	X*

The assumed dimension: expressing the emotions and states being experienced (Factor 2 identified in the first measurement, and Factor 2 identified in the second measurement)					
Item no.	1	3	4	10	16	19
1st measurement	X	**X**	**X**			
2nd measurement	X	**X**	**X**	X		

The assumed dimension: coping in difficult situations (Factor 1 identified in the first measurement, and Factor 3 identified in the second measurement)							
Item no.	6	7	8	15	16	17	18	19
1st measurement	**X**	X	X	X	**X**	**X**	X	
2nd measurement		**X***	X	X	X	**X**	**X***	X

The assumed dimension: coping in situations of conflict with a caregiver or peer (Factor 4 identified in the first measurement, and Factor 4 identified in the second measurement)		
Item no.	10	11	12
1st measurement	X	**X**	**X**
2nd measurement		**X**	**X**

Source: Author's own study.

The factor analysis carried out reveals that the theoretical assumptions adopted for the construction of the scale were partially in line with the dimensions identified during the analysis. Out of the two assumed indicators to measure the *naming experienced states and emotions* dimension, all were confirmed in the two measurements. The results of the analysis reveal that this dimension with a high load strength (0.90 in the first measurement and 0.84 in the second measurement) also creates Items no. 5 and 14 with a load strength of 0.52 and 0.56, respectively, originating from the *controlling pleasant and unpleasant excitation* not identified during the analysis. The identified dimension is also built from Statement no. 6, the load strength of which was 0.67 in the first measurement and 0.82 in the second measurement. It was assumed that it will build the *coping in difficult situa-*

tions dimension. Due to the content of these statements and the significant load strength, particularly of Statements no. 5 and 6, it was assumed that caregivers assessing the behaviours of children could focus on the very fact of the verbalisation of the emotions and states experienced by children and not on the achieved result of talking about them, controlling excitation, or coping in a given situation. The above factor loading strengths obtained in the second measurement can result from the improvement of speech skills in older children. According to the theory, at around 36 months of age is the time when intensive training of behaviour and emotional expression takes place on the child's own initiative, hence it is possible that this training occurs mainly through the verbalisation of emotions.

The next dimension that was identified builds Statements no. 1, 3, and 4. It was assumed that two of them (Items 3 and 4) are indicators for the assessment of the *expressing the states and emotions being experienced* dimension, which was confirmed by factor analysis. The remaining two indicators (no. 16 and 19) developed to study this dimension were not confirmed in any of the measurements.

When constructing this scale, it was assumed – in line with the theory – that a child of this age can manifest behaviours showing a lack of sufficient ability to control emotions and behaviours in a situation of excitation. Their appearance was considered to be a developmental signal of transitioning from monitored self-regulation to independent regulation of emotions. It is possible that the caregivers assessing a child's behaviours recognised that such elements of a child's reaction as clenched teeth or fists, the lowering of the head, and grimacing (Statement no. 4) are unconstructive ways of coping with an emotional experience. It is assumed that these indicators in the analysis build a separate dimension that was not foreseen in the assumptions because the expression of unpleasant emotions is less socially acceptable and judged negatively. It is concluded that Statements no. 16 and 19, the wording of which relate to the child expressing her/his states using gestures, were recognised as an indicator of experiencing positive emotions and positive ways of expressing them, which may indicate that the child is coping with their emotions. In the two dimensions, they jointly load another dimension – *coping in difficult situations*. Four indicators were adopted to measure the mentioned dimension, three of which (Statements no. 7, 17, and 18) were confirmed in two measurements. However, Indicators no. 7 and 18 concurrently loaded the *naming the states and emotions being experienced* dimension; both refer to the child expressing a request for help in different situations. Perhaps a reason for this is that – in the case of older children – the ability to ask for help was, in the assessment of the caregivers, linked to speech improvement and not with a pattern of behaviour that the child chooses as most adequate to cope with the tension triggered by an unsatisfied need.

It is concluded that the *controlling pleasant and unpleasant excitation* dimension has not been confirmed in the analysis, and its indicators (Statements no. 1, 5, 8, 14, and 15) were split and they loaded other factors because the wording of the

statements assumed for its study referred either to naming the state in which the child is in order to calm oneself down or to motivating themselves to maintaining the effort despite the mistakes made or the difficulties encountered in order to fulfil the goal or take specific actions that demonstrate control of excitation. It is assumed that patterns of behaviour demonstrating self-regulation of emotions in 2- to 3-year-old children may not be permanent, as in the case of older children when the self-regulation ability reaches a more mature form.

Out of the four indicators to measure the *coping in situations of conflict with a caregiver or peer* dimension, two were confirmed (Statements no. 11 and 12) in the two measurements. Item no. 9 from the *coping in situations of conflict with a caregiver or peer* dimension in the first measurement did not obtain the loading size considered acceptable – 0.50. The reason for this may be the too demanding content of the indicator in relation to the manifest behaviours of children aged 24 months, which are a sign of the development of self-regulation. In the second measurement, Item no. 7 loaded two factors concomitantly and the strength of the loading for Factor no. 1 was 0.70, and for Factor no. 3 was lower and amounted to 0.53. Item no. 18 also loaded two factors with a slight difference in load strength: 0.64 for Factor no. 1, and 0.60 for Factor no. 3. The mentioned statements will be omitted from the reliability calculations of the dimensions.

The last step involved an analysis of the reliability and the mean inter-item correlations for the identified dimensions separately, based on the result of analysis from the first and the second measurements. Based on the results of the factor analysis for the data from the first measurement, the scale was shortened to include 18 items, removing Statement no. 9. The indicator values have been presented in Table 10.

Table 10.

Cronbach's alpha coefficient and mean inter-item correlations for the scale, 1ˢᵗ measurement

Dimensions / No. of items – 18	Item number	Cronbach's alpha	Mean correlation
Naming experienced states and emotions [5]	2, 13, 5, 6, 14	0.90	0.68
Expression of experienced states and emotions [3]	1, 3, 4	0.86	0.28
Coping in difficult situations [7]	7, 8, 15, 16, 17, 18, 19	0.86	0.50
Coping in situations of conflict with a caregiver or peer [3]	10, 11, 12	0.78	0.55

Source: Author's own study.

On the scale, based on the factor analysis carried out for the data from the second measurement, Statements no. 7 and 18 were removed, abbreviating it to 17 items. The results obtained have been presented in Table 11.

Table 11.
Cronbach's alpha coefficient and mean inter-item correlations for the scale, 2nd measurement

Dimensions / No. of items – 17	Item number	Cronbach's alpha	Mean correlation
Naming experienced states and emotions [6]	2, 13, 5, 6, 9, 14	0.92	0.66
Expression of states and emotions [4]	1, 3, 4, 10	0.17	0.03
Coping in difficult situations [5]	8, 15, 16, 17, 19	0.85	0.59
Coping in situations of conflict with a caregiver or peer [2]	11, 12	0.80	0.66

Source: Author's own study.

Cronbach's alpha coefficients are satisfactory for the dimensions identified in the first measurement. The mean inter-item correlations building these dimensions are similar and fall within the high correlation category, the only exception being the weak correlation between the items in the *expressing the emotions and states being experienced* dimension. In the second measurement, Cronbach's alpha coefficient for the three identified dimensions and the mean inter-item correlations are satisfactory. However, the *expressing the emotions and states being experienced* dimension does not meet the basic reliability requirement and there is modest correlation between items, which means that these statements do not build the same theoretical construct in the second measurement.

CONCLUSIONS AND STUDY LIMITATIONS

The observation worksheet for the development of self-regulation of 2- to 3-year-old children is a reliable tool, which was demonstrated on the basis of an analysis of the Cronbach's alpha coefficient and mean inter-item correlations. Taking into account the results of the correlation, it can be concluded that the strength of the relationship for the self-regulation ability with the age of the studied children adopted as the external criterion perhaps points to a criterion-related validity of this scale (Hornowska, 2007). On the basis of the positive correlation obtained, meaning that the level of the self-regulation ability increases with the age of the children,

it was found that the described scale can have predictive validity for the development of this ability in children. According to Łaguna, Lachowicz-Tabaczek, and Dzwonkowska (2007), factor analysis should be carried out in order to assess the theoretical validity of the scale. The results obtained from factor analysis have partially confirmed the adopted theoretical assumptions used in its construction. This may be due to the age of the studied children in the context of the development of the independent regulation of emotions and the related interpretation of the behaviours of children carried out by the caregivers. The verification of the structure of the scale has allowed the author to conclude that it would be worth rephrasing or replacing certain indicators, followed by identifying only two dimensions related to the manner of expression of the emotions and states being experienced and the way of coping in difficult situations while experiencing emotions. Such a conclusion is supported by the fact that the tool being validated in the research is intended to study the ability of toddler age children to self-regulate, and it is at this phase of development that the foundations of this ability are built and, as already mentioned earlier, this is a process that occurs in several phases (Sroufe, 1995; quoted after: Czub, 2014).

The obtained psychometric validity of the presented tool leads the author to believe that it may constitute a valuable proposal to monitor the psychosocial development of young children attending nursery, and this may consequently contribute to the creation of more conducive conditions for such development. In the conducted studies, the tool was used to collect responses from two caregivers working in each of the studied groups. However, on the basis of the high value of the correlation coefficient for the assessment of behaviour of a given child carried out by the two caregivers, it is recommended that this tool is used by one caregiver working on a regular basis with a given group of children attending nursery.

REFERENCES

Brzezińska, A., Czub, M. (2012). Wczesna opieka i edukacja dzieci w Polsce w kontekście Europejskim. *Polityka Społeczna*, 1, 15–19.

Brzezińska, A., Appelt, K., Mielcarek, M., Ratajczyk, A. (2014). Skrzynka z narzędziami wczesne dzieciństwo. Jak zbierać informacje o dziecku i środowisku jego rozwoju. Monitorowanie rozwoju w okresie dzieciństwa i dorastania. Seria IV. In A. Brzezińska (Ed.), *Niezbędnik Dobrego Nauczyciela. Seria IV Rozwój w okresie dzieciństwa i dorastania* (pp. 29–36). IBN.

Czub, M. (2014). Rozwój kompetencji społeczno-emocjonalnych dziecka. In M. Czub (Ed.), *Diagnoza funkcjonowania społeczno-emocjonalnego dziecka w wieku od 1,5 do 5,5 lat* (pp. 11–25). IBN.

Czub, M., Matejczuk, J. (2015). *Rozwój społeczno – emocjonalny w pierwszych sześciu latach życia. Perspektywa jednostki, rodziny i społeczeństwa*. IBN.

Erikson, E.H. (2004). *Tożsamość a cykl życia*. Zysk i S-ka.

Hornowska, E. (2007). *Testy psychologiczne. Teoria i praktyka*. Scholar.

Hornowska, E., Brzezińska, A., Appelt, K., Kaliszewska-Czeremska, K. (2014). *Rola środowiska w rozwoju małego dziecka – metody badania*. Scholar.

Łaguna, M., Lachowicz-Tabaczek, K., Dzwonkowska I. (2007). Skala samooceny SES Morrisa Rosenberga – polska adaptacja. *Psychologia Społeczna*, *02*(04), 164–176.

Piotrowski, K. (2014). Kwestionariusz Styl Adaptacji. In M. Czub (Ed.), *Diagnoza funkcjonowania społeczno-emocjonalnego dziecka w wieku od 1,5 do 5,5 lat* (pp. 49–74). IBN.

Sadowska, K. (2018). *Wczesnodziecięca edukacja w żłobku. Obraz i postrzeganie*. UAM.

Squires, J., Bricker, D., Twombly, E. (2015). *Ages and Stages Questionnaires. Social Emotional. Parent-Completed Child Monitoring System for Social-Emotional Behaviors* (2nd Ed.). Brookers Publishing. Retrieved December 20, 2021 from https://www.delnortekids.org/uploads/8/2/8/1/82819108/master_set.pdf

Stanisz, A. (2006). *Przystępny kurs statystyki z zastosowaniem Statistica Pl na przykładach z medycyny. Statystyki podstawowe*, vol. I. StatStoft.

Telka, L. (2009). *Przekształcanie przestrzeni społecznej placówki. Studium społeczno-pedagogiczne na przykładzie żłobków*. UŁ.

Wieczór, E. (2014). Określenie ram jakości w zakresie wczesnej opieki i edukacji. *Przegląd Badań Edukacyjnych*, *19*(2), 149–166. https://doi.org/10.12775/PBE.2014.026

Zwiernik, J. (2015). Przestrzenie i miejsca w krajobrazie dzieciństwa. In T. Sadoń-Osowiecka (Ed.), *Miejsca, przestrzeń, krajobraz: edukacyjne znaki* (pp. 13–38). UG.

ARKUSZ DO OBSERWACJI ROZWOJU ZDOLNOŚCI DO SAMOREGULACJI U DZIECI 2–3-LETNICH (AOS)

Wprowadzenie: W tym artykule przestawiono rezultat sprawdzenia wartości psychometrycznych narzędzia opracowanego do badania zmian rozwojowych zachodzących u dzieci w wieku 2–3 lat, które uczęszczają do żłobków. Omówiono podstawy teoretyczne koncepcji diagnozy środowisk wczesnej edukacji i założenia wyznaczające konstrukcję arkusza do badania efektów rozwoju małych dzieci w zakresie samoregulacji.

Cel badań: Badania służyły empirycznemu sprawdzeniu koncepcji diagnozy środowisk wczesnej opieki i edukacji oraz weryfikacji wartości psychometrycznych narzędzi do diagnozy efektów rozwoju dzieci 2–3-letnich.

Metoda badań: W badaniach posłużono się metodą monografii pedagogicznej. W celu przeprowadzenia badań podłużnych z dwoma pomiarami opracowano pięć narzędzi. Badaniami objęto grupę 131 dzieci w wieku poniemowlęcym uczęszczających do 10 grup w czterech placówkach oraz 20 opiekunek na stałe pracujących z nimi.

Wyniki: Przedstawiono wyniki weryfikacji wartości psychometrycznych narzędzia: współczynnik rzetelności alfa Cronbacha, średnie korelacje między pozycjami w obu pomiarach oraz współczynnik r-Pearsona. Wartość psychometryczną skali potwierdzają dane dotyczące wysokiej rzetelności oraz trafności.

Wnioski: Uzyskane wartości psychometryczne narzędzia skłaniają do wniosku, że może ono być trafnie zastosowane w prognozowaniu i monitorowaniu rozwoju samoregulacji małych dzieci, a to w konsekwencji może przyczynić się do tworzenia im bardziej sprzyjających warunków do rozwoju tej zdolności.

Słowa kluczowe: rozwój psychospołeczny małego dziecka, skala do obserwacji rozwoju zdolności do samoregulacji, wczesna edukacja, wczesna profilaktyka rozwoju psychospołecznego.