

Decoding Facial Expressiveness in Preschool Children

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Poor ability in recognition of expressive emotions is often the cause of social communication problems in preschool children. 60 children of 3 to 6- year-olds have been studied. Decoding of emotions has been evaluated according to pictures conveying five basic emotions (joy, sadness, anger, fear, surprise): the pictures showed the expressions of the above emotions on the faces of adults, peers and in graphic images – “animations”. As it was revealed, the ability of decoding emotions in preschool children is rather low, especially when it refers to decoding adults’ emotions. It became apparent that children most easily identify expressions on graphic images. The fastest recognizable emotions were anger and joy, whereas surprise and sadness took more time to identify. The precision and speed of identification grows along with the age. No differences have been revealed by gender. © 2022 Bull. Georg. Natl. Acad. Sci.

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Emotion is the complex pattern of changes comprising physiology, anxiety, feelings, cognitive processes and behavior. In a way it represents the answer to the situation which personally and socially is perceived as important. Most emotion theories agree, that emotions have motivational and regulatory functions and can be divided into basic emotions, which are prominent in infancy and early childhood and more complex emotions, which involve higher-order cognition [1]. Despite the prominence of the emotions in human life, they did not gain a central part in science until the last quarter of the 20th century [2].

Emotion recognition is the ability to accurately process and decode emotional information produced by the self and others [3]. Accurate emotion recognition forms the basis of emotional knowledge, the understanding of expressive signals, labels, and functions of the emotions [4,5]. For young children to successfully engage in interpersonal exchanges and form the relationships necessary for positive life experiences, it is necessary to learn how to send and receive emotional messages in ways that are advantageous for themselves as well as others [6].

Certain authors consider that the ability to decode facial expression-facial expression reco-

gnition (FER) emerges and develops in children of preschool age. The FER is already developed in children of 3-4 year-olds. They are able to identify basic emotions. At the age of 5-6, a child is more refined and can not only guess or decode the emotion, but can name it too.

Due to the rapid growth of emotion-cognition connections, the preschool years also represent a sensitive period for developing a solid foundation for accurate perception and labeling of emotions of self and others [7]. Facial emotions are powerful nonverbal displays of emotional information. The ability to accurately recognize them enables the person to detect another person's emotional state and provides the cues how to respond in complex social situations [8, 9].

At the same time the ability of child to decode facial expression properly, due to some internal or external factors does not develop relevantly. The problem of FER may be the reason for nonverbal communication difficulties for preschoolers. They do not understand the emotions, expressed on the faces of people with whom they have relations: they do not understand whether the parent or teacher is satisfied with their behavior, they do not understand whether glad, sad or disappointed their friend is.

Nowadays, the problem of emotion decoding is rather urgent and not a single research has been made for this purpose.

Due to the urgency of the issue, our research aims to study the ability of emotion decoding in children of preschool age considering the principles of modern researches. The research aims to determine whether preschool children are able to recognize five basic emotions; to study the specific features of emotion decoding process: distinguish the emotions expressed on the faces of adults, peers and graphic images of emotions – “animations”; to consider the process of emotion decoding according to age groups and time and compare the obtained results by gender.

Research Design

Our test subjects were the children from Tbilisi and Rustavi public kindergartens. The children participating in the first stage of the research were divided into two age groups: 20 children were 3-4 year-olds and 20 – 5-6 year-olds. The latter were evaluated at the second stage. Participants were evenly distributed in age groups by gender. Test subjects were selected according to simple random sampling.

The results of the first stage are based on the data of 40 children from both age groups while the results of the second stage are based on the responses of 20 children of 5-6 year-olds.

Research Methodology

The instrument used in this research has been developed and selected by us. The collection of photos demonstrating five basic emotions – joy, sadness, anger, fear and surprise is divided into three categories: emotions expressed on the faces of adults, peers and graphic images of emotions – “animations”. The pictures demonstrating emotions were selected as a result of preliminary sub-study. For each basic emotion there were 3 pictures demonstrating the emotion. The participants were tasked to pick the picture, which, in their opinion, best reflected the particular emotion (participants were 20 students and 20 preschool 5-6 year-olds).

The research used quantitative method. The data were statistically processed through SPSS-20 software program, while the percentage range was processed in Excel. The results have been calculated according to *t* criterion. The table shows coefficient of reliability calculated with criterion *t*. The result is reliable if $P < 0.05$.

Analysing Results and Conclusion

According to the research results, preschool children have problems connected with decoding emotion which is revealed by incomplete

accomplishment of the given task. Percentage of correct answers is low. The children fail to identify the emotion in all three categories (pictures of adults, peers and animations). As it turned out, the most easily recognizable emotion is joy. When comparing the mean values, the biggest difference is revealed in the correlation of joy with other emotions. These data are statistically reliable (less than 0.05). Most difficult emotions for decoding by categories were fear and surprise. Preschool children find it hard to identify the above emotions in age categories as well as any other categories provided by the instrument.

It was interesting to observe the so called fully and partially decoded emotions by preschool children. It turned out that 26 participants out of 40 identified the emotion of joy in all three categories, which is the best result within this research, while 38 out of 40 participants failed to partially identify the emotion of fear, which is the lowest indicator in this research. The age has turned out to be the distinctive factor when determining the decoding ability of children. 5-6-year-olds decoded emotions better than 3-4-year-olds. Statistical data on 3-4 and 5-6-year-old preschool children by age categories with high reliability point to the fact that 5-6-year-olds have a better developed ability of emotion decoding.

As for the identification of emotions by categories, preschool children face most difficulty when decoding emotions in adult category, since they have revealed the lowest ability in decoding exactly in the above category. The easiest category in which the children of both age groups managed to decode emotions was animation.

Based on the results of the first stage, we selected the dominant category at the second stage which was identified in the shortest time—animation and the age group of 5-6-year-olds, as we established with high reliability (<0.05) that the ability of decoding in this age group is higher and also that the emotion is better identified in the category of animation. It was established that 5-6-year-old girls and boys needed up to 20 seconds to decode the emotion. According to the time of decoding, the emotions were arranged in the following order: “anger”, “joy”, “fear”, “sadness”, and “surprise”.

Looking at the data of girls and boys separately, it turned out that 80% of girls identify animation expressing all emotions in 20seconds; whereas boys' data are not that uniform as there is a trend of identifying negative emotions (anger -90%, fear - 80%) in a shorter time. No statistically reliable difference has been revealed in terms of speed of emotion decoding by gender.

ფსიქოლოგია

ექსპრესიული ემოციების დეკოდირების საკითხი სკოლამდელი ასაკის ბავშვებში

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**ილიას სახელმწიფო უნივერსიტეტი, ხელოვნებისა და მეცნიერების ფაკულტეტი, თბილისი, საქართველო*

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სკოლამდელი ასაკის ბავშვებში ექსპრესიული ემოციების ამოცნობის - დეკოდირების დაბალი უნარი ხშირად სოციალური კომუნიკაციის პრობლემების მიზეზს წარმოადგენს. შესწავლილ იქნა 80 სკოლამდელი ასაკის (ორი ასაკობრივი ჯგუფის – 3-4 და 5-6 წლის) ბავშვი. ემოციის დეკოდირების შეფასება მოხდა ხუთი ძირითადი ემოციის (სიხარული, სევდა, გაბრაზება, შიში, გაოცება) გამომხატველი სურათებით: ზრდასრულ ადამიანთა სახეზე აღბეჭდილი ემოციები, თანატოლთა სახეებზე აღბეჭდილი ემოციები და ემოციათა გრაფიკული გამოსახულებები „ანიმაციები“. გამოვლინდა, რომ სკოლამდელი ასაკის ბავშვების ემოციათა დეკოდირების უნარი საკმაოდ დაბალია (3-4 წლის ბავშვები), განსაკუთრებით ზრდასრულთა ემოციის ამოცნობა პრობლემური. გამოიკვეთა, რომ ბავშვები ყველაზე ადვილად ამოიცნობენ გრაფიკულ გამოსახულებებზე აღბეჭდილ ექსპრესიას. გენდერულ ჭრილში მცირედი განსხვავებაა. ბიჭები მეტად ადეკვატურად და სწრაფად ახდენენ დეკოდირებას ვიდრე გოგონები. საყურადღებოა, რომ ბიჭები უფრო სწრაფად ამოიცნობენ უარყოფით ემოციას (სიბრაზე), გოგონები კი დადებით ემოციას (სიხარული). ასაკთან ერთად იზრდება ემოციის ამოცნობის სიზუსტე.

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