



# HUMOR DEVELOPMENT IN PRESCHOOL AND PRIMARY SCHOOL CHILDREN IN TURKIYE

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## Abstract

*Knowing humor development can be rather beneficial in terms of providing opportunities to better know children and evaluate their development. This study aimed to explore the process of humor development in preschool and primary school children in line with McGhee's humor development theory. The study employed a single screening model, specifically one of the commonly used screening models in general practice. The study group consisted of 101 children ranging in age from 2 to 11. Research data were collected through a 5.01-minute-long video which included scenes suitable for the stages in McGhee's humor development theory, semi-structured observation forms and a research diary. Descriptive analyses and content analyses were used to analyze research data. Children aged 2 produced the lowest amount of laughter response in the scenes in all stages, followed by those aged 3 and 4. The strongest laughter response occurred in 5-year-old children to the scenes pertaining to stages 2, 3, and 4. The scenes in stage 5 elicited the strongest laughter response in children aged 11. The humor development characteristics of the children in this study were found to be consistent with the general principles of McGhee's theory of humor development. Adopting research techniques that measure children's reactions to real-life situations could be useful in future research on the same topic. Research on children's production of humor may provide different insights into the development of humor. It is suggested that adults, such as parents and teachers, use examples of humor that are appropriate for the characteristics identified in this study and similar studies in order to build positive relationships with children.*

**Keywords:** *humor development, child development, preschool education, incongruity theory, humor theories*

## Introduction

Humor is a phenomenon that occurs in all areas of life and helps make life easier and emerges when the mind discovers inconsistency in situations, events, or behaviors (Martin, 2007), and results in laughter (Nesin, 2002). There exist several theories and views on the manifestation of humor (Bergson, 2011; Freud, 1993; Morreal, 1997; Platon, 1998), which can basically be dealt with under three groups: superiority, incongruity, and relaxation. According to the superiority theory, laughter is an expression of a person's feelings of superiority over other people and occurs in situations where someone else's fault or disadvantage is observed (Güler & Güler, 2010). Incongruity theory suggests that laughter arises from the mind's surprise at encountering unexpected or contradictory elements in a situation and can be triggered when an individual accustomed to experiencing the world in a predictable and patterned way encounters something that does not fit these patterns (Morreal, 1997). According to McGhee (1972), dissonance, or the perception of inconsistency or incongruity, is necessary for humor to occur, as it is the mind's way of processing and coping with unexpected or contradictory situations. In order to understand and appreciate humor, an individual must have a basic understanding of how situations and concepts should be, as this provides a frame of reference for understanding the incongruity that underlies humor. In other words, having a cognitive mastery of the

expected patterns and norms of a given situation is necessary for an individual to recognize and appreciate the deviations from those patterns that create humor. The views of McGhee, who put forward the theory of humor development for children, could also be thought to belong within the incongruity theory. Relaxation theory argues that laughter serves as a way for individuals to release excess energy and tension. This energy discharge primarily occurs through the muscles, particularly those involved in speech, as laughter is a vocalized expression of emotion. When the energy discharge through these channels is not sufficient, it can also be released through the diaphragm and other muscles involved in breathing, resulting in more intense or prolonged laughter. If there is still excess energy that needs to be released, an individual may laugh by clapping their hands, leaning back and forth, or engaging in other physical behaviors that help drain such energy. This theory suggests that laughter serves as a way to reduce tension and promote relaxation (Morreal, 1997).

McGhee (2002) examined the development of humor in children in accordance with Piaget's cognitive development theory and put forward his own theory consisting of five stages, suggesting that the humor examples that individuals understand and produce show qualitative differences with age depending on the cognitive development stages. In stage zero, or laughter without humor (first 6 months), babies often laugh with no humor being present. In the first stage, laughter at the attachment figure (6 months-12/15 months), children laugh at unfamiliar actions of their parents. In the second stage, inconsistent behavior towards objects (12/15 months – 3/4/5 years), the child usually starts to produce the earliest examples of humor. Once an object becomes quite familiar to the child, he or she enjoys using such objects in unusual and inappropriate ways. In the third stage, misnaming objects, events, and people (2-3/4 years), children start playing with words, calling objects by wrong names. The fourth stage, conceptual incongruity (3-5 years), is divided into 4 categories: a. In the category of playing with the sounds of words (not their meanings), children adapt to the sounds of the words and start playing with the sounds of the words themselves. b. In the category of a combination of meaningless and real words, children like to put words together in absurd ways even though they know they are wrong. c. In the category of objects distorting the characteristics of people or animals, children enjoy adding features that do not belong to people, animals, or objects, deleting existing attributes, and changing the size, color or shape of things they know. They laugh at events, people, inconsistent and impossible behaviors with exaggerated features. d. In the opposite-sex naming category, children find it quite amusing when other children are called by a name of the opposite sex or by a name associated with the opposite sex. In stage 5, riddles and jokes (multiple meanings) (6/7-10/11), children can understand humorous jokes and riddles featuring words with double meanings or ambiguity (McGhee, 2002).

Research on the development of humor appreciation in children and its changes throughout the lifespan began in the 20th century and still continues to be a topic of interest for many researchers from all across the globe (Angeleri & Airenti, 2014; Chapman, 1973; Coates&Coates, 2020; Guo, 2008; Halfpenny & James, 2020; Hoicka & Akhtar, 2012; Justin, 1932; Krogh, 1985; Loizou 2005; Loizou, 2006; Loizou, 2007; McGhee, 1971; Sahayu et al., 2021; Stenius Karlssona & Sivenius, 2022). In Türkiye, on the other hand, research into how the appreciation of humor develops with age throughout child development has only started in the 21st century (Ak Seven, 2012; Kızıltan, 2006; Koçer et al., 2012; Yalçıntaş Sezgin & Hatipoğlu, 2017; Gültekin & Ulutaş, 2022; Yılmaz & Tantekin Erden, 2022). Studies conducted in Türkiye mostly tend to examine the humor styles of adolescents or teachers in terms of various variables and personality traits, and associate the use of humor in school branch lessons with student achievement and attitudes towards lessons (Akkaya, 2011; Aslan, 2006; Avşar, 2008; Aydın, 2006; Çelik, 2006; Kahraman, 2009; Karagöz, 2009; Kılınç, 2008; Oruç, 2006; Özkan, 2008; Savaş, 2009; Sepetci, 2010; Soyaldın, 2007; Sümer, 2008; Ulus et al.2019; Yerlikaya, 2007; Yerlikaya, 2009). Studies exploring the evolution of humor in various cultures and the impact

of humor on learning and personal growth can provide insight into cultural differences, but they also have the potential to identify common characteristics in the development of universal humor across cultures.

In addition to McGhee's explanations, research on the development of humor in children from various regions around the world also sheds light on how humor develops during a child's growth. In a study conducted by Stenius Karlssona and Sivenius (2022) in three different early childhood centres to identify the humor elements of young children by observing the children's own expressions, it was found that children's use of humor did not occur as a separate activity but emerged as a part of play and acting. They reported that children's humor rarely included situations such as telling jokes or laughing at misfortunes. Previous work by Sahayu et al. (2021) with Indonesian children aged 1-5 determined that children aged 1-5 were able to perceive and produce non-verbal and verbal humor. The study also found that humor production and development naturally increase as children interact in their social environment.

There is evidence that incorporating humor into educational settings can have a positive impact on children's development and learning. McGhee (2002) has noted that humor can support the development of creativity, cognitive skills, reading skills, vocabulary, and language skills in children. He states that humor facilitates social communication among children, increases likability, and enables them to express anger in a socially acceptable way, claiming that the joy and happiness of children not only contribute to their self-esteem but also help them cope with life stress and contribute to their physical health (McGhee, 2002). Stenius Karlssona and Sivenius (2022) found that young children frequently use humor to assert their presence and liven up dull situations such as by making waiting and standing in line more enjoyable. Likewise, Dowling (2014) also discovered that school-aged children use humor as a way to cope with the various stresses of their personal relationships, school, extracurricular activities, and home life.

Recent research has afforded new insight into the benefits of including humor in educational environments for teachers. The study of Melenets et al. (2022), for instance, has shown that the use of humor is effective in improving teachers' emotional intelligence. Stenius Karlssona and Sivenius (2022) stated that the use of humor in education is a skill that can be learned and emphasized the importance of educators allowing and accepting humor specific to children. A recent study by Gültekin and Ulutaş (2021) has revealed that teachers find humor necessary in preschool education, but they need knowledge and experience in planning and implementing activities that support humor.

Based on these studies, it can be asserted that humor appreciation differs by age in the development process of the child, that humor provides significant benefits, and that it is important for adults to use humor elements (joking) suitable for children's humor development characteristics. One crucial aspect influencing children's development is the physical and social environment within which they interact. Tammemäe (2009) emphasized the significance of environmental conditions during the early years of a child's life, suggesting that these conditions may have a profound impact on their cognitive abilities. Consequently, it can be argued that fostering children's sense of humor entails organizing the physical environment using visual aids such as photographs, images, and cartoons that incorporate humor suitable for their developmental stage, as well as engaging in age-appropriate joking interactions with the child. In that regard, knowing the humor development can be rather beneficial in terms of providing opportunities to better know children and evaluate their development, allowing teachers to prepare humorous educational environments for children. Understanding the development of humor in children is an important area of research, as it has implications for their cognitive, social, and emotional development. Although previous work in the literature has employed various data collection methods, including natural observation (Loizou, 2005; Sahayu et al., 2021), analysis of pictures drawn by children that are funny to them (Yılmaz, B., & Tantekin,

2022), and identification of reactions to pictures shown to children (Guo et al., 2011), there is still a need for comprehensive investigations that incorporate cultural diversity. The present study addresses this gap by employing McGhee's theory of humor development as a guiding framework. McGhee's theory, built upon Piaget's theory of cognitive development, provides a solid foundation for understanding the progression of humor comprehension and expression in children. By investigating humor development in preschool and primary school children in Türkiye, this study offers valuable insights specific to this cultural context.

Data collection involved recording children's laughter responses to a specially designed video material that encompassed the characteristics outlined in McGhee's theory of humor development, providing a measurable indicator of their humor comprehension and engagement. This standardized approach ensures consistency in data collection and allows for meaningful comparisons between age groups. This study holds significance not only for shedding light on the humor development of children in Türkiye but also for providing an opportunity to examine the applicability of McGhee's theory of humor development across different cultural contexts. Ultimately, this study contributes to the broader understanding of humor development in children, providing empirical evidence in support of McGhee's theory and expanding its cross-cultural applicability. The findings will not only benefit researchers but also inform educators, parents, and practitioners in creating more engaging and effective learning experiences for children, taking into account their cultural backgrounds and individual developmental needs.

In this context, this research was conducted to determine at what age and how children attending preschool education institutions and primary school react to humorous situations prepared according to the stages specified under McGhee's humor development theory. It is believed that the findings of this research can contribute to identifying developmental characteristics at the universal level, as well as offering an idea about the developmental characteristics of children living in Türkiye. Additionally, its results can hopefully enable teachers to inspire and create fun-packed educational environments for children.

The research sought answers to the following question:

According to the stages in McGhee's humor development theory, which age group gives the strongest/weakest laughter response in each stage?

## Research Methodology

### *General Background*

The research utilized a single screening model, which is one of the widely employed general screening models. According to Karasar (2006), a single screening model is a research approach that involves determining the formation of variables one by one or based on quantity. The choice of employing a single screening model in this study was guided by the aim of examining the age at which children attending preschool education institutions and primary schools respond to humorous situations developed in accordance with the stages outlined in McGhee's (2002) theory of humor development.

### *Study Group*

The study group consisted of 101 children, 49 girls and 52 boys, aged between 2-11 years. The children in the 2-6 age group were selected from a preschool education institution of a university in Antalya, Türkiye, while the children in the 7-11 age group were selected from among the children attending a primary school affiliated to the Ministry of National Education. The parents were educated about the scope and aim of the study at the meetings held by the researcher in the relevant schools, and parents were told that their children would be included

in the study only if they granted their consent. A written consent was obtained from each family who allowed their children to participate in the study. The children whose families granted a written consent were also asked whether they would like to participate in the study, and only those who were willing to participate were included in the study. Thus, both families and children participated in the research on a voluntary basis.

### *Data Collection Tools*

#### *Video*

First of all, McGhee's humor development theory stages were listed, and a script was written for the 2nd, 3rd, 4th and 5th stages of humor development, with at least two scenes for each stage. The script did not include examples of stage 0 and stage 1 because laughter in stage 0 did not contain humor, and in stage 1 children laughed at the attachment figure. In this scenario, all the scenes form a harmonious composition with each other. After this stage, opinions were received from a professor of developmental psychology, a professor of psychological counseling and guidance, and two child development specialists (PhD), who have academic studies on humor development, that the scenes in the scenario represent the stages in McGhee's theory of humor development. Adjustments were made in the scenario in line with the suggestions from the experts. Afterwards, in collaboration with the third-year students of the Cinema and Television Department, Faculty of Communication, a 5.01-minute-long video was shot by using the technical equipment belonging to these students. After shooting the video, the experts who were consulted about the video script in the beginning were contacted again and asked whether the scenes in the video effectively represented the stages in McGhee's humor development theory. Technical arrangements were made in accordance with their remarks. In addition, an expert (PhD) working in the field of music education was consulted in order to ensure that the background music used in the video was appropriate for the task. Table 1 lists examples of scenes representing each stage of McGhee's humor development theory in the video. These examples do not include all scenes; only one example is given to represent each phase.

**Table 1**

*Scenes in the Video Representing the Stages of McGhee's Humor Development Theory*

Stage	Description of scene
Stage 2	The child puts the blue plastic container on his head as a hat and says, "Let me put on my hat first".
Stage 3	The child takes the pink toy rabbit in the market and says, "Oh, a toy monkey".
Stage 4	
4a	The child asks "Mom, what will we buy from the market?". "Ice, rice, spice," says the mother. (Example of playing with the sounds of words)
4b	The boy tells the waiter, "I want a huge book pudding over toy soup."
4c	Mom says, "Okay, there would be an ice cream tree around here." A red car parked without a right front wheel appears on the scene. It starts to rain, and the mother appears with an upside-down umbrella. There appears a cashier with a long and big nose. A dog enters the scene, and it meows.
4d	The mother says to her son, "It's too late, let's go to bed, Fatma". (Fatma is a female name).
Stage 5	The waiter asks the mother, "Shall I cut your pizza into 4 pieces or 8 pieces?". Mom says, "Let's cut it into 4 parts. I'm on a diet, so 8 pieces would be too much."

*Observation form*

Research data were collected through semi-structured observation forms prepared by the researcher. In this observation form, the scenes in the video were listed in written form, and a space was left on the right column for each scene to make notes about children's laughter responses. The child's code, the child's age, date, time, scenes related to the stages in McGhee's humor development theory, laughter reaction during the first viewing, laughter during the second viewing other than laughter were written in this form. Each scene was considered an item, and thus a total of 27 items were included in the observation form. The part of the observation form containing the first three items is presented in Table 2.

**Table 2**

*Examples of Items in the Observation Form*

Video Code:	Child's Code:	
Date:	Child's Age:	
Time:	First viewing Laugh/No laugh	Second viewing Laugh/ No laugh
Items related to scenes	Laugh/No laugh	laugh
The child puts the blue plastic container on his head as a hat saying, "Let me put on my hat first".		
The child puts the shoes on his hands and says "Okay, I've put on my shoes, I'm ready".		
The mother says, "I'll put on my shoes and then let's go out" and then puts the shoes on her hands.		

*Research diary*

The research diary is a notebook that the researcher uses to note any remarkable situations related to the research problem while the children are watching the video.

*Data Collection*

In order to collect research data efficiently, a room in the children's school was initially prepared in a way that it would not be affected by factors such as noise and movement from outside. There was nothing else in this room except for a laptop with a 13.3-inch screen, an additional speaker, a desk, and chairs for the children and the researcher.

After the adjustments in the room where research data would be collected, the researcher met the children under the supervision of their teachers. In this meeting, the researcher suggested the children watch a video, stating that he had contacted them upon the consent of their families. The children who accepted to watch the video were taken to the room prepared for video-viewing in groups of three.

After the children came into the room where they would watch the video, the researcher asked the children their names and put a name tag on their collars. Then, the children sat on chairs one meter away from the screen so that they could see the screen comfortably and watched the video. Children were recorded with the laptop's camera from the moment they entered the room to the moment they left the room. After watching the video once, the children were asked whether they wanted to watch the video a second time, and if they wanted, they were shown the video a second time. The reason for allowing children to watch the video a second time in the study was that there might be children who were not able to focus on the video during the first viewing. Children were told that they could return to their classrooms if they did not want to watch it a second time.

Since the video and sound recordings were taken by the laptop camera while the children were watching the video, no data was written on the observation form by the researcher, but if there was a situation that was not found in the observation form related to the problems of the research, the researcher took notes in the research diary.

*Data Analysis*

After the collection of the research data, the first and second records of each child group were followed by the researcher separately for each child in that group. During these observations, observation forms were filled using a code (number) corresponding to the names of the children. The filling of the observation forms was done by writing the children's reactions during the first and second viewing periods separately for each viewing order in the explanation field opposite the humor elements (examples) in the video in accordance with McGhee's humor development stages. Then, the data of the two monitoring forms for each child were combined, and the reaction of that child for the relevant stage was processed. Children's reactions to each scene, regardless of whether it was the first or the second viewing, were recorded as "laugh" or "no laugh". In the observation forms, the data on whether the children laughed at the scenes according to McGhee's humor development stages were evaluated through descriptive analysis.

Merriam (2018) offered suggestions for increasing the validity and reliability of qualitative research, including using multiple researchers, multiple data sources and data collection methods to prove the accuracy of the findings, conducting interviews and discussions with experts about the research process and findings, Keeping detailed records about the practices and decision-making process, making detailed descriptions and descriptions of the environment, deliberately creating diversity in the selection of the working group. It is believed that the factors including

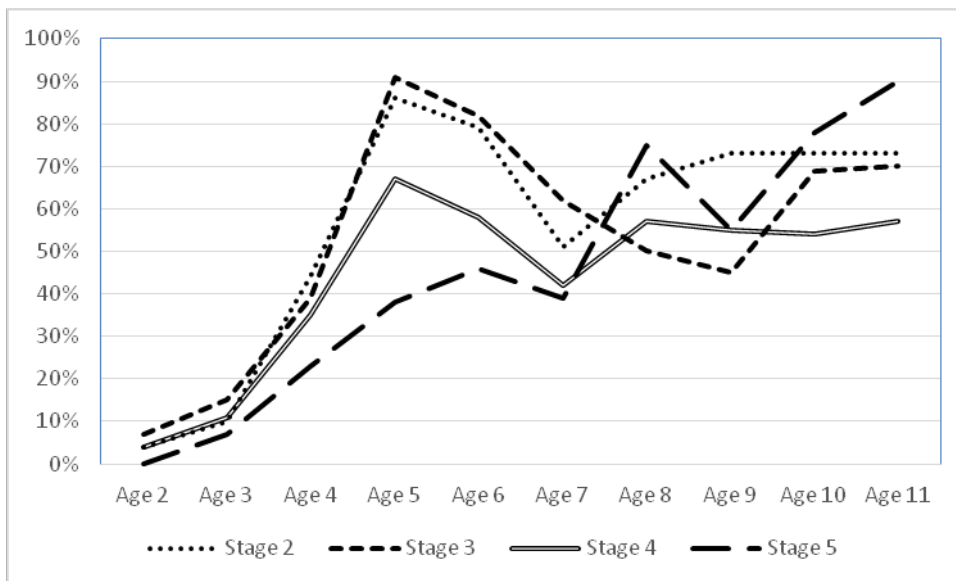
the researchers getting expert opinions at various stages, keeping detailed records during the research, working with children from different age groups and schools, consulting with experts for their opinions during the research and data analysis, and producing detailed descriptions of the environment increased the validity and reliability of this study.

## Research Results

Figure 1 below illustrates data regarding children's laughter reactions to video scenes.

**Figure 1**

*Laughter Responses to Scenes Related to the Stages in McGhee's Theory of Humor Development*



As seen in Figure 1, 5-year-olds were most likely to laugh at the scenes related to stages 2, 3, 4, while 11-year-old children responded to the scenes related to stage 5 with laughter. The least amount of laughter response was observed in children aged 2 and 3 for all stages.

The laughter response to the scenes of Stage 2 was most common in children aged 5 (86%). In children aged 7, there was a remarkable decrease in this rate (51%), but it increased again after the age of 7 and remained around 73% in those aged 9 and above.

The greatest amount of laughter response to the scenes related to Stage 3 was observed in children aged 5 (91%). Although this rate showed a notable decline in those aged 9 (45%), it climbed to around 70% after the age of 9.

The laughter response to the scenes concerning Stage 4 was most pronounced at the age of 5 (67%). At the age of 7, however, there was a remarkable decrease in this rate (42%), and then it started to rise again towards the age of 8 and remained at around 55% after the age of 8.

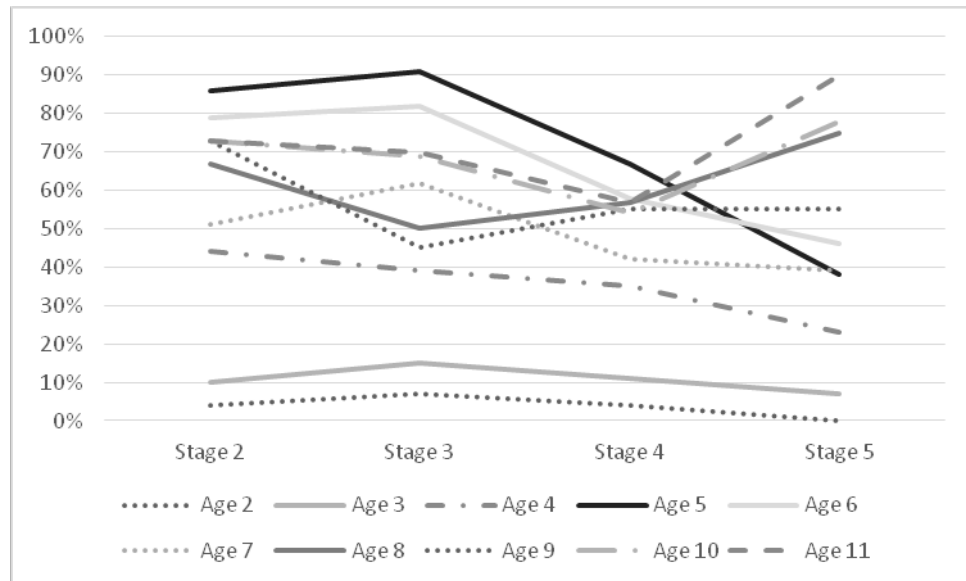
The greatest amount of laughter response to the scenes relating to Stage 5 was observed in children aged 11 (90%). The laughter response to this stage was 78% for 10-year-olds and 75% for 8-year-olds. 39% of 7-year-olds and 38% of 5-year-olds responded by laughing to the scenes in Stage 5.

One of the remarkable findings in Figure 1 is that children's laughter response to scenes in all stages tended to increase with age up to age 5. At the age of 7, there was a tendency to decrease in the laughter reactions to the scenes related to stages 2, 3 and 4 compared to the age of 5.



The stages of laughter responses by children according to their ages are illustrated in the chart below.

**Figure 2**  
*Stages of Laughter Reactions Given by Children According to Their Ages*



Among all age groups, 2-year-old children had the lowest amount of laughter responses. They showed some laughter response to stage 3 scenes (7%) but did not react at all to stage 5 scenes. Similarly, 3-year-old children had the strongest reactions to stage 3 scenes, but the weakest reactions to stage 5 scenes.

4-year-old children had the strongest reactions to stage 2 scenes, but the weakest reactions to stage 5 scenes. Children aged 5, 6, and 7 had the strongest reactions to stage 3 scenes, but the weakest reactions to stage 5 scenes. 8-year-old children had the strongest reactions to stage 5 scenes, but the weakest reactions to stage 3 scenes. 9-year-olds had the strongest reactions to stage 2 scenes, but the weakest reactions to stage 3 scenes. Children aged 10 and 11 had the strongest reactions to stage 5 scenes, but the weakest reactions to stage 4 scenes.

## Discussion

The results revealed that the greatest laughing reaction to the scenes related to stages 2, 3, and 4 in McGhee's humor development theory occurred in children aged 5 years. McGhee (2002) states that in the humor development theory, 5-year-old children are among those who give the highest laughter response to stage 2 and 4 jokes. For this reason, it is only natural that the most laughing response was observed in children aged 5 years in these stages. In stage 5, the most laughter response was observed in 11-year-old children. According to McGhee's theory, the greatest laughter response to stage 5 scenes is seen in the period from age 6-7 to 10-11. From this point of view, it is expected that 11-year-old children will show the highest laughing response at this stage. However, it was observed that most of the children from the age of 8 laughed at the scenes in this stage. Stage 5 scenes contain adult humor and require a higher level of cognitive skills. Thus, participants in the 11-year-old group, the highest age group in the research, produced the greatest laughter response to the scenes related to this stage.

On the other hand, the least laughing response to the scenes in all stages was observed in children aged 2, 3 and 4, respectively. McGhee states that as they lack information about objects and words, toddlers may become sure of any incongruities only if they are the ones making such mismatches (as cited in Chaney, 1993). According to Loizou (2005), in order for children to enjoy the funniness of a humorous situation, they need to be aware of what this situation is and how it changes. Incongruity creates a “problem” in children's mind, and when they can solve this problem and thus use cognitive and mental processes, they can enjoy the humor created in the situation (Loizou, 2005). It is thought that the lower amount of laughter reaction in children aged 2, 3 and 4 stemmed from the fact that the children could not solve the problem in the humorous scenes and could not resolve the cognitive incongruity. In addition, since humor scenes are not presented in a natural environment in daily life, but artificially, through a video, it is thought that it is possible for children in this age group to have difficulties in perceiving the inconsistencies in the scenes.

The laughter reactions of the participants increased with age in all stages, up to the age of 5. This finding can be explained by the fact that cognitive development increases with age and children can notice incongruity in the scenes accordingly. In the study, it was observed that 7-year-old children's laughter reactions to stage 2, 4 and 5 scenes were less than the reactions of those aged 5. According to the findings of a study conducted by McGhee (1971) with children aged 5, 7 and 9, the least laugh response was observed in children aged 7 years. This finding is consistent with the results of our study. McGhee interpreted that this may be due to the fact that children at this age are between the preoperational and concrete operational stages. Rosenblatt & Winner (1988) states that children aged 6-8 tend to focus on the real and standard aspects of objects, facts, and events in their environment, adding that with the developing criticism and evaluation skills of children in this period, they limit objects (facts and events) with rules (as cited in Copley, 2008). 2001). Accordingly, it can be asserted that the 7-year-old children in our study did not find the incongruous scenes in the video funny because they were under the expectation of real images of objects and events. In support of this, Morreal (1997) states that there must be a pleasant incongruity for laughter to occur.

## Conclusions and Recommendations

According to the study findings, 5-year-old children demonstrated the highest levels of laughter when exposed to scenes from stages 2, 3, and 4. Among children older than 5, the 7-year-olds showed the weakest laughter reaction at all stages. On the other hand, those aged 11 exhibited the highest amount of laughter response in all five stages, but they laughed the most when exposed to scenes from stage 5. The weakest laughter response was observed among 2-year-old children as compared to other age groups.

The findings align with McGhee's theory of humor development. Derived from observations of children in real-life settings, this theory finds support in the reactions of children in Turkey to a specially designed video material that accurately represents the stages outlined in the theory. This compatibility strengthens the notion that the theory holds a universal nature applicable across different cultural contexts.

The study represents a pioneering effort in investigating children's humor development, offering a solid foundation for future research endeavors that employ a similar methodology. The data collection approach utilized in this study has the potential for larger-scale investigations involving a more extensive sample of children in all age groups, thereby yielding a more comprehensive data set. It is anticipated that the findings derived from larger study cohorts will contribute to the development of new assessment tools aimed at monitoring children's humor development. Such tools would likely prove valuable in future research endeavors focused on this area of study.

Replicating this study with larger samples from diverse cultural backgrounds will indeed prove to be highly beneficial, producing evidence that might help identify both universal characteristics and cultural variations in children's humor development. By examining how children of different cultures respond to the stages and stimuli presented in this study, we can better understand the influence of cultural factors on humor development and potentially uncover shared patterns or unique cultural perspectives.

This study collected data on laughter responses of children within a specific age range, but future research could employ longitudinal survey models to collect children's responses as they progress into later stages of life, as this would allow for a more comprehensive understanding of how humor development evolves over time and how individuals' responses to different humorous stimuli may change as they grow older.

The study revealed that among children aged between 5 and 11, 7-year-old children exhibited the lowest amount of laughter in response to the video scenes. To gain further insight, future investigations can utilize interview techniques to allow children in the 7-year-old age group to verbally express their thoughts regarding the video scenes. This approach would provide a deeper understanding of the reasons behind why these particular scenes are perceived as unfunny by children at this specific age, in contrast to younger and older children who find them amusing.

The research findings suggest that it could be beneficial to tailor educational materials and environments to the specific age groups of the target audience to enhance their humor quotient. By incorporating appropriate modifications based on the age group, such materials and environments can become more engaging and humorous, thus potentially enhancing the learning experience for children.

## Note

This study is based on the master thesis prepared by the first author under the supervision of the second author.

## Declaration of Interest

The authors declare no competing interest.

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