



(REVIEW ARTICLE)



## Developmental trajectory of humor and laughter in children

S. Venkatesan \*

*Department of Clinical Psychology, All India Institute of Speech & Hearing, Manasagangotri, Mysore: 570006, Karnataka, India.*

World Journal of Advanced Research and Reviews, 2022, 15(02), 217–224

Publication history: Received on 04 July 2022; revised on 07 August 2022; accepted on 09 August 2022

Article DOI: <https://doi.org/10.30574/wjarr.2022.15.2.0810>

### Abstract

Developmental trajectories can be population-based, longitudinal, and person-specific paths, progression, or lines of movement, either upward or downward, beginning with the origins of behavior over a period, age, and time. In the present bibliographic review, an attempt is made to outline the phylogeny-cum-ontogenetic progression of humor and laughter beginning in primates, infants, and across different stages of childhood. Secondary sources of evidence-based published work on the theme of humor development covering 91 out of 785 publications compiled by the author and spanning across years beginning from the 1930s to date are presented as a longitudinal narrative. While the activities that trigger children to laugh at each stage of humor are indicated, their key characteristics are exemplified. Towards the end, the perils of negative use of humor are highlighted before providing tips for promoting healthy humor in children.

**Keywords:** Stages; Infant & Toddler Humor; Healthy Children; Promotion

### 1. Introduction

Humor and laughter are fundamental experiences for every individual across the life span. The study of humor, recognized as gelatology, takes its roots across several disciplines including physiology, neurology, psychology, sociology, anthropology, animal studies, and linguistics. Humor is not easily defined. The term owes its etymological origins to the Latin word for body liquid or fluids like black and yellow bile, blood, and phlegm from which emerge disposition, or mood. It is unclear how the word body fluids ended up representing something funny. What makes one laugh, when, or how varies with age, context, culture, experience, and personality. Humor is a mental experience involving the discovery of absurdities, or incongruities in ideas, events, and situations. It is the quality of being ludicrous, amusing, or comic. Such events are a source of entertainment and a means of coping with stressful, difficult, and awkward situations. For some, humor is the expression of their superiority. For others, the element of surprise and anticlimax is the essence of humor. Children benefit by humor in many ways. It helps them to think out of the box, in unconventional ways, become spontaneous, happier, and optimistic (Dowling, 2014; 2002).

There are many types, several functions, and dimensions of humor. A child's humor needs a separate examination. Ingredients like incongruity, being out of place, a surprise, the unexpected, an inversion, reversals, and establishment of one's superiority through a grin, chuckle, pranks, or jokes at the expense of other people are all characteristics of their humor (Pien & Rothbart, 1976; Sinnott & Ross, 1976). Physical humor with a lot of pratfalls falling, clowning, foolery, and being hit on the head, trickery, punning, riddles, caricature, nonsense, limericks, grotesque, and the improbable in human predicaments with exaggerations like long noses, wild hair, elongated bodies, or collapsed bodies are hilarious for children (Stenius, Karlsson, & Sivenius, 2022; Fox, Hunter & Jones, 2016a). Laughter occurs in children after heightened tension or arousal in situations that are felt safe or secure (Rothbart, 1973). A curious blend of horror

\* Corresponding author: S. Venkatesan

Department of Clinical Psychology, All India Institute of Speech & Hearing, Manasagangotri, Mysore: 570006, Karnataka, INDIA.

and humor with laughing and screaming occurs when watching movies of a distinct genre that are enjoyed by older children (Carroll, 1999).

Humor styles in children can be adaptive (affiliative and self-enhancing) or maladaptive (aggressive and self-defeating). Self-enhancing humor benefits the self and self-defeating humor evolves later in children (Fox, Hunter, & Jones, 2016b; James & Fox, 2016; Rahman, 2000; Siegel, 1987). Wolfenstein (1954) is credited with the first volume of "*Children's humor: a psychological analysis*." Humor research emerged in the 1970s and 1980s through the organization of several international conferences and workshops. It took many years initially to rise over the skepticism of whether humor can be a topic for scientific study. McGhee and Chapman (1980) compiled a bibliography on children's humor by listing 60 publications between 1900 and 1969 with a sharp rise by 115 titles between 1970-79. Little attention was paid to the developmental aspects of humor in these early texts (Southam, 2005).

Among the theories of humor (Venkatesan, 2022; Fedakar, 2020) none, except Piaget's, attempt to explain humor in children. The ontogenetic development of cognitive aspects of humor appreciation is viewed as occurring through stages. Studies on early humor development and production in children by taking their ideas about what makes them laugh, how they create humor, or how humor contributes to their development are challenging areas for study. McGhee (2013) defined four stages (incongruous actions towards objects, incongruous labeling of objects and events, conceptual incongruity, humor in multiple meanings) of humor development in his incongruity theory. Stages in the moral development of children from the heteronomous to autonomous levels in their second grade, as conceptualized by Piaget, explains their naughtiness and determine their appreciation of humor (McGhee, 1974). When a humor component is embedded in the story narration, it is shown that young children remembered, understood, and paraphrased their contents better than without them (Gray & Shafer, 2022).

### 1.1. Development of humor

It is not that children have no sense of humor. Their development of humor occurs in stages. Coinciding with Piaget's theory of cognitive development, in the stage of sensorimotor development, pre-humor is associated with wriggles, laughs, smiles, bodily tickling, pull-push squeaky toys, punch or hit-me balloons, and jack-in-the-box surprise elements. There is a strong line of argument in favor of distinct stages in the development of humor in children (Mahon, 1992; Bariaud, 1989; Brodzinsky, 1975). In stage 1, laughter is directed towards an attachment figure through games like running, chasing, and peek-a-boo. In stage 2, when symbolic actions become possible, incongruous actions turn humorous. There is non-verbal humor in stage 3 as in treating an object as a different object (bowl as a cap). With the rise of language, around age two, there is humor in the intentional misnaming of objects or actions as in calling a nose as ear, cold as hot, or boy as a girl, or vice versa. Stage 4 occurs during preschool years when playing with words as repetitious rhyming or the use of silly words turns humorous. In stage 5, between 5 and 7 years, the child has already mastered that words have multiple meanings which are used in riddles and jokes to initiate social interaction (James & Fox, 2018; Honig, 1988). The age gradients of humor are:

#### 1.1.1. Infant & Animal Humor

Babies hardly react to clownish antics. Socialization is a key element in their evolution of humor. Humor emerges only when children understand that they are sharing an experience or reacting to another person. They show humor reaction by laughing. This begins to happen when the newborn starts smiling and showing eye contact with others. Infant humor is best described by the theory of empowerment (reflecting their ability to violate the expectations of caregivers) and the *theory of absurd* (which are out of the ordinary or those that violate their existing schemata as funny gestures, actions, or positions)(Loizou & Loizou, 2019). Humorous social interactions facilitate the cognitive development of children. Imagination, the ability to take a different perspective, and language are required as cognitive skills for humor in children. Infants without language or children with limited language are less likely to show or appreciate humor. In such instances, more than language-based, incongruity takes precedence (such as the peek-a-boo play or surprise games) in the child's humor. Imagination begins to occur between 12-18 months. is required in spotting incongruity.

Around two, their humor is object-based. Incongruity is expressed in creative humor by saying the dog says moo and the cow barks (Lyon, 2006). By then, children begin to distinguish pretending from joking (Hoicka & Martin, 2016) especially, when parents produce explicit cues (Hoicka & Butcher, 2016) and the child begins to repose full trust in them (Hoicka, Butcher, Malla, & Harris, 2017). Their interaction with siblings augments the development of humor (Paine et al. 2019).

Humor in children appears to have a biological basis. Positive correlations have been demonstrated between humor and increased concentrations of secretory immunoglobulins-A levels in school-aged children upon their observation of humorous presentations in an experimental group as compared to matched controls (Lambert & Lambert, 1995). The

neural basis of humor processing in young children between the ages of 6-8 years, who watched fun and neutral video clips, while neuro-imaging or undergoing functional near-infrared spectroscopy (fNIRS) has shown cortical activation in a few areas of the brain with differential effects between boys and girls (Mayseless & Reiss, 2021; Neely et al. 2012).

The boundary between fear and humor is fragile in infants. Infants may laugh at peek-a-boo and be scared too. The intense blowing of air by fanning cardboard on their face or exciting dangerous chase games around circles elicits similar reactions. A child's first laughter emerges by the fourth and fifth months. Shared laughter and joint attention to an absurd event with attachment to a carer is the beginning of infant humor (Mireault et al. 2012; 2014; 2015). Children appreciate humor before they produce them themselves (Mireault & Reddy, 2016). Individual differences in humor initiation, recognition, or appreciation of incongruities sets in by 18-21 months (Loizou, 2007). Observations show that infant humor is explained by: (i) Theory of the Absurd; and, (ii) Empowerment Theory. The absurd like funny gestures or positions includes events that are out of the ordinary or violate the existing schemata of children (Loizou & Kyriakou, 2015; Loizou, 2006; 2005).

Close to humor in human infants, by evolution, are non-human primates with similar cognitive capacities. The four pre-conditions for the development of humor in human children, viz., inappropriate action, incongruous labels, incongruous features, and multiple word meanings are also observed in apes. Does it imply that they can appreciate or produce humor comparable to human children (Gamble, 2001)? Anecdotal evidence and observations of overt behavior in wild as well as captive apes, gorillas, orangutans, baboons, and chimpanzees show laughter-like vocalizations during physical contact like wrestling and play chasing, and tickling (McGhee, 2018). Kea parrots warble when happy, or while playing with other parrots. Dolphins emit unique vocalizations when play fighting with each other. Elephants giggle while playing, rats emit ultrasound chirping sounds when tickled. Dogs put up happy or sad faces depending on the situation (Ross, Owren, & Zimmermann, 2009).

### *1.1.2. Toddler*

If teasing, showing hidden body parts by taking off clothes, scaring others and taboo topics like toilet humor are attractions, hide and seek, tickling, funny faces, bodily humor like putting one head through the legs, funny voices or noises, and misusing objects (like putting a bowl as a cap) is humor for toddlers. Spitting water or pushing are aggressive forms of physical humor in toddlers. Observations and case studies show that verbal humor emerges by 15-30 months as intentional mislabeling, symbolic play, and mastery of concepts (Smidl, 2014; Johnson & Mervis, 1997). Humor provides a means of re-channeling aggressive behavior tendencies into more socially acceptable forms of behavior in 3-6-year-old children (McGhee & Lloyd, 1982). The mislabels are not mistakes, but are intended as a joke (Hoicka & Gattis, 2008). Humor comprehension and appreciation in kindergarten children vary in 5-6-year-old children depending upon their cognitive levels as measured by Piaget's liquid conservation tasks (McGhee & Panoutsopoulou, 1990; McGhee, 1971).

A complete understanding of riddles is attained only in eight years (Purser, Van Herwegen, & Thomas, 2020). Gifted children with higher intelligence, large vocabularies, good memories, quick learning, or problem-solving are more humorous (Arslan, Sak & Atesgoz, 2021; Pinderhughes & Zigler, 1985)-an effect that carried over to later years in school (Tarrant, 2018; Guo et al. 2011). Children understand pretense from the second year, various degrees of metaphor in the third year, and irony from the fourth to ten years (Hoicka, 2014)-more so, if these elements are part of family conversations (Recchia et al. 2010). Sharing humorous books increase the toddlers' exposure to high abstraction and belief-based language (Hoicka, Jutsum, & Gattis, 2008).

The things that make a toddler laugh can be sneezing, yawning, passing gas, or changing words of songs or rhymes known to the toddler. Other activities like pretending to eat the child or something that is not food. Fanning on the face or throwing a blanket on the child's face can yield a mixture of fear and giggles. Incongruities such as a car with square wheels, a dog that says moo, or a pig wearing sunglasses can be sources of mirth in this stage. Sometimes, they laugh even when they are uncomfortable or feel nervous (Klein, 1985; Owens & Hogan, 1983).

The social dimensions of laughter in preschool children is less studied. Humor has a role in promoting sharing behaviors in children (Krogh, 1988; 1985). Children of 3-5 years show laughter and emotional sharing at least three times more with peers than with adults in their everyday lives (Cekaite & Andr n, 2019). In an empirical study on 20 children aged between 31-49 months, who watched cartoons laughed eight times more through imitation (Brown, Wheeler, & Cash, 1980) than when they watched the cartoons alone (Addyman et al. 2018). Social Facilitation is another explanation given for such imitative giggles and laughter in young toddlers (Chapman, 1975). Children in the age group of 4-6 years are typically impacted more by visual/pictorial humor than by verbal categories (Brown, 1993).

### 1.1.3. School Children:

During early childhood, the 4- or 5-year-old typically starts with an opener such as "Let me tell you a joke." The context is more about social interaction or gaining attention than narrating a joke. Class clown behaviors maybe sometimes a disguised sign of gifted children. By 6-8 years they are fond of memorized jokes. Some children act silly, laugh or giggle too much. This reflects their underlying fear, discomfort, nervousness, or anxiety. Groch (1974) recognized responsive, productive, and hostile forms of joking and appreciation of humor in nursery school children (3-5 years). The appreciation and creation of humor or mirth, subjective ratings, comprehension, and production are high in academically superior school-aged children between 10 and 14 years (Loizou & Recchia, 2019; Masten, 1986). Further, temperament and communicative competence in 4-5-year-old showed characteristics like attention span, persistence, distractibility, mood, and response threshold as noteworthy predictors in their expressions of humor (Carson, 1986). Elementary school children have been recorded as being able to enjoy and comprehend joking riddles of low, moderate, and high aggressive content with equal ease (Dupont & Prentice, 1988).

By 10-11 years, children begin to understand hyperbole and exaggerated irony in humor (Aguert et al. 2018; Varga, 2000). Affiliative, rather than aggressive style of humor is seen in 9-11 year junior school children (Halfpenny & James, 2020) within classrooms. The number of laughter events in children with higher social status was significantly higher than in those with lower status (Hatano et al. 2016). Studies using self and peer-reports on pre-teens (11-13 years) have shown that those with self-defeating than affiliative styles of humor were victimized more often in social situations (Fox, Hunter, & Jones, 2015). Victimization of children can occur as fear of being laughed at (gelotophobia), the joy of being laughed at (gelotophilia), and the joy of laughing at others (katagelasticism) (Proyer et al. 2012). The age gradients for the development of humor in children are recorded to be sustained over a few years through longitudinal studies (Bosacki, 2013).

Are there gender differences in humor in children? Beginning by 6-8 years, boys scored higher than girls in all categories like verbal or behavioral initiation of humor, their processing, and appreciation, frequency of laughter, creating their absurdity riddles, clowning, throwing themselves on the floor, indulging in hostile humor, riddles, or limericks (Kohn et al. 2011; Vrticka et al. 2013; Bergen, 2020). Further, interpersonal humor perception and social distance are also reported to be less in elementary school children belonging to the same rather than opposite gender (Sherman, 1988). In a bibliographic compilation of research papers from the early 1930s to date, there were 91 out of 785 publications (11.59 %) on the theme of developmental aspects with another 87 publications (11.08%) on other areas of childhood humor. The earliest dated empirical study involved objective recordings of laughing-crying in preschool children undertaken to measure the consistency of such behaviors (Brackett, 1933; Ding & Jersild, 1932).

There are equal perils in the wrong use of humor to make negative comparisons and discriminate or humiliate children in group settings. Such experiences can result in anxiety, emotional insecurity, and self or other directed aggression. On the other hand, being playful with the child, sharing stories that tickle their funny bones, allowing the child to feel superior by laughing at elders, and using humor in everyday life can be beneficial.

---

## 2. Conclusion

With the millennial generation having a shorter attention span, multitasking tendencies, and going increasingly digital, humor appears to be gaining short-lived popularity and impact than the traditional serious, informative, inspiring, emotionally appealing, or shocking discourses. Being funny is no more a laughing matter. It means lots of money and huge business. Future trends in humor research are expected to address metapragmatics, machine-generated comedy, and the use of Artificial Intelligence to understand humor and generate jokes or prepare off-the-cuff quips. There is growing space for digital media humor, commercial opportunities for women comedians, joke-writing algorithms, and computational humor. There is also a growing form of aggressive humor through cyberbullying perpetration which deserves more research attention with ramifications for humor and laughter even in children (Alamán & Rueda, 2016; Olah & Hempelmann, 2021; Ruiz-Gurillo, 2016).

---

## Compliance with ethical standards

### *Acknowledgments*

The author completed this work as an independent sole-authorship, self-financed free-laced research initiative, is no more employed therefore, under no obligation to mention or place on record and acknowledgment to any person or institution. There is no conflict of interest, ethical trespass, requirement for informed consent, and copyright infringement to be declared. Plagiarism check and report submitted to the editor is below two percent.

## References

- [1] Addyman, C., Fogelquist, C., Levakova, L., & Rees, S. Social facilitation of laughter and smiles in preschool children. *Frontiers in Psychology*, 2018, 9, 1048.
- [2] Aguert, M., LE Vallois, C., Martel, K., & Laval, V. "That's really clever!" Ironic hyperbole understanding in children. *Journal of Child Language*, 2018, 45(1), 260–272.
- [3] Alamán, A. P., & Rueda, A. M. Humor and advertising in Twitter: an approach from the general theory of verbal humor and meta-pragmatics. In L. Ruiz-Gurillo. (Ed.). Chapter 3. Meta-pragmatics of humor, 2016, (pp. 35-56). Amsterdam, Netherlands: John Benjamins.
- [4] Arslan, D., Sak, U., & Atesgoz, N. N. Are more humorous children more intelligent? A case from Turkish culture. *HUMOR–International Journal of Humor Research*.2021, 34, 4, 567-588
- [5] Bariaud, F. Age differences in children's humor. *Journal of Children in Contemporary Society*, 1989, 20(1-2), 15-45.
- [6] Bergen, D. The development of sex differences in humor initiation and appreciation. *Humor–International Journal of Humor Research*, 2020, 33(2), 179-195.
- [7] Bosacki, S.L. A longitudinal study of children's theory of mind, self-concept, and perceptions of humor in self and other. *Social Behavior and Personality*, 2013, 41, 663-674.
- [8] Brackett, C. W. Laughing and crying of preschool children. *The Journal of Experimental Education*, 1933, 2(2), 119-126.
- [9] Brodzinsky, D. The role of conceptual tempo and stimulus characteristics in children's humor development. *Developmental Psychology*, 1975, 11, 843-850.
- [10] Brown, G. E., Wheeler, K. J., & Cash, M. The effects of a laughing versus a non-laughing model on humor responses in preschool children. *Journal of Experimental Child Psychology*, 1980, 29(2), 334–339.
- [11] Brown, I. Young children's explanations of pictorial humor: a preliminary study. *Early Child Development and Care*, 1993, 93(1), 35-40.
- [12] Carroll, N. Horror and humor. *The Journal of Aesthetics and Art Criticism*, 1999, 57(2), 145-160.
- [13] Carson, D.K. Temperament and communicative competence as predictors of young children's humor. *Merrill-Palmer Quarterly*, 1986, 32. 415-426.
- [14] Cekaite, A., & Andrén, M. Children's laughter and emotion sharing with peers and adults in preschool. *Frontiers in Psychology*, 2019, 10, 852.
- [15] Chapman, A. J. Humorous laughter in children. *Journal of Personality and Social Psychology*, 1975, 31(1), 42.
- [16] Ding, G. F., & Jersild, A. T. A study of the laughing and smiling of preschool children. *The Pedagogical Seminary and Journal of Genetic Psychology*, 1932, 40(2), 452-472.
- [17] Dowling, J. S. Humor: A coping strategy for pediatric patients. *Pediatric Nursing*, 2002, 28(2). 123-131.
- [18] Dowling, J. S. (2014). School-age children talking about humor: Data from focus groups. *Humor–International Journal of Humor Research*, 2014, 27(1): 121-139.
- [19] Dupont, R. T., & Prentice, N. M. The relation of defensive style and thematic content to children's enjoyment and comprehension of joking riddles. *American Journal of Orthopsychiatry*, 1988, 58(2), 249-259.
- [20] Fedakar, S. An evaluation of the classification of humor theories. *Milli Folklor*, 2020, 16(126), 52-62.
- [21] Fox, C. L., Hunter, S. C., & Jones, S. E. Children's humor types and psychosocial adjustment. *Personality and Individual Differences*, 2016a, 89, 86–91.
- [22] Fox, C. L., Hunter, S. C., & Jones, S. E. Longitudinal associations between humor styles and psychosocial adjustment in adolescence. *Europe's Journal of Psychology*, 2016b, 12(3), 377.
- [23] Fox, C.L., Hunter, S.C., & Jones, S.E. The relationship between peer victimization and children's humor styles: It's no laughing matter! *Social Development*, 2015, 24, 443-461.
- [24] Gamble, J. Humor in apes. *International Journal of Humor Research*. 2001, 14(2): 163-179.

- [25] Gray, C. D., & Shafer, D. M. The effect of humor on remembering, understanding, and paraphrasing children's video Bible stories. *International Journal of Christianity & Education*, 2022, 26(1), 65-78.
- [26] Groch, A. S. Joking and appreciation of humor in nursery school children. *Child Development*, 1974, 45(4): 1098-1102.
- [27] Guo, J., Zhang, X., Wang, Y., & Xeromeritou, A. Humor among Chinese and Greek preschool children about cognitive development. *International Electronic Journal of Elementary Education*, 2011, 3(3), 153-170.
- [28] Halfpenny, C. C., & James, L. A. Humor styles and empathy in junior-school children. *Europe's Journal of Psychology*, 2020, 16(1), 148–166.
- [29] Hatano, H., Ishi, C.T., Komatsubara, T., Shiomi, M., & Kanda, T. Analysis of laughter events and social status of children in classrooms. *Speech Prosody*, 2016, 1004-1008.
- [30] Hoicka, E. The pragmatic development of humor. 2014, Chapter 13. (Pp. 219-239). In: D. Matthews. (Ed.). *Pragmatic development of first language acquisition*. Amsterdam and Philadelphia: John Benjamins Publishing Company.
- [31] Hoicka, E., & Butcher, J. Parents produce explicit cues that help toddlers distinguish between joking and pretending. *Cognitive Science*, 2016, 40(4), 941-971.
- [32] Hoicka, E., & Gattis, M. Do the wrong thing: How toddlers tell a joke from a mistake. *Cognitive Development*, 2008, 23(1): 180-190.
- [33] Hoicka, E., & Martin, C. Two-year-olds distinguish pretending and joking. *Child Development*, 2016, 87(3), 916-928.
- [34] Hoicka, E., Butcher, J., Malla, F., & Harris, P. L. Humor and preschoolers' trust: sensitivity to changing intentions. *Journal of Experimental Child Psychology*, 2017, 154, 113-130.
- [35] Hoicka, E., Jutsum, S., & Gattis, M. Humor, abstraction, and disbelief. *Cognitive Science*, 2008, 32(6), 985-1002.
- [36] Honig, A. S. Humor development in children. *Young Children*, 1988, 43(4), 60-73.
- [37] James, L. A., & Fox, C. L. Children's understanding of self-focused humor styles. *Europe's Journal of Psychology*, 2016, 12(3), 420.
- [38] James, L. A., & Fox, C. L. Longitudinal associations between younger children's humor styles and psychosocial adjustment. *British Journal of Developmental Psychology*, 2018, 36(4), 589-605.
- [39] James, L., & Fox, C. The development of a humor styles questionnaire for younger children. *Humor-International Journal of Humor Research*, 2016, 29(4), 555-582.
- [40] Johnson, K. E., & Mervis, C. B. First steps in the emergence of verbal humor: A case study. *Infant Behavior and Development*, 1997, 20(2), 187-196.
- [41] Klein, A. J. Humor comprehension and humor appreciation of cognitively oriented humor: A study of kindergarten children. *Child Study Journal*. 1985, 15, 4, 223-235.
- [42] Kohn, N., Kellermann, T., Gur, R. C., Schneider, F., & Habel, U. Gender differences in the neural correlates of humor processing: implications for different processing modes. *Neuropsychologia*, 2011, 49(5), 888-897.
- [43] Krogh, S. He who laughs first: The importance of humor to young children. *Early Child Development and Care*, 1985, 20(4), 287-299.
- [44] Krogh, S.L. The Role of Humor in Children's Sharing. *Early Child Development and Care*, 1988, 30, 205-212.
- [45] Lambert, R., & Lambert, N. The effects of humor on secretory immunoglobulin A levels in school-aged children. *Pediatric Nursing*, 1995, 21 1, 16-9 .
- [46] Loizou, E. & Kyriakou, M. Young children's appreciation and production of verbal and visual humor. *Young Children's Humor*, 2015, 29(1), 99–124.
- [47] Loizou, E. Infant humor: The theory of the absurd and the empowerment theory. *International Journal of Early Years Education*, 2005, 13(1), 43-53.
- [48] Loizou, E. Young children's explanation of pictorial humor. *Early Childhood Education Journal*, 2006, 33(6), 425-431.

- [49] Loizou, E. Humor as a means of regulating one's social self: Two infants with unique humorous personas. *Early Child Development and Care*, 2007, 177(2), 195-205.
- [50] Loizou, E., & Loizou, E.K. (2019). An intervention study to explore children's visual and verbal humorous productions through the tenet of the theory of the absurd and the empowerment theory. In E. Loizou & S. L. Recchia (Eds.). *Research on young children's humor: Theoretical and practical implications for early childhood education*. Netherlands: Springer.
- [51] Loizou, E., & Recchia, S. L. (Eds.). (2019). *Research on young children's humor: Theoretical and practical implications for early childhood education*. Netherlands: Springer.
- [52] Lyon, C. Humour and the young child. *Television*, 2006, 19, 4-9.
- [53] Mahon E. J. The function of humor in a four-year-old. *The Psychoanalytic Study of the Child*, 1992, 47, 321–328.
- [54] Masten, A. S. Humor and competence in school-aged children. *Child Development*, 1986, 57(2): 461-473.
- [55] Maysless, N., & Reiss, A. L. The neurodevelopmental basis of humor appreciation: A fNIRS study of young children. *PLoS one*, 2021, 16(12), e0259422.
- [56] McGhee, P. Chimpanzee and gorilla humor: progressive emergence from origins in the wild to captivity to sign language learning. *Humor–International Journal of Humor Research*, 2018, 31(2), 405-449.
- [57] McGhee, P. E. Moral development and children's appreciation of humor. *Developmental Psychology*, 1974, 10(4), 514.
- [58] McGhee, P. E. (2013). (Ed.). *Humor and children's development: a guide to practical applications*. London and New York: Routledge.
- [59] McGhee, P. E., & Chapman, A. J. (Eds.). *Children's humor*. Chichester, England: Wiley. 1980.
- [60] McGhee, P. E., & Panoutsopoulou, T. The role of cognitive factors in children's metaphor and humor comprehension. *Humor–International Journal of Humor Research*, 1990, 3, 4, 379-402.
- [61] McGhee, P.E. The role of operational thinking in children's comprehension and appreciation of humor. *Child Development*, 1971, 42, 733-744.
- [62] McGhee, P. E. (Ed.). *Humor and children's development: a guide to practical applications*. London and New York: Routledge. 2013.
- [63] McGhee, P.E., & Lloyd, S.A. Behavioral characteristics associated with the development of humor in young children. *Journal of Genetic Psychology*, 1982, 141, 253-259.
- [64] Mireault, G. C., & Reddy, V. When Humor Goes Missing. In *Humor in Infants 2016*, (pp. 45-53). Springer, Cham.
- [65] Mireault, G. C., Crockenberg, S. C., Sparrow, J. E., Cousineau, K., Pettinato, C., & Woodard, K. Laughing matters: Infant humor in the context of parental affect. *Journal of Experimental Child Psychology*, 2015, 136, 30-41.
- [66] Mireault, G. C., Crockenberg, S. C., Sparrow, J. E., Pettinato, C. A., Woodard, K. C., & Malzac, K. Social looking, social referencing, and humor perception in 6- and 12-month-old infants. *Infant Behavior & Development*, 2014, 37(4), 536–545.
- [67] Mireault, G., Sparrow, J., Poutre, M., Perdue, B., & Macke, L. Infant humor perception from 3-to 6-months and attachment at one year. *Infant Behavior and Development*, 2012, 35(4), 797-802.
- [68] Neely, M. N., Walter, E., Black, J. M., & Reiss, A. L. Neural correlates of humor detection and appreciation in children. *The Journal of Neuroscience*, 2012, 32(5), 1784–1790.
- [69] Olah, A. R., & Hempelmann, C. F. Humor in the age of coronavirus: a recapitulation and a call to action. *HUMOR–International Journal of Humor Research*, 2021, 34(2), 329-338.
- [70] Owens, H.M., & Hogan, J.D. Development of humor in children: Roles of incongruity, resolution and operational thinking. *Psychological Reports*, 1983, 53, 477 - 478.
- [71] Paine, A. L., Howe, N., Karajian, G., Hay, D. F., & DeHart, G. 'H, I, J, K, L, M, N, O, PEE! Get it? Pee!': Siblings' shared humor in childhood. *The British Journal of Developmental Psychology*, 2019, 37(3), 336–353.
- [72] Pien, D., & Rothbart, M. K. Incongruity and resolution in children's humor: A reexamination. *Child Development*, 1976, 47, 4, 966-971.

- [73] Pinderhughes, E. E., & Zigler, E. Cognitive and motivational determinants of children's humor responses. *Journal of Research in Personality*, 1985, 19(2), 185-196.
- [74] Proyer, R. T., Neukom, M., Platt, T., & Ruch, W. Assessing gelotophobia, gelotophilia, and katagelasticism in children: An initial study on how six to nine-year-olds deal with laughter and ridicule and how this relates to bullying and victimization. *Child Indicators Research*, 2012, 5(2), 297-316.
- [75] Purser, H., Van Herwegen, J., & Thomas, M. The development of children's comprehension and appreciation of riddles. *Journal of Experimental Child Psychology*, 2020, 189, 104709.
- [76] Rahman, M. Humor in Urdu children's literature. *Bookbird*, 2000, 38(4), 37.
- [77] Recchia, H. E., Howe, N., Ross, H. S., & Alexander, S. Children's understanding and production of verbal irony in family conversations. *British Journal of Developmental Psychology*, 2010, 28(2), 255-274.
- [78] Ross, M. D., Owren, M. J., & Zimmermann, E. Reconstructing the evolution of laughter in great apes and humans. *Current Biology*, 2009, 19(13), 1106-1111.
- [79] Rothbart, M. K. Laughter in young children. *Psychological Bulletin*, 1973, 80(3), 247.
- [80] Ruiz-Gurillo, L. (Ed.). *Metapragmatics of Humor: Current research trends*. Amsterdam: John Benjamins.2016.
- [81] Sherman, L. W. Humor and social distance in elementary school children. *International Journal of Humor Research*. 1988, 1(4): 389-404.
- [82] Siegel, L. *Laughing matters: Comic tradition in India*. Chicago: University of Chicago Press.1987.
- [83] Sinnott, J. D., & Ross, B. M. Comparison of aggression and incongruity as factors in children's judgments of humor. *The Journal of Genetic Psychology*, 1976, 128(2d Half), 241–249.
- [84] Smidl, S. L. *My Daddy Wears Plucky, Ducky Underwear: Discovering the Meanings of Laughter in a Preschool Classroom*. *Voices of Practitioners*, 2014, 9(1), 1.
- [85] Southam, M. Humor development: An important cognitive and social skill in the growing child. *Physical & Occupational Therapy in Pediatrics*, 2005, 25(1-2), 105-117.
- [86] Stenius, T. H., Karlsson, L., & Sivenius, A. Young children's humor in play and moments of everyday life in ECEC centers. *Scandinavian Journal of Educational Research*, 2022, 66(3), 396-410.
- [87] Tarrant, T. A. (2018). *The Humor of School Child*. Sacramento, CA: Creative Media Partners. Originally published in 1918.
- [88] Varga, D. Hyperbole and humor in children's language play. *Journal of Research in Childhood Education*, 2000, 14, 142 - 151.
- [89] Venkatesan S. A short compilation on theories of humor and laughter. *Paripex, Indian Journal of Research*, 2022, 11(8): 1-3.
- [90] Vrticka, P., Black, J. M., Neely, M., Walter Shelly, E., & Reiss, A. L. Humor processing in children: influence of temperament, age, and IQ. *Neuropsychologia*, 2013, 51(13): 2799–2811.
- [91] Wolfenstein, M. *Children's humor: a psychological analysis*. Glencoe, Illinois: Free Press. 1954.