

A Review of the Nature and Development of Humor Appreciation and Considerations for Teaching Humor to Autistic Persons

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ABSTRACT

The development of humor is complex and heterogeneous within and across neurotypical and neurodivergent groups. Some autistics develop differences (not deficits) in humor appreciation, whereas others report difficulties “getting the joke” and identify this as in need of support. This is important because humor appreciation and comprehension are linked to psychological well-being and social success. This article describes the therapeutic potential for teaching humor comprehension to autistic persons and the benefit of broader education efforts to forge an understanding of the value of “different senses of humor.” The nature and development of humor comprehension in neurotypical development and autism are reviewed. Considerations for whether and how to teach humor comprehension are offered that maximize goodness-of-fit, prioritize autistic autonomy, and promote the sharing and appreciation of different kinds of “funny.”

KEYWORDS: humor, verbal humor, humor appreciation, autism

Learning Outcomes: As a result of this activity, the reader will be able to (1) explain the importance of humor for social development; (2) describe the findings from research that position humor in autism as a deficit or a difference; (3) identify general approaches for promoting humor appreciation that respect autonomy, that promote autistic authenticity and advocacy, and that may be therapeutic for psychosocial outcomes.

The appreciation and creation of most humor requires social ‘know-how.’¹

We look very favorably upon those who have a good sense of humor and generally take pride in having one ourselves.²

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Humor development is dependent on (and a core component of) social competence. In the school years and beyond, humor initiation and appreciation are strongly associated with language development and communicative competence, social status, peer acceptance, psychological adjustment, ratings of maturity, health, and effective coping, and negatively correlated with loneliness.^{1–5} This makes sense when we recognize that the social functions of humor are many and varied. Humor has been characterized as one of the most flexible tools in social interaction⁶ and it is important for group cohesion as well as the facilitation of social interaction and the development and maintenance of interpersonal relationships (for reviews, see Terrion and Ashforth⁷ and Ziv).⁸ It can be used to save face, bring levity, ingratiate oneself, and to invite warm, affiliative, or intimate interaction. It can also be used to express views that are otherwise difficult to communicate, to register disagreement in a socially acceptable way (as in the case of verbal irony), or for softening a dominating style of interaction with others.^{2,6}

It is a myth that autistic^a persons cannot comprehend or produce, or are uninterested in humor (look no further than Dan Ackroyd, Hannah Gadsby, the American comedy troupe “Asperger’s Are Us”). Instead, like their neurotypical (NT) counterparts, autistic people vary greatly in their tastes and “sense of humor.” In terms of either getting the joke or sharing humor with others, they may also have particular preferences or predilections. At the same time, some researchers have observed differences in humor comprehension and production that suggest challenges rooted in a lack of social, conceptual, or linguistic knowledge.¹

^a *Autism is both a condition that gives rise to disability and a neurobiological and cognitive difference. Autism spectrum disorder and autism spectrum condition are referred to here as “autism.” I generally employ the term “autistic” (identity-first language, which is, at present, the preferred terminology for many self-advocates). Person-first language (e.g., “individuals with autism”) is also employed and the mixing of terms is intentional and designed to respect the diversity in language preferences that exist in the broad community of stakeholders. In addition, “atypical” represents “neurodivergent” as a comparative term. “Atypical” does not represent “incorrect,” just as “neurotypical” does not represent “correct.”*

In this article, I describe the nature and development of humor appreciation in NT and autistic groups. Considerations for practice, including whether and how to teach humor appreciation, are discussed. Ultimately, I argue that when it promotes authenticity, autonomy, and social connection, it can be beneficial to teach autistic persons the “know-how” required for some kinds of humor appreciation. When it promotes inclusion, self-esteem, and advocacy, it can also be beneficial for NT and neurodivergent people to learn from each other about various senses of humor.

WHAT IS HUMOR?

One challenge involved in describing the development of humor appreciation and joke understanding is that the meaning of the terms “humor” and “joke” is imprecise. Broadly construed, humor has been conceptualized as “a temperament, coping strategy, ability, attitude, worldview, aesthetic judgment, character strength, and virtue.”⁹ Meanwhile, the term “joke” ranges from reference to verbal expressions that exploit meaning and sound congruities and incongruities in language (e.g., knock-knock jokes, puns, play on words), to sarcasm and benign put downs (i.e., signifying, boasts or insults as games or ritual), to verbal or nonverbal acts such as clowning (i.e., repetitive acts to elicit a response from others such as smiling, laughter, mild annoyance) and affectionate teasing,¹⁸ and other playful behaviors. For the present purposes, the term “joke” refers narrowly to verbal humor (e.g., formulaic jokes, puns, play on words) for which the joker utters a false statement that is intended to be *disbelieved* and for humorous effect. This discussion will focus primarily on jokes and verbal humor (because the bulk of the research tends to be in this area), although the nature and development of more general humor styles and preferences are described when relevant.

Despite variable conceptualizations, most researchers agree that the ability to notice *and resolve* linguistic ambiguities is central to the development of verbal humor.^{10–15} Several different kinds of ambiguity in language are

exploited in verbal humor, including the following¹⁰:

- Lexical ambiguity (e.g., "Order, Order in the Courtroom!" "Ham and cheese on rye please, your honor").
- Syntactic ambiguity (e.g., "I couldn't believe it. I saw a man eating shark in the aquarium!" "That's nothing, today I saw a man eating herring in the restaurant").
- Phonological ambiguity (e.g., "Waiter, what's this?" "It's bean soup" "I don't care what it's been. I want to know what it is now").
- Pragmatic ambiguity (e.g., "Doctor come at once! My baby swallowed a pen!" "I'll be right over. What are you doing in the meantime?" "Using a pencil").

Still other jokes rely on the ability to notice conceptual, often metaphorical links and possibilities. Consider the following joke offered by Suls: *"A group of kidnappers is arrested, tried, and sentenced to 15 years on a chain gang - but they escape, 12 of them chained together at the ankle, getting by the guards posing as an immense charm bracelet."*¹⁵

This joke cannot be resolved via linguistic ambiguity and cannot be appreciated without realizing that a group of men chained together at the ankle really do, in one sense, resemble a charm bracelet. This, in turn, makes the joke funny, given a playful frame of mind.¹¹ The notion of a "playful frame of mind" is an important one. As Semrud-Clikeman and Glass⁶ noted, "Humor is both a cognitive process and an affective experience."⁶ For incongruity to generate humor (rather than anxiety or confusion), it must be constructed and received through communicative signals indicating playful intent.⁶

Humor: developmental precursors. The development of humor is protracted¹⁶ and researchers have identified precursor, early emerging skills that lay the foundation for the gradual unfolding of more mature and complex humor. Early on, children seem to understand the propositional attitudes (or mental states) behind jokes and playful behaviors. Said another way, they understand that the communicative intent underlying a joke is to elicit a humorous

response. This understanding emerges in the first years of life. It enables toddlers to participate in pretend play; provides a means for regulating and comprehending the social self; is used to explore, interpret, and negotiate the social world; and cannot be explained simply by the young child's ability to read behavioral cues like smiling or intonation of speech.¹⁷⁻²² In fact, several researchers have documented the range of humor types observed in infants and toddlers, which include clowning and teasing; joy in mastery play, sound play, and verbal reproductions; elaboration of language patterns; and other forms of incongruity including violating social norms²³ (for review see Cameron et al¹⁸).

The development of these early forms of humor (and their precursor skill, symbolic play) is believed to contribute to social development throughout childhood and lay the foundation for more sophisticated humor production and appreciation.^{2,24} With specific regard to verbal humor, at approximately 1½ to 2 years, children begin to produce incongruent label jokes (i.e., mislabeling a familiar object; e.g., calling a "rabbit" a "duck" while laughing) which is followed by incongruent attribute jokes around the age of 2 to 3 years (i.e., mislabeling a familiar attribute; e.g., pointing to "rabbit" and saying "quack" while laughing^{24,25}). A few months after the appearance of incongruent attribute jokes, children begin to produce primitive forms of puns to express humor in which they manipulate the morphological boundaries of familiar words (e.g., deliberately conflating "mistake" with "stake"). Clearly, such decomposition requires a moderately high level of metalinguistic awareness and thus is contingent on the maturation of major language and cognitive milestones.^{24,26}

Humor: development in childhood. Several theories of humor development have been proposed. One of the most influential of these is called the incongruity-resolution theory of humor. According to this theory, around 6 to 8 years of age, children begin to appreciate the resolution aspects of verbal incongruity^{6,11,27} with younger children finding humor in slapstick (exaggerated physical comedy), clowning, and pure incongruity. Even if information is available to resolve incongruity, very young

children appear to lack the cognitive capacities to detect and appreciate the relevance of this information. For preschool children, then, as McGhee and Panoutsopoulou¹¹ pointed out, “incongruity-based humor is funny *because it makes no sense*, not because it makes sense in some new and unexpected way.”¹¹ It is also around the age of 6 to 8 years that children develop a working knowledge of synonyms, antonyms, and polysemous words²⁸ and can more ably distinguish jokes from lies and other kinds of falsehoods^{10,19,21} which requires second-order representation of mental states (e.g., what Liam thinks Jamal thinks), another social cognitive milestone that codevelops around this time.^{19,29}

In the early school years, children begin to identify, resolve, and explain verbal incongruities as long as the languages (or concepts) are not too difficult.^{11,27} In fact, jokes that are cognitively challenging *but not too challenging* are rated as more humorous than jokes that are deemed too easy or too difficult to resolve (a.k.a., the “congruency principle”^{25,30,31}). As Johnson and Mervis²⁴ pointed out, “a 3-year-old’s delight in calling a female playmate ‘boy’ would elicit only groans from an 8-year-old, whereas the puns and knock-knock jokes favored by 8-year-olds would only bewilder 3-year-olds.”²⁴

Of course, humor continues to develop in late childhood and beyond and is informed by advances in linguistic, social-cultural, and general fund knowledge that allow for increasingly sophisticated forms of humor to be produced and appreciated. Late childhood and adolescence is also a time when humor begins to be keenly evaluated with regard to its social acceptability.³²

Humor: developmental correlates. Humor appreciation is best understood as a series of cognitive events occurring within the perceiver of the humor,³³ and its development is associated with a range of intellectual achievements. These include, but are not limited to, emotion and social perception,^{6,34} imagination and the appreciation of play and fantasy,^{2,35–37} moral development,³⁸ creativity,^{39,40} problem-solving,¹¹ and cross-category reasoning skills (e.g., understanding that some objects are red, some objects are flowers, and some objects cross these categories and are red flowers).¹¹

Crucially, humor appreciation also appears to hinge on the recognition (or implicit understanding) of the emotion surprise.^{16,36} In contrast to the so-called basic emotions (e.g., happy, sad, mad, scared) which often arise in response to situations, “cognitive” emotions like surprise require an understanding that beliefs and expectations can be counterfactual.^{41,42} To recognize and understand surprise, children must understand that a person approaches a situation with a particular expectation in mind; if the situation does not match the expectation, then the person will be surprised.⁴² In fact, surprise and “funniness” ratings for jokes are strongly related, leading some to argue that surprise is a necessary (but perhaps not sufficient) condition for humor appreciation.³⁶

HUMOR AND AUTISM

Two related bodies of literature have dominated the topic of humor development in autism (and have focused, almost exclusively, on autistic persons previously referred to as “high functioning” or “Asperger’s”). One body of literature has compared NT and autistic groups and generally reports the presence of autistic humor deficits while proposing causal, underlying cognitive mechanisms. The second body of literature is associated with the neurodiversity movement and advances the argument that person with autism demonstrates a humor difference as opposed to a humor deficit. Another consideration has received far less attention, and that involves the nature and importance of autistic heterogeneity in humor appreciation. All of these considerations are relevant to questions about whether and how humor may be targeted to enhance social-cognitive function in autism.

NT and autistic group differences in humor. Over the last few decades, theory of mind has been a popular explanatory mechanism for autism and so it is not surprising that challenges in humor comprehension have been linked with poor social reasoning skills. Through careful isolation of the stimulus characteristics of different kinds of jokes and cartoons, some research has shown that persons with autism experience the greatest difficulty with humor that demands mind-reading of the characters or

subjects involved.^{43,44} For example, to appreciate the humor in cartoon A (see Fig. 1), it is necessary to understand that the woman does not know what will happen to her, while the man clearly does know (see Samson and Hegenloh⁴³ who used similar stimuli). The same is not true for cartoon B which plays with the notion of a physical impossibility. As such, whether a joke is social in nature (and the degree to which it requires social inferencing) appears to affect humor appreciation in autism (see also Reddy et al and Silva et al^{45,46}).

Verbal humor deficits in autism have also been linked to theory of mind challenges vis-à-vis deficits in second-order mental state reasoning, an ability considered requisite for making accurate social judgments about jokes. Yet even when autistic children are able to deploy second-order mentalizing and can dis-

tinguish lies from jokes in structured, hypothetical scenarios, this conceptual competency is not matched by the ability to appreciate and deploy verbal humor in the real world.²⁹ As such, humor development in autism is likely complicated by challenges in contextual learning. One possibility is that autistic children have difficulty generalizing or applying their conceptual knowledge. Leekam and Prior²⁹ suggested that, "As social encounters are embedded in context, the task of applying existing conceptual knowledge and extracting meaningful information maybe what is difficult for them...."²⁹

In a related vein, several researchers have concluded that the humor of autistic children may lack sophistication, complexity, and appear developmentally immature.^{43-45,47-50} To illustrate, Leekam and Prior²⁹ documented the development of humor in children with autism

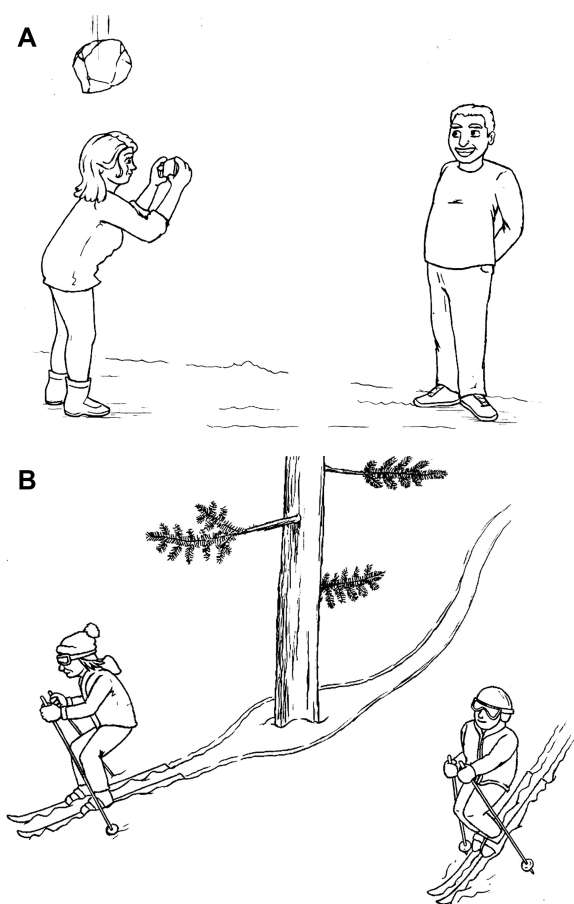


Figure 1 An example of nonverbal cartoons: one requires social inferencing (A) and one does not (B). Reproduced with permission from Theory of Mind Inventory, LLC.

via parent report. They found that children's use of jokes tended to involve the retelling or imitation of simple jokes or basic teasing. Moreover, children's humor was restricted to blatant or slapstick humor and nonsensical jokes.

One parent reported that their child had learned a rule for dealing with other people's jokes. 'He knows you laugh at the end of one. He looks at your face for cues'. There were occasional reports of 'tricking' and 'fooling around' to get a reaction of surprise or annoyance, but no evidence of subtlety, irony or concept of joke in terms of playing with another's disbelief. This finding supports...evidence that although children with autism may show humor, very little of this humor demonstrates any understanding of mental states."²⁹

Recall that, to "get the joke" one has to detect a conflict between two initially incongruent ideas, concepts, or situations that are brought together in a surprising and unexpected way. "Getting the joke" may be difficult for some autistic persons owing to a tendency toward literal and/or inflexible interpretations.^{17,29,51} In fact, the understanding of jokes, irony, and idiomatic language—all of which require the ability to identify dual meanings and to appreciate the impact of "surprise"—have been identified as some of the most prominent difficulties for autistic adolescents and adults including those with high language and intellectual abilities.^{51,52}

But there is still more to "getting the joke." A key to appreciating humor is reading communicative intent and the adoption of a "playful state of mind." As noted earlier, young NT children appear to understand the propositional attitudes or communicative intents underlying jokes and other playful behaviors, but research reports that autistic adolescents experience challenges in this area not attributable to general intelligence.¹⁷

Of course, research has also highlighted the potential for some autistics to appreciate humor easily (and sometimes too intensely) which may reflect a complex relationship between humor appreciation and autistic features (for review see

Samson⁴⁸). Specifically, support has emerged for a U-shaped relationship such that those who are deemed to respond too strongly (e.g., a high degree of merriment) or very little (e.g., flat affect) to humor stimuli tend to have the most severe symptomology.⁵³

Of course, group studies can obscure individual differences and some research has highlighted the ability of autistic persons to readily produce a variety of humor types in both experimental settings and in daily life.^{37,44,45,54} Thus, despite overwhelming, general consensus of autistic group deficits in humor development, there are also reports of humor at all levels of functioning: As noted by Lyons and Fitzgerald,⁴⁷ "examples range from basic slapstick humor to highly sophisticated humor based on nonsense and logical confusion of language."⁴⁷ Of course, this raises questions regarding the humor difference versus deficit distinction in autism.

Humor as difference not deficit. Contrary to Asperger and Frith⁵⁵ who characterized persons with autism as essentially "humorless,"⁵⁵ research shows that verbal humor comprehension and production is not difficult for many autistic persons. As noted in this article's introduction, many autistics (usually identifying as Asperger's) are not only keenly interested in humor and comedy but are skilled humorists themselves.^{56,57}

Of course, "sense" of humor (and humor preferences) will differ within and across groups. Although there is clearly no single autistic sense of humor, some qualitative research and anecdotal evidence suggest certain predilections.^{56,58,59} These include a fondness for a self-described "childish humor" (e.g., spontaneously skipping down the street) or a carefree playfulness that pridefully challenges NT notions of "appropriate" adult-like behavior. It also includes absurdity (a.k.a., surreal humor; humor derived from the ridiculous and unexpected; think Monty Python), dark humor (a.k.a., gallows humor; comedy that makes light of taboo subjects that are typically considered too serious or painful to discuss; think Anthony Jeselnik), or a dead-pan style of delivery (e.g., think Steven Wright). It may also include an affinity for verbal humor comprehension and production (e.g., puns or other word play that hinges on some form of linguistic ambiguity

resolution^{50,56}). Distaste for “observational” humor (closely related to “situational humor”; humor derived from what is considered commonplace, and is therefore widely regarded as relatable; think sitcoms) has also been reported.⁵⁶

The importance of autistic heterogeneity.

Given the complexity of humor (and its many subcomponents) and the tremendous individual variation observed in autism, it is not surprising that the experience of humor will be highly heterogeneous (a notion that in no way contradicts the potential for autistic group preferences described earlier). To illustrate, in a recent study,⁶⁰ my colleagues and I solicited over 100 autistic adults and asked them to reflect and comment on the quality of their humor appreciation. In response to the written statement: *When I hear jokes like “What is black, white, and read all over? It’s a newspaper!” or “The duck said to the bartender, ‘put it on my bill,’” I immediately understand the humor in this play on words*, we heard:

I get the humor. However, I’m not that great at noticing puns in the wild.

I’m great at puns! I love them! Only a few that are hard to get and [I] have to have someone explain to me.

I grew up in a household of puns, so this is easier for me than the average person.

I get it but it’s a terrible joke.

I literally just got that...I’ve never seen it written before.

I’m only just now getting the newspaper joke, and I’ve heard it my entire life. I also didn’t understand the seven-ate-nine joke until I was an adult. And I’m really bad at coming up with puns.

The duck flew over my head, searched for it [but] seems like my language was lacking. But I think I’m pretty good with wordplays...

Sometimes I understand the joke, other times, not. It depends on the punchline and whether I can make sense of the abstract aspects of the joke.

If I have heard a particular type of joke before, I can recall it and use it to determine context, but if I haven’t heard a similar joke before it usually doesn’t make sense.

Read?

I realized that I am now finally JUST getting the newspaper joke!!

You know, I always thought it was ‘red’ all over because of the amount of violence reported in the news. Whoops.

Sometimes, depending on the joke, it takes me some seconds to fully get it. I usually ‘analyze’ it somehow, put things together, re-see them and make sure I understand it to reveal a laugh. Or I make a smile, but keep thinking to make sure I got it.

Depends on whether the joke is easily interpreted either written or verbal.

I never understood the first joke until now as I’ve never seen it written out!

In response to the statement “*I am good at getting the jokes that other people tell*,” we heard:

I was a professional comedian for over 30 years. I understand jokes even if I don’t think they are funny.

They have to explain [it] to me a lot, but then they say it’s not funny anymore. I don’t know why explaining it would make it less funny.

Not usually or I just do not feel like laughing.

I can be slow occasionally, but other times I can see a joke from a mile away. It depends on the joke. I have a very surreal/abstract sense of humor.

Puns and stuff [yes, but] not a lot of late night TV humor or most comedians, either.

Not quite always but usually. Sometimes I don’t like the type of humor though! Some ‘humor’ is harmful to vulnerable people.

Generally yes, but when anxious, sometimes I take language at face value [too literally to get the joke].

Usually, although New Yorker cartoons are often impossible to figure out!

It depends on the kind of joke. I am best with puns or plays on words (and I enjoy making these jokes) but I am worse with situational jokes, teasing, and pranks.

Most of the time, but some jokes confuse me.

Although our questions were limited in breath (only soliciting information about verbal humor comprehension), the heterogeneity in the experience of humor and “getting the joke” in these reports from autistic adults was remarkable. Some alluded to worry about being misunderstood if they laughed in the wrong way or at the wrong time, a finding that is echoed in research and underscores the potential for (otherwise) humorous situations to create discomfort, anxiety, and a sense of social isolation for autistic persons.^b Others reported difficulty comprehending verbal humor and described it as an effortful, analytical exercise (as opposed to spontaneous or automatic). Although this may reflect differences in autistic and NT humor processing, it underscores the fact that incongruity resolution in autism occurs routinely even if it may be achieved or experienced differently. Still others described the situations or conditions in which humor appreciation was facilitated (as with practice and familiarity with persons or joke structures) or hindered (as when anxious or encountering unexpected “puns in the wild”). Variable humor preferences (e.g., dark humor, puns) and dislikes (situational humor, denigrating humor) were also reported that were consistent with the literature on potential (and general) autistic humor preferences. Interestingly, several reports regarding the “getting” of the newspaper joke were revelatory and demonstrate the value of different modes of

presentation for resolving linguistic incongruity (in this case to mean “read,” not “red”).

WHETHER TO TEACH HUMOR TO PERSONS WITH AUTISM

Unless it holds the potential to undermine the health and well-being of persons with autism, it can be beneficial to find or create situations that foster humor development. It is also important to be mindful that autistic challenges are often a by-product of an unaccommodating environment and that autistic interactions are optimized differently across situations and groups.⁶¹ This, in turn, has implications for designing opportunities for humor appreciation and social bonding and it connects with the *double empathy problem* (i.e., autistic and non-autistic persons struggle to understand *each other*⁶²) and highlights the value of autistic-led social opportunities and informal supports when appropriate.⁶³ Indeed, activities in humor appreciation present a rich and special opportunity: they can be explored, analyzed, and practiced by groups whose members have natural solidarities but who are diverse in their ways of thinking, knowing, and behaving.

As I have argued similarly elsewhere (Hutchins, this volume), targeting humor appreciation can be appropriate when it is deemed *personally acceptable*, *socially significant*, and *developmentally appropriate*. The tenant of personal acceptability prioritizes personal autonomy and recognizes that teaching humor is not conducted with the goal of *masking* the true autistic self, or “normalizing” perceptions of “funny,” or subverting autistic habits of cognition or behavior. To the contrary, humor appreciation relies on awareness of one’s humor sense and style and a belief in the sharing of humor to connect persons authentically.

With regard to social significance, humor development should be deemed consequential for improving social relationships (or just plain fun or good ways to access/learn other concepts or content). A key ingredient is the individual’s affective response: only when playful (or otherwise positive and pleasurable), will humor have the potential for creating feelings of community and closeness and reducing social anxiety.⁴⁷

^b I recommend that “appropriate” mirth responses not be a treatment target as the goals of humor are not to “normalize” autistic behavior.

Finally, with regard to developmental appropriateness, the goals should be responsive to developmental level. As described previously, there are early and late emerging forms of humor and establishing good humor habits early on through the use of rudimentary forms of humor is generally advisable (see later). In keeping with the developmental literature, and with specific regard to *verbal humor comprehension*, teaching or exposure should be more effective when an individual has a minimum verbal mental age of approximately 7 years, good verbal abstraction abilities, good executive skills, and a conceptual understanding of second-order beliefs (but note also that humor is also potent for teaching mental state inferencing).¹⁶

ASSESSING AND SUPPORTING HUMOR DEVELOPMENT

Assessing humor development. Traditionally, comprehensive or systematic assessments of humor are lacking.⁶⁴ However, self-report measures of humor styles have been developed, and are readily attainable for use with school-aged children (8+ years) and adults. These are used to assess people's impressions about their humor abilities and preferences and ideas about the value of humor for psychological well-being and the potential of humor to enhance social connection.^{65,66} More recent scales elaborating on the construct of humor appreciation have also been developed to assess humor habits (e.g., ability to find humor in everyday life, using humor under stress). These appear promising for individual application.⁶⁷ Finally, when verbal humor (i.e., incongruity resolution) is involved, some professionals have offered informal assessments focusing on isolating the source of difficulty for treatment planning.^{64,68} For example, major sources of difficulty in grasping verbal humor include vocabulary deficits, lack of general world knowledge, poor metalinguistic skills, or difficulties with figurative language,⁶⁸ and recently developed tools to assess various aspects of verbal humor comprehension by incongruity type are now available (see the Materials Room at Theoryofmindinventory.com). In summary, structured assessment of an individual's performance on verbal

humor tasks and humor style/habit questionnaires can be used to gauge humor abilities and attitudes to make informed decisions about which dimensions of humor appreciation may be profitably targeted.

Supporting humor development. As Ruch and McGhee⁹ highlighted, "Research supports that humor is trainable and that training humor in turn leads to other desirable outcomes."⁹ Although research on humor teaching in autism is rare, some studies have documented success (and generalizability of training) for treatment to support humor comprehension and appreciation in this population.^{69,70} When it comes to verbal humor comprehension, the general recommendation is to identify and resolve the incongruity.^{64,68,69} Because surprise is considered requisite for humor appreciation, a student is usually taught to identify the incongruity that leads to the surprise and to resolve it by showing how the joke can make sense in some unexpected way.⁶⁸ For example, take the joke "Why can't you play cards at the zoo? Because of all the cheetahs." The verbal incongruity is resolved by first identifying the surprising element (the word "cheetah") and detecting the linguistic relationship (phonology in this case) that can make sense in a new, unexpected way: in this case, by integrating the punchline information ("cheetah" sounds like "cheaters") with the information from the rest of the joke. Other general recommendations are to teach elements in order of difficulty (i.e., begin with humor elements that are simple or mastered early in development), and probe for specific challenges related to vocabulary, syntactic, and general world knowledge (and especially mental state inferencing). Other appropriate recommendations focus on the development of humor elements that are most enjoyable and relevant to the interest of the person⁶⁸ and the use of variable strategies and modes of presentation to facilitate incongruity resolution (e.g., oral, written, drawn). Specifically, the source of difficulty for verbal humor comprehension (e.g., trouble with homonymy, polysemy, or figurative language or mentalizing, or lack of general world knowledge) should inform the approach (a focus on teaching specific vocabulary, idiomatic expressions, social perspective-taking, or world knowledge). Materials for teaching humor

comprehension through the systematic resolution of different kinds of verbal incongruities are available from the Materials Room at Theoryofmindinventory.com. An example of joke stimuli and semistructured teaching activities to target a variety of difficulty areas is presented in Fig. 2 (from theoryofmindinventory.com).

Recall that verbal humor is only one kind of humor, and efforts to support humor appreciation, beyond the dissection of linguistic and conceptual meanings and structures, should be explored. Humor can be woven creatively into activities (informal, naturalistic, more formal educational experiences) to support the learning and social connection of

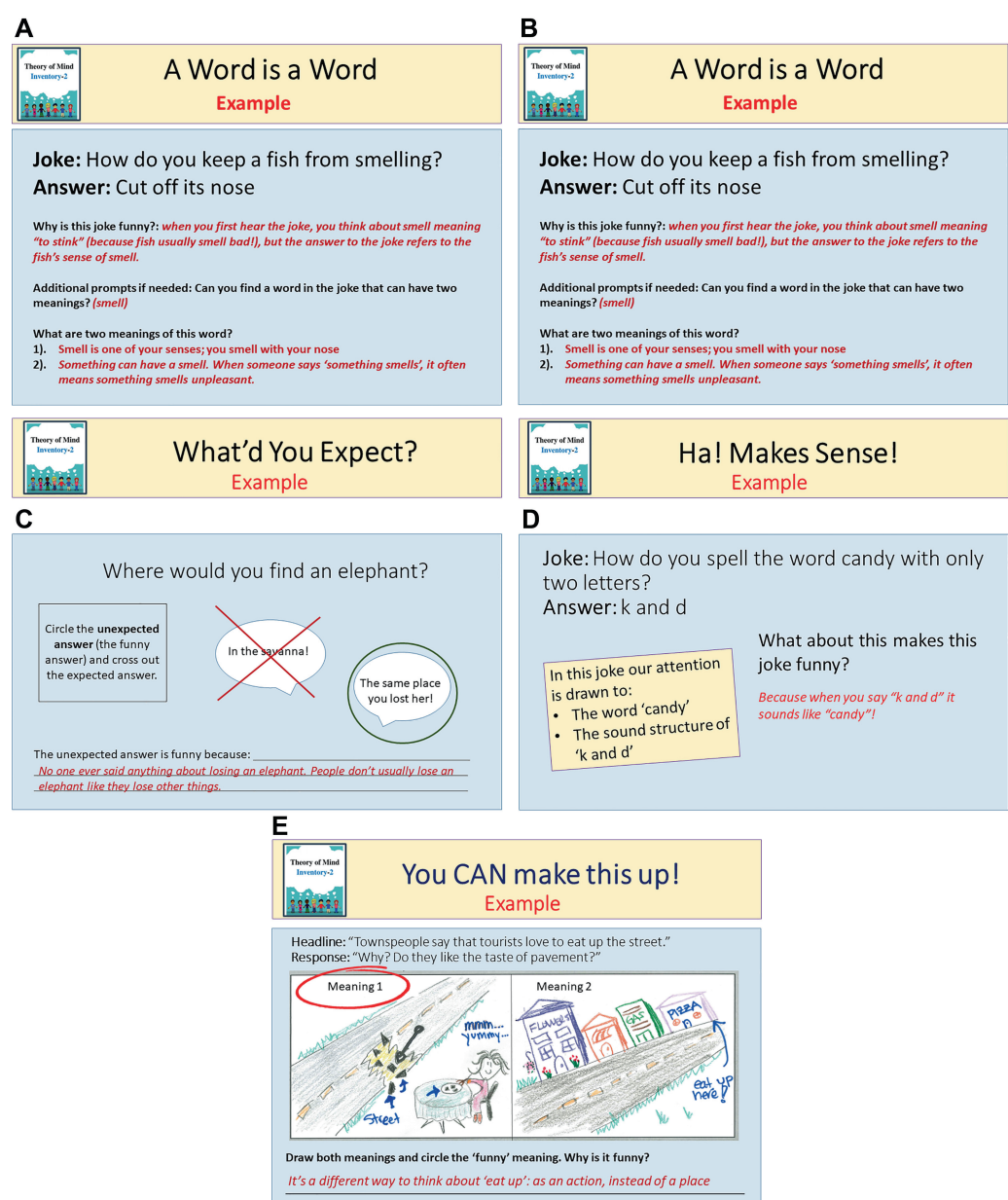


Figure 2 (A–E) Examples of verbal humor teaching materials (theoryofmindinventory.com). Reproduced with permission from Theory of Mind Inventory, LLC.

autistic, neurodivergent, and NT people alike (and a handful of comedy camps, focus-groups, and workshops have been developed specifically for persons with autism, which may or may not include NT members as a matter of design^{59,70,71}).

Across several disciplines, authors have described the use of humor as an educational and therapeutic tool that motivates learning and promotes social and academic outcomes. Whatever the approach, one important consideration involves humor's content⁵⁸ and some autism researchers have specifically called for the promotion of affiliative or "positive" humor (i.e., good-natured, benevolent) because it can be an effective form of emotion regulation⁷² and may "break interpersonal stalemates"⁵⁰ among members of a diverse group. But the contrasting, so-branded "negative" humor is not the same as denigrating humor, and it is also true that self-deprecating or "darker" forms of humor can be employed to promote self-esteem, social connection, and group solidarity.⁵⁹ What is important is the humor-person-environment fit and ensuring respect for and the emotional safety of the interlocutors.

Humor in the wild. The ability to produce or appreciate humor is a complex, composite skill that is inherently contextual and thus may be difficult to capture "in the wild." Consequently, identifying humor in everyday life not only establishes healthy habits of cognition but nurtures the social, conceptual, and linguistic learning often required for humor reception and expression. In fact, anecdotal reports suggest that early and sustained coaching on the elements of humor pays dividends by increasing social access for autistic adolescents.⁷³

Coaching or cultivating humor "in the wild" requires vigilance and a playful spirit. Cultivating humor in the wild is also ideally accepting of a variety of humor types. Caregivers can foster humor appreciation early on through reciprocal exchanges involving the give and take of objects, clowning and silliness, tickling, pretense, or episodes of symbolic play.^{74,75} In the preschool and school years, humor coaches (e.g., caregivers and educators) can also:

- Joke around: incorrectly name objects, make up silly words for things, engage in incon-

gruent actions with or without props (pile clothes on someone; use an elongated gate while walking).

- Reinforce simple (usually early emerging) forms of humor.
- Recognize that although humor generally makes people laugh or smile, not all laughs or smiles are manifestations of humor, and the reverse is also true (i.e., sometimes conventional mirth responses will not be the best indicator of a humor response).
- Draw simple illustrations that mix feature categories (e.g., a chicken in a swimsuit, a cow-pig, a table with hands instead of "legs") or depict anomalous situations (a girl riding a caterpillar or holding the moon in her hand).
- Point out humor when it occurs in real life: accidentally (e.g., a slip of the tongue) or deliberately.
- Play (benign) practical jokes: jokes that create delight or interest by virtue of their surprise value.

Of course, humor isn't just for kids. Humor appreciation (for NT and autistic persons alike) plays a central role in the lives of adolescents and adults. Strategies include the aforementioned, as well as the following:

- Consciously cultivating humor habits (playful attitudes, taking oneself lightly, finding humor in the midst of stress).
- Reading books, watching movies, and finding the humor in them.
- Journaling about humorous events (thoughts, benign misunderstandings, actual events, as well as fantasies: dreams and daydreams).

For autistic persons, humor habits can prove powerful for strengthening social bonds, while promoting self-esteem and advocacy. Autism, itself, can even be a rich opportunity for humor when marshalled in an emotionally safe (accepting or prideful) way, as captured in this quote by Fox:

When [people] say things like 'autistic people are not funny or don't have a sense

of humor' – apart from the fact that it displays that they haven't spent any time in the company of autistic people – who [can] be the funniest people around – they're also ignoring the fact that the very condition of being autistic in a non-autistic world is funny. It's full of humor. It's full of incongruity and that's brilliant."

– as cited in Rose⁵⁸

"Disability humor." A final consideration relevant to the nature and development of humor lies at the nexus of the neurodiversity movement and disabilities studies and has been termed "disability humor."⁵⁶ In disability studies, disability humor is any humor "that centers on disability or is offered by disabled persons" (Reid et al, as cited in Bertilsdotter Rosqvist⁵⁹). The deployment of this brand of humor can be liberating, contribute to group solidarity, reveal groups' value systems, and "make visible the boundaries between cultural groups as well as the social glue that holds them together."⁵⁹ Of course, the risks and limits of disability humor and the circumstances in which it is deemed helpful to autistic advocacy must be carefully weighed (see Bertilsdotter Rosqvist⁵⁹ for discussion), but when deployed respectfully, it may be especially potent for furthering an appreciation for how autism creates different ways of receiving humor and different possibilities for being funny.

CONCLUSIONS

Humor appreciation is a complex cognitive process that serves a variety of social functions and is crucial to psychosocial well-being. Autistic persons can experience challenges in humor appreciation or may be extremely skilled in the reception and expression of humor. There may also be general trends among autistic persons with regard to humor sense and style. When it promotes authenticity, autonomy, and social connection, it can be beneficial to teach autistic persons the "know-how" required for some kinds of humor appreciation. When it promotes inclusion, self-esteem, and advocacy, it can also be beneficial for NT and neurodivergent people to learn from each other about various senses of

humor. In a world where all kinds of people struggle to connect, humor unites.

CONFLICT OF INTEREST

Other financial or non-financial interests:
Co-owner of Theory of Mind Inventory, LLC.

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