

Humor Intervention Approaches for Children, Adolescents and Adults

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Abstract

This article presents intervention approaches to support individuals who lack the ability to understand humor. Findings show that individuals with language disorders lack the ability to detect and comprehend humor. The ability to understand humor is essential for individuals to interact with peers. In addition, it has been found that the use of humor plays a positive role in individuals with disorders. Humor is universal and one of the most important factors in communication, along with an essential component in the quality of life. Children, adolescents, and adults use humor to form relationship and as a way of coping with stress. The essential role of humor in intervention is presented along with factors that play a role in assessment and intervention.

Keywords: humor, intervention, disorders, quality of life

1. Introduction

Humor plays an essential role in communicative interaction. Through the use of humor, children, adolescents, and adults are able to form relationships, to celebrate life through laughter, to play with words, and to cope with stress (Dowling 2013). The effective use of humor can build relationships, improve the quality of life, and promote positive well-being (Martin 2007). It is also essential to be able to detect and understand humor. Understanding humor depends on two factors: metalinguistic abilities and theory of mind (TOM). Metalinguistic abilities allow conscious reflection on the nature and the use of language, creating an understanding that language may have both a literal and an implied meaning. This allows individuals to understand the factors that play a role in humor, such irony. Theory of mind (TOM) involves the ability to see things from another person's point of view (Baron-Cohen 2000; Paul et al. 2014). This leads to understanding someone else's mental state or intent (Rhodes and Brandone 2014) This ability is an essential factor in social

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cognition. There is a connection between metalinguistic abilities and a theory of mind (TOM), given that both rely on underlying conceptual skills (Doherty and Perner 1998). Language impaired children and adolescents have been shown to have significantly poorer comprehension of humor than children and adolescents with typical language development (Bernstein 1986; Nippold 1985; Spector 1990).

Individuals diagnosed with an autism spectrum disorder (ASD) have difficulty with social communication and social reciprocity (Diagnostic and Statistical Manual of Mental Disorders 2013), along with difficulty in novel situations, social interest, and social interaction (p. 50). ASD individuals lack TOM, resulting in the inability to understand that a speaker intends to convey humor (Asperger and Frith 1991; Simon Baron-Cohen 2000, 1997). Individuals with ASD have difficulty detecting and understanding humor. However, an ASD individual may be able to understand simple jokes that lack multiple meaning words or other forms of complexity (Ricks and Wing 1975). Children and adults who require medical treatment are frequently stressed due to isolation from friends and potential difficulties with schoolwork (Kuiper et al. 2004). In this case, humor has been found to play a role in reducing stress and anxiety (Sim 2015). In addition, intervention with individuals who lack the ability to detect or understand humor may increase their ability through the development of metalinguistic awareness (Spector 1992).

2. Humor is an Essential Factor in Social Interaction and Communication

Humor can be used in intervention, education, and medical and counseling services. A questionnaire study examined 197 undergraduate students' humor styles to determine whether they were associated with a borderline personality disorder (BPD) (Geiger et al. 2019). In this study, participants reported BPD features in their responses to a personality assessment inventory. In the humor questionnaire, there were 32 items and a 7-point scale that ranged from total disagreement (1) or total agreement (7) that measured four humor styles: affiliative humor ("I enjoy making people laugh"), self-enhancing humor ("If I am feeling depressed, I can usually cheer myself up with humor"), aggressive humor ("If someone makes a mistake, I will often tease them about it"), and self-defeating humor ("I will often get carried away in putting myself down if it makes my family or friends laugh"). Findings were that individuals with higher BPD features engaged in more aggressive humor styles and less affiliative and self-enhancing humor. These findings show

the need for intervention approaches for children, adolescents, and adults who would benefit from humor to improve their quality of life.

3. Intervention Approaches to Support the Detection and Understanding of Humor

Intervention has been found to be successful with the incorporation of humor. Intervention that incorporates humor has been successful in the reduction of stress and anxiety (Sim 2015). In addition, intervention with individuals who lack the ability to detect or understand humor may increase this ability through methods that provide these individuals with a better quality of life. The following intervention programs are presented as examples for introducing humor to therapeutic approaches.

3.1 *Humor Intervention for Children with Chronic Diseases*

A humor intervention program for school-aged children was developed to address children with a medical condition (Sim 2015). Thirty-three children with atopic dermatitis and type 1 diabetes were divided into experimental and control groups. The experimental group participated in six weekly 60-minute humor sessions. Activities involved parents and children in the explanation of humor, funny story telling, videos, dance routines, songs, self-portraits, playing to make a friend, team games, ball games, group game with mothers, compliments, and team games. This study examined stress hormone levels, hyperactive behaviors, and anxiety scores before and after the program. There was a significant decrease in all areas shown post-intervention, indicating positive outcomes for these children and their families. Frequently, children and adults face problems when experiencing a medical condition. The use of humor can provide relief from stress and anxiety.

3.2 *Humor Intervention for Adolescents with an Autism Spectrum Disorder*

Wu et al. (2016) developed a training program that addressed humor for adolescents diagnosed with autism spectrum disorder (ASD). This program consisted of the following examples, in addition to the use of an incongruity-resolution joke.

Affiliative humor: I don't have to work very hard at making other individuals laugh -I seem to be a naturally funny person.

Self-enhancing humor: If I am feeling depressed, I can usually cheer myself up with humor.

Aggressive humor: if someone makes a mistake, I often tease them about it.

Self-defeating humor: I often try to make individuals like or accept me more by saying something funny about my own weaknesses, mistakes, or faults.

Nonsense Joke: A male deer is walking in a vast forest alone. While walking, it begins running faster and faster and finally becomes a highway (In Chinese, “highway” and “deer” are pronounced the same way).

Incongruity-resolution humor involves an unexpected shift in perspective that is only understood with awareness of the incongruity between a concept involved in a certain situation and the real objects thought to be in some relation to the concept, as shown in the following example.

Customer: Do you mind if I try on that dress in the window?

Sales Assistant: Wouldn't it be better to use the fitting room?

Findings were that the comprehension of nonsense humor increased, with less progress shown in the understanding of incongruity-resolution humor. This finding reflects the greater difficulty for this type of humor, given that the listener must be able to detect the incongruity and the ability to integrate this information with a positive response (Vrticka et al. 2013). This process requires cognitive, emotional, psychological, and social abilities (Martin 2007). In contrast, ASD individuals did have greater success for understanding nonsense jokes. Nonsense jokes require less logical reasoning and lack homophones that require understanding meaning (e.g., *bare-bear*). Following the training sessions, ASD participants utilized affiliative humor that is associated with social interaction through the use of jokes and humorous comments that engage others in a positive manner. This is a positive result that contributes to ASD individuals ability to engage in more positive social interaction. These findings show the benefit of intervention that provides ASD individuals with the ability to engage in more positive interaction.

3.3 Humor Intervention for Children with a Medical Disorder

Kim et al. (2018) developed a humor intervention program for school-aged children with atopic dermatitis, a condition that affects the skin. This study consisted of an experimental and a

control group within a pre- and post-test design. Children with this disease possess physiological, physical, and psychological disorders that affect their quality of life. The physiological effects consist of salivary immunoglobulin A levels (a sign of increased stress), physical effects consist of skin changes that results from the disease, and psychological effects consist of aggravated stress resulting from the effects of the disease on appearance, social interaction, and academic work. This intervention program consisted of sessions held once a week over four weeks that addressed psychosocial and cognitive skills through PowerPoint presentations, videos, songs, comics, games, and newspapers that focused on humor. Findings were that children's psychological states showed improvement as evidenced in decreased stress, in addition to improvement in the physiological problems that result from this disease. In summary, humor intervention can provide a positive outcome for children, adolescents, or adults with medical conditions that affect the health and quality of life.

3.4 Humor Intervention for Individuals with a Mental Disorder

A program for humor intervention with patients with schizophrenia was used to improve rehabilitative outcomes and to create a sense of humor to address the patients' mental states (Cai et al. 2014). These mental states have an effect on thought, perception, emotion, behaviors, and communication. Thirty patients within a medical center were assigned to a humor skill training group. Clinical evaluation consisted of a Positive and Negative Symptom Scale (PANSS) (Kay et al. 1987). Humor was assessed with the Multidimensional Sense of Humor Scale (Thorson and Powell 1993). This device measures humor in four areas: humor generation, the use of humor as a coping mechanism, an appreciation of humor, and the attitude toward humor and humorous persons. Intervention consisted of training sessions of 45 to 60 minutes over five weeks with two sessions per week. Sessions began with a fun activity followed by a PowerPoint presentation that introduced the group to the topics that would follow. Sessions consisted of group discussion, group play, or practical application. Participants were asked to practice the skills that had been learned within the sessions. Each session ended with a humor appreciation activity, such as a video performed by well-known Chinese actors. Findings were that patients in the humor training group showed significant reduction in negative symptoms, as reflected in the PANSS scale, along with reduced depression and anxiety. There was also improvement in humor, as measured with the humor scale described above. These findings suggest important clinical implications for mental

health services, in addition for those with medical disorders. Thus, intervention may be an approach that leads to a reduction in the behaviors that affect interaction with others in the individual's life.

3.5 Humor Intervention for Medical Students and Psychotherapists

A humor intervention approach to address depression, anxiety, and stress experienced by medical students was developed to reduce problems associated with learning and academic progress (Narula et al. 2011). Medical students face a number of problems that lead to stress that involve academic work and excessive work hours that can impact on personal relationships. Two groups were formed to assess the success of intervention, consisting of a control group and an experimental group with four class sessions scheduled. A questionnaire was used to measure the effect on depression, anxiety, and stress. Findings were that stress, anxiety, and depression decreased significantly following this intervention, with a positive effect on the students' quality of life.

Humor has been found to be a useful treatment technique for other professionals who work with individuals with mental or physical disorders. For example, the use of humor plays a role with psychotherapists who are helping patients view negative life events and situations from a less threatening perspective (Chapman and Chapman-Santana 1995, p. 153). In this way, personal construct psychotherapy can be a playful enterprise leading to the reduction of a patient's stress and anxiety (Epting 1984). The experience of fear and self-protection occurs in many therapeutic contexts, often found with younger children (Berg et al. 2009). Thus, reactions, the use humor can play a positive role in the facilitation of therapy (Winter 1994).

3.6 Humor Intervention for Individuals who Face Job Burnout

Humor is a coping technique that has been used in dealing with job burnout due to exhaustion, stress, or tension in a number of professions. In a study by Malinowski (2013), 133 doctoral psychotherapists responded to a survey to determine the relationship between different types of humor (affiliative humor, self-enhancing humor, aggressive humor, and self-defeating humor) and various degrees of job burnout. Findings were that affiliative and self-enhancing humor were positively associated with personal accomplishment, while self-defeating humor contributed to job burnout characteristics that are consistent with emotional exhaustion.

Consequently, training for psychotherapy students could be developed to include education on the different types of humor that may be a signal of job burnout or play a positive role to avoid this problem. Further research is needed to add to the evidence of the positive role of humor in both palliative care and the prevention of job burnout (Linge-Dahl et al. 2018).

3.7 Humor Intervention for Children who Stutter

Schneider (2008) uses humor and fun during identification/desensitization in the treatment of preschoolers and children. Within this program, the focus was on decrease of tension, shame and guilt, increase of tolerance concerning mistakes, and increase of self-esteem as a speaker. Play schemas were used in treatment. There were tokens used to demonstrate the various behaviors associated with stuttering. In this approach, children and parents learned about repetitions (frog toys are used to demonstrate this behavior) and prolongations (snake toys are used to demonstrate this behavior). A block solving strategy was introduced with a story of Winnie the Pooh. In this story Winnie gets stuck in a rabbit hole because he has eaten too much honey. Pooh has to wait in order to lose weight (pause or freeze period), but then a frog or a snake carefully rescues him and pulls him out with an easy pseudo stutter. There are also books that can be used to show the humorous adventures of children at a fluency camp (Guitar and Reville 1997). Younger children require an atmosphere that includes humor and play schemes to create a positive context for therapy. Humor in the early stages of counseling can be used to establish a safe context for discussion (Zall 1994).

3.7.1 Strategies for Children who Stutter

Agius (2012, 2013, 2015) provides strategies for speech-language pathologists who work with school-aged children who stutter. This strategy provides a program that encourages creativity and humor during intervention sessions. The goal of intervention is to develop confidence in speaking and permission to stutter, while not requiring a change in the way the child speaks. The goal is to become an efficient, confident communicator. Creativity and humor are also used as tools to help children who stutter problem solve and broaden their perception in order to develop and maintain a positive attitude towards themselves and communication. Desensitization is a behavioural intervention. By using “humor” in fluency intervention, the repeated pairing of a humorous response with exposure to a feared stimulus gradually diminishes the feelings of anxiety

evoked by the stimulus (Agius 2015). Waelkens (2018) notes that play and fun are central and can provoke a feeling in the child that can act as a compensation to the experience of stuttering. In Greece, a current structured therapy program for children who stutter is “*Lexipontix*.” Fourlas and Marousos (2015) developed a fun program that addresses the needs of the whole family. The program introduces metaphor, the Factory of Mind, and relevant concepts (Machine of Actions and Words, Machine of Thoughts, Lab of Emotions, Body Sensor, Lexipontix, Control Centre, and Mouse Invasion or Intrusion to the Factory of Mind).

3.7.2 Humor Intervention for Adults who Stutter

Humor can be viewed as a catalyst for change in stuttering intervention (Manning & DiLollo, 2017). Humor allows an individual to better cope with life when dealing with serious communication problems, while allowing individuals to gain insight and objectivity regarding this disorder. Therapy sessions that include humor create a relaxed atmosphere and encourage communication on sensitive matters (McGhee and Goldstein 1977). Humor is an essential factor in the healing process, positively correlated with enthusiasm and other positive factors that reduce fear, depression, and other negative factors. It has been found to be beneficial for a stutterer to express jokes regarding stuttering (Luper and Mulder 1964). The ability to laugh at oneself can act to prevent adverse reactions when interacting with others, while avoiding embarrassment on the part of the stutterer. In this way, the stutterer prevents adverse audience reactions by avoiding embarrassment when stuttering, showing that this behavior has a comical side (Luper and Mulder 1964, p. 165). Goven and Vette (1966) suggest that stutterers maintain a sense of humor regarding a situation when stuttering occurs. Van Riper (1973) drew on the view developed by Bryngelson (1935) who recommended joking about this disorder to disarm listeners and attain a less morbid attitude toward the communication problem (p. 157). Van Riper notes that humor can play a role in reduction of anxiety, while actually increasing a speaker’s fluency. Shapiro (2011) argues that a clinician’s use of humor and laughter provides a model for the client to see humor in life, to value humor as a tonic, to view the validity of laughing at oneself, and to encourage a positive attitude (p. 423). Manning (2017) favors the use of humor in treatment that follows the establishment of a familiar and close relationship between the clinician and patient.

The use of humor is an essential factor in success in dealing with the problem of stuttering (Guitar 2005; Murphy 2005; Reitzes 2006). Guitar (2006) recommends that fear, embarrassment,

and tension associated with stuttering can be addressed through open discussion of stuttering with friends, using humor if stuttering occurs, and providing friends with information regarding stuttering. Humor was the factor that led one stutterer to begin a career as a comedian. Campbell (2007) started performing stand-up comedy primarily as a way to help him get over his stuttering, while also providing him with a useful source of material for his performances. Oksenberg (2018) notes the sensitivity needed when using humor for therapeutic purposes, given that the ability to laugh at ourselves and our weaknesses has the power to heal.

3.8 Intervention for Individuals with Aphasia

A study examined the use of humor in therapy for aphasia. Findings showed that humor contributed to interaction between the therapist and the client and facilitated the therapy process (Simmons-Mackie and Schulz 2003). Data was drawn from videotapes of aphasia therapy sessions that included the analysis of instances and patterns of humor. Humor occurred in the following categories: mild teasing, making fun of oneself through self-deprecating humor, making fun of a therapy task or stimulus item, joking about a complaint, evaluation or disagreement, and laughing at something unexpected or incongruous in the context of therapy (p. 756). Humor was found to be a useful tool that served to build solidarity, acted to mitigate embarrassment, and was effective in soliciting cooperation within tasks. There were instances when difficulty appeared in the client's efforts, but the use of humor encouraged clients to return to tasks with less tension and a positive attitude (p. 757). Findings revealed that humor played a positive role in managing therapy, while sessions were characterized by the major role in humor played by the therapists, and not by the clients themselves (p. 751). While findings were positive, it is essential that therapists encourage clients to initiate humor within sessions. This may play a role in building the client's communicative confidence. This intervention study showed that humor reduced the use of less rigid discourse and acted to foster a positive relationship between the client and the therapist by creating a positive therapeutic context.

4. Factors that Play a Role in the Development of Humor

There are various factors that play a role in intervention to increase the detection and understanding of humor (Spector 1992). In the following section, we present the factors that may

play a role in intervention in a clinical context, in the classroom, and in work with children with language disorders.

4.1 Factors to Consider in a Clinical Context

Vocabulary is an important factor in understanding humor for both words with an individual or single meaning (e.g., *pizza*) and words with multiple meanings (e.g., *run*). World knowledge is another factor, consisting of the knowledge of objects, events, and experiences that exist in the world. Metalinguistic knowledge is another factor that provides awareness of the nature and use of language and the literal and implied meanings of utterances. Figurative language knowledge is also another factor that plays an essential role in detecting and understanding humor. Figurative language requires understanding word usage that is different from the literal meaning of particular words. Literal language consists of using words that correspond to what is said (e.g., *It is raining*). The figurative use of language consists of words that do not correspond to literal meaning (e.g., *It is raining cats and dogs*). Figurative language consists of idioms, similes, metaphors, proverbs, riddles, and puns. An idiom is an expression with a meaning that cannot be easily identified by the words that are used (e.g., *They are barking up the wrong tree*). Similes make a comparison between two different subjects (e.g., *He is as stubborn as a mule*). Metaphors make a comparison between two unrelated entities (e.g., *The exam was a breeze*). Proverbs express truths (e.g., *A stitch in time saves nine*). Riddles are a type of humor that have the form of a puzzle with a clever answer (e.g., *Why can't the bicycle stand up by itself? Because it is two-tired*). A pun is a joke that makes use of the different possible meanings of a word (e.g., *Fish are smart because they live in schools*). In summary, vocabulary, world knowledge, metalinguistic abilities, and the knowledge of figurative language are essential factors in assessment and intervention to develop the ability to detect and understand humor.

The ability to understand the multiple meanings associated with words is essential for children's understanding humor. One study researched 7-10 year aged English elementary school children with academic difficulties (Johnson et al. 1997). Test items included common words with multiple meanings (e.g., *trip, spring, seal, run, draw, and nail*) presented in sentence forms (e.g., *I will run to school this morning, He will run for class president, Who will run the video machine for us? The bus to Ottawa will run every day*). Test items also included individual or single meaning words. In the context form of this study, children were presented with one of the four

sentence forms and asked to define the meaning of the word used in the sentence. They were then asked to define the words in the following three sentences. In the non-context form of this study, each test word was presented in isolation and children were asked to provide as many different meanings as possible.

Findings were that children achieved a mean score of 29.03 for words with individual meanings in the context and no-context forms and a mean score of 8.84 for words with multiple meanings. Children who achieved high individual multiple word meaning scores achieved high multiple meaning scores, while children with low individual word meaning scores achieved low multiple meaning scores. These findings show the need for children to learn multiple meaning words to support their understanding of humor that employs these forms. An example for introducing children to multiple meaning words follows.

How can you find a dog lost in the woods?

Put your ear to a tree and listen for the bark.

Students can be asked: what does the word *bark* mean? Does it have another meaning? What is the relation between a tree and bark?

Teachers and speech-language pathologists should consider presenting children with individual and multiple meaning words in a context- and in a no-context form to assess children's skills.

Children may be presented with various types of humor (riddles, jokes, or idioms) to expand their knowledge of this area of communication. In addition, older individuals who are learning a new language require an understanding of idioms, given that these items are frequently used in newspapers and produced by journalists (e.g., *They gave him a hard time*). An idiom is an expression with a meaning that cannot be identified by the words that are used and can be transparent or opaque. Idiom transparency involves a close relation between the figurative meaning and literal meaning (e.g., *Don't trust them as they will stab you in the back*). Transparency is based on the meaning that a stab involves an attack. Thus, trust may be associated with those who may attack you in some communicative form. An opaque idiom presents greater difficulty, as the words may not provide a meaning clue (e.g., *They are barking up the wrong tree*). In this opaque idiom,

the words do not involve a dog barking at an animal in a tree. Instead, the meaning involves someone who has the wrong idea or approach to a solution.

An early study examined third, fourth, and fifth grade children's ability to detect and understand idioms (e.g., *How do you know that the robbers are very strong? They hold up banks*) (Spector 1996). Findings were that children were able to understand idioms by 8 years of age when these items had idiom transparency, context support for these items, and familiarity with the idioms. Given that children may not understand more abstract humor items until age 8, this factor must be considered in assessment or intervention for those who require understanding humor. Nonsense jokes may be understood by younger children, especially when presented or accompanied by visual supports.

4.2 The Use of Humor in the Classroom

The use of humor in the classroom can play a positive role in students' learning. The use of humor allows an instructor to gain students interest and attention (Highet 1963). Another element in the perception of humor involves the ability to understand abstract language. Abstract language involves reference to concepts other than concrete, physical entities. The understanding of abstract concepts develops when children learn that words can have various meanings, such as *dull*, *sharp*, and *shallow*: *That movie was really dull* (not interesting or engaging), *He looks really sharp* (he looks very stylish), and *I think they have a really shallow understanding of this problem* (They do not have a deep understanding of a problem). The knowledge of abstract language allows children to better understand figurative language, consisting of idioms, similes, metaphors, and proverbs. In this way, the classroom can contribute to various aspects of children's development, such a reading, social interaction, and metalinguistic skills.

Humor also plays a role in classrooms that involve teaching scientific topics. The use of metaphors can also play a significant role in acquiring new knowledge within these contexts (Williams 1989). For example, individuals can be told that the human heart is a pump when teaching human physiology (Ortony 1975). In this way, individuals who are familiar with the function of a pump can associate it with the function of the human heart. Analogies are another form of abstract language frequently used in science education (Rule and Furletti 2004). Analogies draw a connection between new learning and past knowledge. An analogy has three parts: the target (a new concept for the students), an analog (a familiar concept for the students to which the

new concept is compared), and mapping (which outlines the relationships between the target and the analog) (Rule and Furletti 2004). An example of an analogy follows.

The structure of an atom is like a solar system: the nucleus is the sun and electrons are the planets revolving around their sun.

In this example, the target is the *atom*, the analog is the *solar system*, and the mapping is that the components of the solar system relate to one another in the same way as the components of the atom (i.e., planets revolve around the sun and electrons revolve around the nucleus). Analogies have been used in teaching more difficult and abstract concepts in physics and other science classes (Brown,1994). Analogies help students create conceptual bridges between what is familiar and what is new (Glynn 2007).

Science education frequently relies of the use of metaphors and analogies in the classroom (Daane et al. 2018). Given the use of these types of language, classrooms and intervention contexts may focus on understanding analogies and metaphors to prepare students for understanding the processes described by these forms. Students can be first given the explanation that an analogy is a method of comparing two things. Next, students can be provided with practice in completing analogies to better understand the comparison being made.

Bear is to animal as red is to...color

Finger is to hand as toe is to...foot

Hot is to cold as up is to...down...

Pen is to write as food is to...eat

Metaphor can be taught with focus on vocabulary that is organized into groups (Cameron and Low 1999). Examples consist of body terms transformed into metaphors (e.g., the heart of the city, the foot of the mountain, and to give a hand), weather terms transformed into metaphors (e.g., a warm welcome, to freeze somebody out, and to be snowed under), and color vocabulary transformed into metaphor (e.g., to see red, a grey area, and a white lie). The importance of teaching these forms will best prepare students for further learning while focus on metalinguistic abilities through students reflection on the use of language in these forms.

Note that there is a difference between metaphor and analogy. A metaphor makes a comparison without being explicit. A metaphor is a comparison of two things which may seem to be very different but actually have common attributes. A metaphor provides a link between new and existing knowledge. An analogy is an observed similarity between two things (e.g., *Soft is to loud as slow is to fast*). The analogy provide a very specific type of comparison, while a metaphor provides a surprise based on provoking anomaly (Duit 1991). This surprise results from the detection of information that differs significantly from the information that is possessed by the listener.

Metaphor and humor connect when disparate concepts are connected and linked with humor, as shown in the following example (Mio and Graesser 1991, p. 93). In this example, humor can be found in the perception that work in the circus is connected with show business. This metaphor makes a comparison between two unrelated entities, resulting in humor.

A man worked in a circus and was required to clean up after all of the circus animals. A friend offered to get him another job that was less menial. The man replied, “What and give up show biz?”

In a study of 8-10-year-old children’s abilities to understand metaphors, children were placed into two groups: children with good reading and vocabulary skills and those with poor reading and vocabulary skills (Seigneuric et al. 2016). Stimuli consisted of the following texts with literal reference and texts with metaphorical reference.

Literal reference: While walking in the woods, the hiker almost stepped on a viper. The weather was hot and dry. The snake was sleeping in the sun.

Question for students: Which word from the text could replace the word “snake?”

Metaphorical reference: The audience was thrilled as the dancers began their performance. Everyone was holding their breath. Butterflies were fluttering through the air.

Question for students: Which word from the text could replace the word “butterflies?”

Findings were that children with good reading and vocabulary skills had less difficulty in identifying the referent for nouns used metaphorically or literally in texts. These findings indicate that some children in a classroom may require greater support for understanding metaphors.

4.3 Factors to Consider for Children with Language Disorders

There are factors to be considered in assessment and intervention for individuals with language disorders. One factor to be considered in intervention is the finding that ASD individuals frequently lack global or integrative processing of an entire entity or scene) (Happé and Frith 2006; Simmons et al. 2009). Thus, the presentation of visual humor may affect evidence-based assessment or intervention. Another factor for children with language disorders is the understanding that word meaning also plays a role in understanding humor. For example, the knowledge that words may have similar sounds but possess different meanings (e.g., *ate-eight*, *write-right*, and *bare-bear*). Another factor in intervention is the ability to understand different forms of humor may be expressed by others. In this case, intervention can focus on the development of TOM abilities (Kana and Wadsworth 2012; Whyte et al. 2014), based on awareness of others' intent through recognition of different methods to identify facial expression and exposure to a wide variety of humorous examples in books, videos, television shows, and movies. Coupled with discussion, these approaches may benefit the detection and understanding of humor.

5 Discussion

As shown in these studies, speech language pathologists and other practitioners can use humor as an effective therapeutic tool to address a client's needs and to develop a bond between the therapist and the client. Humor can manage the interpersonal interaction between the clinician and the client and can facilitate the therapy process through enhancing the therapeutic alliance. Authors from Greece, Malta, France, Netherlands, Germany, Korea and other countries have reported the use of humor during intervention for individuals who stutter, those with communication and other disorders, and those experiencing anxiety or stress due to other factors. The intervention programs that have been presented show positive results, supporting the use of this approach. Through this approach, clients can acquire a more positive view of themselves and gain a more positive quality of life.

6 Conclusions

Humor plays a positive role in individuals with disorders. It has the ability to capture the attention of the brain. Word play, stories, jokes, puns, and riddles are creative ways to use language. Learning thrives in environments filled with joy, laughter, fun, and enthusiasm. The use of humor in intervention indicates that speech language pathologists can use humor as an effective and valuable therapeutic tool. The use of humor can play a significant role in creating positive attitudes and the reduction of stress and anxiety within intervention contexts and the potential generalization to life outside of this context. The use of humor in intervention has the potential for individuals to develop or to improve their capacity for using and understanding humor. In this way, individuals are provided with the ability to deal with emotions and the environment by mobilizing this skill.

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