THE USE OF TECHNOLOGY IN ENHANCING SOCIAL SKILLS

By

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ABSTRACT

Social skills training programs are frequently used with students who are at risk or who have emotional and behavioral disorders. These students often experience social skills deficiencies, antisocial behavior, and negative peer relationships. As the media is an important factor in the socialization and interaction of students, there appears to be promise in using multimedia technology to provide students with social skills deficits social skills training. This training may include several modalities such as television, virtual reality, computers, and videos. Though these interventions primarily have been used with individuals with developmental disabilities, this article examines the potentials of using such technology with students who are emotionally or behaviorally disturbed to assess, train, and rehabilitate social skills deficits.

Keywords: social skills training, multimedia, technology, emotionally disturbed.

INTRODUCTION

Over the past decade, a variety of social skills programs have been developed to help students learn prosocial skills and interpersonal behaviors. Many of these programs use modeling techniques based on the educational applications of the social learning theory and have proven to be effective in teaching a wide variety of behaviors to children and youth. In order to maximize effectiveness, social skills training programs must be motivating and personally relevant for students to want to use them (Muscott, 1994). Curriculum, involving technology and the media, provide an exciting opportunity to enhance the social skills of students who have deficits in these areas.

This article describes innovative technology in the 21st century that involves using creative and educational multimedia in the field of psychology to assist individuals experiencing social or academic deficits. The term "multimedia" refers to a new generation of communication tools that can draw on a full range of audio-visual resources, ranging from text to data to sound and pictures, and that "store and process all of these diverse data in a single integrated delivery system (Shavinina, 2001)."

The literature on media-enhanced social skills training with students who are emotionally or behaviorally disturbed is extremely limited. In fact, nearly all of the studies reviewed in this article consisted of media-enhanced interventions with children or adolescents with autism. However, researchers are applying media-enhanced interventions as a way to impact children's behavior by reducing psychological symptoms. The available studies examining these interventions have shown that this treatment approach is feasible to use with emotionally or behaviorally disturbed children, although further studies are certainly needed. A discussion of how multimedia could be used in this context is presented in this paper.

The mass media has become one of the most prevalent ways in which children and adolescents gather information about their environment, including societal attitudes toward high-risk behavior (Lloyd, 2002). The research on child development suggests that child behavior is largely determined by interactions with other people (Sprafkin, Gadow, & Abelman, 1992). In fact, aggressive behavior can be learned by observing the consequences of violent acts performed by other people (Bandura, 1969). Social critics argue that the violence on television affects children by teaching that aggressive behavior is an acceptable, if not normative, means of problem-solving (Lloyd, 2002). Several scholars have even documented that an individual's television viewing patterns are predictive of certain attitudinal and behavior

patterns (Bushman & Anderson, 2001). Findings from experiments have indicated that frequent viewing of mainstream TV is associated with attention problems, obesity, a greater level of sexual experience, and lower self-esteem (Ward, 2005).

While the potential for imitation of aggressive behavior exists, it is also likely that children and adolescents can use television viewing opportunities as times to cognitively rehearse appropriate interactions with peers and selectively apply them as appropriate situations arise (Lloyd, 2002). Furthermore, children and adolescents may use the information from mass communication and adapt it as a tool for understanding self and others. Media content infused with prosocial messages may generate positive outcomes in child functioning.

Given these factors, one may conclude that the media, particularly videos and television, are an important factor in the socialization and interaction of children and youth (Cartledge & Milburn, 1995). Emerging evidence indicates that media, including television, movies, magazines and the internet, may be one of the key forces contributing to how young viewers' beliefs and behaviors are shaped (Ward, 2005). Media use also is likely to continue to shape children's beliefs about others around them and about themselves.

Given that the media plays an important role in shaping social behavior, there appears to be potential in using multimedia technology with emotionally and behaviorally disturbed students who have social skills deficits (Hansen et al., 1998). The efficacy of film-mediated models in producing new social responses was even documented by Bandura (1969) in a classic study investigating the impact of modeling on child behavior. In this experiment, Bandura had children witness an adult model aggressively attacking a plastic clown called the Bobo doll. The children were then offered the opportunity to imitate the behavior. Bandura found that almost all of the children imitated the aggressive behavior. Eight months later, nearly half of the same children reproduced the violent behavior observed in the Bobo experiment (Lesko, 2006). Video technology has the potential to promote stimulus control of appropriate child behavior through nonsocial stimuli, freeing him or her from relying on other people for prompts (Sturmey, 2003). Ward (2005), reported that media content from television that is infused with prosocial messages generates positive outcomes in shaping children and adolescents beliefs and behaviors. Interventions involving videos have been used to successfully train new behaviors and eliminate old ones within children with a range of disabilities (Buggey, 2005). The research on video modeling is presented in the following section.

Social skills training through Video Modeling

Studies have applied Bandura's social learning theory to a number of techniques to teach prosocial behavior. One such technique, called video modeling, has been defined as an individual viewing the videotape of another person successfully performing a chained task in an effort to change existing behaviors or learn new ones (Legrice & Blampied, 1994; Nikopoulous & Keenan, 2003). Thus far, video-modeling has primarily been used to promote social initiation in individuals with developmental disorders such as autism and mental retardation, but is being expanded to help other populations.

Video modeling may occur in isolation or in combination with other techniques. Further, it may involve self-modeling in which the individual views images of him or herself engaged in desired behaviors. Studies addressing the use of video modeling with various populations have been be reviewed in the following paragraphs.

Video modeling has been used to teach autistic children purchasing skills, social initiation skills, and conversational skills. It also has been used to teach grooming, laundry, and food preparation skills to students with developmental and behavioral problems (Alberto, 2004). Video modeling has been shown to be an effective technique in teaching social behaviors, particularly if followed by additional prompts and role-playing (Apple, Billingsley, and Schwartz, 2005).

The ability to play back a videocassette can assist children who need frequent repetition to learn new concepts or skills or to teach students to monitor their own aggressive and prosocial behavior (Sprafkin, Gadow, & Abelman,

1992; O'Reilly et al., 2005). This type of repetition has been found to be critical in children with developmental disorders, autism, and emotional and behavioral problems (Moore et al., 2005).

For example, O'Reilly et al. (2005) completed a study involving video feedback and self-management to decrease aggression in students. Researchers measured aggressive and prosocial behaviors in videotaped sessions to use as an intervention technique with the students. They suggested that the combination of video feedback and self-management had an immediate and positive influence on students' social behavior in a schoolyard context, decreasing their aggressive behavior while concurrently increasing or maintaining their prosocial behavior. Furthermore, the authors reported that the positive changes in behavior were maintained at a two-month follow-up.

In a study completed by Nikopoulous and Keenan (2003), seven children with developmental disabilities participated in a video-modeling procedure. In this procedure, each child watched a videotape showing a model and the experimenter engaged in a simple social interactive play in an adapted play setting. After this was completed, each child's behavior was assessed in the same setting. Results demonstrated that the video-modeling training enhanced the social initiation skills of four children and facilitated appropriate play engagement generalized across settings, peers, and toys. It was also maintained at a one to two-month follow-up period.

A study conducted by Apple, Billlingsley, and Schwartz (2005) examined the effects of video modeling alone and with self-management of compliment-giving behaviors of children with high-functioning Autism Spectrum Disorders (ASD). While video modeling procedures usually involve using one video repetitively, this study involved three video segments modeling three separate sentence structures. These video segments were rotated daily for compliment- giving responses, and one video with six separate examples was seen daily to evoke compliment-giving initiations (Apple, Billinsley,& Schwartz, 2005). The results of the study replicated previous findings that video modeling is an effective tool for teaching social responses.

Another modality of video-modeling is using video *self-modeling.* Video self-modeling refers to the observation of images of oneself engaged in adaptive behavior through edited video (Hitchcock, Dowrick, & Prater, 2003). Bandura (1997) discussed the efficacy of the self as a model and noted that the advantage of seeing oneself perform successfully "provides clear information on how best to perform skills" and "strengthen beliefs in one's capability."

Many studies have examined the use of video self-modeling with students with autism. Wert & Neisworth (2003) completed a study to test the effectiveness of video self-modeling for training young children with autism to make spontaneous requests in school settings. The participants were four preschool children between three and six years old, with a diagnosis of autism, who were unable to make spontaneous requests. A copy of each child spontaneously requesting something was created and edited to show the desired request behaviors. The child's family was given the five-minute tape and asked to watch it at home for five consecutive school days within 60 minutes of school attendance. The study revealed that video self-modeling was effective in increasing the frequency of the participants' spontaneous requesting. Furthermore, the results were maintained over a six-week period and generalized from home to school settings.

A study completed by Buggey (2005) analyzed the effects of video self-modeling across a variety of behaviors such as language, social initiations, tantrums, and aggression on children with Autism Spectrum Disorders. The design of the study allowed the children to view themselves in situations where they were performing at a more advanced level than they typically perform. Researchers used three single-subject, multiple baseline designs to evaluate results, which indicated that the intervention was successful across all behaviors and with all participants. This study provides support for the idea that video self-modeling can be effectively used to reduce unwanted behaviors and train positive behaviors.

Hitchcock, Dowrick, & Prater (2003) completed a literature review of studies in which video self-modeling was applied in school-based settings. The authors found moderate to strong outcomes in eighteen studies reviewed, suggesting that video self-modeling can be used successfully to support students' communication, behavior, and academic performance in educational settings. Additionally, authors reported that the effects of video self-modeling are immediate and dramatic, tend to generalize to other settings, activities, and people, and can be used with behaviors that have been resistant to intervention, such as selective mutism and stuttering. Other findings of the literature review suggest that video self-modeling has been successful with children of all ages, skills are maintained, and social validity has been documented by families, teachers, and participants.

Television, movies, and social skills

Another application of the use of media in teaching social skills is by television and movies. Television shows and movies may be efficient means of working with students who are emotionally difficult to reach through other methods. Not only does the media provide a means of observational learning, but it also allows opportunities to choose among different behaviors and attitudes (Schulenberg, 2003). Television shows and movies have the ability to affect behavior, attitudes, emotional experiences, and conduct patterns of children (Schneider, 2000), thus they have the potential to provide observational learning opportunities to develop and progress.

Researchers have only just begun to use television programs for teaching social skills to students with emotional and behavioral disorders (Heward, 2003). Bryan & Ryan (2001) demonstrated how the show *Home Improvement* assisted a student who had difficulty making and keeping friends, disrupted class activities, and attacked teachers and other students. The identified student and his classmates were asked to watch a segment of the *Home Improvement* and keep track of the number of insults they heard. After completing the activity, the identified student realized that his behavior was unintentionally hurting other students around him. His teacher reported that the student began apologizing for hurting other's feelings and seemed to become a more engaged member of the class.

While television shows and movies appear to have the potential to enhance the social skills of children and adolescents, there is little evidence of their use with emotional and behavioral disorders. The identification of only one study with the targeted population (Emotional and Behavioral Disorders) indicates a clear need for research and empirical investigations. This also holds value in another new and under-developed system of social skills training that involves using virtual reality. A discussion of this literature follows in the next section.

Social Skills and Virtual Reality

The same type of observational learning described in using television and movies to improve social skills can also take place through computer-generated simulations, which may be referred to as Virtual Reality (VR). Virtual Reality has been said to be the most powerful interface between computers and humans (Muscott, 1994). The immersion experience of VR convinces the learner that she or he is actually in the simulation and therefore promises to minimize the barriers currently inherent in pro-social skills training programs.

Virtual reality technology provides a human-computer interaction paradigm in which users are active participants within a computer-generated three-dimensional virtual world (Riva, 2004). Its applications already have been expanded from treating simple phobias to therapy related to post-traumatic stress disorder, eating disorders, sexual dysfunction, schizophrenia, addictions, developmental disabilities, attention deficit disorder, and emotional and behavioral disorders. (Glantz, Rizzo, & Graap, 2003; Tam et al.., 2005; Muscott, 1994).

The applications of virtual reality appear to hold potential for enhancing the acquisition, maintenance, and generalization of the social skills from the classroom to natural settings. Muscott (1994) reports that there is great potential in using virtual reality applications for teaching social skills to students with emotional and behavioral

disorders because of the advantages of immersion and dynamic simulation. He states that some of these advantages include allowing the participant multi-sensory experiences, three dimensionality, interactive role playing scenarios, cooperative learning environments, active problem-solving capacity, and scaling.

There are two types of virtual environments that are distinguished as a Single-user VE (SVE) and a multi-user Collaborative VE (CVE) (Moore, 2005). The difference between the two virtual environments lies in the number of users who can communicate with each other through preprogrammed responses. Cobb et al. (2002) states that there are advantages to both types of virtual environments because they enable social skills to be practiced and rehearsed in realistic settings in real time.

In a study completed by Moore et al. (2005), thirty-four students participated in a single-user virtual environment study to determine if children and adolescents with autism could understand basic emotions on a computer "humanoid avatar" representation, appearing to look like a photo-realistic head. Results revealed that ninety-percent of the participants accurately recognized the emotions displayed.

Another study by Tam et al. (2005) using a computer-assisted virtual reality system was employed to teach individuals with intellectual disabilities how to shop. In the study, sixteen participants with upper functioning, moderate-grade mental disability were randomly assigned to a virtual-reality based training program or a conventional, psycho-educational group, involving tutorial and role-play. The results revealed no significant difference between the two programs in level of improvement. Both methods were shown to be effective. Furthermore, a post program assessment demonstrated that learning in a virtual training environment could be effectively transferred to an actual environment.

There is interest in studying whether students with emotional and behavioral disorders would benefit from using a virtual environment to learn social skills. Based on the current literature, it appears that virtual reality provides a focused learning framework that is motivating, consistent, and able to be transferred to an actual environment. Gresham, Sugai, & Horner (2001) reported that a major weakness of previous social skill training programs has been the lack of generalization and maintenance of treatment gains across settings. Generalization, or transferring skills to real-life situations, is a critical issue for students with emotional and behavioral disorders who exhibit difficulty in at least two different settings. Virtual reality offers a unique feature to tailor treatment environments to meet the needs of each student and control the material presented, thus maximizing the potential for generalization and maintenance. As with other multimedia techniques, there are also unique challenges that must be mastered before being used for social skills training with emotionally and behaviorally disturbed students.

The challenges of using Multimedia Technology

One of the challenges in using virtual reality is that an individual with cognitive deficits may experience difficulty navigating through a virtual reality system (Tam et al., 2005). Another challenge is to create and animate virtual reality characters that look, sound, and behave like people (Glantz, Rizzo, & Graap, 2003). It has been argued that the use of a computer for social skills training may make it difficult to apply skills learned in isolation to situations outside the learning environment (Moore et al., 2005).

Limitations in the application of video self-modeling may derive from the technology, skill, and training required to create the videotapes. These factors may be further complicated by the process of trying to define and select the critical variables or behaviors for intervention (Hitchcock, Dowrick, & Prater, 2003). Other limitations may be the considerable amount of time needed to create presentable and concise videos (Apple, Billingsley & Schwartz, 2005). Also there may be software limitations such as costs, availability, ergonomics, computing power, and the need for local technical support and staff development and training (Muscott, 1994).

As previously stated, the literature on the feasibility and utility of multimedia interventions with emotional and

behavioral disorders is extremely limited. While current research appears to demonstrate potential for multimedia technology, these interventions must first demonstrate feasibility and efficacy through scientific testing (Ritterband et al., 2003). The practicalities of implementing multimedia techniques may also influence one's decision to use a multimedia intervention. The cost of hardware systems for schools to implement and the need for local technical support, staff development, and training may present concerns.

Furthermore, the limited number of studies using multimedia interventions has been completed by researchers themselves, rather than individuals working in applied settings such as schools. Future research should evaluate the ability and willingness of teachers and parents to implement the interventions. This is critical because teachers and parents spend the greatest amount of time with children and given the challenges discussed earlier may not be able to effectively employ multimedia technology without assistance. As discussed earlier, though the classroom was the primary setting that the research took place in, children with emotional and behavioral disorders frequently need interventions outside the school. In the future, research should be expanded to other settings, such as homes and clinics, to ensure generalization of the skill.

Despite these challenges, it is important to note that in the past ten years, significant improvements have been made in computer speed, dramatic decreases in costs, and hardware limitations (Glantz, Rizzo, & Graap, 2003). Despite the obstacles of using multimedia technology, there is a strong interest and a tremendous need to develop applications of technology, which utilize behavioral models to enhance the social development of all children.

Discussion and Conclusion

Multimedia technology presents a new venue for teaching social skills because emerging evidence indicates that media (e.g. television, movies, magazines, and the internet) may be one of the key forces contributing to how young viewers' beliefs and behaviors are shaped (Ward, 2005). The multimedia involves teaching social skills through television, movies, computers, and virtual reality. The use of multimedia technology can lead to a range of positive social, language, and academic outcomes from children with a variety of disabilities (Sturmey, 2003). Researchers only have begun to tap the potential of multimedia technology as a means to social skills intervention. Based on recent literature, it appears that the prospects of gaining greater knowledge of multimedia techniques are extremely high.

Multimedia techniques may be used for developing social skills training programs and interventions, measuring outcome of such interventions, and generalizing and maintaining treatment. Thus, it is proposed that multimedia enhanced social skill interventions be used with students who have emotional and behavioral disorders to increase their adaptive behavior and decrease competing non-desired behaviors, transfer role play to the real world, increase low-frequency skills, and enhance learning by observation.

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