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The role of ICTs in student's emotional and behavioral difficulties

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Abstract

In the classroom, teachers deal with a wide range of emotional and behavioral issues/disorders on a regular basis. Problematic conduct in school is a means for students to respond to events that happen in the classroom and to teachers' attitudes since behavior is perceived by subjective and social elements. This demonstrates the students' desire to have a deeper relationship with the teacher. The teacher is expected to help students improve their academic abilities and manage their emotions by coming up with answers in these trying adjustment circumstances. This article conducts a literature review on the management of emotional and behavioral difficulties/disorders in the classroom, the management of these by the teacher to prevent them, the impact of teachers' attitudes on students' behavior and academic achievement, the implementation of appropriate intervention programs, and the role of ICTs in controlling these difficulties/disorders.

Keywords: Emotional and behavioral difficulties/disorders; EBDs; Behavioral problems; Teachers' attitude; Prevention; Intervention programs; ICTs; Review

1 Introduction

In the context of the educational process, teachers deal with numerous cases of emotional and behavioral difficulties/disorders (EBDs) every day. It is difficult to adjust to the rigors of school life because of these challenges, which take many different forms. Although the precise causes of EBDs are unknown, there are a number of factors—including prenatal, maternal, familial, parental, socioeconomic, and personal—that raise the likelihood that they may manifest. EBDs can be categorized as either "externalizing" (disruptive behaviors like ADHD and oppositional, defiant, or conduct disorders) or "internalizing" (emotional disorders such sadness and anxiety). If these issues are not resolved, they could negatively affect a person's personal, academic, familial, and later professional lives in the short- and long-term.

Teachers must first concentrate on the proper set up of their classroom and on how they personally comprehend the behavior in order to deal with the ongoing issues of children with EBDs. Behavioral issues can be managed by education, which tries to concentrate on the development of cognitive and metacognitive skills (Drigas and Mitsea, 2020). Similar to how schools that prioritize a favorable classroom atmosphere encourage more useful actions in kids whereas schools that lack classroom stimulation are linked to worse student outcomes in both academics and social skills (Barth et al., 2004)

There are numerous reviews of the emotional and behavioral difficulties/disorders that teachers encounter in the classroom. These reviews highlight these difficulties as a phenomenon that greatly influences teachers and are analyzed through the stereotypes and attitudes of teachers, the ways of coping, the importance of prevention and assessment, the appropriate strategies, the need for quality and appropriate intervention programs, and the role of ICTs in controlling these difficulties. According to recent research data, studies concentrating on intervention programs for

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adolescents with EBDs who are experiencing frightening reductions in their academic performance as well as their behavioral and social skills are on the decline (Garwood, Peltier, Sinclair, Eisel, et al., 2020). Additionally, additional studies have demonstrated that teachers' perspectives on kids with EBDs at school can influence their academic and social behavior. (Scanlon et al., 2020)

The goal of this study is to provide information through a review of the literature about the key emotional and behavioral issues that instructors encounter in the classroom, as well as solutions to these issues. Additionally, this literature review aims to provide a practical and academic contribution to the rising demand for students with EBDs in the classroom.

2 (EBDs)Emotional and behavioral difficulties/disorders

From preschool until puberty, emotional and behavioral disorders/difficulties are seen, and as a result, children frequently exhibit "inappropriate behaviors" at different points in their life. It is crucial to ask ourselves at this point how different and inconsistent the conduct must be from what is typical in order to qualify as troublesome. The description put forth by the Council for Children with Behavioral Disorders (CCBD), which was subsequently approved by the National Mental Health and Special Education Coalition (NMHSEC), is the one that is most frequently used and comes closest to describing EBDs, according to Heward (2011). The term "emotional and behavioral disorder" refers to emotional or behavioral responses to educational programming that are sufficiently outside of acceptable age, cultural, or societal norms as to negatively impact children's academic achievement, including their academic, social, vocational or personal skills. They are more than temporary reactions to stressful events in the environment, manifested consistently and stably in two different contexts, at least one of which is related to school.

2.1 Etiology and Risk Factors

EBDs' precise causes aren't known. Numerous studies have discovered several genetic predisposition and unfavorable environmental factor combinations that raise the likelihood of acquiring any of these illnesses. Perinatal, maternal, familial, parental, socioeconomic, and individual risk factors are some of these (Boden et al., 2010).

The following is a list of typical risk factors for the emergence of emotional and behavioral disorders in children.

Maternal psychopathology (mental health status): low maternal education, depression in one or both parents, antisocial behavior, psychological distress, major depression, problems with drugs or alcohol, antisocial personalities, or criminal activity, teenage parenting, disorder or violence, marital problems, past abuse as a child, and single (unmarried status).

Negative perinatal factors: moderate mother alcohol intake, smoking, drug use, challenging pregnancies, early labor onset, premature birth, low birth weight, and respiratory issues for newborns at birth.

Poor parental control, inconsistent severe discipline, rejection of the child, discord between the parents, failure to establish clear boundaries, and minimal parental involvement in the child's activities are all examples of poor child-parent interactions.

Negative family life: Families that are dysfunctional and involve domestic violence, ineffective parenting, or substance abuse are a problem. This results in decreased psychological function of parents, increased parental conflict, physical and inconsistent discipline, decreased responsiveness to children's needs, and less involved and supportive parenting.

2.1.1 Use of tobacco in the home

Poverty and a poor socioeconomic environment: Poor mental health development is frequently caused by indicators of individual and societal poverty, including as low socioeconomic status, homelessness, overcrowding, social isolation, exposure to toxic air, lead, and/or pesticides, or early childhood starvation. Chronic stresses linked to poverty, such as worry about money, daily stress, and being a single parent, together impair the psychological well-being of parents and increase their levels of discomfort, anxiety, rage, depressive symptoms, and drug abuse. Children who experience chronic stress also develop abnormal'reactive response' behavior patterns, which are marked by constant watchfulness, emotional outbursts, and a sense of helplessness.

Early age of onset: People who begin antisocial conduct earlier are more likely to have a chronic and persistent trajectory of these behaviors.

Child temperament: Disruptive behavioral problems are more likely to emerge later in life in children with temperaments that are hard to control or who exhibit violent conduct at a young age.

Intellectual problems and developmental delays: Children with intellectual disabilities are twice as likely to experience behavioral difficulties as children who are growing normally.

Gender of the child: ADHD and disruptive behavior disorder are more common in men, whereas depression is more common in females than in boys.

2.2 Students and Teachers' views and attitudes on EBDs

According to Wery and Cullinan (2013), students with EBDs are individuals who repeatedly display externalizing behaviors (such as violence or noncompliance) or internalizing behaviors (such as anxiety or sadness) and these behaviors negatively impact their academic performance. Intervention research for kids with EBDs, according to Garwood et al. (2020), focuses on methods centered primarily on resolving problematic behavior and social skill impairments, and, to a lesser extent, academic deficits. These pupils' scores in social studies, science, and all three of the core academic subjects (reading, writing, and math) continue to be disturbing. Additionally, students with EBDs are less likely to graduate than all other students with disabilities because they are more likely to be alienated, leave school, or even be expelled.from high school. It seems that the need for effective interventions for these students is ever-present.

Studies on teachers' opinions of EBDs typically concern and concentrate on their teaching experience and how they perceive their self-efficacy to handle challenges in the classroom. Numerous issues have been observed, including a lack of funding, inter-agency cooperation, insufficient training in behavior management, and decreased self-efficacy brought on by stress or burnout (Scanlon and Barnes-Holmes, 2013; Hudson-Baker, 2005). It can be challenging for children who exhibit antisocial or aggressive behavior patterns to adhere to the expectations and guidelines of school life and the classroom. Both their classmates and the teacher are adversely affected by their behavior. The situation gets worse when a teacher reacts aggressively to a student who is having behavioral problems, and it gets worse when expulsion or other harsh measures are taken to try to improve the student's behavior. These interactions can even affect students' relationships with their classmates and make them lose acceptance of them as well. Unfortunately, these ways promote student backlash, distaste for the school environment, and marginalization.

Scanlon, McEnteggart, and Yvonne Barnes-Holmes (2020) investigated the implicit attitudes of primary and post-primary teachers toward students with EBDs in training and teachers' implicit attitudes toward usually developing students using the Implicit Relational Assessment Procedure (IRAP). According to the findings, teachers expressed more unfavorable implicit views toward kids with EBD than against students who were generally developing (Scanlon et al., 2020). Barnes-Holmes, Barnes-Holmes, Power, Hayden, et al. (2006) hypothesized in earlier studies that the tension between what one can say publicly and privately may unintentionally cause one to experience various forms of psychological stress, which may be the cause of teachers' burnout. Using the IRAP in a comparable but larger investigation, Scanlon and Barnes-Holmes (2013) attempted to reduce the negative implicit bias of primary and post-primary teachers (experienced and trainees) towards students with EBDs by implementing a stress management intervention and behavioral training. Although the impact was less noticeable for students, the stress management intervention showed to be successful in reducing teachers' unfavorable bias. Although the behavioral training intervention did not seem to be as successful, there were signs that things might have gone better if participants had first experienced the stress management intervention. Students' negative attitudes toward EBD showed a slight decrease. The intriguing aspect of the study was that it also shown that the interventions decreased both teachers' and students' negative attitudes regarding including students with EBDs in their classes generally (Scanlon and Barnes-Holmes, 2013).

3 Assessment of EBDs

The process of gathering information on the kid showing the symptoms, the setting in which they are observed, and those who interact with the child, such as family and teachers, is referred to as "assessing behavior that challenges teachers."

The most common assessment methods are the following.

A discussion-interview with the child's parents, teachers, or someone else. When the behavior first manifested, this process determined when and how frequently it occurred, what coping mechanisms were employed, whether the behavior coexists with other symptoms, and whether the behavior is related to other circumstances (Koliadis, 2010).

Direct and reliable measurement of behavior is possible through systematic observation, allowing for the recording of undesirable behaviors together with their frequency, length, severity, and location (Koliadis, 2010).

Functional behavioral assessment is a methodical procedure for obtaining data to comprehend the reasons behind the behavior. The teacher seeks to understand the cause of the behavior displayed by the pupil, when and where it is most likely to occur, the circumstances that lead up to it, as well as the possible outcomes that will keep the behavior from ceasing to emerge. As a result, the teacher infers that the student's action serves one of two purposes: either to accomplish something wanted or to avoid something that offends him or her (Nahgahgwon et al., 2010).

Questionnaires are a method of gathering data to identify and detect various types of behavior. They primarily comprise of subjects that have been developed as questions or descriptions of distinct behaviors. They are addressed to the child's parents, teachers, and other employees who have recently worked with the youngster (Koliadis, 2010).

Sociograms, which are profiles of a group of pupils' preferences and disapprovals. As a result, the instructor can identify children who lack social skills or have behavioral issues by gaining a greater understanding of their social level. In general, it is a method of assessing how well-organized student organizations are.

4 Prevention and Strategies to deal with EBDs

The teacher's job is quite difficult when it comes to prevention since they must discover ways to promote responsible and pleasant behavior while minimizing disruptive behavior. It is beneficial to develop an environment of acceptance in every class that values each student's uniqueness. The teacher's rules must be followed consistently and continuously, the expectations must be clear and reasonable, social interactions must be encouraged, and the teacher must also pay attention to each student's individual development (Fitzpatrick and Knowlton, 2009; Roache, and Lewis, 2011).

Effective teachers are capable of differentiating and tailoring their instruction to the requirements of the students by using a variety of tactics and managing the various scenarios that may emerge in the classroom. A strategy to stop and deal with inappropriate behavior is to create a positive learning environment. This environment encourages interest, the pursuit of knowledge, and the provision of opportunities for activities that engage students' minds and imaginations (Slavin, 2006). Clear guidelines that don't involve threats or punishments can also promote acceptable conduct and help with problems (Estrela, 1986).

Emotional regulation techniques are crucial because they help pupils identify their unfavorable feelings and restrain their irrational desires. Additionally, pretend play, role-playing, and the use of humor can all be used to help children learn how to develop effective social interactions, deal with social issues, and handle conflicts. Younger children, for instance, like artistic endeavors and theatrical performances, whereas older students are more effective at cooperative learning. Since children are taught to see themselves in others' shoes, empathy training is also crucial for reducing egocentrism and fostering proper interactions between them and their classmates and teachers (Koundourou, 2012).

Generally speaking, children's growth is greatly aided by the satisfaction of their emotional needs, which also ensures a pleasant and supportive environment. As a result, educators may better meet the requirements of kids with EBDs by tackling challenges in a responsible manner and expanding their expertise.

5 Programs for Intervention

The most widespread and scientifically documented intervention programs for children with behavioral and emotional difficulties according to the current relevant literature are the following.

5.1 Intervention based on function—FBI

The teaching-unlearning of unwanted behavior and the teaching-learning of new desirable behaviors are the two pillars of this particular behaviorist approach, which is based on the principles of operant learning (Blood and Neel, 2007; Kamps, Wills, Heitzman-Powell, Laylin, Szoke, Petrillo, and Culey, 2011; Lane et al., 2009; Nahgahgwon et al., 2010). The teacher recognizes the undesirable conduct and the circumstances surrounding its occurrence, gathers data via surveys, interviews, and observation, and then develops hypotheses regarding the behavior's intended purpose. The teacher designs an intervention plan (environment, structuring of desired behavior, and regulation of predictability) after analyzing the conditions of occurrence to determine the positive aspects of the behavior. The student is taught replacement behavior through positive and negative reinforcers, provision of departmental assistance, and cultivation of social skills, to obtain the desired behavior (Koliadis, 2010). To improve the environment, conditions are modified

through the cooperation of the teacher with the principal, specialists, and parents. FBI is perhaps the most comprehensive and widely adapted program since others intervention programs are based on it such as the response to intervention program (RTI), mainly at the level of assessment.

5.2 RTI: Reaction to Intervention

RTI is one of the three-level prevention model types. Academic, behavioral, and social challenges are addressed for each level of the learner. At the initial stage, bad behavior serves as the focal point, and the goal of prevention is to stop it before it starts. The objective at the second level is to change behavior that has already taken place. At the third stage, the behavior is seen as established, therefore minimizing negative effects becomes the primary objective (Lane et al., 2009). Here, instructors, counselors, and school psychologists are required to engage in the selection and screening of the children who will take part in the program. They are also required to support the teacher and assure the validity and reliability of the approach. Nevertheless, the data and applicationsof RTI are not sufficient to be considered effective. Therefore, the empirical and dynamic power of the program needs to be strengthened (Maag and Katsiyannis, 2008).

5.3 Program called Incredible Years Teacher Classroom Management (IYTCM)

In order to lower the risk factors for the early onset of behavioral and emotional disorders, parents, kids, and teachers participate in the socio-cognitive program known as IYTCM (Webster-Stratton et al., 2011). Teachers who take laboratory courses from qualified staff are specialists in behavior management. The teaching strategies include problem-solving, vignettes, role plays, breaks for behavior planning, supporting and generalizing all skills, and putting those skills to work in the classroom. The program is based on a set of fundamental principles, including teacher collaboration and relationship building, participant confidence and self-efficacy, goal setting and self-assessment of progress, content map design, the direction of knowledge, feelings, and behavior, the use of experiential methods, and framing of the learning process. Additionally, this particular intervention is suitable for students withdifferent cultural backgrounds and various developmental abilities such as challenging behavior in the classroom. However, IYTCM has not been applied to a large population and requires a long time for its effects to become apparent.

5.4 Cognitive behavioral therapy (CBT), a psychological intervention geared toward children

CBT is one of the most popular non-pharmacologic treatments for people with behavioral issues as well as emotional illnesses, including depression. CBT combines cognitive and behavioral learning concepts to support positive behavioral patterns. The effectiveness of cognitive-behavioral therapies for anxiety and depression is strongly supported by research from numerous studies (Ollendick and King, 1998). Children's disruptive behaviors significantly improved as a result of a CBT program that was implemented in child-centered classrooms, according to a recent study (Liber et al., 2013).

5.5 A humanistic and ecosystemic approach

The ecosystemic approach contends that problematic behavior's manifestation is intimately related to the environment in which it takes place. Without necessarily possessing specific knowledge, the instructor participates in the process by assigning several meanings to the same behavior, focusing only on the student's strengths, and minimizing the teacher's flaws and limitations. The teacher's function in the humanistic approach goes beyond that of a facilitator in a student-centered classroom. The learning process heavily relies on ideas like empathy as well as concepts like trust, honesty, and authenticity. As a result, methods like sociograms, simulations, and role-playing are employed in an effort to increase pupils' sensitivity.

To be complete and successful, all of the aforementioned strategies and initiatives must complement one another (Andreou, 2004). In addition, according to Garwood et al. (2020), less than 15% of all published studies on EBDs with intervention work these days, and even less are deemed to be of acceptable quality by federal standards (i.e., WWC).

6 The Role of ICTs for Dealing with EBDs

It is widely acknowledged that new technologies enable students with special educational needs to overcome challenges, alleviate deficits, approach knowledge, and remove isolation by restoring social reality (Fytros, 2005). This is because they enable them to communicate with and interact with their environment. Additionally, students might find the drive to approach studying and develop their abilities and talents by using ICT.

Prins et al. (2013) developed the game "Braingame Brian" to assist adolescents with ADHD in developing their executive abilities. The goal of the study was to increase executive skills in children with ADHD. The 40–50 minute long

"Braingame Brian" with Brian contains seven different settings: Brian's neighborhood, the hamlet, the desert island, the alleys, the beach, the swamp, and the basement lab. Brian is needed in each globe to find solutions to diverse issues. 40 youngsters (8–12 years old) with ADHD participated in the study in two groups: the experimental group and the control group. Only the experimental group received the "Braingame Brian" intervention. Pre- and post-intervention questionnaires were administered to parents and teachers measuring executive function deficits, ADHD symptoms, and disruptive behavior issues. The results showed that the children's executive skills and ADHD symptoms improved significantly. However, "Braingame Brian" must be used in conjunction with other ADHD treatments such as medication and behavioral therapy, and should not be considered an autonomous treatment (Prins et al., 2013). Additionally, Bland'on Diego et al. (2016) assessed and trained attention and self-regulation in children with ADHD through the 3D virtual reality video game, Harvest Challenge. Levels of attention (0–100) were mapped through a brain-computer interface (MindWaveBCI) system by electrode placement in the frontal lobe. Nine ADHD kids participated in two intervention sessions. The children engaged with the 3D virtual reality video game in three phases during the second 25-minute session: gathering equipment according to rules that required attention, repairing the path that required a lot of attention to be paid to rebuild the runway due to frequent disasters, and finally harvesting as many carrots as possible while maintaining attention levels, while carrots were lost when players lost focus. (2017) (Bland'on Diego et al.). The findings demonstrated that self-regulation and the capacity to sustain prolonged attention both improved (Bland'on Diego et al., 2016). Similarly, Sciberras et al. (2014) found that BCI-based attention training programs moderated anxiety and low mood symptoms.

For anti-bullying prevention, Salmivalli et al. (2010) presented the "KiVa" program. "KiVa" includes a series of teacher-led lessons and computer games. The main aim of the lessons and computer games is to raise students' awareness of bullying issues that regard understanding the victim, providing safe support strategies, and encouraging students to use knowledge and skills gained in real life. Findings showed that with "KiVa" victimization and bullying decreased, also showing secondary effects on psychological symptoms and school climate (Salmivalli et al., 2010).

Finally, Hakimirad et al. (2019) investigated the impact of the video game EmoGalaxy on kids with oppositional defiant disorder (ODD) in order to improve social and emotional abilities. Twenty boys with OOD ages 7 to 12 participated in this study, and two groups were formed: an experimental group that received the EmoGalaxy intervention for 15 sessions of 45 minutes each, and the control group that did not get the EmoGalaxy intervention. The social skills of the students were evaluated both before and after the intervention using the social skills assessment scale (Gresham and Elliot, 1990). The game's four primary emotions—joy, sadness, fear, and anger—were represented by four planets that the kids had to visit. Using the front camera to capture each emotion has the goal of enhancing emotional capacity through awareness, expression, and management of emotions. The game prompted the player to find the proper emotion through the game characters if they were having trouble expressing it. The findings indicated a change in the kids' social abilities, as well as improvements in collaboration, assertiveness, responsibility, and self-control (Hakimirad et al., 2019).

7 Conclusions

The purpose of this study was to review the literature on the population of students with EBDs and to provide a panoramic view of the current state of the field of EBDs in the school context. The results of this literature review showed that students with EBDs exhibit poor academic and psychosocial functioning at school.

Preventing problems is a tough problem that depends on the culture of the school, and choosing the right remedy depends on timely and accurate assessment. Interventions that are academically oriented have been found to be more successful. More generally, researchers tend to concur that interventions must be "personalized" and based on a relationship of trust with the child. They also tend to agree that interventions must be "holistic", operate at multiple levels, not ignore the cognitive level, and mobilize a combination of behavioral and socio-cognitive strategies. Additionally, tailored classroom treatments for kids with emotional and behavioral problems can be successful if they work to improve good behavior, interpersonal skills, and emotional intelligence and when they are supplemented with the usage of new technologies (Drigas and Kokkalia, 2016).

The cognitive and metacognitive skills of students are improved through learning strategies based on interactive settings and including active and creative problem-solving (Drigas and Karyotaki, 2016). According to published research, teachers' implicit unfavorable views toward students with EBDs may be to blame for their burnout because these attitudes have an effect on students' academic and social behavior. Prejudice against kids with EBDs can be lessened, though, with the right stress and behavior management strategies. Additionally, these interventions might help students integrate and be accepted more easily.

Moreover, given the enormous needs of these students, their poor results in all areas, and the daily challenges in working with them, the decrease in studies about effective and high-quality interventions for students with EBDs that has been seen over the past ten years may indicate that it is time to reevaluate the stated priorities and chart a more effective and promising course for their futures as well as the future of the intervention Overall, the literature review emphasizes the critical significance of ICTs in strengthening the skills and abilities of students with EBDs, especially in light of the enormous rise of digital tools. Thus, students with EBDs benefit, and teachers become also one step ahead in dealing with the difficulties of students with EBDs.

Finally, it's critical to emphasize the useful and vital function that digital technologies play in the field of education. These technologies, including mobile devices (36-40), a range of ICT applications (41-53), AI & STEM ROBOTICS (54-68), and games (69-71), facilitate and improve educational processes including evaluation, intervention, and learning. Additionally, the use of ICTs in conjunction with theories and models of metacognition, mindfulness, meditation, and the development of emotional intelligence [72-106], as well as with environmental factors and nutrition [32-35], accelerates and improves educational practices and outcomes, particularly for students with emotional and behavioral difficulties.

Compliance with ethical standards

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Disclosure of conflict of interest

The Authors proclaim no conflict of interest.

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