



Creating radio podcasts as pedagogy that promotes learning skills

Ella Ben-Atar¹

Abstract

The study explored the use of a podcast as a potential tool for developing innovative learning methods designed for students with learning difficulties and at risk of dropping out of the education system. It presents self-regulated learning by means of podcast production. The study population comprised students diagnosed with learning, emotional, and social difficulties, and at risk of dropping out. The study accompanied an innovative pedagogical project wherein students produced a podcast. The podcast included commentary texts, opinions, interviews, and music. Analysis of the findings indicates a rise in the students' motivation and achievements in the subject on which the podcast focused, and satisfaction with their work in the studio. The findings reveal a reinforcement of understanding of the potential of radio as a friendly, collaborative pedagogy for developing an array of learning skills, reinforcing students' experience of scholastic success, and strengthening their sense of meaning and belonging.

Keywords: podcast production, social skills, self-regulated learning, reflective thinking, attention deficit disorder

1. Introduction

In the past, considerable attention was devoted to risk factors focusing on the individual student. In recent years, researchers have begun discussing risk factors associated with the characteristics of the school, such as policy, learning structure, and teacher-student relationships, as well as its responsibility for providing a learning environment adapted to the student, and implementing programs relevant to the social relationships and social skills in the classroom (Rumberger, 2011). This approach to addressing school problems proposes a shift in focus from individual to system level by means of appropriate and adapted work to prevent the phenomenon (Freeman & Simonsen, 2015). As a result of these understandings, education researchers and practitioners began searching for effective ways to reduce the scope of learning difficulties. Research shifted from a psychosocial view to a search for knowledge in psycho-pedagogical fields, and for alternative teaching methods in order to provide a response at system level as well, not only at individual level.

Since the early 2000s, a growing number of studies has addressed active and meaningful learning settings (Lee, Tam, & Goh, 2004), such as using podcast radio in education (e.g., Drew, 2017; Merhi, 2015). The current study presents a radio studio as a platform for the empowerment and meaningful learning of high school students struggling with learning difficulties, attention deficit disorders, and a wide range of emotional difficulties. Despite the virtually endless possibilities for using radio technology as a learning tool, research in this area is still in its infancy. The pilot study described in this chapter examined the use of podcasts as a potential tool for developing innovative learning methods.

1. Literature review

1.1. Learning difficulties, attention deficit disorders

Of the diverse range of learning difficulties, attention and concentration difficulties have the greatest impact on knowledge acquisition and academic achievements, and subsequently on dropout risks (Gubbels et al., 2019). Attention deficit disorder (ADD) / attention deficit hyperactivity disorder (ADHD) is a neurodevelopmental behavioral disorder that manifests in being easily distracted, in hyperactivity, and impulsivity (American Psychiatric Association, 2013). This is a deficit disorder typified by a wide spectrum of functional, learning, and social difficulties. Children with ADD/ADHD find it difficult to control their impulses, which manifests in behavioral and cognitive impulsivity, and psychomotor agitation. These difficulties also impair social relationships and the ability to comply with social behavioral norms. The disorder is usually more prominent in the education system than at home, and poses a challenge for students suffering from it, as well as those charged with promoting their achievements (DuPaul & Langberg, 2015; Lee, Li, Yeh, Huang, Wu, & Du, 2017). It is one of the most diagnosed disorders among children, not only due to its prevalence, but also because it is a disruptive factor in the behavior expected from children in the educational frameworks they attend (Lee et al., 2017; Veenman, Luman, & Oosterlaan, 2017).

The education system invests considerable funds in order to enable such students to integrate into schools. At an annual estimate, students contending with complex learning problems on average cost \$5000 more than regular students (Robb et al., 2011). Given this situation, the question is: Which individual or classroom programs will produce effective results and satisfaction? Spiel, Evans, and Langberg (2014) argue that, despite the existence of numerous programs for children, most of them are not research-based. In their longitudinal study, they surveyed 504 intervention programs in middle and high schools, and the most striking finding was that the pedagogical programs focus on scholastic aspects, while it is the students' non-academic, i.e., behavioral and emotional, functioning that has the greatest impact on their achievements. The students' achievements were associated more with their social and emotional situation than the severity of their ADD/ADHD or learning disorder. Students who received less attention from their parents, or had an emotional disorder, were lower functioning, even if their learning disorders were less severe, than those of students without an emotional disorder (Becker, Paternite, & Evans, 2014). The most effective programs were those in which the students received individual attention, and the school staff formed and maintained meaningful relationships with them, consistently and over time. The functional, scholastic, and social difficulties of these

¹ Sapir Academic College, Israel. benatarella@gmail.com



students motivated the education system to search for diverse teaching and educational methods that would provide a response for a heterogeneous population (Veenman et al., 2017). An alternative educational approach is one that challenges the new pedagogy that draws from the existentialist, liberal, and humanist schools, and advocates helping children to adjust and integrate into their environment by providing unique and creative solutions (Mitchell & Black, 2016).

1.2. Adapted learning methods

Meaningful learning is considered a main objective of education (Zimmerman & Martinez-Pons, 1986). This kind of learning facilitates the development of independent learning, improved learner motivation, heightened self-esteem, and greater learner satisfaction with learning (Bonk & Dennen, 1999).

The self-regulated learning (SRL) approach was initially developed in formal, offline educational contexts, it focused on the thoughts, emotions, and actions generated by learners themselves, and adapted to their personal goals (Littlejohn, Hood, Milligan, & Mustain, 2016). SRL occurs when the focus shifts to what learners want to learn and wants to do, not on what they are taught (Glassner & Back, 2020). The notion of children choosing their learning process, accompanied by an adult, was conceived in Jean Jacques Rousseau's educational philosophy ([1762] 1979), and developed in the twentieth century into a detailed educational method in the writings of psychologist Carl Rogers (1973).

Innovative approaches (e.g., Glassner & Back, 2020) offer pedagogies wherein the teacher does not instill knowledge from material prepared as a standard lesson plan, but guides the learners who choose the learning activities relevant to them. Choosing the subjects of study and learning methods is part of the learners' autonomy in fulfilling an inner psychological need and attaining a sense of wellbeing. The learners are independent, responsible for their learning, and active throughout the entire process. They search for diverse sources of information for their learning, taking into account the amount of time allotted to learning. The guiding teacher experiences a direct contact with the learners, and an opportunity to listen to them and guide them. Many guiding teachers attest that they also enjoy deepening their own learning. The learners and the guiding teacher engage not only in the study "material", but also in the learning process, and in what the learners learn about themselves during the process: what aids their learning, what hinders them, how they learn in conditions of uncertainty, and how they roam the internet. The learners examine how the learning impacts their knowledge, beliefs, values, and behavior (Blaschke & Hase, 2016). The new approaches do not seek to undermine current education systems, but rather to enlist them to adapted learning that includes a number of important learning principles, such as increasing learners' autonomy, giving expression to learners' voices and choices, relying on learners' passion to expand their knowledge, deepening the enjoyment they derive from learning, and bolstering their sense of efficacy.

There is a growing trend worldwide toward adapted learning, including by means of online learning. While online learning enables flexibility in terms of the time and place in which the learning takes place, it requires not only technological conditions, but also a new pedagogy. Online learning processes are associated with the ability to induce high motivation in the students, and with the teacher's ability to arouse the students' interest in learning, and maintain a personal relationship that supports and helps them in cognitive and emotional aspects alike. The present study demonstrates adapted learning, partly by means of online distance learning, and partly by means of a radio studio. It presents the argument that, when combined, the two forms of learning reinforce the advantages and reduce the difficulties attributed to each of them separately.

1.3. Educational radio as innovative pedagogy

For many years, radio was perceived as a means of providing entertainment, news, and conveying information (Keith, 2005). It is only recently that the potential of radio as a platform for meaningful learning has begun to attract attention (Walker, 2014). Work in a radio station requires extensive use of knowledge and content, a high verbal level, critical viewing and listening, and the ability to identify the ideological, professional, and economic interests of interviewees, or of people featured in the broadcasts. Verbal language is of significant importance in the structure of radio, which manifests in discourse style, intonation, word choice, and even in the silences between them (Berry & Sobieraj, 2011).

Besides verbal and literacy skills, operating a radio studio requires time-planning and the ability to construct a sequence of actions. Quick thinking becomes an advantage, since it is necessary to function in multiple attention channels: the broadcast content, the program format, and the technical aspect of operating the equipment in the studio. The connection between learning to operate a student radio station and developing self-confidence was explored in Laor's research (2018), in which BA Communications students specializing in radio were interviewed regarding the contribution of their studies to developing their sense of self-confidence and efficacy. The students reported that studying in the radio station increased their sense of self-confidence and efficacy due to their activity in educational radio broadcasts and the professional experience they acquired during the broadcasts. They also reported that the ongoing activity in the radio station gave them a strong sense of satisfaction and self-fulfillment.

Podcasts are digital audio files that can be adapted for personal use and listening. The potential inherent in using podcasts in education was identified in the early 2000s, particularly in relation to their impact on learning and teaching methods, and the body of research on this subject has increasingly grown since then (Hill & Nelson, 2011). Podcasts are useful tools for students to learn material independently and effectively (Tavales & Skevoulis, 2006). Consequently, podcasts may be viewed as an essential tool for helping students to acquire new skills and improve their academic achievements, since they actively participate in performing the assignment, and become constructors of their own knowledge (Lazzari, 2009; Merhi, 2015).



The present study seeks to combine the accumulated knowledge of the SRL approach pertaining to the contribution of radio as a platform for developing attention and concentration skills, and an educational and pedagogical assistance program for students contending with learning difficulties and at risk of dropping out. The research questions focused on the contribution of learning by operating a radio studio and producing a podcast to improving learning skills, coping with ADD/ADHD, and to personal and emotional empowerment.

2. Methodology

Research context

Research genre

The present study employed a qualitative phenomenological approach that focuses on the experiences of the learners, and is based on content analysis of descriptions of the learning, the feelings accompanying the learning, and the meanings ascribed to it.

Participants

The participants in the project were 50 tenth- and eleventh-grade students learning in a special program (MABAR) designed for students who need intensive adapted teaching and support in all learning skills. The students were diagnosed and classified as having learning difficulties, emotional and social difficulties, and at risk of dropping out of school. They were placed together in a designated class (of 25 students) to provide them with a stable educational framework to reinforce their scholastic achievements, provide them with an effective adapted learning experience.

The students were accompanied by three teachers, a research assistant, and the Communication Track coordinator (the researcher). Two teachers were responsible for the content, two instructors taught the students how to operate a radio studio, and the research assistant documented the study.

Research tools

1. Student self-report questionnaire on the process of producing the podcast, and personal reflection on the process.
2. Transcript of the podcast content.
3. Interviews with teachers about the learning and the learners.
4. Observations and remarks from the research journal.

Research procedure

The project's format was production of a podcast (easy-to-produce audio files that can be uploaded to the internet), a pre-recorded and pre-edited radio program. The topic of the podcast was the social phenomena of shunning and social ostracism, when students are excluded from their social age group, as well as online shaming and bullying.

Analysis of the research tools

The podcast produced by the students constituted a supporting content document in examining the research question. When the students finished working on the podcast, they were asked to provide reflective feedback on the process. At the conclusion of the project, the teachers were individually interviewed, and the observations and documentation of the activities recorded by the research assistant were collected. Analysis of the findings comprised content and semantic analysis of the broadcast text, including the choice of music, and the presentation process, category analysis of the students' feedback in accordance with the three components of SRL, analysis of the interviews with the teachers, and analysis of the observations and research journal remarks.

Research questions

1. Can producing a radio show enhance learning and promote the students' subjective sense of efficacy and belonging?
2. From the teachers' perspective, can adapted learning by producing a podcast improve students' learning skills and help them cope with ADD/ADHD?

We were guided by the hypothesis that interventions that offer tools for emotional regulation and anger management may contribute to reduced antisocial behaviors.

Ethics

The school's management approved an evaluation study of the project on condition that the students' anonymity be maintained. Therefore, no reference is made to the students' gender or which class they attend.



3. Findings

Podcast production

Performing observations and evaluating what was observed is a common method in qualitative research. Below the process of preparing the podcast is described, which can also be seen as action research, in which the researcher and the participants observe a process and report about their impressions.

3.1. Producing the podcast

Choosing the topic of the podcast and producing it.

During the study (January 2019), the Israeli media were preoccupied with a case that attracted much public attention: a 13-year-old girl suffered six years of severe disengagement and social exclusion at school. A video that the girl posted describing her misery went viral, sparking a country-wide public debate about social exclusion. In response to media pressure, the Israeli public asked the authorities: How can this happen? And how can it be prevented?

Preparation phase: studying the topic and relevance to the lives of the students. During a class in Communication Studies the teacher introduced the story, raising a class discussion about social exclusion. The discussion brought up personal experiences of students who were involved, in one way or another, in difficult social situations, the most extreme of which was exclusion. It turned out that more than a third of the students in the class had been involved in an expulsion: they had either been its target, expelled a fellow student, or become non-participating spectators.

The students went to work with a sense of being "public agents", motivated to act toward a better social world. This is when their motivation for the success of the project emerged. Choosing the topic in the classroom was a trigger for finding a topic relevant to their lives. According to the Communication Studies teacher, the students showed enthusiasm during these lessons, feeling they had found a unique way to speak up through the podcast.

Next, the class was divided into groups according to the different production roles. As they considered their strengths and weaknesses, each student chose a role that suited him or her. This was an opportunity to demonstrate how a complex project like radio broadcasting depends on the work of separate teams, each team contributing to the final product. During the preparation of the podcast, students studied the topic, collected materials and wrote items.

At the last stage, the students recorded the podcast in a radio studio, with each team responsible for their part in the program sequence. The students decided to play music between items so that the very choice of music and its integration into the program were an item in itself. All the songs selected for the broadcast concerned social exclusion and related to the feelings of the victims and the need for change. Some of the students shared their personal stories with the listeners: a student who had been involved in ousting a peer in elementary school bravely agreed to talk about it, apologizing on air. Another student, who had experienced a painful two-year exclusion in elementary school, shared her feelings: "This exclusion breaks you, it's harder than anything else." She said she had refrained from telling her parents so as not to upset them: "I would come home with bruises, and I did not tell my parents anything, and locked myself in my room," and that she had been able to endure the situation thanks to a friend who had stood by her side throughout that period.

The students also decided to present the stories of famous public figures who had publicly shared their personal stories of being rejected or excluded. Their current celebrity status motivated them to open up about their experiences, thus contributing to the struggle against social exclusion.

The students also interviewed a well-known parenting and education expert. They began the interview by presenting data they had collected themselves by asking 9-10 year-old children whether they would tell their parents about a difficult experience they had. To their surprise, about 60% of the surveyed children stated that they kept their difficulties to themselves and did not share them with their parents. The students/interviewers asked the expert to explain this statistic and propose a solution. Their interviewee explained the importance of parental involvement: "Parents play a very important role, and not only the parents of the excluded child; parents should put up a fight and involve all the systems. If the school isn't doing anything about it, they should even go to the police and file a complaint." The expert addressed the students patiently and earnestly, praising them for their choice of subject, which made them feel satisfied and proud.

In addition to preparing the voice segments with the exclusion stories of famous people, the students also brought authentic voices of their fellow students. They asked: "How can we fight social ostracism? And what should you do when you become aware that a student in your class is being ostracized?" The interviews were conducted in their high school as well as in the nearby elementary school. This initiative expanded the boundaries of the activity and demonstrated activism; the students reached out to the homeroom teachers at the elementary school and asked them to raise the topic in their classrooms. Some of the students went into the classrooms themselves and participated in the discussion, utilizing the information to which they had been exposed while preparing the podcast. In effect, the podcast itself was just part of the overall array of activities. Even after they finished producing the program, the students continued to view themselves as committed to leading a change on this issue, as one teacher reported: "We succeeded in creating, in our small place, a community of children who feel that they belong, that there's room for them to express their voices. It's not trivial that adolescents can say what they think on the radio."



3.2. Reflection: evaluation of the project from the perspectives of the students and teachers

The project was evaluated from two different perspectives: the students, and the educational staff. In the reflections the students wrote after the process, they referred specifically to preparing the podcast, while the educational staff referred to the significance of the entire pedagogical project.

Student feedback

A semi-structured questionnaire was administered to the students at the conclusion of the project. They were asked about the role/function they chose to perform in preparing the podcast, the content, including additional ideas that did not gain expression in the final radio broadcast, and about ideas for additional podcasts. The questionnaire also included a reference to social aspects of the students' teamwork in the process of preparing the program (creativity, efficiency, teamwork, and collaboration). Due to the limitations of the article, a summary of the findings was provided without detailing the questionnaire. Twenty-five students responded to the questionnaire.

Preplanning: self-Awareness of the personal abilities required to produce a podcast

Choosing a suitable role in producing a radio broadcast required self-observation from the students, and awareness of their inclinations and talents. The radio platform provides a wide range of roles and functions centerstage (presenter) as well as behind the scenes (producer, editor, and technician). The roles differ considerably in their requirements and performance. From the students' reflections it emerges that most of their choices were made from the perspective of "suitability" for the role, and a few from the perspective of "unsuitability". For example, some students mentioned: "Program editor suits me best because I know how to approach people and reach them"; "Being a presenter suits me because I really love talking on the radio and interviewing people"; "Music editor suits me the most because I know how to match music, and that's really important". A student with pronounced ADD/ADHD wrote: "The most suitable role for me is the program editor because I've got a good ear and can hear everything that's not supposed to be in the broadcast". From an "unsuitability" perspective, one student wrote candidly: "Being behind the scenes suits me because I don't like talking on the radio", and another wrote more indirectly: "It most suits me to be a music editor because I'm not good in other areas". The students experienced control by choosing from the outset a role they thought suited them, and which they were capable of successfully performing. This finding supports the principles of the SRL approach, and cognitively links the students' awareness and the relevance of the subject to their lives, and their personal skills (strengths and weaknesses) as a basis for effective action.

The class work process

Virtually all the students referred to the importance of collaboration in the groups. Most of them stated that they would have liked to see the groups working better, and especially preventing situations wherein some students are active while others sit on the side: "The group can be improved so that everyone's active and working, so there isn't a situation where one's sitting around while the others are working". The students noted the importance of listening to one another, of order and organization, and of taking the task seriously. It is evident that in some of the groups there was a dynamic of tension around decision making, and one student's conclusion is that in collaborative work every role is equally important: "It's important to explain to the class that every role is important, and the program editor isn't God".

The knowledge that the whole group is being evaluated on performing a joint assignment creates a "task group" experience. The students had to trust each other, get to know each other's abilities, and learn about teamwork and mutual help: "When someone finishes, they can help, not get busy with other things, so there's more collaboration"; "If someone's finished what they had to do, they should help their friends make progress, that way it'll be faster". The ability to work together in a group is a very important skill in the twenty-first century. Practice of this skill occurs as a byproduct of the podcast production process, but in fact constitutes one of the main factors in the students' development and integration into social systems in general, and school in particular.

Student reflections

The transition from a passive student who absorbs material, to an active, inquisitive student who searches for fields of knowledge and sources of information for new questions, is one of the challenges facing the education system with regard to students with learning difficulties. The teaching in these classes usually adheres to specific material required in order to pass exams. Preparing the podcast exposed the students to initiative in the realms of thinking and knowledge. The students were asked what content they thought was missing from the podcast they had prepared, and what additional podcasts they would like to produce on other subjects in the future. They said they would have liked to present additional personal testimonies and stories, from students and famous figures alike. One student noticed that most of the items were about girls who had experienced ostracism, and wanted to add a story about a man who had been ostracized: "I'd add an item about a man who was ostracized, for balance, so it's about boys as well, not just girls". They also wanted to hear the teachers on how they see their involvement in eliminating the phenomenon.

Regarding other subjects, they would be interested in producing a radio program, the diverse areas the students proposed can indicate each student's fields of interest, and the desire to gain expression, exposure, and attention in the classroom. As a method for constructing scientific thinking, reflective thinking enables the transformation of knowledge associated with a specific event into broad understandings, which in turn serve the students in improving their learning abilities in general (Schön, 1983), and is an inseparable part of implementing the SRL approach.

Teacher feedback



In interviews with three of the teachers who accompanied the project, they raised several subjects associated with the educational project, how it was conducted, and its effect on promoting the students. The teachers' point of departure was acknowledgment of the need to develop an adapted pedagogy. They noted, first and foremost, the students' enthusiasm during the lessons. It was clear that an adapted pedagogy needs to be developed for students with learning disorders, adjustment difficulties, and a history of failure in school.

Students who have experienced failure in school are often reluctant to act in learning settings similar to those in which they failed in the past. Working in the radio studio provided the students with a different setting: "They felt they had found a home that distinguishes them, and that the project of preparing a podcast would also give them recognition among the other students at the school".

They thought that the subject chosen as the focus of the podcast was directly connected to the students' lives and content world. The relevance of the subject to the students' lives made them feel that, to a certain extent, they were engaging with themselves, but at the same time with social issues that are common to wider circles in the community, and which are familiar even to famous figures.

The radio studio constituted a space for new opportunities for them. No longer a standard classroom, but a world in which attention has to be simultaneously given to content, clear and organized vocal presentation, incorporation of suitable music, and the skills necessary to operate the equipment in the studio.

The teachers stated that the magazine opened up an opportunity for activism. The students felt like "public agents" whose aim is to act toward creating a better social world. This was the beginning of the emergence of motivation for the project's success. After they had studied the subject and gained an in-depth familiarity with it, it was they who explained it to students in the lower grades. The teachers' impression was that the students' collaborative work in the radio studio created the basis for a relationship of trust, and a constructive and meaningful experience.

The teachers' reports after the process supported and reinforced learning as an active process that the learner undergoes, and the platform of producing a podcast constitutes an empowering possibility that advances students and contributes to their sense of efficacy.

4. Discussion and conclusions

The present study explored the use of podcasts (easy-to-produce audio files that can be uploaded to the internet) as a potential tool for developing innovative learning methods (Rivers, 2014). Technological advances in the past two decades have impacted all aspects of life, including pedagogy. Various methods of online distance learning have been implemented in educational institutions, such as podcasts (Abdous, Facer, & Yen, 2012), which can be listened to in different settings, and at a time and place of the user's choosing (Meng, 2005). Podcast development initiatives have the potential to actively involve students in their learning processes, and encourage independent learning, while acquiring new skills, and improving their academic achievements (Lazzari, 2009).

The effectiveness of podcasts is limited if the students merely adopt the technology. The key to success in using podcasts is when, beyond the technological aspects, the learning also includes individual personal meaning, and development of social skills and relationships (Merhi, 2015). Kemp, Mellor, Kotter, and Oosthoek (2012) contend that podcasts produced by students give expression to engagement, creativity, and development of interpersonal and scientific communication, and lead to broader understanding of the teaching content.

The present study proposes a combination of an online technology setting and a radio studio as a "home base", as a supportive learning environment. Thus, the advantages of distance learning in it can be combined with interpersonal encounters that support the development of social skills and the pleasure derived from close relationships between learners.

The present article seeks to add another layer of knowledge in an increasingly developing area, especially with regard to populations with learning difficulties and at risk of dropping out of the education system. The development of the new educational project stemmed from seeing the hidden potential of educational radio as a platform for advancing the learning and social skills of students with learning difficulties, ADD/ADHD, and emotional difficulties. The present study embarks from a paradigm presented by Spiel, Evans, and Langberg (2014), and adopts the principles that an adapted education program for students with learning, emotional and social difficulties, has to include not only reference to academic materials, but also to the students themselves, and to their social milieu.

The research questions focused on podcast production as supporting the SRL approach. A podcast as a technological pedagogical tool is not time- and place-dependent, and can be listened to at the individual's convenience. The preliminary stages of preparing a podcast can also be conducted by means of distance learning. However, unlike other online courses, the teacher/instructor must be present in at least part of the learning process in the radio studio. Preparation of the podcast can incorporate processes in and outside the school, while creating a sequential linkage between them. The product of the project is independent, and can be part of the content of online courses.

Thus, the learning is based on the principles of the SRL approach, adapted to combined online and frontal teaching, while building the students' interpersonal relationships with their fellow students, and their teacher. It should be noted that for their interpersonal skills to develop, the students need a setting for direct encounters between them.

In attempts to build a program that would reduce student dropout rates, the podcast production project presents a pedagogy that enables adapted distance learning alongside joint learning in the radio studio. Studies indicate the importance of the instructor's involvement and the students' interactions during learning in online courses (Hambrecht, 2004), and in the absence of these conditions, dropout rates can reach up to 50% (Moore & Kearsley, 1996). As this chapter shows, the studied project combined distance learning and learning in the studio. Distance learning enables use of diverse means of inquiry into a range of topics at a convenient time for the learner, and prevents situational stress (possibility for personal choice regarding production times). The group work in the studio provides an opportunity for



the learners to work together toward a joint objective, and provides a sense of belonging and solidarity. It is based on each learner's individual work by means of distance learning, and contributes to developing a sense of responsibility for personal contribution to the group's assignment. In this kind of learning, the connection between preparation and product is clear and structured.

The study does not claim that the same goals – supporting students through a common goal and a sense of belonging – cannot be achieved by other means. However, the study is unique in demonstrating how these skills can be developed when producing a group podcast. The students who participated in the present study were characterized as having attention deficit disorders (ADD/ADHD), which are often accompanied by learning difficulties, and emotional difficulties (Kent et al., 2011).

The findings indicate that a new combination of the three stages of the SRL approach, and operating a radio studio, leads to the students' empowerment and a sense of efficacy in verbal and written communication skills, and to scholastic achievements. In the present study, some of the learning took place in the classroom, and some outside it, in the social community space (interviews with famous people, other students' stories, and reference to a current affairs story). The study found that the combination of the students' intrinsic motivation to investigate a subject that interests them and is connected to their content world, diverse teaching methods, and working in groups in which each student performs a distinct role that suits their skills, leads to orderly and organized learning coupled with a sense of belonging and self-efficacy.

One of the findings emerging from the study pertains to acquisition of the skills required to operate a radio studio in order to help students with ADD/ADHD. Attention deficit disorders are typified by impulsivity, hyperactivity, restlessness, low ability to pre-plan, and difficulty in delaying gratification (Taşkıran, Mutluer, Tufan, & Semerci, 2017). Operating a radio station is considered a professional skill that is acquired through theoretical and practical learning in a radio studio. Besides verbal and literacy skills, operating a radio studio requires time planning and constructing a sequence of actions. Quick thinking becomes an advantage, since it is necessary to operate in multiple attention channels: the broadcast content, the program format, and the technical aspect of operating the equipment in the studio. It requires split attention, organization, and self-control from the presenter, and difficulties in these areas typify children with ADD/ADHD (Feldman, Tung, & Lee, 2017). The study found that the very act of sitting in a radio studio, and preparing and producing a broadcast, compelled the students to develop pre-planning skills, e.g., choosing the sequence of songs to be played, and deciding on the interviews and items to be included in the broadcast, and their order of appearance. Moreover, radio skills force the students to control their impulsivity. For example, during interviews, the student/interviewer has to control their impulses and listen to the interviewee without interrupting.

The first research question examined improvement in learning, and sense of efficacy and belonging in the learners' subjective experience. In the emotional-social domain, the project presented in the study embarked from a hypothesis that interventions focused on inculcating tools for emotional regulation and anger management can contribute to reducing the frequency of antisocial behaviors. Additionally, interpersonal interaction, and use of language adapted to a radio program produced for an audience of listeners, required reference to the ability to convey a message. Producing the podcast and choosing the items to be included in the program enabled the students to express not only their beliefs and opinions on the subject they chose, but also their personal taste in music. The analysis of the findings indicates the students' satisfaction with their work in the radio studio, increased motivation, and emergence of a spontaneous discourse between the students on scholastic and social content. Although the general improvement in scholastic achievements cannot be ascribed to a single factor, it seems that an improvement in all the students' achievements in the subjects included in the project is connected to their ability to collect and classify material, process academic material, and find interest and relevance, while improving their sense of efficacy. Working in groups on creating the podcast led to a greater sense of belonging and social partnership. Above all, the students felt proud of the product they achieved, and which they presented to other students as relevant and helpful study material. The literature explores various tools for emotional regulation and anger management, including educational-therapeutic work conducted at school (Wiseman & O'Gorman, 2017; Feindler, & Gerber, 2012; Bidgood, et al., 2010; Dwivedi, & Gupta, 2000).

The second research question examined the perspective of the teachers who taught and accompanied the students. The findings support what the students thought and felt, since the teachers reported on improved motivation and achievements. They stated that using the radio studio made the learning active, it made the students responsible for their learning, and increased their motivation. They also reported that the experience of producing a podcast was an empowering and promoting platform for the students.

Many reinforcement programs in the education system place emphasis on working in small, separate groups in order to attain significantly improved achievements. Studies on promoting students with ADD/ADHD in programs comprising groups of two or three students and close guidance, showed improved achievements as a result of teaching in small groups (Tannock et al., 2018). Although in the present project the class was given a joint assignment, the students worked in small groups, with each group contributing to the project as a whole.

By their very nature, students with learning difficulties do not lead representative projects at school, they are not chosen for delegations, and do not participate in prestigious knowledge and innovation competitions. At school ceremonies, too, they rarely appear on the stage. Preparing the podcast introduced them to a new situation wherein it is their voices that will be heard. Their thoughts, the information they gathered, writing the items, how they interviewed people on the subject, and the final concluding words, were all part of producing the program. Students whose voices are seldom heard at school, who are usually "transparent", and some of whom attend school sporadically and feel that no one even notices their absence, were given a voice, both metaphorically and literally. The uniqueness of this project deals with the use made of a radio studio as a new and attractive platform. Educational radio was not established as a therapy tool, and it does not purport to be one; however, it seems that, besides the original aims and goals set for the project, radio can be used as a tool to empower and promote students. The findings of the study reinforce the understanding that radio has the potential to be a friendly, collaborative pedagogy that facilitates improvement of learning skills, and strengthens motivation to learn.



Podcast production combines different learning components outside the classroom, and enables effective learning in cognitive, social, and emotional channels that can help to integrate the students into society from an experience of creating and belonging.

Research limitations

In a field study, it is difficult to isolate variables and examine the effectiveness of each one separately. Some of the findings are reported by a participating researcher and obtained from notes collected via a procedure of action research.

The effect and contribution of the project reported by the students and educational staff may also be connected to the "halo effect" accompanying an experimental project. To examine the effectiveness of this project in-depth, an annual work plan needs to be built that would enable learning different subjects through radio, and over time. A measuring tool with fixed measures should be introduced, as opposed to a qualitative and impressionist evaluation.

An additional limitation is that the project requires a radio facility at the school. Yet the findings can direct similar activities of sound recording using applications and other technological tools that are more readily available. One more limitation is the students' age (16-17). It would be helpful to expand the research to a wider age range.

Future research directions

The present study focused on one case study. It would be interesting to repeat this study over time, and to examine several products produced by students and the overall effect of the process on their self-image and self-esteem. It is also important to address the students' scholastic progress after producing radiophonic products, and to enable them to propose topics for the podcasts in accordance with their content world. This kind of process will enable students to experience different roles in the production of a podcast, to discover their strengths and weaknesses, and grow from the learning process through ongoing reflection.

The education system in Israel is not a therapeutic system. Students who are diagnosed with emotional, behavioral, or cognitive difficulties that affect their scholastic achievements are generally referred to receive assistance outside the school, with the exception of limited individual assistance hours within the school schedule. Over the years, a growing number of voices are being heard, calling for the education system to assume a broader responsibility, and provide differential solutions that are adapted to students with learning and emotional difficulties.

Producing a podcast as a tool for meaningful learning enables the development of distance learning combined with adapted learning by investigating topics that are relevant to the students' content world, and responding to current events or social, ethical, and ideological problems proposed by the students. The advantage of the radio studio is that while it is part of the school, it differs from a regular classroom in how it is run.

Developing unique and original adapted programs that utilize existing resources at the school, e.g., an educational radio station located at the school in the present case, requires policymakers to be open and alert to initiatives from the field. These initiatives should be given a helping hand and support, while directing the necessary resources, and developing academic evaluation and measurement tools, which schools are generally unable to do themselves. Thus, the objective of reducing dropout rates can be achieved, while providing a solution for these students in and outside the educational frameworks, and increasing their prospects for optimal integration into the system.

References:

- Abdous, M.H., Facer, B.R., & Yen, C.J. (2012). Academic effectiveness of podcasting: A comparative study of integrated versus supplemental use of podcasting in second language classes. *Computers & Education*, 58(1), 43-52.
- American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.). Arlington, VA: Author.
- Becker, S.P., Paternite, C.E., & Evans, S.W. (2014). Special educators' conceptualizations of emotional disturbance and educational placement decision making for middle and high school students. *School Mental Health*, 6, 163-174. doi:10.1007/s12310-014-9119-7
- Berry, J.M., & Sobieraj, S. (2011). Understanding the rise of talk radio. *Political Science & Politics*, 44(4), 762-767.
- Bidgood, B.A., Wilkie, H., & Katchaluba, A. (2010). Releasing the steam: An evaluation of the supporting tempers, emotions, and anger management (STEAM) program for elementary and adolescent-age children. *Social Work with Groups*, 33(2-3), 160-174]
- Blaschke, L.M. & Hase, S. (2016). A holistic framework for creating twenty-first-century self-determined learners. In B. Gros, Kinshuk, & M. Maina (Eds.). *The future of ubiquitous learning: Learning designs for emerging pedagogies* (pp. 25-40). Heidelberg: Springer-Verlag Berlin.
- Bonk, C.J. & Dennen, V. (1999). Teaching on the web: With a little help from my pedagogical friends. *Journal of Computing in Higher Education*, 11(1), article 3]
- Drew, C. (2017). Edutaining audio: An exploration of education podcast design possibilities. *Educational Media International*, 54(1), 48-62]



- DuPaul, G. J. & Langberg, J. M. (2015). Educational impairments in children with ADHD. In R.A. Barkley (Ed.), *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (pp. 169-190). New York, NY: The Guilford Press.
- Dwivedi, K. & Gupta, A. (2000). 'Keeping cool': Anger management through group work. *Support for Learning*, 15(2), 76-81]
- Feindler, E.L. & Gerber, M.F. (2012). Youth anger management treatment for school violence prevention. In S.R. Jimerson, A.B. Nickerson, M.J. Mayer, & M.J. Furlong (Eds.). *Handbook of school violence and school safety*, pp. 409-422. New York, NY: Routledge.
- Feldman, J., Tung, I., & Lee, S. (2017). Social skills mediate the association of ADHD and depression in preadolescents. *Journal of Psychopathology and Behavioral Assessment*, 39(1), 79-91. doi:10.1007/s10862-016-9569-3
- Freeman, J. & Simonsen, B. (2015). Examining the impact of policy and practice interventions on high school dropout and school completion rates: A systematic review of the literature. *Review of Educational Research*, 85(2), 205-248.
- Glassner, A. & Back, S. (2020). *Exploring heutagogy in higher education: Academia meets the zeitgeist*. Singapore: Springer. doi:10.1007/978-981-15-4144-5
- Gubbels, J., van der Put, C.E., & Assink, M. (2019). Risk factors for school absenteeism and dropout: a meta-analytic review. *Journal of Youth and Adolescence*, 48(9), 1637-1667]
- Hambrecht, G. (2004). Teacher-learner relationship in distance education delivery. *Delta Kappa Gamma Bulletin*, 70(4), 45-46]
- Hill, J.L. & Nelson, A. (2011). New technology, new pedagogy? Employing video podcasts in learning and teaching about exotic ecosystems. *Environmental Education Research*, 17(3), 393-408.
- Keith, M.C. (2005). *The radio station* (6th ed.). Burlington, MA: Focal Press.
- Kemp, J., Mellor, A., Kotter, R., & Oosthoek, J. W. (2012). Student-produced podcasts as an assessment tool: An example from geomorphology. *Journal of Geography in Higher Education*, 36(1), 117-130.
- Kent, K.M., Pelham, W.E., Jr., Molina, B.S., Sibley, M.H., Waschbusch, D.A., Yu, J., Gnagy, E.M., ... Karch, K.M. (2011). The academic experience of male high school students with ADHD. *Journal of Abnormal Child Psychology*, 39, 451-462. doi:10.1007/s10802-010-9472-4
- Laor, T. (2018). *One voice: Educational radio in academic institutions in Israel*. Ariel: Ariel University Press (Hebrew).
- Lazzari, M. (2009). Creative use of podcasting in higher education and its effect on competitive agency. *Computers & Education*, 52(1), 27-34.
- Lee, C.S., Tan, D.T., & Goh, W.S. (2004). The next generation of e-learning: Strategies for media rich online teaching and engaged learning. *International Journal of Distance Education Technologies (IJDET)*, 2(4), 1-17.
- Lee, H., Li, Y., Yeh, S. C., Huang, Y., Wu, Z., & Du, Z. (2017). ADHD assessment and testing system design based on virtual reality. *Proceedings of 2017 2nd International Conference on Information Technology, INCIT 2017*, pp.1-5. Nakhon Pathom, Thailand.
- Littlejohn, A., Hood, N., Milligan, C., & Mustain, P. (2016). Learning in MOOCs: Motivations and self-regulated learning in MOOCs. *The Internet and Higher Education*, 29, 40-48.
- Meng, P. (2005). *Podcasting and vodcasting: A white paper, definitions, discussion and implications*. University of Missouri IAT Services. Retrieved from <https://www.tfaoi.org/cm/3cm/3cm310.pdf>
- Merhi, M.I. (2015). Factors influencing higher education students to adopt podcast: An empirical study. *Computers & Education*, 83, 32-43.
- Mitchell, S.A. & Black, M.J. (2016). *Freud and beyond: A history of modern psychoanalytic thought*. New York, NY: BasicBooks.
- Moore, M.G. & Kearsley, G. (1996). *Distance education: A systems view of online learning*. Belmont, CA: Wadsworth.
- Rivers, N. (2014). Tracing the missing masses: Vibrancy, symmetry, and public rhetoric pedagogy. *Enculturation, Enculturation: A Journal of Writing, Rhetoric, and Technology*, 17. Retrieved from <https://www.enculturation.net/missingmasses>
- Robb, J.A., Sibley, M.H., Pelham, W.E., Jr., Foster, E.M., Molina, B.S.G., Gnagy, E.M., & Kuriyan, A.B. (2011). The estimated annual cost of ADHD to the US education system. *School Mental Health*, 3, 169-177. doi:10.1007/s12310-011-9057-6
- Rogers, C. (1973). *Freedom to learn*. Columbus, OH: Merrill Publishing Company.
- Rousseau, J.-J. [1762] (1979). *Emile: Or, on education* (A. Bloom, Trans.). New York, NY: BasicBooks.
- Rumberger, R.W. (2011). *Dropping out: Why students drop out of high school and what can be done about it*. Cambridge, MA: Harvard University Press]
- Schön, D. (1983). *The reflective practitioner*. London: Temple Smith.
- Spiel, C.F., Evans, S.W., & Langberg, J.M. (2014). Evaluating the content of individualized education programs and 504 plans of young adolescents with attention deficit/hyperactivity disorder. *School Psychology Quarterly*, 29(4), 452-468.
- Tannock, R., Frijters, J.C., Martinussen, R., White, E.J., Ickowicz, A., Benson, N.J., & Lovett, M.W. (2018). Combined modality intervention for



ADHD with comorbid reading disorders: A proof of concept study. *Journal of Learning Disabilities*, 51(1), 55-72.]

- Taşkıran, S., Mutluer, T., Tufan, A.E., & Semerci, B. (2017). Understanding the associations between psychosocial factors and severity of crime in juvenile delinquency: A cross-sectional study. *Neuropsychiatric Disease and Treatment*, 13, 1359-1366. doi:10.2147/NDT.S129517
- Tavales, S. & Skevoulis, S. (2006). Podcasts: Changing the face of e-learning. In *Software Engineering Research and Practice*, 721-726.
- Veenman, B., Luman, M., & Oosterlaan, J. (2017). Further insight into the effectiveness of a behavioral teacher program targeting ADHD symptoms using actigraphy, classroom observations and peer ratings. *Frontiers in Psychology*, 8, article 1157.
- Walker, D. (2014). *A pedagogy of powerful communication: Youth radio and radio arts in the multilingual classroom*. New York, NY: Peter Lang.
- Wiseman, M. & O'Gorman, S. (2017). First things first: anger management group work in a mainstream high school setting. *Pastoral Care in Education*, 35(2), 124-136]
- Zimmerman, B.J. & Martinez-Pons, M. (1986). Development of a structured interview for assessing student use of self-regulated learning strategies. *American Educational Research Journal*, 23(4), 614-628.