



(REVIEW ARTICLE)



Enhancing mental health promotion of students with learning disabilities: The role of motivation and digital technologies

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Abstract

The present thesis is a literature review, whose aim is to examine the role of motivation both in children with learning disabilities and children without learning disabilities and establish whether motivation differs between children with and those without disabilities. The proposed questions concern the importance of motivation in children with and without learning disabilities, whether these children are able, through motivation, to improve their academic level, the possible differences in self-regulation and self-efficacy among students with and without learning disabilities and the value of intervention in promoting motivation.

The present study established that motivation is one of the most important factors that encourage children to learn. Children without learning disabilities, seem to be more motivated than children with learning disabilities. Children with learning disabilities, due to more limited skills, have to face a great number of failed academic performances, a fact which discourages them from continuing their effort to achieve success. A targeted intervention to enhance motivation in children with learning disabilities, is therefore necessary for their academic development.

Key words: Motivation; Learning Disabilities; Academic success; Self-regulation; Self- efficacy; Intervention.

1. Introduction

Motivation is often the key to the success of the teaching-learning process (1). It is an internal impulse to do a certain action. It is a key feature when learning. The lack of motivation during teaching is a subversive factor in the initiation of the learning process. When the classroom teacher does not motivate students to engage in learning activities, the failure of the learning process is certain (1). On the contrary, when the teacher's behavior inspires enthusiasm, a positive feeling of learning and performance is created within the lesson.

People do not demonstrate their skills unless they are given the motivation to do so (2). However, the demonstration of skills presupposes the pre-existing acquisition of them, to such an extent that the individual is able to choose the appropriate (ability/skill) to achieve his goal. Conversely, the individual may not demonstrate his acquired skills if he considers that they are not suitable for achieving his specific goal. This shows us how the use of knowledge acquired is influenced by personal and situational factors (2).

So we see how motivation affects learning as well as behavior. However, we would say that they are very important but not necessary for learning, as weak motivation may be demonstrated after the learning process and not during it (2).

On the other hand, researchers talk about the domination motive. They define it as a psychological force that motivates a person to independently and persistently try and keep on trying, until the resolution or the achievement of his goal

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(3). It is an important parameter in the development of skills in children with and without learning disabilities, since it is a driving force for the achievement of learning and other goals.

Purpose of the survey

The purpose of this study was to investigate the role of motivation in children with and without learning disabilities, as well as any differences in children's learning motivation within their school environment.

Following the international literature review, the following investigatory questions arise:

- Do children with learning disabilities have lower learning motivation than children without learning disabilities?
- What is the main factor that influences the development of motivation of children with and without learning difficulties?
- Is it possible to develop learning motivation in students with learning disabilities through specific intervention programs?

1.1. Consulted sources

The present research was based on the method of literature review. Valid and reliable scientific articles published in reputable scientific journals worldwide, as well as international and domestic experimental studies on the subject, were extensively studied. Search engines such as Google Scholar, Research gate and Science Direct were also used.

Initially, a search and collection of articles was made using key words, such as: "learning disabilities", "motivation in education", "motivation in children with learning disabilities", "how to motivate a child", "intervention programs for motivation development in children with and without learning disabilities" etc. All studies have been conducted from the year 2000, until today. Then, based on the inclusion and exclusion criteria, these particular 18 surveys were selected and listed in chronological order, from the oldest to the most recent.

2. Research results

In 2000, Conti April, from the University of Rowan, conducted a study entitled "Motivation among Students with Learning Disabilities" to examine whether intrinsic motivation is an important factor in the academic success of children with learning disabilities. An attempt was also made to assess whether teachers need to be informed about the factors that motivate their students in order to develop and maintain internal motivation and academic success. The success and failure of students with Learning Disabilities (LD) depends largely on their motivation. Research has shown that students with learning disabilities are no less internally motivated than students without LD when it comes to challenges, curiosity, skillfulness and criticism. However, it was observed that students with learning disabilities lack motivation when it comes to motivation criteria.

Sideridis & Tsorbatzoudis in 2003 published a study entitled "IntraGroup Motivational Analysis of Students with Learning Disabilities: A Goal Orientation Approach", in order to examine the differences between students with and without LD, at the cognitive level, at the level of motivation, influence and goal achievement. A second purpose of the present research was to discover methods of motivation, methods of acquiring knowledge, methods of impact and success of students with LD and to compare them with those of children with normal development. The present research showed that motivation exists to the same extent in both students with LD and students with normal development. Students with LD want to achieve good academic results, but due to repeated failures they are ultimately unable to reach their goal. (4).

In 2004, Garcia and De Caso conducted a survey entitled "Effects of a Motivational Intervention for Improving the Writing of Children with Learning Disabilities", in order to examine the impact of an intervention program on writing skills, on the quality of written work as well as on the motivation of students with learning disabilities. The results of the survey showed significant changes in the quality of the written work of students with learning disabilities of the experiment, compared with those of the students of the control group. Although changes in the written work of both groups are observed, those of the students in the experiment are greater than those of the others. Finally, the students of the experiment seem to have developed much more motivation for the written process after the end of the survey while the control groups seem to lack motivation. (5).

Sideridis, Morgan, Botsas, Padeliadu & Fuchs, in 2006 conducted a study entitled "Predicting LD on the Basis of Motivation, Metacognition, and Psychopathology: An ROC Analysis", aiming to examine how strongly do motivation, metacognition and psychopathology function as identifying characteristics of students with or at risk for learning disabilities. This particular study included 5 interrelated studies. In conclusion, the five studies show that theoretically, the interaction of children's cognitive, emotional and behavioral deficits undermines their subsequent academic performance. As a matter of fact, the results suggest that emotional and behavioral deficits are important factors in recognizing children with learning disabilities. Lack of motivation, low self-confidence, low school performance and low self-efficacy could function as identifying factors for children with learning disabilities. In addition, it was shown that the control and treatment of learning disabilities can be improved by investigating the role of emotional or behavioral deficits in the recognition of learning disabilities(6).

In 2010, Wilbert, Grosche & Gerdes conducted a study on the "Effects of Evaluative Feedback on Rate of Learning and Task Motivation: An Analogue Experiment." The aim of the study was to examine the effects of evaluative feedback on work motivation, using three different types of feedback, the individual, the social and the feedback criteria. The survey data confirm the hypothesis that feedback based on criteria enhances the learning processes. The individual that is, discovers his weaknesses through his results, and tries to improve. Social feedback reduced the motivation of low-performing participants. Individual feedback had no effect on the motivation of students. The separation of low and high achievers revealed that the overall feedback had a higher positive impact on low achievers, while the social and non-social feedback led to lower motivation. In high-achieving students, it was found that when feedback is not provided they are more motivated, while when feedback is individual the motivation is lower. The results show that optimal feedback may depend on a student's capabilities. High and low achieving students may need different kinds of feedback and motivation provision. Low achievers are particularly responsive to the negative effects of feedback involving social comparisons, as they tend to have negative self-perceptions of their abilities (7).

Rosnaini in 2011, in his study entitled "The Effectiveness of the Intervention Program on Reading Fluency and Reading Motivation of Students with Dyslexia," studied the effect of an intervention program on the motivation and reading fluency of dyslexic students. The results of the study show that the experimental group after the intervention program had higher reading motivation than the control group. Also, another scoreboard showed that the reading fluency of the students of the experiment increased compared to the students in the control group. In conclusion, students who attended the Barton intervention reading program not only improved their reading fluency but also demonstrated higher reading motivation(8).

Then in 2011, Rosnaini in his effort to compare reading motivation and attitude, among students with or without dyslexia, conducted another study entitled "A Comparison of the Reading Motivation and Reading Attitude of Students with Dyslexia and Students without Dyslexia in the Elementary Schools in Ilam, Iran". The study found that the average reading attitude among students without dyslexia is higher than that of students with dyslexia. It also appears that students without dyslexia have higher reading motivation than students with dyslexia. From the above results, we conclude that students' motivation to read requires mental readiness and dedication to acquire knowledge through reading. (9).

In 2012, Masoumeh conducted a study entitled "Interactive multimedia learning object (IMLO) for Dyslexic children". Its purpose was to test the usability of this Interactive Learning Object in children with dyslexia, as well as the children's desire to learn through this tool in Language and Mathematics lessons. According to the responses of children and their teachers, IMLO is an attractive tool, since it has been created in such a way as to attract their attention. They mentioned that the program gave them the right motivation to easily learn something they liked. It seemed that the time to complete the work was short. In conclusion, both children and teachers stated that they would like to reuse the program in subjects other than Language and Mathematics. Adding appropriate programs through the use of ICT helps students with dyslexia as it motivates them to learn through a fun and easy process (10).

Melekoglu & Wilkerson in their 2013 study entitled "Motivation to Read: How Does It Change for Struggling Readers with and without Disabilities?", sought to investigate whether reading motivation changed significantly for readers, with and without learning disabilities, after eighteen weeks of teaching reading. The findings of the study showed that students, with and without learning disabilities, improved their self-perception of the reading process because their reading skills increased, but their attitudes about the importance of reading did not improve significantly. Students of all levels without learning disabilities achieved higher motivation rates than students with disabilities. The skills of students with learning disabilities increased to a lesser extent than those of students without disabilities. In conclusion, students with learning and other disabilities seem to have increased their self-perception of the reading process. Because of the improvement in their skills, they may consider that they can do better at reading than before. Teachers,

on the other hand, should further enhance students' motivation, with and without disabilities, concerning their attitude towards the value of reading. (11).

In her 2014 study entitled "The Joy of Reading" – An Intervention Program to Increase Reading Motivation for Pupils with Learning Disabilities", Tovli examined the impact of an intensive and prolonged reading intervention on the reading motivation of students with learning disabilities. The findings of the study show that the enhancing of the reading enjoyment in students with learning disabilities requires a joint and holistic effort, thus creating a supportive environment. (12).

In 2014, Kuldeep conducted a study entitled "Self-Esteem of the Children with Learning Disabilities." Its purpose was to assess the self-esteem of sixth grade students. It also examined whether the self-esteem of children with learning disabilities differs significantly from that of children without learning disabilities, as well as the role gender plays in this effort. The results of the study showed that children with learning disabilities have lower self-esteem than children without learning disabilities. Based on the results of the study, we conclude that children with learning disabilities are not really aware of the situation and the difficulty they face. Their lower self-esteem compared to that of children with normal development may be due to the inability to perform the prescribed schoolwork(13).

In 2015, Buzza & Dol conducted a study entitled "Goal-Setting Support, Motivation, and Engagement in Alternative Math Classes", aiming at making students more autonomous and self-motivated, with increased self-regulating behavior. Their aim each time was to set and fulfill new goals. The levels of motivation and self-regulation of the students in the control group seem to have differed over the intervention process. The quality of the students' goals increased over time, regardless of their belief that daily goal setting is useful. Based on the above results, we conclude that the intervention program worked positively on the students of the control group regarding the setting of new goals daily. (14).

Abbaszadeh and Sardoie conducted a study in 2016 entitled "Compare Academic Self-efficacy and Self-regulation among Students with Learning Disorder and Without Learning Disorder in Normal Elementary Schools (Fourth and Fifth Grade) of Kerman." The aim of the study was to compare academic self-efficacy and self-regulation between students with and those without learning disabilities attending the fourth and fifth grade of regular elementary schools. The results showed that there is a difference between the average academic self-efficacy scores of students with and those without learning disabilities. The self-efficacy as well as the self-regulation of students with learning disabilities are much lower than those of students without learning disabilities. In conclusion, self-regulated learning is an important issue for human learning. Successful students show learning strategies, organized self-regulation, and motivational patterns when performing tasks. (15).

In 2017, Seyed et al. conducted a study on "Self-Efficacy, Achievement Motivation, and Academic Progress of Students with Learning Disabilities: A Comparison with Typical Students." Their purpose was to check for possible relationships between the socioeconomic status of parents of children with learning disabilities and the self-efficacy, performance motivation and academic progress of these students. The results revealed modest positive associations between performance motivation and self-efficacy, and between academic progress and performance motivation. There were also modest positive correlations between academic progress and level of parental education, academic progress and father's occupation, performance motivation and parents' education, and performance motivation and father's occupation. (16).

In 2018, Bishara conducted a study entitled "Active and traditional teaching, self-image, and motivation in learning math among pupils with learning disabilities", aiming at defining the characteristics of different methods of learning mathematics to children with learning disabilities, and examine their influence on their self-image and motivation to learn. The results of the study showed that there is an extremely important correlation between the active approach and the level of motivation for learning mathematics. Also, the level of motivation for the learning of mathematics increases as the students' self-image increases. The self-image of students with learning disabilities is higher in students who are taught through the active approach than in those who are taught through the traditional approach. It is concluded from the present study that the self-image of a student with learning disabilities promotes the motivation to learn. The active teaching approach contributed to the improvement of the students' self-image. Innovative teachers who use more positive learning strategies encourage students with learning disabilities to succeed (17).

In 2018, Szenczi, Kis & Jozsa conducted a study on "Academic self- concept and mastery motivation in students with learning disabilities". The aim of the study was to examine the self-perception and motivation for the acquisition of knowledge in school of students with learning disabilities. The results of the present study showed that students with math difficulties have lower self-esteem than students with language difficulties. However, students' self-esteem is also

affected by their gender. The educational level of parents also seems to influence the general self-perception of students. It was observed that children of less educated parents seem to have higher general self-perception than those whose parents are more educated. (3).

In 2019, a study by Grunke was published in the *International Education Studies*, on "The Effects of Motivational Intervention on Improving the Writing Productivity of Students with Learning Disabilities". Its purpose was to implement and evaluate an intervention aimed at providing motivation to four students with learning disabilities to write longer stories. The intervention was common to all and included specific completion time, direct feedback through self-grading and the display of high grades. Based on the above results, we conclude that writing motivation in students with learning disabilities seems to work positively on the completion of the written process. Even for very reluctant students, both the feedback process and the positive grading and self-grading of written texts significantly boosted their writing motivation. However, further research is deemed necessary as the present study refers only to specific ways of motivation intervention (18).

Another study, entitled "Anxiety, Motivation, and Competence in Mathematics and Reading for Children With and Without Learning Difficulties," was conducted by Pollack et al. in 2021. The aim of the study was to examine the relationship between anxiety, motivation and competence in mathematics and reading, within and across all domains, in an academically diverse group of students with and without learning disabilities. The results showed that students with more math competence had more anxiety about the lesson and higher motivation rates. It was also associated with higher reading motivation and lower reading anxiety. On the other hand, higher reading ability was associated with lower math anxiety and higher math motivation. (19).

3. Remarks and Discussion on the results, The role of ICTs.

More specifically, motivation is one of the most important factors in the successful academic performance of students with and without learning disabilities. Anxiety is attributed more to the person's belief to succeed. Students with learning disabilities seem to experience more stress than students without. Students with lower motivation appear to have lower competence in subjects, resulting in lower performance and more anxiety (19; 20). When these children learn out of curiosity, challenge, determination, or inner motivation, academic success seems likely. In response to our first research question, it was observed in all studies, that school underperformance of students with LD is based on external driving directions and not on internal learning motivation (21). Motivation exists to the same extent both in students with LD and in students of typical development. Students with L.D. want to achieve good academic results, but due to repeated failures, are ultimately unable to reach their goal. As a result, students with LD avoid doing schoolwork, and are unable to regulate their knowledge, motivation, goals, and emotions. On the other hand, students with typical development seem to reach their goal more easily and therefore faster, thus giving the impression that they excel in knowledge and motivation (4).

In response to our second research question, we would say that the evolution of learning motivation, both in children without and in children with learning difficulties, is a cyclical process centered on the individual himself. If the child feels and sees that he can succeed, his motivation to learn increases (17; 22). However, in order to bring about this feeling of inner optimism and the ongoing effort to achieve the goal set, the skills that bring about students' successful school performance must be cultivated to the optimum degree (9; 10; 11; 16). Self-regulated learning is an important issue for human learning. Successful students show learning strategies, organized self-regulation, and motivational patterns when performing tasks. Empowering and motivating students with learning disabilities could work positively in developing their competence, self-regulation and self-efficacy (15; 20). After reviewing many studies, we have concluded that children with learning disabilities have lower self-esteem than children without learning difficulties. The appreciation of the former's self and abilities is much lower than that of a student of typical development. Students with difficulties in more than one area seem to develop more easily negative beliefs about both themselves and motivation to possess school knowledge (3). Also, it seems that the child with learning disabilities does not accept to a large extent the problems he faces. It was noted, however, that boys with learning disabilities have no particular differences in self-esteem compared to girls with learning disabilities (13; 22; 23; 3). Children with learning disabilities fail to understand the real situation and the difficulty they face. The lower self-esteem compared to that of children of typical development may be due to the inability to perform prescribed schoolwork (13).

In response to our third research question, research on intervention programs to enhance children's learning motivation with and without learning disabilities, shows that students with learning disabilities can improve their academic skills to a great extent (17). Motivation for students with learning disabilities plays a very important role in the course of their academic development. All studies have demonstrated, that with the appropriate intervention method, students with learning disabilities could improve their written expression as well as their attitude towards the

written process. Improving the writing quality of students with learning disabilities could trigger a future increase in their performance at school and thus increase their writing motivation (5). Both the children and the teachers mentioned that they would like to utilize again the intervention programs in subjects other than language and mathematics. Adding appropriate programs through the use of ICT helps students with dyslexia as it motivates them to learn through a fun and easy process (10; 5). The experimental groups, after the intervention programs, were more motivated than the control groups. In particular, in research on enhancing reading motivation, it was shown that lack of motivation significantly affects the reading ability of students with learning disabilities. On the contrary, the reinforcement and continuous intervention on the reading skills of children with learning disabilities, increase the reading fluency and motivation of these students (8). It has also been shown in several studies that the students' good reading skills can affect the mathematical performance of children with and without learning disabilities (19). The motivation of students to read requires mental readiness and dedication to acquire knowledge through reading. In students with dyslexia, this motivation decreases due to academic failures. The positive attitude of students towards the reading process leads to increased motivation and therefore to high school performance (9).

At this point, we must highlight also the productive and effective role of digital technologies in the field of health education. These technologies, which include mobile devices (89-92), a variety of ICTs (93-112), AI & STEM ROBOTICS (113-119), and games (120-122), facilitate and improve educational procedures such as assessment, intervention, and instruction. In addition, the use of ICTs in conjunction with theories and models of metacognition, mindfulness, meditation, and emotional intelligence cultivation [123-153], accelerates and enhances educational practices and outcomes, particularly for health education domain.

4. Conclusions

Concluding our work we have to remark that, the students, who participated in the research to enhance reading motivation, increased their self-perception of the reading process. Because of the improvement in their skills, they may now feel that they can do better at reading than before. Feedback plays an important role in the course of the students' academic development. Optimal feedback may depend on a student's capabilities. High achievers may need different kinds of feedback and motivation than low achievers. Low achievers are particularly responsive to the negative effects of feedback involving social comparisons, as they tend to have a negative self-perception of their abilities. Even for very reluctant students, the feedback process, significantly boosted in many cases their motivation.

In conclusion, it is worth noting the role of teachers play in enhancing children's motivation. Teachers should enhance more the motivation of students with and without disabilities, at all educational levels, in all subjects. This will continuously improve the students' skills and self-perception. Children with learning disabilities in particular, due to the plethora of problems they have to face, need the encouragement and support of their teacher in order to succeed in their academic endeavor. Innovative teachers who use more positive learning strategies, encourage students with learning disabilities to succeed. However, the lower levels of self-efficacy and performance motivation in students with learning disabilities, suggest that an Individualized Educational Program alone cannot solve these children's problems. The relationships between academic progress and internal/external factors, such as the children's socioeconomic background, are a complex explanation for the lower academic progress of children with learning disabilities. The continuous effort to complete assignments, the continuous development of skills, the goal-setting and the zeal shown by students with and without learning disabilities for the continuous fulfillment of goals, can help children both in their self-perception, self-efficacy and self-esteem and quite often in their dealing with various psychological and other problems.

Compliance with ethical standards

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Disclosure of conflict of interest

The Authors proclaim no conflict of interest.

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