MODESTUM

Research Article

Developing and strengthening learning motivation: Evidence from a project for primary education in Greece

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ARTICLE INFO	ABSTRACT
	This study reports the results obtained from the implementation of an educational program for primary education in relation to the development or enhancement of students' learning motivation. The publication of a school journal by 24 6th grade students at a public primary school in Greece and their teacher was the main project of the project. The students worked in a communicative and collaborative environment and were encouraged to actively participate in all stages of writing and publishing the magazine. The study describes the pedagogical approach followed by the teacher and the main topics of the journal. The way of collecting the qualitative and quantitative data of the research conducted and the analysis of the data are also mentioned. In relation to the quantitative data, the students' motivation index (SMI) was calculated before and after the educational project. The results of the quantitative analysis showed that after the implementation of the program, SMI had increased, and the results were statistically significant for both boys and girls. Qualitative data collected agreed with the quantitative results. **Keywords:** learning motivation, school journal, primary school

INTRODUCTION

In recent years, scientific research has become increasingly interested in the factors that influence and determine student achievement, recognizing that identifying these factors will provide significant help in improving student achievement (Rahmani, 2011). Academic achievement and school performance is influenced by many different factors, both psychological factors and environmental characteristics, such as ethnicity, gender, socioeconomic status, quality of the diet and child health, school experience and learning environment (Vassiloudis et al., 2014). If we focus on the learning environment, this refers to the pedagogical, psychological and social context in which learning occurs (Gherasim et al., 2011) and is connected with pupils' motivation, which is also an important predictor of children's academic achievement (Steinmayr et al., 2019), such as cognitive, emotional, and behavioral outcomes. Quality education has as an essential component the students' motivation (Filgona et al., 2020) and teachers have a crucial role in promoting students' outcomes in the context of 21st century learning and innovation skills, such as critical thinking, creativity, communication and collaboration (Ahmadi & Besançon, 2017).

Motivation is a multidimensional concept that covers various elements of human behavior, trying to answer why people choose to behave in a certain way (Graham & Weiner, 1996). Particular emphasis is given to what motivates students in classrooms, "how" and "why" some students want to be actively involved in the learning process, to succeed and to learn (Pintrich, 2003). Concerning school and learning achievements, motivation answers the question of why some students complete their activities despite the difficulties and obstacles they face, while others give up too easily (Graham & Weiner, 1996). According to the self-determination theory, motivation can be categorized into extrinsic motivation and intrinsic motivation (Ryan & Deci, 2017). Extrinsic motivation shape a behavior motivated by the expectation of a specific benefit or the avoidance of a negative consequence in case of failure in a task, separate from person's inherent satisfactions (Ryan & Connell, 1989). The individual's behavior is motivated by external factors, such as the reward or pleasure of others, the attempt to reduce stress to avoid feelings of guilt or anxiety, and the recognition of the value, importance and significance of a behavior to the individual, as it will lead to desired outcomes in the future (Deci & Ryan, 2000). In contrast, intrinsic motivation refers to engaging in a task for the enjoyment, challenge, interest or physical fulfilment of curiosity rather than for any reward (Valerio, 2012). Although both types of motivation have unique dynamics and distinct characteristics (Howard et al., 2021), intrinsic motivation has been identified as a central aspect of academic achievement (Gherasim et al., 2011). It is well documented than when people identify with the personal significance of their task, they are more likely to engage in the activity with a sense of commitment and willingness (Vansteenkiste et al., 2005).

A wide body of research demonstrate the correlation between students' motivation and students' learning (Eccles & Wigfield, 2002; Howard et al., 2021; Jansen et al., 2022; Lemos & Veríssimo, 2013; Steinmayr et al., 2019; Steinmayer & Spinath, 2009). Intrinsic motivation seems to be associated with beneficial outcomes (Domen et al., 2020) and is a possible key factor for school adjustment (Gillet et al., 2012; Howard et al., 2021; Taylor et al., 2014), since the students' personal interest in engaging and completing a learning task will be particularly intense. Results from a 30-year retrospective and meta-analysis indicate that intrinsic motivation is associated with not only positive educational outcomes but also small reductions in negative states, such as negative affect and stress (Howard et al., 2020). Higher psychological well-being, higher grades and deep learning are some of the desired educational outcomes but the question that arises is how teachers will be able to develop the intrinsic learning motivation of their students. Not only perception of students' own competence but teacher variables are also important predictors in the development of students' motivation (Jansen et al., 2022). A wealth of studies demonstrate the association between teachers and students' achievements. Teacher–student relationship and teachers' quality and their professional development are significant predictors of students' academic performance (Gore et al., 2021; Hajovsky et al., 2020; Longobardi et al., 2021; Shen et al., 2020).

Research evidence show that the teachers should adopt innovative student-centered approaches, as cooperative learning, differentiated teaching strategies and should provide ways to support students' autonomy in order to strengthen their learning motivation (Campillo-Ferrer & Miralles-Martínez, 2021; Domen et al., 2020; Sugano & Mamolo, 2021). Autonomy-motivation strategies aim at actively involving students in the learning process, transferring responsibility for the learning process to students and designing learning activities connected to students' interests. Given the importance of the value that students give to specific learning projects, when they are consistent with their interests (Wigfield & Eccles, 2000), teachers should involve their students in such tasks, since it is more likely to strengthen students' learning motivation in this way. Flipped classroom, augmented reality, game-based learning, gamification in education and digital escape rooms are fields that have gained significant attention in recent years, in both primary and secondary education (Buchner & Kerres, 2021; Demitriadou et al., 2019; Huang et al., 2020; Kalogiannakis et al., 2021; Stiller & Schworm, 2019; Zheng et al., 2020). However, innovative student-centered approaches and autonomy motivation strategies can be used in all cognitive fields in school in order to enhance the learning motivation of students.

Considering the above, the present study aims to examine the potential impact of 6th grade students' participation in experiential innovative project, such as the publication of a school journal, on the development or enhancement of their learning motivation. First, the methodological framework on which the project was based is described as well as the qualitative characteristics. Furthermore, the study describes the research that was conducted in order to assess students' positive outcomes in relation to learning motivation. The quantitative results and the qualitative assessment are presented followed by a discussion, limitation of study and concluding comments.

MATERIALS & METHODS

During the annual planning, at the beginning of the school year, the 24 students (11 boy and 11 girls) of the 6th grade (11-12 years old) of a primary school in Maroussi, a northern suburb of Athens in Greece, and their class teacher decided to publish a school journal. The aim of the journal was for the students to record in its pages the interdisciplinary innovative activities in which they would be involved during that year. Project-based learning (PjBL) was considered the most appropriate methodology for completing the project. PjBL refers to an educational method that involve students in the construction of knowledge, having them accomplish meaningful tasks (Guo et al., 2020). Participation in educational activities, experiential learning and collaboration among students are some of the main characteristics of PjBL (Helle et al., 2006), that promotes students' cognitive skills and affective outcomes. Apart from the cognitive and affective outcomes, the main objective of creating the school journal was to enhance students' creativity and learning motivation. In relation to the teacher's qualitative characteristics, it should be noted that he had a PhD and was trained in student-centered teaching approaches.

Because the COVID-19 pandemic and the restrictions on social life was the main theme of the journal, the project was called SCJ-19 project, the abbreviation of the words school COVID-19 journal. The school council (consisting of the school principal and the schoolteachers) approved the project (approval number: 7/10-12-2021).

SCJ-19 -19 project lasted seven months: from December 2021 to June 2022. A total of two issues of the journal were published (April 2022 and June 2022). Each month meetings were conducted with teacher and all the students in which the topics of the month were decided. The groups of students were changed, according to their interests. Although children's participation in the groups was voluntary, all children expressed interest in participating in the groups that were created. At regular intervals there were evaluative feedback breaks with the students and the class teacher, in order to discuss the writing process of the journal. Students had access to the classroom computers, which they could use to retrieve information from the internet or to write their journal articles, under the supervision of the teacher.

Articles in the school journal included texts, poems and fairy tales about the COVID-19 pandemic, research carried out by students in schools on the impact of the pandemic and the restrictions on social life on changing people's quality of life, book presentations and film reviews. It also included class news and presentation of the results of environmental activities. Finally, it included interviews conducted by the students via video conference with two university professors, one in Greece and the other in France. The interdisciplinary tasks that were developed were related to health education, environmental education, and cultural programs. All tasks were put under the umbrella of the 17 sustainable development goals (SDGs). SDG 15, life on land and mostly SDG 3, good health and well-being, and were the areas of action of the interdisciplinary programs. Throughout the project,

Table 1. Students' pre- & post-test means, standard devations, & range

Test	Gender	n	Mean	Standard devation	Minimum	Maximum
Pre-test	Boys	12	12.50	5.48	3	19
	Girl	12	13.33	4.24	4	17
	Total	24	12.91	4.81	3	19
Post-test	Boys	12	15.58	2.77	10	19
	Girl	12	15.33	2.90	8	18
	Total	24	15.45	2.78	8	19

Table 2. Results of pre- & post-t-tests

Gender	Mean	Standard deviation	t	Sig. (2-tailed)
Boys				
Pre-test	12.50	5.48	-3.562	0.001*
Post-test	15.58	2.77		
Girls				
Pre-test	13.33	4.24	-3.250	0.001*
Post-test	15.33	2.90		
Total				
Pre-test	12.91	4.81	-4.782	0.001*
Post-test	15.45	2.78		

Note. *p<0.01

the teacher conducted unstructured systematic real-time silent observation to assess the students' progress in relation to their participation in the project activities and their performance in all curriculum subjects.

In order to assess children's motivation before and after the publication of the school journal, the Greek version of the academic motivation self-rating inventory was used (Entwistle, 1968; Kakavoulis, 1984). It includes 24 closed-ended questions to which the student is asked to answer "YES" or "NO". The answers the child gives reveal his/her motivation for learning, for achievement and for attending school. The answers are used to determine the student's motivation index (SMI), which can range from zero to 24. This questionnaire includes six structural factors, which refer to:

(a) student's interest in courses,

(b) student's interest in school and studies,

(c) student's concern in case of low grades,

(d) parents' ambitions for their children to pursue further studies,

(e) parents' attitude towards their child's attendance, and

(f) student's assessment of the importance of school for professional success.

Since it was considered that the 4th and 6th factors were not necessary for the needs of this research, these factors were excluded from the questionnaire and children were asked to answer a total of 19 questions. The students completed the questionnaire at the beginning of SCJ-19 project (December 2021), prior to their engagement with the project, as an initial-exploratory evaluation (pre-test). They also completed the end of the project (June 2022), as a final evaluation (post-test). To answer the questionnaire, the students used an individual number code given to them by the teacher that was common for pre- and post-test.

The authors analyzed the collected data using descriptive statistics for calculating the means and standard deviations of SMI. Comparisons between SMI for each gender group of the study were made using the χ2-test. To identify whether and to what extent SMI differed after completing the project, the paired samples t-test for correlated groups was used. The internal consistency of the questionnaire statements was assessed based on the reliability coefficient (Cronbach's alpha), which was found to be 0.81 in the present study. A p-value of less than 0.05 was considered statistically significant. All analyses were conducted using the statistical package for the social sciences (SPSS version 21.0).

RESULTS

The results derived from the preliminary examination are presented in **Table 1**. In the initial exploratory assessment, the mean values of boys' MI (12.45) were found to be lower than girls' MI. In addition, the range of boys' MI were in a wider range than girls' MI. At the final assessment, the mean value of SMI of both boys and girls has increased. The range of SMI values has decreased as the minimum values have varied upwards. The mean value was higher in boys than in girls. However, applying the χ2-test, the differences between boys' and girls' MI mean values, both at the initial completion of the questionnaire (χ2=0.3, df=11, and p>0.05) and at the final completion (χ2=0.3, df=8, and p>0.05), were not found to be statistically significant.

The results obtained by applying the paired samples t-test are presented in **Table 2**. The results indicated that SMI mean values were increased, for both boys and girls, at the end of CovMag-19 project. SMI differences between December 2021 and June 2022, both for the differences between boys and girls and for all students, were found to be statistically significant.

DISCUSSION

What seems to emerge from this study is that the students' involvement during the year in a project in which they had the opportunity to deal with topics of their interest, had a positive impact on the development and strengthening of their learning motivation. Using the publication of their class journal as a starting point, the children communicated and collaborated with each other in a context of constructive and exploratory learning. Through the project activities, they gradually began to take a more active role and to propose new topics and activities. The results of the quantitative analysis showed that after the implementation of the program, SMI had increased, and the results were statistically significant for both boys and girls. Unstructured systematic real-time silent observation based on teacher assessment was consistent with the findings of the survey. Observation indicated that the motivation for students to learn more in order to enrich the topics of their class journal was also reflected in most of the curriculum subjects. The students reached a high level of communication, which facilitated the management of teaching time and problems that could arise during the learning process. In addition, they also communicated with other members of the school community, classmates, parents and teachers, since the journal would be accessible online from the websites of their class and their school, so that the positive feedback that emerged gave the children the motivation to work more diligently with the publication of the journal. Based on the qualitative characteristics (project and classroom teacher characteristics) considered, it can be argued that the mediating role of the teacher and the teaching approaches he used enhanced SMI.

Literature review provides evidence that when students involved in game-based learning or are engaged with educational digital systems, their learning motivation increases (Buchner & Kerres, 2021; Demitriadou et al., 2019; Huang et al., 2020; Kalogiannakis et al., 2021; Sáez-López et al., 2019; Stiller & Schworm, 2019; Zheng et al., 2020). In primary education also, the teachers can use many ways to foster students' motivation to learn using a challenging learning strategy, such as a game, or an interactive learning media (Puspitarini & Hanif, 2019). The teaching, which uses digital multimedia and multimodal material and is not limited to the lectures of the teacher and the exclusive use of the book, increases students' learning motivation and engagement (Zou, 2020). This cannot be said that it has been achieved in education, since even nowadays there are obstacles and barriers, such as traditional teacher-centered practices that are used and do not lead to improving students' skills and abilities (Puspitarini & Hanif, 2019). Furthermore, even when primary teachers understand the importance of classroom potential, they sometimes do not have the time or training to implement a student-centered pedagogical process (Audley-Piotrowski et al., 2015).

We realize that in recent years, the scientific education community has placed a strong emphasis on digital media, and we can argue that the proper use of technological and digital media becomes a strategic tool that can increase motivation, enthusiasm, engagement, fun and interest, since these media are consistent with students' interests. In any case, we must always consider the risks of overexposing children and adolescents to digital media for their cognitive function and health (Reid-Chassiakos et al., 2016). In this way, digital media become an ally of the teacher in the effort to improve the academic achievements, skills and motivation of his/her students. Digital media can be combined with earlier proposed student-centered approaches in the field of experiential learning. Therefore, our study contributes to the discussion about the pedagogical benefits of an old student-centered practice, such as publishing a journal in the digital age, focusing on the process and the social relationships that are developed among the students. Freinet has formulated the educational and social value of the school newspaper, as he had pioneering role with the school press, not only to inspire sensitivity and critical thinking to his pupils (Martins & Fortunato, 2020) but also to restructure the classroom (Carlin, 2019). Freinet insisted that programs based on children's needs and interests and are responsive to children's level of academic and psychological development can contribute to the success of all children in the classroom (Lee, 1984). At this point, we should mention that the implementation of collaborative and experiential projects with the participation of all students in the classroom has multiple effects, not only in improving interpersonal and social relations, but also in increasing learning motivation, as derives from our results. Consequently, this leads to observed benefits in psychosocial adjustment, positive learning experiences and academic performance of students (Audley-Piotrowski et al., 2015), which can function as protective factors against peer rejection and isolation in the school environment (Antonopoulou et al., 2019).

CONCLUSIONS

The purpose of the present study was to explore the potential impact of 6th grade students' participation in experiential innovative project, such as the publication of a school journal, on the development or strengthening students' learning motives.

The present study has some strong limitations, which need to be taken into consideration in the examination of the results. First, SCJ-19 project was implemented with students from one class only, so the research sample size was small. A second limitation of the study is that the research design did not include a pre- and post-test control group to draw safer conclusions. In addition teacher's systematic real-time silent observation was not based on a structured instrument that promotes class observation or an organized observational protocols (Eradze et al., 2019; van der Mars et al, 2018).

What is intended in a classroom is the maximum potential improvement of all students' abilities, with a greater emphasis on the invisible students, students who are neglected or ignored by peers (Byrnes, 1985). Students who avoid participating in the educational process because they feel disadvantaged in the classroom either because of reduced cognitive abilities or because of low self-esteem. In conclusion, engaging students in an innovative project, such as the publication of a school journal, through a constructive and collaborative learning process, seemed to encourage all children to develop or strengthen their learning motivation, not only in the field of innovative activities but also in the other subjects of the curriculum. Further research, involving more students, is needed for more reliable results. In our opinion, it is important for future studies to focus on this specific group of invisible students, in order to help them increase their intrinsic motivation and thus become more visible in their classrooms.

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