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Intrinsic and Extrinsic Motivation of Primary School Students for Mathematics and English as a Foreign Language

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Abstract

This study examines the extent to which primary school students are motivated to learn two significant academic subjects, namely mathematics and English as a foreign language (EFL). Additionally, it explores the trends in motivational levels as students advance through different grades. It is crucial to track both intrinsic and extrinsic motivation exhibited by primary school students towards specific subjects, across various subjects and grade levels, because it provides valuable insights into the dynamics of student motivation and contributes to a more comprehensive understanding of their overall learning engagement. To investigate types of motivation, a sample of 638 students from Grades 3 and 5 participated in the survey. The results indicate that primary school students are almost equally intrinsically and extrinsically motivated to learn mathematics and EFL. This suggests a balanced approach to students' overall motivation towards learning. Regarding motivational trends, the results show that in mathematics, both types of student motivation decline with increasing age, while in EFL, intrinsic motivation increases and extrinsic motivation decreases as students advance through higher grade levels. These findings underscore the necessity of implementing innovative strategies to sustain and enhance intrinsic motivation among students in the upper grades of primary school. Additionally, it highlights the importance of strategically utilizing external factors to support and promote sustained academic achievement of students of these grades.

Keywords:

Intrinsic and Extrinsic Motivation, Primary School, Age Differences, Mathematics, EFL

Introduction

Educators widely acknowledge motivation as a crucial affective factor significantly impacting student achievement across various academic subjects. Being defined as an incentive to stimulate action, or as a reason that underlies behavior (Ryan & Deci, 2017), motivation plays a crucial role in arousing students' inner drive and "directing their behavior towards learning" (Nyman & Sumpter, 2019, p. 80). Indeed, for effective learning, it is essential to

have an incentive that directs students' interest and engagement towards the learning process.

Learning incentives can appear in the form of intrinsic and extrinsic energies that stem from a student's internalized curiosity, wish, and desire for personal fulfillment and pleasure (Howard et al., 2021), as well as from the inducted interest by the external environment to succeed for being recognized and rewarded by others. Therefore, based on the self-determination theory (Ryan & Deci, 2017), there are two main types of motivation. It is intrinsic motivation, which is recognized as the process when students are engaged in a learning activity "for their own sake, or for their inherent interest and enjoyment" (Ryan & Deci, 2020, p. 3), and extrinsic motivation when students' engagement in the activity is more of an instrumental character, such as completing a task to attain some external benefits (Wallace & Leong, 2020). To understand why some students prefer certain school subjects while requiring external stimulation to engage effectively with others, it is crucial to investigate the different types of motivation that drive their learning preferences. A better understanding of students' incentives towards learning helps teachers implement research-based learning strategies that cultivate students' intrinsic and extrinsic motivation and maximize their potential to master these subjects.

As a result of an earlier perception among researchers about the difficulties in tracking the manifestation of different types of motivation in young children (Oga-Baldwin et al., 2017; Ramos et al., 2022), a priority focus was devoted to the research on students' motivation in secondary and higher education (Kum, 2022), and less attention was paid to analyzing this phenomenon in early grades (Wallace & Leong, 2020; Xia et al., 2022). However, a recent study conducted by Nyman and Sumpter (2019) with students from grade 1 to grade 3 "indicates a rather rapid change" of students' motivation in primary school and "signals the need to know more about young students' motivation" (p. 81). It is essential to track the types of motivation exhibited by students towards specific school subjects (within school subject differentiation) and across them (between school subject differentiation), as it provides "a better understanding of student motivational dynamics" (Guay et al., 2010, p. 711) towards their schooling. Moreover, even a minor reluctance to engage with specific school subjects during early education can increase students' anxiety towards these subjects in the future and, if not addressed properly, it may influence their decision to avoid related professions.

Given the critical importance of mathematics and languages in early education, this study intended to explore to what extent primary school students exhibit the main types of motivation towards learning mathematics and EFL. Poor mathematics achievement of primary school students in the international test of TIMSS 2019, which ranked Kosovo in 49th place among 58 countries (Mullis et al., 2020), is concerning and highlights the need for mobilizing all educators to increase students' desire to learn mathematics. Furthermore, the rapid development of digital technology, with English as the default language in the tech community and its use for educational purposes, necessitates the sparking of primary school students' interest in learning EFL. Among the factors that can enhance primary school students' motivation to build a solid foundation in mathematics and English are teachers. As agents of change, they can implement innovative strategies to improve the learning environment and stimulate students' curiosity and enthusiasm for learning these subjects. In the long term, this approach can help students achieve enhanced academic performance that subsequently may lead them to better career opportunities and more successful integration into the global labor market.

Literature Review

The word "motivation" originates from the word "movere", which is a Latin term that means "to move" towards achieving a goal. As a concept, motivation is understood as an internal process that induces, guides, and nurtures goal-directed behavior in humans. It can be understood as "the engine that keeps us going" (Nyman & Sumpter, 2019, p. 81), the driving force that pushes human beings to accomplish an action that has some meaning and is important to them.

Applied in education, motivation refers to students' reasons for engaging in different curricular and extra-curricular activities to attain a specific goal related to their school achievements. This implies the necessity to understand the student's motivation as a conscious activity that has to be triggered somehow (Ryan & Deci, 2017). At school, this motivation can be triggered in two ways, by stimulating students' internal needs as a natural driving force to satisfy their demands for competence, "enjoyment, and interest in doing academic tasks" (Howard et al., 2021, p. 2), and by using external prod, such as prizes and good grades, through which you tend to generate their willingness to realize certain activities (Ryan & Deci, 2020). Certainly, this does not mean that the student in the first case neglects the acknowledgment and reward that might follow the successful performance of tasks, "but these rewards are not enough to keep that person motivated" (Kum, 2022, p. 13). Consequently, two main types of students' motivation – intrinsic and extrinsic motivation – can be identified, depending on how their self-determination in completing activities during the learning process is activated. For example, students who voluntarily are engaged in solving various mathematical problems

and persist throughout the process, are intrinsically motivated towards mathematics. On the other hand, those who show no interest in solving mathematical problems unless there is an external reward following it are extrinsically motivated to learn mathematics (Rodríguez et al., 2021). Similarly, students who enjoy reading and communicating in English are intrinsically driven towards learning this language, while others, who do so mainly for the sake of getting good grades or other rewards are perceived as extrinsically driven towards learning it (Wallace & Leong, 2020). Simply put, intrinsically motivated students to learn a specific school subject are enthusiastic and show inspiration to participate in activities related to it, whereas, extrinsically motivated students' reasons "are tangential to learning" (Howard et al., 2021, p. 2) and they are usually supported with additional rewarding instigation to finish activities that are characteristic for that school subject.

Although both types of motivation are important in influencing students' academic learning and achievements (Zaccone & Pedrini, 2019), some researchers give higher credit to intrinsic motivation than to extrinsic one (Guay & Bureau, 2018; Howard et al., 2021). Indeed, stemming from a student's internal drive, intrinsic motivation fosters commitment, a positive mood, and enjoyment during the learning process. As a result, it positively impacts students' learning effectiveness and helps them achieve better grades (Rodríguez et al., 2021; Zaccone & Pedrini, 2019). To emphasize its importance, intrinsic motivation "is conceptualized as a natural catalyst for learning and achievement" (Garon-Carrier et al., 2016, p. 165). On the other hand, extrinsic motivation provides students a reason to pursue knowledge by offering the "carrot" of external rewards. Driven by external factors, learning that is motivated by the promise of external awards creates more pressure and anxiety for students to achieve the expected results (Zaccone & Pedrini, 2019). This process may initially bring students a short-term success during the mobilization period, but rarely leads to sustainable and long-lasting knowledge (Grolnick, 2023).

Although intrinsic motivation has proven to play a greater role in students' academic achievements (Guay & Bureau, 2018), teachers should not neglect the importance of nurturing extrinsic motivation to learn. More importantly, some researchers acknowledge that by carefully stimulating extrinsic motivation in students, teachers can also trigger and awaken their intrinsic motivation during the learning process, especially in students with initially low levels of it (Güvendir, 2016). Hence, students' extrinsic motivation should be seriously considered by teachers not only as a complementary tool, but also as a productive leverage "to motivate students, create a positive learning environment, and transition students towards intrinsic motivation" (Sigalingging et al., 2023, p. 1). Teachers can also motivate students to set ambitious learning goals and strive to achieve the peaks of their academic achievements by arranging school activities that spark students' inner curiosity to learn and by fairly rewarding their accomplishments.

It is important to note that most researchers have neglected the study of primary school students' motivation. This happened due to the previous belief that self-perception in early grade students is undifferentiated, meaning that "the young child simply is incapable, cognitively, of developing the verbal concept of his/her value as a person" (Harter, 2001, p. 13809). However, recent "developmental research suggests that children's ability to differentiate self-representations increases across school years (especially in Grade 3)" (Guay et al., 2010, p. 715). Given that the school environment provides children with a rich source of ideas to shape the "sense of self" by comparing their capacities and skills with others and evaluating the degree of their success based on grades and rewards they get in certain school subjects, "students' self-concept begins to differentiate and to rely more strongly on social comparison driven by feedback from teachers and parents" (Sewasew & Schroeders, 2019, p. 5). Comparisons regarding their personal and peer achievements in a certain school subject influence "the formation of students' domain-specific motivational beliefs across the childhood and adolescent years" (Wan et al., 2021, p. 2). Indeed, children are exposed to different individual and group learning experiences during primary school. This enables them to make comparisons and develop their "self-perceptions, such as self-efficacy, goal orientations, or autonomy, [which] are robust predictors of motivation and performance in school" (Furrer & Skinner, 2003, p. 148). By comparing their capabilities and skills with those of their peers, even primary school students can "accurately report on their motivational states" on their own and be "aware about their status with respect to their schoolmates in each discipline" (Guay et al., 2010, p. 715).

Being less investigated so far, there is an augmented interest in researching primary school students' motivation towards learning specific subjects. Given that mathematics is essential to foster critical and logical thinking as well as problem-solving skills, and that English, as a global language, enhances communication, comprehension, and expressive abilities, it is imperative to investigate the types of students' motivation for learning these subjects from the outset of their education.

Motivation of Primary School Students for Mathematics

It is important to note that the majority of studies report a decline in motivation, particularly intrinsic motivation for mathematics, as students age from childhood into

adolescence (Garon-Carrier et al., 2016). Although the decline in interest in learning mathematics is more pronounced as students progress from primary to secondary education (Xia et al., 2022), it is also observed among students in various grades of primary school (Blomqvist et al., 2012; Radišić et al., 2024). A study conducted with more than 11,700 primary school students from six different European countries has revealed that students' motivation is strongly associated with students' mathematical identity, and "that the grade 4 students perceived themselves less as 'math persons' than their grade 3 peers in all countries" (Radišić et al., 2024, p. 1513). Another study conducted with primary school students in Sweden shows that more grade 2 students than grade 5 students expressed a positive orientation dominated by intrinsic motivation towards mathematics, while a more negative view, often associated with extrinsic motivation for mathematics, and even stress, is more prevalent among grade 5 students (Blomqvist et al., 2012). Similarly, in a study conducted with more than 1,500 primary school students in China, Xia et al. (2022) concluded that students' "motivation and engagement decreased as their grade level increased" (p. 9).

The decrease in motivation for mathematics among primary school students as they age is a multifaceted issue affected by various cognitive, emotional, and social factors. As children's cognitive development in mathematics does not follow a linear path, and the challenge of understanding mathematical concepts and procedures shifts from concrete to abstract, some students gradually begin to struggle with solving mathematical problems (Mula & Hodnik, 2020). This struggle can lead to a continuous decline in students' interest and preference for mathematics across grades. The lack of success in solving mathematical problems can influence a poor self-concept about mathematics in many students, which consequently decreases their motivation, particularly their intrinsic motivation to learn it (Rodríguez et al., 2021). Without the support of parents, teachers, and the broader school community, these students may experience a decline in their interest in the subject matter.

Motivation of Primary School Students for EFL

Similar to mathematics, motivation is considered an essential affective factor for successful English language learning "especially in countries where English is taught as a second language" (Ramalingam & Jiar, 2022, p. 1885). It provides the primary "impetus to start, and later continue, learning a second language" (Fenyvesi, 2020, p. 691). Motivation is the driving force that nurtures students to sustain the long and exhausting EFL learning process. Therefore, it is important to study the different types of students' motivation for learning EFL and its trends from the early years of schooling.

It is interesting to note that studies conducted with primary school students show that the motivation of students to learn EFL declines through the years of primary school (Demirbulak & Zeyrek, 2022; Hu & McGeown, 2020). The same trend is not happening at other levels of education. Studies conducted with secondary and higher education students do not converge and present contrasting findings regarding their motivation to learn EFL (Fenyvesi, 2020). Some of them confirm a further decrease in students' motivation (Kum, 2022), while others indicate an increase, particularly in extrinsic motivation for learning EFL among students at these education levels (Kitjaroonchai, 2013).

Although there is a lack of studies on the motivation to learn EFL among primary school students "due to numerous constraints on the use of testing in elementary foreign language classes" (Oga-Baldwin et al., 2017, p. 141), some researchers studied this phenomenon. Among them, Carreira (2006) conducted a study with 345 students of third and sixth grades in Japan and found that "third graders have more intrinsic motivation for learning EFL than sixth graders" (p. 149). Another study conducted with 631 Chinese primary school students aged between 9 and 12 years shows a decline in students' motivation for learning EFL with increasing age (Hu & McGeown, 2020). Furthermore, Fenyvesi (2020) conducted a one-year-long study with 276 Danish 7- and 9-year-old students and found that the motivation and positive attitudes towards learning EFL of young learners "decreased significantly within one year in both age groups" (p. 19). It seems that students' high interest in singing rhythmic songs and playing games, which usually characterizes the learning of English in early grades of primary schools, becomes less enjoyable when students reach the upper grades. This, combined with the increased language requirements in the subsequent grades, may lead to a decline in their intrinsic motivation. Additionally, some authors interpret the decrease in motivation among primary school students for learning EFL from a broader perspective. They admit that this does not happen only in learning EFL, but also in other academic subjects (Chuane et al., 2023; Nyman & Sumpter, 2019) due to the increased challenges students meet and the new skills they need to develop with age. So, "a developmental decline in intrinsic motivation for studying, in general, might influence English lessons" (Chuane et al., 2023, p. 284)

Unfortunately, there is a scarcity of studies that compare types of students' motivation between two or more school disciplines. To better understand "how motivation develops during formative years" (Guay et al., 2010, p. 712) in terms of students' cognitive development and to inform teachers on how to enhance students' motivation — not only in a specific school subject, but also towards education in general

— it is important to conduct studies that examine types of students' motivation across two or more subjects and compare the results.

Methodology

Research Aim

This study explored the extent to which primary school students are motivated to learn two significant school subjects, namely mathematics and EFL. Specifically, the study sought to identify which type of motivation predominates among primary school students for learning mathematics and EFL, both within each subject and between the two of them. To better understand the possible fluctuation of types of students' motivation across grades, the study was conducted with students of Grades 3 and 5. Third graders (aged 8-9) were selected due to their cognitive ability to understand and incorporate into their judgments not only their satisfaction with learning, but also the impact of the evaluative feedback from teachers, parents, and their peers when learning a certain school subject. Fifth graders (aged 10-11), on the other hand, were selected for two reasons. First, students at this grade level are more self-confident in accurately differentiating their preferences and incentives for learning specific subjects. Second, fifth grade marks the final year for primary school students in Kosovo. The following research questions guided this research:

1. To what extent is the intrinsic and extrinsic motivation of students for learning mathematics present among Grade 3 and Grade 5 students?
2. To what extent is the intrinsic and extrinsic motivation of students for learning EFL present among Grade 3 and Grade 5 students?
3. Do students of Grade 3 and Grade 5 exhibit greater motivation to learn mathematics or EFL?

Methods

This study utilized a survey as the research method for its implementation. The survey was conducted using a questionnaire with two parts and 16 items, evenly distributed between mathematics and EFL. Out of sixteen items of the questionnaire, twelve were extracted from "the Elementary School Motivation Scale (ESMS)" (Guay et al., 2010, p. 716), who analyzed the intrinsic and extrinsic motivation of 425 French-Canadian students of primary schools (grades 1-3) for mathematics, reading, and writing. The first part of the questionnaire, which covered mathematics, contained eight items. Of these, six items (three related to intrinsic motivation and three to extrinsic motivation) were similar to the corresponding ESMS items associated with mathematics. As the target group of this study were students of higher grades (Grade 3 and Grade 5) with more capacities to differentiate their learning stimuli, it was considered important to add two other items (one per each type of motivation) to have a deeper understanding about types of students' motivation towards learning mathematics. The other eight items of the second part of the questionnaire related to English were analogue to corresponding items related to mathematics, wherein the word "mathematics" was replaced with the word "English".

The questionnaire was prepared by following the instructions and recommendations for the translation of the text, such as the procedure for translation-back-translation of items in the questionnaire from English to the Albanian language, which was the mother tongue of respondents of the study, and back to ensure the accuracy of translation. The pilot test with six randomly selected students, three from grade 3 and three from grade 5, was preliminarily conducted to ensure the questionnaire's comprehension.

Sample and Data Collection

A sample of 638 students from Grades 3 and 5 participated in the study. To ensure a better representation of the students in the study, three out of seven main municipalities located in different parts of Kosovo, namely Prishtina, Gjakova, and Gjilan, were selected. Subsequently, two schools were randomly selected from each participating municipality. The principal of each of the six selected schools randomly selected two classrooms for both Grade 3 and Grade 5 to take part in the study. All students from the same municipality completed a paper-based questionnaire on the same day, whereas the completion of all questionnaires in three municipalities was done in two weeks. The number of students disaggregated by grade and gender (M-Male and F-Female) is presented in Table 1.

Table 1.
Number of Students per Grade and Gender

		M	*F*	Total
Grade	3	144	171	315
	5	163	160	323
Total		307	331	638

Data Analysis

The main types of students' motivation towards learning mathematics and EFL were measured by asking participants to indicate their level of agreement with the corresponding items on the questionnaire, using a four-point Likert scale for frequency, ranging from 4 for "always" to 1 for "never" as presented in Table 2. Initially, participants addressed items related to mathematics and then those about English. Sample items included statements, such as "I like mathematics" and "I like English" respectively.

The data from the filled questionnaires of the study were pooled and analyzed using the Statistical Package for Social Studies (SPSS). The Cronbach's alpha for all 16 items that were part of the questionnaire was 0.855, indicating a high level of reliability. The results were analyzed separately for mathematics and English, and they were presented using the percentage frequency distribution based on the response rates for each of the 16 items. The response rates were high for both school subjects, varying from 635 to 638 for mathematics, and from 631 to 638 for English. Cross-tabulation with Pearson chi-square analysis was conducted by grade level. The measure of effect size for assessing the strength of the association between the variables was done by calculating the Cramer's V for the chi-square test.

Results

Since the statements in the items of the questionnaire that were related to students' intrinsic motivation (items 1-4) and extrinsic motivation (items 5-8) were analogous for both mathematics and EFL, the results of the study are clustered in two parts: 1) Intrinsic motivation of students for mathematics and EFL, and 2) Extrinsic motivation of students for mathematics and EFL.

Intrinsic Motivation of Students for Mathematics and EFL

The students' responses regarding items 1-4 related to their intrinsic motivation for mathematics and EFL are presented in Table 2, disaggregated by grade level (Grade 3 and Grade 5). The same table contains the percentage frequency distribution of responses to these items with chi-square (χ^2) and Cramer's V test results for mathematics and EFL in separate columns. This allows an easy comparison of students' responses in both school subjects.

According to the data in Table 2, the vast majority of respondents (around 90%) stated that they highly prefer mathematics respectively English, and are equally interested in learning both (items 1 and 2). More precisely, nearly two-thirds of all students stated that they always like and are interested in acquiring knowledge about mathematics and English, respectively. On the other hand, around one-fourth of respondents reported that they often liked and were interested in math, while one-fifth stated the same for English. Regarding engagement with mathematics and English even when not required (item 3), 34.2% of respondents reported that they always engage with mathematics even in these cases, while a slightly higher percentage, or 38.0%, reported the same for English. Interestingly, a similar pattern is observed at the other extreme, there is a lower percentage of students (4.6%) unwilling to engage with mathematics when not required, compared to those reluctant to engage with English (10.9%). Regarding the ease of learning both subjects, a higher percentage of students (85.9%) find English always or often easy to learn compared to those who think the same for mathematics (81.6%).

When analyzed by grade level, the differences in students' responses are statistically significant for the first three items related to mathematics and the first two items related to English. As for the Cramer's V results, in the case of item 3, there is a moderate association between grade level and students' readiness to engage with mathematics even when not required, while the association between grade level and students' fondness and interest in learning mathematics and English is weak (items 1 and 2).

Table 2.

Percentage of Answers to Items 1-4 About Maths and English

Item		Mathematics				English			
		All N = 638	Grade 3 n = 315	Grade 5 n = 323	Sig.	All N=638	Grade 3 n=315	Grade 5 n=323	Sig.
1. I like maths/ English	Always	65.4	71.7	59.1		67.2	63.5	70.9	
	Often	23.8	19.7	27.9	$\chi^2 = 14.6$	21.5	22.5	20.4	$\chi^2 = 8.9$
	Sometimes	10.0	8.6	11.5	$p < .05$	7.8	8.6	7.2	$p < .05$
	Never	0.8	0.0	1.5	V = .151	3.5	5.4	1.5	V= .118
2. Maths/English interests me a lot	Always	63.5	68.9	58.3		65.0	61.3	68.8	
	Often	27.8	24.1	31.5	$\chi^2 = 8.8$	22.9	21.9	23.8	$\chi^2 = 22.3$
	Sometimes	7.5	5.7	9.3	$p < .05$	8.9	14.3	3.7	$p < .001$
	Never	1.2	1.3	0.9	V = .118	3.2	2.5	3.7	V= .187
3. I do maths/ English even when I don't have to	Always	34.2	44.5	24.1		38.0	40.9	35.2	
	Often	37.6	35.3	39.9	$\chi^2 = 34.3$	28.5	26.8	30.2	ns
	Sometimes	23.6	16.7	30.3	$p < .001$	22.6	24.0	21.2	
	Never	4.6	3.5	5.7	V= .232	10.9	8.3	13.4	
4. I learn maths/ English easily	Always	40.9	43.9	37.9		58.6	57.6	59.4	
	Often	40.7	40.1	41.3	ns	27.3	26.4	28.2	ns
	Sometimes	16.4	14.6	18.0		12.1	13.4	10.8	
	Never	2.0	1.4	2.8		2.0	2.6	1.6	

The comparison of the results of students by grade level shows that younger students are more consistent in their preferences and interest in mathematics than older students (items 1 and 2). Indeed, a higher percentage of Grade 3 students compared to Grade 5 students reported that they always like mathematics (71.7% compared to 59.1%) and are always interested in it (68.9% compared to 58.3%). This decline by more than 10 percentage points between results of Grade 3 and Grade 5 students shows that a substantial number of students express lower intensity of liking and interest in mathematics as they reach upper grades of primary school. Further, there is a decline of 20 percentage points between the results of Grade 3 students (44.5%) and Grade 5 students (24.1%) regarding their readiness to do mathematics always even when not required (item 3). This indicates that fewer students in the upper grades of primary school find it important to systematically learn mathematics without being obliged to.

Even though the vast majority of students in third and fifth grades expressed their systematic wish to learn mathematics (71.7% and 59.1%, respectively), a significantly lower number of them (only 43.9% and 37.9%, respectively) stated that they always find it easy to learn it. This shows that even among primary school students who always like mathematics, there are many of them who have to work hard to learn it. Moreover, the number of these students increases in upper grades. On the other hand, a high percentage of students, around 15% in Grade 3 and 20% in Grade 5 admitted that they only sometimes or never find it easy to learn mathematics. These results indicate that a high percentage of primary school students struggle to learn mathematics, and that they can very easily lose interest and give up learning mathematics in the future, if not provided with additional support and instruction on how to face and overcome related problems.

As for intrinsic motivation for learning EFL, a detailed comparison of students' results disaggregated by grade level shows a different pattern from mathematics regarding the results across various grades. In contrast to the decrease in the percentage of Grade 5 students, who selected the "always" option for all four items about mathematics, there is an increase in the percentage of students of this grade, who chose the same option in three out of four items related to EFL. More precisely, a lower percentage of Grade 3 students compared to those of Grade 5, reported that they always like English (63.5% compared to 70.9%). The same pattern across grades is repeated concerning their interest in learning English (61.3% of third-graders compared to 68.8% of fifth-graders), and in finding it always easy to learn (57.6% compared to 59.4%). These results show that older students of primary schools are more intrinsically motivated to learn EFL than younger ones, and therefore more of them pay attention to its acquisition.

Extrinsic Motivation of Students for Mathematics and EFL

Similar to the first part, the percentage frequency distribution of results related to items 5-8 by grade level, with chi-square (χ^2) and Cramer's V test results, is presented in Table 3.

The results in Table 3 show that around two-thirds of respondents stated that they always or often learn mathematics and English to get a reward (item 5) and to please their parents or teachers (item 6). For

Table 3.
Percentage of Answers to Items 5-8 About Maths and English

Item		Mathematics				English			
		All N = 638	Grade 3 n = 315	Grade 5 n = 323	Sig.	All N = 638	Grade 3 n = 315	Grade 5 n = 323	Sig.
5. I learn maths/ English to get a reward	Always	46.8	48.9	44.7		46.1	50.0	42.2	
	Often	19.2	22.2	16.2	χ^2 = 12.8	19.0	20.7	17.4	χ^2 = 11.0
	Sometimes	17.7	17.5	18.0	p < .05	12.0	11.9	12.1	p < .05
	Never	16.3	11.4	21.1	V = .142	22.9	17.4	28.3	V= .132
6. I learn maths/ English to please my parents or my teacher	Always	52.8	60.0	45.6		50.5	57.6	43.8	
	Often	16.5	17.8	15.3	χ^2 = 26.7	16.2	19.6	12.8	χ^2 = 33.4
	Sometimes	16.7	14.6	18.8	p < .001	13.2	10.9	15.3	p < .001
	Never	14.0	7.6	20.3	V= .205	20.1	11.9	28.1	V= .230
7. I learn maths/ English to show others how good I am	Always	28.1	35.4	21.1		34.4	20.2	28.2	
	Often	24.2	25.8	22.7	χ^2 = 22.2	22.8	15.7	22.3	χ^2 = 17.7
	Sometimes	22.5	18.8	26.1	p < .001	15.9	23.4	16.1	p < .05
	Never	25.2	20.0	30.1	V= .187	26.9	40.7	33.4	V= .167
8. I learn maths/ English because it is important in life	Always	80.2	81.6	78.6		75.4	71.6	78.9	
	Often	14.7	14.5	14.9	ns	16.5	17.9	15.2	ns
	Sometimes	4.2	2.9	5.6		6.1	8.0	4.3	
	Never	0.9	1.0	0.9		2.0	2.5	1.6	

other students who selected different alternatives, in the case of mathematics, there is almost the same percentage who reported learning this subject sometimes or never to receive a reward (17.7% compared to 16.3%) or to please their significant others, such as parents or teachers (16.7% compared to 14.0%). However, this pattern is not the same for English. There is a larger gap between the percentage of students who reported sometimes or never learning English to get a reward (12.0% compared to 22.9%) or to please others (13.2% compared to 20.1%), with a greater proportion of students declaring that they never do so for these reasons.

Students were also asked about their motivation to learn mathematics and English to show off (item 7). The results reveal that more than half of them (52%-57%) always or often learn these subjects to demonstrate their success to others. However, a crucial note to be emphasized is that almost all primary school students (over 92%) reported that they always or often learn mathematics and English because they consider their learning an important element in their lives (item 8).

When disaggregated by grade level, the differences in students' results in items related to extrinsic motivation are statistically significant in three out of four items for mathematics. A comparison of students' responses by grade level indicates a decrease in students' extrinsic motivation to learn mathematics as they age. Indeed, a higher percentage of Grade 3 students compared to those of Grade 5 report being frequently motivated by external factors to learn mathematics, such as receiving rewards (71.1% compared to 60.9%), pleasing their parents or teachers (77.8% compared to 60.9%) or seeking to impress others (61.2% compared to 43.8%).

Consistent with mathematics, there is a reduction in the percentage of Grade 5 students compared to Grade 3 students who are always motivated to learn English primarily for rewards (50.0% of third-graders compared to 42.2% of fifth-graders) or to please significant others, such as parents and teachers (57.6% compared to 43.8%). In contrast to mathematics, a higher percentage of Grade 5 students compared to Grade 3 students (an 8 percentage points increase) expressed a continuous desire to learn English to impress others. These differences are statistically significant, and Cramer's V results indicate a moderate association between grade level and students' willingness to learn English to please their parents and teachers (item 6), whereas the association is weak for the other two items (items 5 and 7), which are related to students' dedication to learn English for a reward and to impress others. Finally, although the difference is not statistically significant, it is important to highlight that there is an increase in students' awareness of the importance of learning English in life (item 8) as they progress to higher grades (94.1% of fifth-graders compared to 89.5% of third-graders).

Discussion

This study investigated the extent to which the main types of motivation are exhibited among primary school students to learn two important academic subjects, such as mathematics and EFL, and the trends these motivations follow as grade levels increase. The findings from this study show both positive aspects and concerning trends. The results reveal that almost all respondents are intrinsically motivated to learn mathematics and EFL. More precisely, around 90% of students like mathematics and EFL and are interested in learning these subjects. However, despite the widespread preference for mathematics and EFL, a concerning issue is that only 71.8% of students for mathematics and 66.5% for EFL have shown a willingness to learn these subjects when they are not obliged to. The substantial reduction in the percentages of students who prefer these subjects compared to those willing to dedicate their free time to additional tasks related to them shows that a considerable portion of students do not consider it important to engage in extra work beyond school requirements for these subjects. This suggests that many students from the cohort who prefer mathematics and EFL are at risk of losing their intrinsic motivation for learning these subjects. This is possible because they consider their commitment to these subjects sufficient simply by fulfilling teachers' requirements and no longer find these subjects interesting or enjoyable enough to explore beyond what is required. This lack of engagement for their pleasure, satisfaction, and personal growth, may hinder the development of their self-efficacy and autonomy in mastering these subjects and consequently diminish their intrinsic motivation to learn them.

While students' intrinsic motivation to learn mathematics and EFL is relatively good, the situation regarding their extrinsic motivation is a bit worrying. A high percentage of students (around 66%) reported that they learn mathematics and English frequently driven by external factors, such as rewards and the need to please parents or teachers, and more than half of them (around 55%) acknowledged that they do it mainly to demonstrate to others how good they are in these subjects. Since external factors can undermine students' intrinsic motivation and usually lead to short-term success (Güvendir, 2016; Wheeler, & Cabigas, 2024), the high presence of extrinsic motivation factors among primary school students to learn mathematics and English presents a major concern. Indeed, this may be unproductive, particularly for primary school students who are building their self-awareness at this stage of development, as it can lead to a distorted perception of the true value of learning.

Analysis of the results by grade level reveals statistically significant differences in students' responses on nearly all items about mathematics. The findings indicate

that a higher percentage of third-grade students, compared to fifth-grade students, exhibit intrinsic motivation for mathematics. While around 70% of third-graders like mathematics and are consistently interested in it, this percentage decreases to 60% among fifth-graders. A wider gap is revealed in students' perpetual readiness to engage with mathematics even when not required, with Grade 3 students showing their readiness to a greater extent than those in Grade 5 (44.5% compared to 24.1%).

These findings are consistent with other research showing a decline in intrinsic motivation for mathematics in primary school students as their grade level increases (Garon-Carrier et al., 2016; Xia et al., 2022). A lower level of intrinsic motivation among older primary school students is particularly concerning, as it indicates that some students are losing their enjoyment and interest in learning mathematics with increasing age. Since an important component of "help[ing] students develop intrinsic motivation is the use of real-life themes to contextualize the use of mathematics" (Samuelsson, 2023, p. 183), this shows that some teachers do not pay enough attention to connect mathematical concepts with students' everyday situations. Some teachers may lack professional knowledge to adequately address more complex contents of mathematics in upper grades of primary school, to tailor activities based on students' needs and interests, and to "keep them engaged, [to] provide emotional support and contribute to students' IM [intrinsic motivation] to learn and perform in mathematics" (Amjad et al., 2023, p. 111).

Likely, students' motivation to learn will not last endlessly if their engagement and work are guided only by intrinsic motivation incentives. Students need feedback or recognition about their work to understand that they are doing well and following the right direction to succeed and progress. However, these external factors must be used carefully and intertwined with internal ones to foster students' interest and desire to learn. Otherwise, they may undermine students' intrinsic motivation. Although fewer Grade 5 students are extrinsically motivated to learn mathematics compared to Grade 3 students, indicating thus an increased awareness among older students about effective learning versus short-term rewards, there is still a high percentage of them (60%) who learn mathematics to get a reward or to please others. It should be the teachers' and parents' responsibility to explain to their students respectively their children the importance of learning to succeed in life and not to be satisfied with learning only to get a simple reward, such as a good grade, or to please others. One of the findings from the study that may be promising for changing the situation in favor of sustainable learning and long-term success is the high percentage (over 93%) of students of both grades who declared that learning mathematics is important in life. This perception mainly being driven by external factors, such as the rewards and benefits that successful people who know mathematics achieve or by being stimulated by parents, teachers, or other people, can be very beneficial if teachers know how to tackle many mathematical problems and activities within real-life contexts and integrate them during the learning process (Samuelsson, 2023), which may ultimately increase students' intrinsic motivation for learning mathematics.

Unlike mathematics, the disaggregation of results by grade reveals that students' intrinsic motivation for learning English increases with age, so more students of Grade 5 continuously prefer English (70.9%) compared to students of Grade 3 (63.5%), and that older students are more interested in learning it (68.8% compared to 61.3%). This indicates that as students age, they increasingly recognize the significance of learning EFL and the various opportunities it offers for utilizing diverse tools for learning and communication. It is important to note that these findings are different from similar international studies showing a decline in students' intrinsic motivation for learning EFL in upper grades of primary school (Carreira, 2006; Chuane et al., 2023). Even though differences between Grade 5 and Grade 3 students' intrinsic motivation for learning EFL are small (7 percentage points), the fact that they are statistically significant imposes a necessity to conduct additional studies to explain the reasons behind this situation in Kosovo. On the other hand, similar to mathematics, older students show poorer routines in studying EFL when they are not required to. This suggests that older students believe that meeting teachers' requirements for learning EFL is enough and are hesitant to go beyond those requirements and learn for their enjoyment.

The analysis of the results of this study about students' extrinsic motivation for learning EFL reveals a similar trend to that of mathematics, indicating that fewer fifth-graders learn EFL for a reward or pleasing significant others. However, when it comes to learning EFL to show off, there is an opposite trend compared to mathematics, with a higher percentage of older students motivated by personal prestige and appearance. Finally, a high percentage of students (over 90%) of both grades who reported that learning EFL is important in their life should mobilize teachers to use various real-life situations during the teaching and learning process and through them increase students' awareness and self-motivation for learning EFL.

Conclusion and Recommendations

This study reveals that primary school students are nearly equally motivated intrinsically and extrinsically to learn mathematics and EFL, with a slightly higher preference for mathematics in both types of motivation. This suggests a comparable dynamic in

students' overall motivation for learning. Regarding motivational trends, similar to other countries students' intrinsic and extrinsic motivation for mathematics in Kosovo declines as students advance to upper grades. As for learning EFL, the situation is quite different. In contrast to other studies, students' intrinsic motivation increases with age, whereas similar to other countries, extrinsic motivation for learning EFL decreases. There is a belief that the rise in the intrinsic motivation for learning EFL stems from the students' perception of English as a global language, which unlocks opportunities to achieve their future educational and professional aspirations.

As intrinsic motivation for mathematics tends to decline as students advance to the upper grades, teachers and the school community need to create a friendly school environment to nurture this type of motivation in these grades. On the other hand, even though students' extrinsic motivation declines with age, it remains relatively high among primary school students. This poses a high risk of student instrumentalization, as this may send the wrong message that learning is solely for the sake of rewards. Although extrinsic motivation plays an important role in engaging students in the learning process, only thoughtful and selective implementation can produce a positive effect and may nurture students' intrinsic motivation. It is the intertwinement of the high intrinsic coupled with the low extrinsic motivation of students that tends to be the most effective strategy to support students in achieving the peaks of their academic achievements (Sigalingging et al., 2023; Zaccone & Pedrini, 2019).

It has to be teachers' imperative to actively support and promote students' long-term academic achievement during their early school years by fostering an engaging learning environment and strategically using external motivators. They need to use effective learning strategies to spark students' curiosity to learn and design interesting activities from real-life situations that stimulate students' intrinsic motivation and their desire to achieve (Samuelsson, 2023). Furthermore, teachers should understand the different learning styles of students and address their eventual struggles during the learning process by "providing positive feedback, listening and responding to students' questions and being empathetic to students' needs" (Hooper et al., 2019, p. 71). It is also useful to mobilize parents as important partners in supporting their children to succeed in mathematics and EFL.

As the first study to examine both types of students' motivation in primary schools in Kosovo, this research was conducted in six primary schools across three of the seven main municipalities of the country. Despite the careful distribution of the sample among municipalities and schools to secure representative data, future studies should incorporate schools from additional municipalities to ensure a further understanding of this phenomenon at this level of education and generalize the results. Additionally, this study was focused on investigating both types of students' motivation in two different school subjects and comparing the results. To analyze in more depth both types of students' motivation towards learning a certain school subject, future studies should focus on a single academic domain, and simultaneously expand to the manifestation of other types of motivation that intertwine with the main ones. There is a strong belief that further research will offer additional valuable insights into the complex nature of student motivation. This will, in turn, help educational policymakers and practitioners better plan actions that contribute to longer-term students' achievements.

Limitations

Due to the complexity and large scope of the topic, this study used only questionnaires to evaluate students' intrinsic and extrinsic motivation for mathematics and EFL in primary school by asking them to respond to the questionnaire via self-reporting. Since motivation is an affective factor related to students' perception of their learning goals, further studies should analyze this phenomenon more deeply by expanding the research and incorporating individual and focus group interviews.

Conflict of interest

The authors declare that there is no conflict of interest.

Authorship Contribution Statement

Mula: Conceptualization and design of the study, drafting manuscript, supervision, and final approval. Naka: The collection of data and technical support, data analysis/interpretation, and contributing to the final report. Sylhasi: Designing instrument, data analysis/interpretation, conducting statistical analysis, drafting of the manuscript, and writing of the final report.

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