Article

Journal of Interdisciplinary Studies in Education

Volume 15, Issue 7 (2026)
Journal of Interdisciplinary Studies in Education
ISSN: 2166-2681Print 2690-0408 Online | https://ojed.org/jise
https://doi.org/10.32674/0m98t215

Effect of Learners' Self-Efficacy on their Learning Performance at Secondary Schools in Nepal

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ABSTRACT

This study aims to determine the effect of learner self-efficacy on the learning performance of students in secondary schools in Nepal. A cross-sectional survey was carried out in a sample of 1139 students using a survey questionnaire. The data were analysed using t-test, ANOVA, and SEM. The self-efficacy of the learners was high among the secondary school students. Self-efficacy explained 89% and 51% of the variance in mathematics and total achievement scores, respectively, whereas the sociodemographic variables explained 85% and 53% of the variance in the same achievement by controlling for self-efficacy-related variables. A significant result was found at the 95% confidence interval for self-efficacy with respect to the method of instruction, ethnicity, gender, and type of institution. The self-efficacy of a learner is a contributing factor in determining student performance, whereas the method of instruction, ethnic background, gender, and type of institution are determining factors in students' self-efficacy.

Keywords: learning, Nepal, performance, self-efficacy, SEM

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INTRODUCTION

Self-efficacy refers to an individual's ability to mobilise the motivation, cognitive resources, and course of action needed to successfully execute a specific task within a given context (Stajkovic & Luthans, 1998). It is a contributing factor to someone's skills and application. More specifically, self-efficacy is essential for cognitive skills, psychomotor skills, and everyday application (Uzuntiryaki & Aydin, 2009). In a learning context, students are concerned with their ability to deal with intellectual operations and to use learned concepts in daily life situations (Capa-Aydin et al., 2018). Different studies continue to confirm that students with stronger self-efficacy demonstrate higher levels of engagement and better academic performance, while learning engagement often mediates this relationship (Miao et al., 2025; Guo et al., 2025). Furthermore, systematic reviews have highlighted self-efficacy as one of the most consistent psychological predictors of students' learning outcomes across educational contexts (Lin & Talib, 2025; Rosiyanti et al., 2025).

It is a critical component of motivation, engagement, learning, and achievement. However, self-efficacy is not an independent entity; it is determined by an individual's socio-cultural variables that convert learning and achievement into complex sociocultural phenomena (Schunk & Mullen, 2012). A meta-analysis also suggested that contextual factors, such as social support and academic anxiety, interact with self-efficacy to influence students' academic outcomes (Wang et al., 2025).

In the context of Nepali schools, the situation in which learners' self-efficacy might have main or mediating effects on their learning achievement is under researched. A few studies, such as Author (2023) and Shrestha (2008), have investigated teachers' self-efficacy beliefs in connection with mathematics teaching or anxiety, taking a small sample of a particular place and revealing a high level of teachers' self-efficacy belief in teaching mathematics. Such a handful of studies are not enough to explain students' self-efficacy in connection to their learning achievement. Considering this research gap, this study aims to investigate the existing level of secondary school students' self-efficacy across their different demographics and its effect on their overall and particularly their mathematics learning achievement.

As stated by Bandura (1997), perceived self-efficacy is one's belief in one's ability to organise and execute a course to be accomplished for the attainment of people's ability that guides their lives. In a learning context, which is likely to involve behavioural or emotional engagement, self-efficacy is among the key factors for learning achievement. It is necessary to strengthen the self-efficacy of students with high levels of test anxiety (Lee & Seo, 2021). It can be improved through repeated success in the same or similar tasks supported by specific pedagogies, course activities, and clear instruction from teachers or classmates. Students' self-efficacy is the turning point between learning achievement and emotional engagement (Ramesh & Klaiber, 2026).

Self-efficacy, particularly cognitive self-efficacy, is a significant factor for growing cognitive competencies and adapting to changing environments (Bandura, 1997). Students' self-efficacy can be determined by different factors. Among them, mastery experience, vicarious experience, social persuasion, physiological states, and drive and motivation are considered the primary factors (Capa-Aydin et al., 2018; Hutchison et al., 2006). Mastery experience is the most prominent factor for the development of cognitive, behavioural, and self-regulatory skills in learning and ever-changing life circumstances (Bandura, 1997). Teachers are also responsible for enabling mastery experience with specific tasks; providing process-related feedback; improving content-specific learning strategies; and encouraging students to attempt the task by themselves and to observe peers with similar attributes in terms of ability, learning, and experience (Odekeye & Jita, 2026; Roick & Ringeisen, 2017). To develop adaptive self-efficacy, high-achieving students need to master challenging tasks, and low-self-efficacy students need opportunities to experience success by their own and receive more persuasion about their successful performance (Rodil, M. S., 2024; Yetkin Özdemir & Pape, 2013). High levels of mastery, verbal persuasion, and vicarious experiences and low levels of physiological arousal are related to positive developmental trajectories of self-efficacy (Peura et al., 2021). A systematic review of mathematics and science education further confirms that mastery

experiences consistently emerge as the strongest source of students' self-efficacy across primary and secondary education settings (Bjerke et al., 2026)

Students' self-efficacy can also be predicted by prior performance (Usher, 2009). It is argued that failure experiences and untoward anxiety may significantly diminish students' confidence in their current mathematics coursework (Lopez & Lent, 1992). Studies have shown that self-concept is a better predictor of future-oriented motivation and that self-efficacy is a better predictor of current ability (Jansen et al., 2015). More importantly, self-efficacy plays a decisive role in the self-regulatory goal attainment process and academic performance of students (Baissane, O. & Zaid, H., 2026; Meral et al., 2012; Schnell et al., 2015). It is significantly effective for achievement, although it has a reciprocal relationship with learning achievement. The achievement experience affects the self-efficacy of an individual. This bidirectional interaction between self-efficacy and achievement is the key to cumulative development (Cikrikci, 2017). Recent longitudinal research similarly demonstrated reciprocal relationships between mathematics self-efficacy and mathematics achievement, indicating that self-efficacy is both predicted and strengthened by academic success over time (Lin et al., 2026).

Many studies, such as Azar et al. (2010) and Prat-Sala & Redford (2010), have indicated that students with high self-efficacy adopt deeper learning approaches and consequently achieve better outcomes, while students with a low level of self-efficacy have the habit of a surface reading approach. Students' self-efficacy can promote their performance only through student interactions in an e-learning environment (Abulibdeh & Hassan, 2011). A self-regulated empowerment program can support the development of self-efficacy and increase achievement patterns (Cleary et al., 2017). Furthermore, self-efficacy has a positive direct influence on mastery goals and a negative direct influence on performance-avoidance goals, and students with high levels of self-efficacy focus on enhancing their competencies and learning tasks and exposing their competencies to others. Intelligence and self-efficacy are also interconnected. Students who believe intelligence is a changeable attribute possess high self-efficacy and confidence in academic performance. The findings of the study by of Köseoğlu (2015) revealed that enlightening students about developing self-efficacy and intelligence can strengthen their performance. Students with low perceived self-efficacy are vulnerable to finding themselves in a vicious circle of procrastination (Wäschle et al., 2014). This study suggests that students' self-efficacy and their performance in mathematics should be enhanced. In addition, those students who are more confident and self-assured are more likely to achieve higher levels of academic performance. Evidence also suggests that short-term changes in self-efficacy are closely associated with perceived task difficulty, interest, and subsequent academic performance, highlighting the importance of continuously supporting students' efficacy beliefs throughout the learning process (Shum & Fryer, 2026).

Self-efficacy in Learning Mathematics

Self-efficacy in mathematics and science is built from a complex array of efficacy-relevant experiences, which may be grades or scores; vicarious experiences, including social comparison; social modelling; and social encouragement, help, scaffolding, and instruction. Research has revealed different effects of self-efficacy; for example, students who greatly enjoy and value mathematics can improve their mathematics self-efficacy (Lee & Seo, 2021; Shum & Fryer, 2026). Good-performing students feel competent in mathematics and then enjoy assignments (Olivier et al., 2019). Motivation can play a role in both the mathematics achievement and self-efficacy of students, and self-efficacy is also explained by their motivation. However, high self-efficacy does not always explain the level of motivation towards learning (Bandura, 1997).

Mathematics self-efficacy is positively related to the following different measures of motivation: intrinsic motivation, effort, persistence, and help-seeking behaviour. The positive relationship between grades in mathematics and student motivational responses was mediated both through students' perception of emotional teacher support and through the students' self-efficacy for mathematics (Skaalvik et al., 2015).

Perceived mastery experience is a powerful source of students' mathematics self-efficacy. Students who feel that they have mastered skills and succeeded at challenging assignments experience a boost in their efficacy beliefs (Usher & Pajares, 2009). There is reciprocal determinism of self-efficacy and achievement in mathematics. The reciprocal determinism of mathematics self-efficacy and performance may be a fundamental psychological process that transcends national and cultural boundaries; however, it varies across nations (Williams & Williams, 2010).

Among the subfactors of self-efficacy according to Bandura (2001), self-evaluation and self-regulation are the best predictors of academic performance (as cited in Motlagh et al., 2011). Both prior mathematical achievement and self-concept, and prior self-concept and mathematics achievement, are predictors (Lee & Kung, 2018). Students with a high level of mathematics self-efficacy experienced greater levels of emotional and social engagement in mathematics classes (Martin & Rimm-Kaufman, 2015) and reported higher achievement in mathematics (Negara et al., 2021), whereas students with low self-efficacy reported poor performance and struggle (Usher, 2009). In the study of Grigg et al. (2018) regarding the relationships among mathematics self-efficacy, interest, intention, and achievement from a social cognitive perspective, mathematics self-efficacy can predict mathematics achievement positively, and prior achievement in mathematics can also predict basic levels of mathematics self-efficacy positively, but static levels of self-efficacy, interest and intention towards mathematics are linked reciprocally over time; prior mathematics interest positively predicts subsequent mathematics self-efficacy.

The study of Meissel and Rubie-Davies (2016) also revealed that self-efficacy beliefs can predict mathematics, but it is related to cultural background. Moreover, mathematics achievement is significantly predicted by self-concept and mathematics self-efficacy (Kung, 2009). Hence, it can be argued that self-efficacy and achievement in mathematics are related bilaterally. Students' nonroutine mathematics problem-solving skills, reading comprehension factors, mathematics self-efficacy perceptions and mathematics attitudes were significantly correlated. Furthermore, reading comprehension skills and mathematics self-efficacy perception significantly predict problem-solving skills (Öztürk et al., 2020). Cognitive activation plays a significant role in the performance of mathematics. The self-efficacy of students in mathematics played a mediating role in the relationship between cognitive activation and mathematics achievement (Li et al., 2021). These studies of self-efficacy in relation to mathematics achievement highlight the importance of self-efficacy in the learning environment.

RESEARCH METHOD

This study employs quantitative research under which survey research was carried out. A total of 1139 students in grade ten were conveniently selected. However, in quantitative research, the random sampling method is preferred (Cohen et al., 2018). Owing to the first and second waves of the COVID-19 pandemic, it was not easily accessible to the respondents through the random sampling method either in face-to-face or in virtual mode. MPhil students of Nepal Open University (NOU) from 27 districts out of 77 districts were subsequently requested to administer the questionnaire in their convenient schools. A questionnaire was developed to assess the students' level of self-efficacy and their aggregate and mathematics learning achievement along with their demographic variables. In the sample, there were 556 male and 583 female students, 755 students from public (government) schools and 384 from private schools. The details of the respondents are presented in Table 1.

A self-efficacy survey questionnaire (SSQ) consisting of two major sections was developed to collect data on self-efficacy levels. The first section of the questionnaire contained eight items on learner's demographic variables (gender, ethnicity, type of school, medium of instruction, time used in study, time used in other activities, average learning achievement and mathematics learning achievement), and the section consists of thirteen items based on two dimensions of self-efficacy, in which one dimension, belief in personal ability (BPA), consists of eight items, and another, belief that ability can grow with effort (BAGE), includes five items. This questionnaire is largely based on the self-efficacy formative

questionnaire that was available in Gaumer Erickson & Noonan (2021), and its Cronbach's alpha was .89; for BPA, it was .84, and for BAGE, it was .81. Moreover, literature such as that of Bandura (1997) and Schwarzer & Jerusalem (1995) provided insights for improving the questionnaire. After the draft questionnaire was prepared, the questionnaire was contextualised through interactions with thirty-nine teachers of different subjects (who were also the MPhil students of NOU) and six students in grade ten in virtual mode (Teams). The English version of the questionnaire was developed on a 5-point Likert scale: Never fits me, Rarely fits me, Sometimes fits me, Often fits me and Always fits me, with the following codes: 1 to 5. In this study, the questionnaire's reliability, as measured by Cronbach's alpha, was 0.78, indicating good internal consistency (Drost, 2011).

Data were analysed using both descriptive and inferential statistics. The frequency and percentage were used to show the status of the sociodemographic variables. The mean and standard deviation were used to show the status of self-efficacy and learning performance. After the assumptions for the parametric tests, such as normality, homogeneity, and linearity, were tested, t-tests and ANOVA were employed to determine the significance of the effects on the learners' self-efficacy and their learning achievement across their demographic variables. After the required assumptions were tested, structural equation modelling (SEM) was used to determine the effects of demographic factors and self-efficacy-related variables on learning achievement. The results of each research question and their discussion are presented in the following sections.

RESULTS

In this section, the status of respondents' demographic variables and their self-efficacy, as well as the effects of these variables on learning achievement, are presented. First, the demographic variables of the students in the sample are analysed using frequency and percentage. The results from the t-test, ANOVA, and post hoc Tukey test for significant differences across more than two categories of the following demographic variables are presented in Table 1: the medium of instruction, ethnic background, and time spent studying.

Table 1

Results of Status of Students' Demographic Variables, Self-efficacy and Learning Achievement (n=1139)

Variables	Frequency (%)	Mathematics Score		Total Score		Self-Efficacy			
						BPA		BAGE	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Medium of Instruction	P value	0.00*		0.00*		0.4		0.00*	
Nepali	437	50.53	18.05	58.38	12.64	4.04	0.49	4.34	0.51
English	437	71.39	15.95	68.39	15.12	4.02	0.56	4.24	0.68
Mixed	265	62.85	20.98	70.19	13.10	3.99	0.56	4.36	0.66
Ethnicity	P value	0.00*		0.00*		0.00*		0.00*	
Bhramin/Chhetry	555	63.09	20.73	66.63	14.72	4.03	0.53	4.36	0.61
Janajati	361	58.24	19.24	62.23	14.10	3.93	0.54	4.21	0.63
Madhesi	82	70.47	17.44	68.33	15.03	4.29	0.44	4.37	0.58
Dalit	101	57.74	19.83	62.36	15.56	4.09	0.55	4.30	0.65
Others	40	57.00	20.00	66.29	12.31	4.04	0.48	4.32	0.61
Study Hours at Home	P value	0.00*		0.00*		0.00*		0.1	
< 2 hours	349	55.45	18.27	59.66	13.97	3.93	0.53	4.25	0.61
2-4 hours	638	62.29	19.96	66.22	13.60	4.04	0.52	4.32	0.62
> 4 hours	152	71.29	21.11	71.88	16.71	4.14	0.57	4.36	0.61

Variables	Frequency (%)	Mathematics Score		Total Score		Self-Efficacy			
						BPA		BAGE	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD
Hours for Other Activities	P value	0.00*		0.00*		0.00*		0.2	
< 2 hours	506	62.40	21.72	66.02	16.19	4.07	0.52	4.34	0.59
2-4 hours	423	61.85	19.11	64.76	13.57	3.98	0.53	4.28	0.64
> 4 hours	210	58.07	18.27	62.84	12.83	3.97	0.56	4.26	0.64
Gender	P value	0.00*		0.00*		0.1		0.00*	
Female	583	59.21	19.92	63.98	14.62	4.05	0.52	4.35	0.57
Male	556	63.69	20.29	66.00	14.74	3.99	0.54	4.26	0.66
School Type	P value	0.00*		0.00*		0.06		0.00*	
Private	384	72.48	15.68	70.32	15.62	4.01	0.54	4.23	0.65
Public	755	55.76	19.94	62.24	13.43	4.03	0.53	4.34	0.60

The results of the t-test and ANOVA reveal that total learning achievement and mathematics achievement differ significantly across media of instruction, ethnicity, hours spent on study or other activities, gender, and school type. Both achievements are better for private schools and for male students. Similarly, post hoc statistics reveal significant differences in mathematics achievement scores (1) between all categories with respect to the medium of instruction, (2) between Brahmin/Chhetri with Janajati and Madeshi, Janajati with Madeshi, Madeshi with all categories with respect to ethnicity (3) between 'less than 2 hours' and 'more than 4 hours' with respect to time spent using technology in other activities, and (4) between all categories with respect to study time at home. Similarly, post hoc statistics reveal significant differences in total achievement scores (1) between all categories except English and mixed languages with respect to the medium of instruction, (2) between Brahmin/Chhetri with Janajati and Madeshi with Janajati and Dalit with respect to ethnicity, (3) between 'less than 2 hours' and 'more than 4 hours' with respect to the time spent using technology in other activities, and (4) between all categories with respect to study time at home. With respect to belief in personal ability (BPA), post hoc statistics reveal significant results for (1) Madheshi with Brahmin/Chhetri and Janajati with respect to ethnicity, (2) between 'less than 2 hours' and '2-4 hours' with respect to the time spent using technology in other activities, and (3) between 'less than 2 hours' 2-4 hours and 'more than 4 hours' with respect to study time at home. Additionally, significant results were revealed from the use of post hoc values for self-efficacy belief that ability increases with effort (BAGE) (1) between all the variables except Nepali and mixed languages of English and Nepali with respect to the medium of instruction and (2) between Janajati and Brahmin/Chhetri with respect to ethnicity.

Structural Equation Modelling

Furthermore, as stated by Beran & Violato (2010), structural modelling (SEM) is used to analyse the relationships between observed variables (socio-demographic variables and individual items assessing self-efficacy and learning achievement) and latent variables (self-efficacy and its dimensions: BPA and BAGE). As stated by Beran & Violato (2010), general assumptions were tested before using SEM. In Table 2, the overall fit indices for the proposed/based model were chi-square/DF=3.58, RMSEA=0.05, CFI=0.88, IFI=0.89, NFI=0.85, RFI=0.82, SRMR=0.05, GFI=0.95, AGFI=0.94 and TLI=0.86, indicating that the majority of the indices are acceptable. However, convergent and discriminant validity did not exist in the model.

Absolute Fit Indices and Incremental Fit Indices

With reference to the number of variables for SEM, the sample size is large (MacCallsum et al., 1996); hence, a significant value of the chi-square is considered in the model (Bentler & Bonett, 1980). The indicators CMIN/DF<5, root mean square error of approximation (RMSEA)=0.05<0.08 (fairly fit), standardised root mean square residual (SRMR)=0.05 <0.08, goodness-of-fit index (GFI)>0.90 and adjusted goodness-of-fit index (AGFI)>0.90 are acceptable thresholds in the model (Hooper et al., 2008; MacCallum et al., 1996). The normed-fit index (NFI), comparative fit index (CFI), Tucker–Lewis index (TLI), and incremental fit index (IFI) are less than 0.90, indicating that the model poorly fits (Bentler & Bonett, 1980). However, it is below the cut-off criteria for further models (Hu & Bentler, 1999). CFI and TLI are applied to test the hypothesised model with that of a baseline model (Xia & Yang, 2019). All of these values are closer to this value after medication. Hence, the model was adopted in this research. Convergent and discriminant validity did not exist in the model; however, SEM was employed because a secondary tool was used in the research.

Table 2

Model fit indices for structural models (n=1139)

Indicators	χ2	DF	χ2/DF	RMSEA	CFI	IFI	NFI	SRMR	GFI	AGFI	TLI
After modification in Model 2	564.89	158	3.58	0.05	0.88	0.89	0.85	0.05	0.95	0.94	0.86
Model 2	697	161	4.3	0.05	0.85	0.85	0.81	0.05	0.94	0.92	0.82
Model 1	371.99	74	5	0.05	0.90	0.90	0.88	0.04	0.96	0.94	0.87

Model 1 and Model 2 explained 89% (Figure 1) and 85% (Figure 2) of the variance in mathematics achievement and 51% and 53% of the variance in the total achievement score of the students, indicating that the model is a good fit with reference to R2 (Cohen et al., 2018), with several indicators (χ2/DF=5, RMSEA=0.05, CFI=0.90, IFI=0.90, NFI=0.88, SRMR=0.04, GFI=0.94, AGFI=0.96, and TLI=0,87) and (χ2/DF=4.3, RMSEA=0.05, CFI=0.85, IFI=0.85, NFI=0.81, SRMR=0.05, GFI=0.94, AGFI=0.92, and TLI=0.82), respectively. To improve the values of the model fit indices, CFI, IFI, NFI, and TLI, the modification indices were employed in Model 2 (χ2/DF=5, RMSEA=0.05, CFI=0.88, IFI=0.89, NFI=0.85, SRMR=0.05, GFI=0.95, AGFI=0.94, and TLI=0.86).

The belief in personal ability (BAP) is a significant predictor of mathematics achievement (beta=5.44, p<0.01) and total achievement (beta=3.95, p<0.01) (Figure 2). Additionally, ability to grow with effort (BAGE) was a significant predictor of mathematics achievement (beta=-5.28, p<0.01) and total achievement (beta=-3.74, p<0.01). Unstandardized regression weights show that the factor loading on “Can learn to participate every day" (having the highest lambda value) under the latent variable BPA fixed as the reference variable, whereas the factor loadings of the remaining seven factors (1) can learn what is being taught (λ = 0.68), (2) can be achieved by trying very hard (λ = 0.91), (3) committing to accomplish it is important for me (λ = 0.83), (4) confidence in achieving the goals (λ = 0.82), (5) struggling to accomplish something difficult (λ = 0.91), (6) can succeed in whatever career path (λ = 0.96), and (7) can succeed whatever major/optional subject (λ = 0.85) were significant.

Figures 1

Effect of Self-efficacy on the Learning Outcomes of the Students (SEM Model 1)

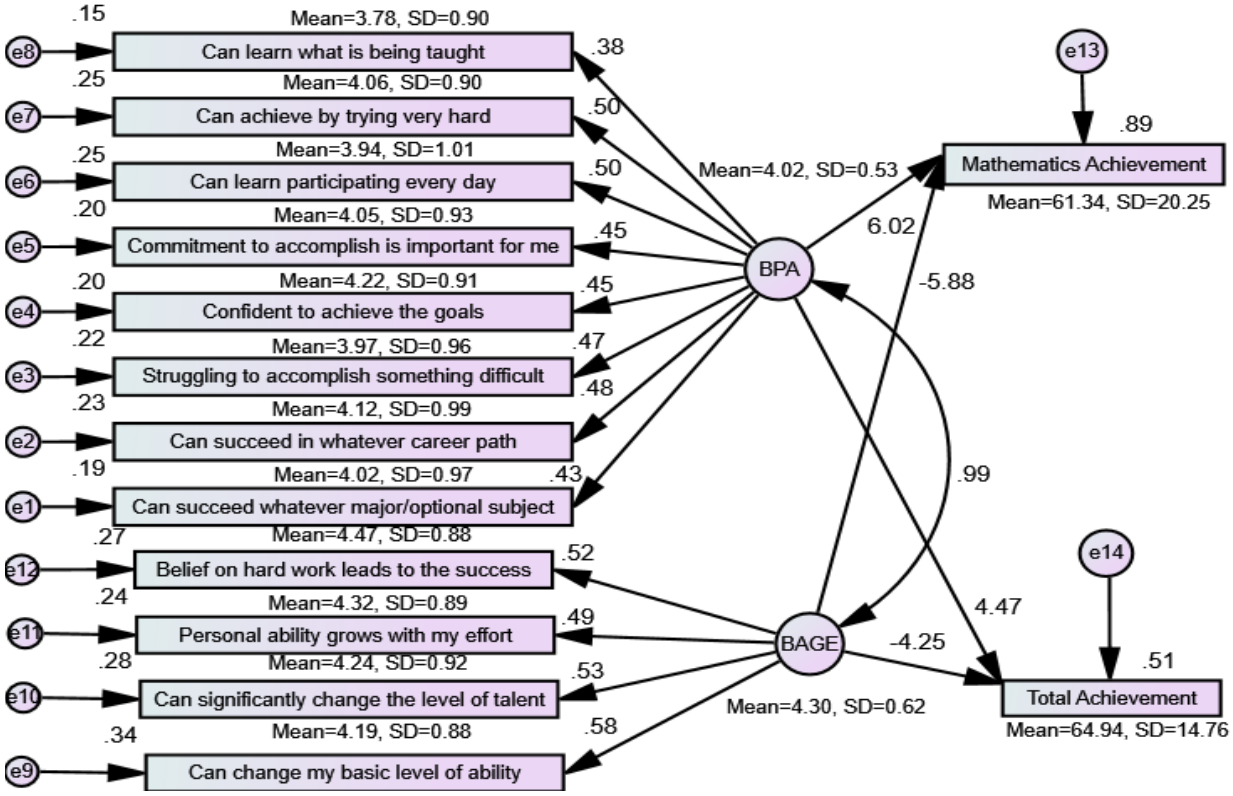
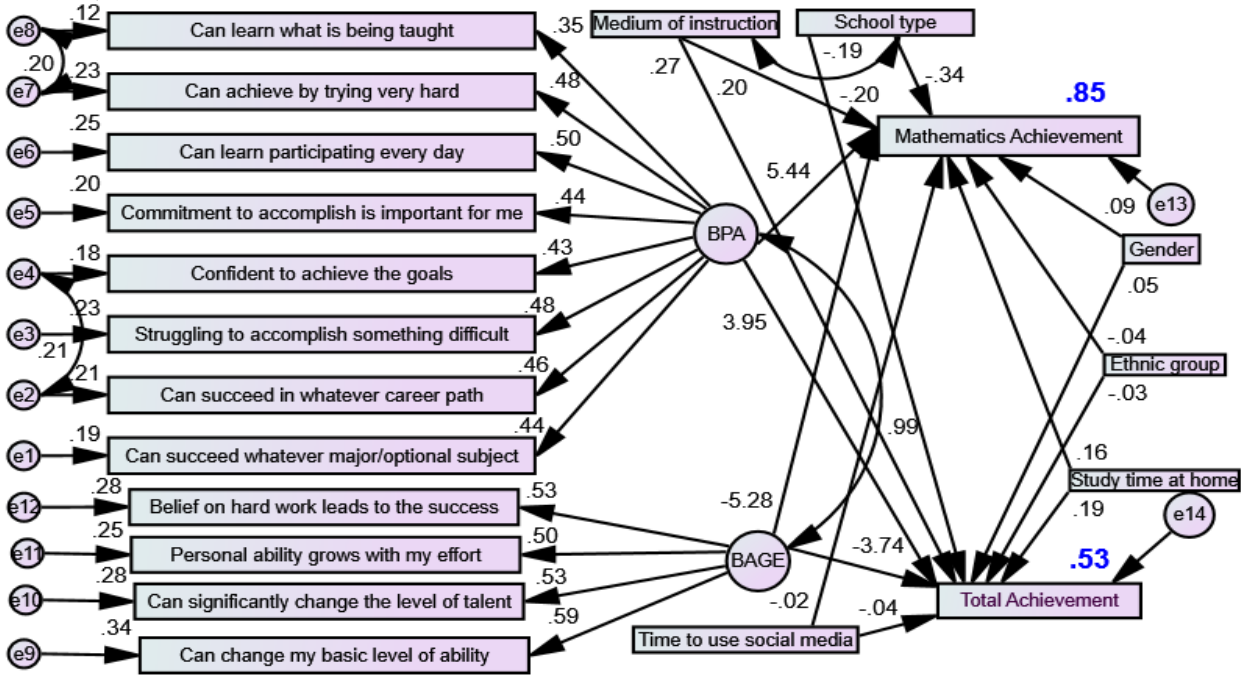


Figure 2

Effects of Learners' Self-efficacy and Their Socio-demographic Variables on Learning Achievement (SEM Model 2)



Similarly, “Can change my basic level of ability” with the highest lambda value was set to 1 (as a reference variable) under BAGE, and the remaining observed variables (1) Belief in hard work leads to success ($\lambda = 0.90$), (2) Personal ability increases with my effort ($\lambda = 0.86$), and (3) the level of talent ($\lambda = 0.96$) significantly changed.

Model 2 was generated by adding sociodemographic variables to Model 1; however, the model predicted 4% less variance in mathematics achievement and 2% more variance in total achievement score. With respect to the learners’ demographic variables, study hours at home, gender, school type and instruction are positive significant predictors of mathematics achievement. Study time (beta=0.16, P<0.01), gender with reference to males (beta=0.09, p<0.01), school type with reference to public institutions (beta=-0.35, p<0.01), and instruction (beta=-0.20, p<0.01) were significant predictors of mathematics achievement. Study time (beta=0.19, P<0.01), gender with reference to males (beta=0.05, p<0.05), school type with reference to public institutions (beta=-0.19, p<0.01), and instruction (beta=-0.27, p<0.01) were significant predictors of total achievement. BPA is significant in Model 1, with beta=6.02 for mathematics achievement and 4.47 for total achievement, whereas that value decreases to beta=5.44 for mathematics achievement and beta=3.95 for total achievement in Model 2. Similarly, BAGE is significant in Model 1, with beta=-5.88 in mathematics achievement and -4.25 in total achievement, whereas that value increases as beta=-5.28 in mathematics achievement and beta=-3.74 in total achievement in Model 2.

DISCUSSION

The level of self-efficacy of all the measured items ranged from 3.78 to 4.47, indicating that the self-efficacy of students ranged from ‘sometimes fits me’ to ‘often fits me’. Compared with the item-wise results, the self-efficacy was poorer for ‘I can learn what is being taught’, whereas the result was greater for ‘hard working habits of the students’ as the cause of success. This indicates that the students believe that ‘I can succeed in any major/optional subject’.

With respect to students’ self-efficacy across their sociodemographic variables, BPA and BAGE were higher among the Madhesi students, which might be because the descriptive statistics revealed that the Madhesi students had better learning achievement overall and in mathematics. The literature indicates that there is a reciprocal relationship between self-efficacy and learning achievement (Cikrikci, 2017; Kung, 2009). There is a higher level of both components of self-efficacy and both types of learning achievement among those students who spent more than four hours studying and less than two hours on anything other than studies. These results are in line with the findings of several studies. The literature indicates that study hours are positively correlated with learning achievement and that learning achievement is also a positive determinant of self-efficacy (Cikrikci, 2017; Kung, 2009; Motlagh et al., 2011). Self-efficacy was found to be low among Janajati students; for example, Janajati students have low economic status and lower learning performance in the Nepali context, which may affect their learning goal setting and cause low self-efficacy (Schunk & Mullen, 2012). Despite the better learning achievement of private school students, BAGE is lower than it is for public school students. These findings indicate that learning achievement is not a necessary condition for higher self-efficacy. This finding contradicts the findings of some studies that believe that personal ability-related self-efficacy has a positive effect on the academic performance of students; hence, stakeholders have focused on improving such beliefs and have mentioned that teachers’ self-efficacy directly improves students’ academic achievement in terms of the shape of their annual grades (Armor et al., 1976; Ashton, 1984; Gibson & Dembo, 1984; Miao et al, 2025). This may raise concerns that learning achievement might be explained by other factors, such as home-related or school-related factors, in private schools (Thapa, 2011).

In terms of learning achievement across the students’ socio-demographic variables, the learning achievement of the boys was better than that of the girls, which is also supported by the study of ERO (2020). However, BAGE was greater for girls, which might have a reverse effect on girls’ achievement. In addition, girls face some cultural barriers, such as early marriage, caste-based gender discrimination,

household work and the high value of a son (Bhandary, 2017). In comparison, Janajati students have low levels of learning achievement, which might be a result of low self-efficacy, which is revealed as a causal factor of their low performance and struggles (Usher, 2009; Lin & Talib, 2025; Rosiyanti et al., 2025).

Total achievement and mathematics achievement were higher among private school students, which is partially similar to the results of the National Assessment of Student Achievement (NASA)-2019 study. In mathematics, the average score of private school students was better than that of public-school students. This may be due to parents' education level and their profession (ERO, 2020; Thapa, 2011). Total achievement and mathematics achievement were higher among those students who were habituated to study for more than 4 hours/day at home, indicating that study habits are important for better academic performance. These findings are supported by a study by NASA (2019), in which the achievement of Grade 10 students in mathematics increased when they devoted 4 hours or more per day to studying and doing their homework (ERO, 2020).

The method of instruction is revealed as a determining factor of academic performance and self-efficacy in favour of English and both languages (national and international language in the context of Nepal), which seems similar to the study of Williams and Williams (2010). Hence, institutions should have a plan to teach mathematics and other subjects in both languages. This may cause English to be easier to use to understand mathematical and other content (Grigg et al., 2018).

Students' ethnic background is also a significant factor in determining learning performance in favour of the Madhesi and Brahmin/Chhetri community, where there may be a reason that the Madhesi community is forward in education because they have the opportunity to obtain basic and higher education from India, whereas the history of formal education for the general public was accessible by the establishment of democracy in the country through 1951. Additionally, the Madhesi community significantly contributes to educational development in the nation; hence, even now, the majority of the community people are working as mathematics and science teachers in several parts of the country, and they influence the strong mathematical content of India. These findings are corroborated by the findings of the National Assessment of Student Achievement-2018, which revealed that the grade five students of the Madhesi community in Province 2 achieved the highest score in mathematics and were above the national average (ERO, 2019). As stated by Bandura (1989) and others such as Martin and Rimm-Kaufman (2015) and Negara et al. (2021), self-efficacy positively influences the performance of individuals, which might be one of the reasons for better learning achievement (Grigg et al., 2018). Similarly, students from the Brahmin/Chhetri community have better learning achievement and self-efficacy. This community has a long history of learning from Bedas, or spiritual/religious resources based on astrology. They are from 'the hierarchical high-caste class (Pradhan & Shrestha, 2005) and have a high 'human development index' (GoN, 2014).

With respect to the time spent at home, more time spent on social media or non-academic activities has a negative effect on learners' performance, which seems to be obvious. Spending more time studying at home is associated with high performance, indicating that study habits at home are necessary to achieve knowledge, skills and performance that also help to increase self-efficacy. Hence, all stakeholders also have to focus on engaging their child in academic activities outside school time, as there is a reciprocal relationship between self-efficacy and performance (Schöber et al., 2018; Williams & Williams, 2010)

In line with past studies (Azar et al., 2010; Capa-Aydin et al., 2018; Cikrikci, 2017; Köseoğlu, 2015; Prat-Sala & Redford, 2010) and many others, Belief in Personal Ability (BPA) is revealed as a positively correlated factor of learning achievement, whereas Believe that Ability Grows with Effort (BAGE) is negative. The latter finding is surprising, as BAGE, one of the dimensions of self-efficacy, is negatively correlated with learners' performance. A hierarchical regression model was used, taking all individual items as independent variables to determine the item-wise effect on learning achievement. Among the five items of BAGE, one item, "believing that hard work leads to success," negatively explained learning achievement; the next item was an insignificant predictor, whereas two items were positively significant in explaining performance. The item that negatively explained learning achievement was either

confusing for the respondents or had a different mindset toward it, as the mainstream literature does not support these findings.

CONCLUSIONS

The self-efficacy of Nepali secondary school students was high, although their learning achievement was average. This suggests that self-efficacy is not enough to explain learning achievement. However, the overall results support the conclusion that the higher the self-efficacy is, the greater the learning achievement. One more interesting fact is that the students are not sufficiently sure that "I believe that hard work leads to success", which might be an issue for future research. They were either confused about the meaning of the statement or still believed in by-birth ability for good learning achievement. The belief "ability grows with effort" helps a learner have a "growth mindset," which is more important for achieving success. Teachers', school leaders', and stakeholders' roles are crucial for shifting their mindset so that they will be ready to put their effort into studying for success. Method of instruction, the ethnic background of the students, study time at home, time spent on activities other than study, and gender and type of institution are likely to contribute to determining the performance of the students. Ethnic background, study time at home, and time spent on activities other than study affect belief in personal ability, whereas method of instruction, ethnic background, gender and study time are significant factors in determining the belief that ability increases with effort. To improve existing learning performance, factors such as self-efficacy and other sociodemographic variables are important when plans and policies are developed and implemented in schools. This study was done using the convenience sampling method, which may limit the generalizability of the results. Despite the acceptable level of reliability of the questionnaire, one item of self-efficacy was negatively related to learning achievement, which requires further testing and retesting in different contexts.

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