Research article

Relations of previous English achievement with college academic achievements as mediated by English learning beliefs

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ABSTRACT

Learning is the result of many factors that interplay within individuals. That is why most learning variables affect academic performances of learners in one way or another though the strength of their predictive power could vary. The present study aimed to examine the effects of previous English achievement on English learning beliefs (ELBs) that would consequently affect college academic performances. Four hundred and seventy three respondents participated in the study through multistage sampling. A 15 items questionnaire with a 5-point Likert Scale was used to measure students' English learning beliefs. Self-reported Ethiopian Higher education Entrance Examination result of English achievement of students was used to represent their previous English results, while a 25 items teacher-made test was used to assess students' English achievement. First year first semester Grade Point Average was also used from students themselves. The principal factor analysis method produced three dimensions of English learning beliefs: combined beliefs about authority and difficulty, nature of English language learning, and risk-taking beliefs. Coefficient alpha values of the components ranged from 0.77 to 0.92. Multiple regression and structural equation modeling were employed to analyze the collected data. The results indicated that past English achievement had significant direct and indirect effects on English test scores and semester grade point average (SGPA) at college. The study discussed the results and educational implications were forwarded.

1. Introduction

This study aimed to explore the relationships of previous English achievement with current English learning beliefs, English test scores, and semester grade point average (SGPA) at college. The theoretical basis for the present research was that previous achievements and philosophical viewpoints of learners determine their current academic performances (Hofer and Pintrich, 1997).

The study results of the present study would contribute to the existing literature by providing empirical evidence about the roles of secondary school English achievement, which is termed as 'previous English achievement’ in this study, on college learning perspectives and academic achievements. In addition, the findings would have critical implications for high school and college teachers, regardless of their specialty, about the importance of English ability in explaining language learning beliefs, domain-general and domain-specific academic performances.

1.1. Background of the study

The English language is an international language because many people use it for communication purpose across the world. Crystal (2003) stated that the English language is a global language so that people across the globe are communicating for their social, economic, political, and security purposes and so forth. This means that those who are efficient in their communication skills would benefit in giving and taking processes than those who are poor in their English language competences.

Many studies indicated that English language achievement correlates to the academic performances of learners in general. For example, Martirosyan et al. (2015) found that college students who had higher English language performance in secondary school education achieved high in different college courses. Similarly, Millie et al. (2016) indicated that those who had better achievements in English had better achievements in science and mathematics than those who had poor scores in English language.
Likewise, learning beliefs are essential factors that determine our day-to-day behaviors. Hoffman (2015, p.2) stated, "[t]he beliefs determine what we do, how we do it, and how we see our accomplishments in relation to the rest of the world". Students come to school having their own personal epistemology to acquire new knowledge, skills, and develop proper attitudes that would be useful for their lives. Researchers in educational psychology, among others, consistently showed that students’ academic performances are affected by their learning and competence beliefs, which in turn affect their current academic achievements (Bandura, 1989; Shunk, 1989; Yalew, 1996).

In short, previous studies stated that learners’ academic backgrounds, personal beliefs of learning, and language competences affect their current academic successes or failures (Castro and Andrade-Arechiga, 2017; Hofer and Pintrich, 1997). To this point, educational researchers suggested the essence of examining the effects of individuals’ learning perspectives concerning their academic performances (e.g., Hofer and Pintrich, 1997) where contextual factors have the power to foster or constrain the development of epistemological beliefs. Thus, the present study aimed to examine the facilitating roles of previous English achievement on current English learning beliefs that would in turn affect college academic performances.

The learners’ beliefs about English language constitute ideas that include subjective beliefs of language learners how difficult the English language is to learn (Mori, 1997), their preferences to learn the English language from authorities (e.g., language teachers, textbooks, and dictionaries) or by their own efforts (Nikitina and Furukawa, 2018), their risk-taking beliefs in learning a new language (Horwitz, 1988); and nature of learning English as a foreign language (Horwitz, 1988; Nikitina and Furukawa, 2018). In addition, some people believe that their current ability to use the language could develop gradually while others believe it is static. It is also obvious that some of us are risk-takers to learn regardless of the correctness of our trial. All these components of learning beliefs of students can directly or indirectly affect their current academic performances in general and their English language achievements in particular.

Furthermore, the existing literature shows that some researchers are proponents of domain-generality while others favor domain-specific approaches in studying the effects of epistemological beliefs on learning. Hofer (2000) defined ‘domain-generality’ as the comprehensive viewpoint that individuals possess about the nature of knowledge and ways of knowing it. Tricot and Sweller (2013) also defined domain-general cognition as the general procedures people follow to manipulate problems in a context-free manner. Domain-specificity perspective, on the other hand, refers to a set of specific beliefs that individuals hold towards a body of knowledge, say English as a foreign language, and how to acquire it (e.g., Buehl and Alexander, 2001). In comparison, those who possess a set of domain-general perspectives would prefer to solve life challenges following the general principles in mind against students who favor using unique problem-solving strategies for different problems.

Nevertheless, some scholars argue that it is difficult to identify the boundaries of general and specific areas of knowledge. Sternberg (1989, p.11) stated, “[a] presentation of the proposition that the question of whether information representation and processing is domain-general or domain-specific is neither meaningful nor answerable.”

In practice, research evidence are not conclusive in supporting the arguments of domain-specific and domain-general propositions of the relationships between learning beliefs and academic performances. The exiting body of knowledge do not show stable research outputs in relation to English learning beliefs and academic performances. Some results reported significant relations between English learning beliefs with learning strategies and academic performance (e.g., Altan, 2006; Fujisawa et al., 2012; Hong, 2006; Horwitz, 1985; 1988; Greene et al., 2010; Mohebi and Khodadady, 2011; Ozgelen, 2012; Rad, 2010) while others showed insignificant correlations between language learning beliefs and academic achievement (e.g., Hayati, 2015).

Methodologically, some of the research endeavors used traditional correlational approaches such as descriptive statistics, Person correlation, multiple regressions and multivariate analysis of variance (e.g., Braten and Ferguson, 2014; Castro and Andrade-Arechiga, 2017; Hong, 2006; Zhou et al., 2015; Zhou, 2018). Even MANOVA is best preferred to make group comparisons on two or more DVs, but inefficient to determine direct and indirect effects of IVs on criterion variables at the same time. To fill the gap, using more comprehensive research designs would be helpful. Thus, the present investigators formulated the following research questions:

- Does previous English achievement have significant direct and indirect effects on college English achievement and semester grade point average (SGPA) as mediated by English learning beliefs?
- How significant and strong are the effects of previous English achievement on domain-specific and domain-general aspects of college academic performances?

1.2. Objectives of the study

The general aim of this study was to examine the effects of secondary school academic performance on college achievement. More specifically, this research aimed to:

- Explore the direct effects of previous English achievement and dimensions of English learning beliefs on English test scores and semester grade point average.
- Explain the indirect and total effects of previous English achievement on college English test scores and SGPA via English learning beliefs.
- State the effects of previous English achievement on domain general and domain-specific college academic performances.

1.3. Significance of the study

The results of this study would have practical benefits for language teachers, students, and educational researchers. The direct and indirect effects of previous English language achievement on college academic performances would reinforce teachers’ efforts at secondary school and tertiary levels. When the teaching and learning processes are provided due attention to language teaching and performance, it directly and indirectly benefits language learners. For researchers, this study could serve as ample empirical evidence to investigate the effects of previous English achievement on science or mathematics learning beliefs and their transcendent influence on general and specific course achievement at different educational levels in Ethiopia and across the globe.

2. Review of related literature

Spoken language is a human instrument by which individuals communicate their ideas, emotions, and experiences worldwide. In the Ethiopian context, the English language is an instructional media that serves to encode and decode instructional messages at upper primary, secondary schools and higher institutions. This section, therefore, presents the reviews that show the relations of English language performance with English learning beliefs and academic achievements.

2.1. The relations between English language performances and academic achievements

Kalyadan et al. (2015) examined the correlations between English language achievement and medical exams in Saudi Arabia. The findings indicated significant and positive correlations between the scores of the English exam and the written and results of oral medical exams.
Similarly, Alharbi and Yakout (2018) investigated the relations between English language performance and academic performance, and the findings revealed that English achievement was a significant predictor of academic achievement.

Further, Waluyo and Panmei (2021) also studied the correlations of students’ GPA with English grades in different English courses. The results revealed significant correlations and strong predictive powers of students’ grades in English courses on their GPAs across a year of study. In addition, other study results indicated a strong positive relationship of English proficiency with specific course scores like English, biology, government, and mathematics, computer, physics accounting, Hindi, arts and design (e.g., Jaunky and Nauzeer, 2017; Millie et al., 2016; Ozowuba, 2018).

To conclude, the reviews of this part showed that the English language performance affects both domain-general (e.g., GPA scores) and specific academic performances (i.e., English test scores). However, most of the research endeavors assessed used either Pearson correlation or traditional regression models. Hence, the present researchers aimed to explore the influence of previous English achievements (i.e., secondary school leaving English exam scores) on English learning beliefs that would, in turn, determine current academic performance. This research approach would help understand the extent to which previous English course scores would affect learning perspectives and academic performances.

### 2.2. English learning beliefs and academic achievement

Starting late 20th century, researchers have defined what language learning belief means and how multidimensional construct it is (Horwitz, 1985; Mori, 1997). English language learning belief refers to one’s belief about the nature of the English language, how easy or difficult to learn the English language, the extent to which individuals depend on authorities or self-learning, and so forth.

Later on, researchers showed significant correlations of language learning beliefs and language learning strategies rather than their direct effect on academic performances (e.g., Aksan, 2009; Hong, 2006; Muis and Franco, 2009), which imply those who have sophisticated language-learning beliefs use learning strategies more effectively than naïve learners. In addition, many research findings showed the positive influence of language learning beliefs on academic performances (e.g., Balc and Durak, 2018; Buehl and Alexander, 2005; Hulin and Yulian, 2016; Muis and Franco, 2009; White, 2008).

On the other hand, the domain-general and specific nature of epistemological beliefs was/is a debatable research perspective. Schommer (1990) studied the relations between domain-general epistemological beliefs and comprehension in which the results showed those who possessed advanced beliefs had better reading comprehension than the naïve ones. On the contrary, Mori (1999) examined whether factors of domain-general and domain-specific epistemological beliefs would appear together or separately by running the factor analysis together. The results indicated that domain-general and specific factors appeared separately, and language-learning beliefs had been more meaningful predictors of learning than the general ones.

The existing research endeavors showed that secondary school achievement in general and English achievements, in particular, have significant correlations with academic performances at different school levels. In addition, most of the study results showed that prior studies had excessively used traditional research designs such as Pearson correlations and multiple regressions. In other words, research results that show the structural relations of secondary school English achievement, learning perspectives, and college academic achievement are in scarce. Thus, the present study would fill such methodological gaps by which the findings would show the influence of English language performance of academic career of learners.

### 2.3. Theoretical framework

The existing literature presents empirical backs about the predictive power of English performance on academic achievements (Alharbi and Yakout, 2018; Jaunky and Nauzeer, 2017; Kaliyadan et al., 2015; Millie et al., 2016; Ozowuba, 2018; Waluyo and Panmei, 2021). At the same time, we have adequate evidence that shows the relationship between language learning beliefs and academic performances (Balc and Durak, 2018; Buehl and Alexander, 2005; Hulin and Yulian, 2016; Muis and Franco, 2009; White, 2008). Most of these studies used simple descriptive and traditional correlational designs such as Pearson correlations and regression models that help understand how powerful English scores are in predicting academic achievements in general and specific course scores in particular (Bråten and Ferguson, 2014; Castro and Andrade-Arechiga, 2017; Hong, 2006; Zhou et al., 2019; Zhou, 2018). Of course, such research results could not be a surprise because different learning variables could have, more or less, their own contributions in predicting academic performance in one way or another. However, researchers need to examine the influence of different variables and identify the pertinent ones that bring desirable change on learning beliefs, learning strategies, and academic performances. Thus, the inquiry was ‘how much does previous English achievement predict current learning perspectives that would in turn affect college English course scores and grade point average (GPA)?’ To address the question, the present researchers developed their own conceptual framework.

### 2.4. Conceptual frameworks

Based on the theoretical and research results indicated in the existing body of knowledge, the present study developed a conceptual framework that would enable us to examine the direct and indirect effects of previous English achievement on college English test scores and SGPA as mediated by English learning beliefs (see Figure 1). The hypothesis was that previous English achievement would significantly predict English learning beliefs and academic performances. At the same time, the model was constructed to compare the direct and indirect effects of previous English achievement on English test scores (i.e. domain specific) and semester grade point average (i.e., domain-general).

### 3. Methods

#### 3.1. Participants

The participants of this study were first-year undergraduate students who were attending in different programs and disciplines in Debre

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*Figure 1. A Proposed model showing the direct and indirect effects of Previous English Achievement on College English Achievement and SGPA as mediated by English language learning beliefs.*
Markos university that is one of public universities in Ethiopia. The main reason was that these students were taking sophomore English course during data collection that made the batch convenient group to administer the English test.

3.2. Sampling techniques and sample size

Multistage sampling was the sampling technique of this study. Firstly, year one undergraduate students were selected among many batches because these groups of students were active in taking sophomore English. The data from the registrar office of the university indicated that there were about 2250 regular under graduate students who were attending their lessons in forty-five sections, and grouped in three streams: social science, natural science and technology groups. Secondly, sections from each stream were proportionally selected that constituted four sections of social science, five sections of natural science, and three sections of technology group.

Finally, the researchers decided to involve all respondents who were attending their lessons in those 12 sections that enabled 491 respondents took part (social science = 173, natural science = 211, and technology group = 107). However, twelve questionnaires had significant missing values and we deleted them all. Finally, we got 479 cases with complete questionnaires. In the analysis processes, however, six cases found to be multivariate outliers and deleted. As a result, the last sample size was 473 (males = 340, females = 133), which was judged as an adequate sample size for structural equation modeling as suggested by some researchers (Khine, 2013; Kline, 2011; Tabachnick and Fidell, 2013).

3.3. Procedures

Firstly, the researchers adapted items from previous research reports. Five measurement experts validated the questionnaires developed for psychological constructs to contextualize them to the Ethiopian culture. Second, three English test experts judged the face and content validity of the English achievement test that was developed from both grade 12 and college English contents. All the instruments had satisfied the requirements of the content validity index (see the details under the validation section). Third, the researchers piloted the questionnaires with 87 first year undergraduate students in Debre Markos University, but these students were purposely excluded during final data collection. They were two section students (one social and one natural science streams). There was two weeks gap between the pilot and final data collection. Moreover, the researchers did not include these students during the final data collection period.

The reliabilities of the instrument and its dimensions were checked where Cronbach’s alpha ranged from 0.77 to 0.92. The administration of the test and the questionnaires used 30 min and 20 min respectively. Finally, twelve trained invigilators and two supervisors participated during data collection.

3.4. Measures

3.4.1. English language learning beliefs

This questionnaire had comprised of 15 items with a 5-point Likert scale where 1 = "strongly disagree", 2 = "disagree", 3 = "neutral", 4 = "agree" and 5 = "strongly agree". While high scores indicate advanced English learning beliefs, low scores show naïve beliefs. Some items scored as rated by respondents (items 1, 3, 8, 9, 10, and 15), but reversed scores were applied for others (items 2, 4, 5, 6, 7, 11, 12, 13, and 14).

3.4.2. Previous English achievement and SGPA

In the Ethiopian education system, grade 12 students should take Ethiopian Higher Education Entrance Examination (EHHEE) before joining universities. The English exam is one of those seven exams. The exam is a comprehensive exam in terms of content coverage and item types. Thus, this study used self-reported grade 12 English exam results and termed the variable as previous English achievement. Similarly, the researchers asked the respondents to report their first year first semester grade point average (SGPA).

3.4.3. English test

English achievement test was developed based on college English (sophomore) and grade 12 college English contents. Three English language test experts validated the English test, and the judges’ level of agreement was about 0.98 on 24 items that assesses reading comprehension, grammar, sentence comprehension, and vocabulary abilities of students. By adding one more question based on experts’ recommendations, the researchers finally used 25 questions/items for the pilot and final study.

3.5. Data analysis techniques

To determine the effects of predictor variables, a multiple regression analysis was employed. Path analysis was used to analyze the direct, indirect and total effects of Previous English Achievement on College English achievement and SGPA, as mediated by English learning beliefs.

3.6. Ethical considerations

This study was conducted in line with ethical principles. This study was carried out in line with ethical principles. The purpose of the study was explained to the participants to get their consents, and they were told to withdraw if they are not comfortable at the time of participating in the study. Debre Markos University evaluated if the study questionnaire and the test were free from any ethical conflicts before the tools were administered to the participants.

4. Results of the study

4.1. Factor analysis and reliabilities

A principal component analysis with a Varimax rotation was run to determine the factors that make up English learning beliefs of students. The analysis extracted three factors, namely, authority-difficulty beliefs, belief about nature of English language learning, and risk-taking belief.

| Item | Component 1 | Component 2 | Component 3 | Communalities |
|------|-------------|-------------|-------------|---------------|
| Item 13 | .770 | | | .666 |
| Item 1 | .747 | .329 | | .728 |
| Item 15 | .744 | | | .624 |
| Item 3 | .734 | | .304 | .717 |
| Item 12 | .725 | | | .489 |
| Item 2 | .723 | .304 | | .648 |
| Item 14 | .714 | | | .610 |
| Item 11 | .469 | .435 | | .489 |
| Item 6 | | .800 | | .739 |
| Item 7 | | .703 | | .606 |
| Item 5 | | .685 | | .553 |
| Item 4 | .345 | .661 | | .621 |
| Item 8 | | .802 | | .742 |
| Item 9 | | .780 | | .708 |
| Item 10 | | .692 | | .577 |

| % of variance | 30.154 | 18.770 | 15.833 |
|---------------|--------|--------|--------|

Alpha (α) 0.92 0.80 0.77
Table 1 shows the results of the factor analysis that identified three dimensions: authority-difficulty beliefs (component 1) with items 13, 1, 15, 3, 12, 2, 14 and 11, belief about nature of English language learning (component 2) with items 6, 7, 5, and 4, and risk-taking belief (component 3) with items 8, 9 and 10. The two components (authority and difficulty beliefs) were supposed to stand independently but appeared together in the current factor analysis. Thus, authority-difficulty beliefs mean that when students depend on their efforts rather than authorities, they would also believe that English language learning couldn’t be difficult. The three components explained 64.77% of the total variance in English language learning beliefs of students. The alphas of the components had been more than 0.70. The communalities were also above the minimum requirement, i.e., 0.3 (rule of thumb).

4.2. Multiple regression results

The researchers employed multiple regression to explore the predictive capacity of previous English achievement and dimensions of English learning beliefs on English test scores and semester grade point average (SGPA). On the other hand, multiple regression was employed to assess the validity of the instruments applied for the study. The analysis was conducted twice: 1) to assess the effects of predictors on English test results and 2) to evaluate the predictive potential of predictors on SGPA of respondents.

Among regression methods, the study employed sequential regression to put predictors in sequence according to their predictive power. Thus, the results under Table 2 showed that significant effects of previous English achievement and dimensions of English learning beliefs (authority-difficulty, nature of English learning belief, and risk-taking belief) on English test scores. In the meantime, the results showed significant influences of previous English achievement and all dimensions of beliefs on college English test scores. The critical ratio (t-values) showed that authority-difficulty beliefs (factor 1) found to be the strongest predictors to college English achievement ($\beta = 0.87$, t-value = 40, $p = 0.001$) while risk-taking belief found to be the least predictor to test scores ($\beta = 0.15$, t-value = 6, $p = 0.001$). The four predictors together (R-square) explained college English achievement 83%. The zero-order correlations indicated the correlation coefficients between the outcome variable (college English test scores) with predictors ranged from $r = 0.88$ (with authority-difficulty beliefs) to $r = 0.53$ (with previous English achievement).

In addition, the researchers had the intention to examine and compare how much previous English achievement and dimensions of English learning beliefs would affect college English test results and overall academic performance (SGPA). As demonstrated in Table 3, the results showed that previous English achievement, authority and difficulty beliefs, and belief about the nature of English learning significantly predicted SGPA, but risk-taking belief did not predict test scores at $t = 1.64, p = 0.102$. The overall R-square indicated that the predictors (previous English achievement and dimensions of English learning belief) explained SGPA 47%. Zero-correlations of SGPA with predictors also indicated as the correlation coefficients range from $r = 0.61$ (SGPA with previous English achievement) and $r = 0.49$ (SGPA with nature of English learning belief).

4.3. Path analysis model

The second objective of the study was to explain the indirect and total effects of previous English achievement on college English test scores and SGPA via English learning beliefs. Thus, the study employed a path analysis to explain the direct, indirect and total effects of previous English achievement on college English test scores as it was indicated in Figure 2 using AMOS-23 software.

4.3.1. Model fit tests

In the initial analysis, the Chi-square model fit test failed at $X^2 = 1638.670$, df = 333, and $P = 0.001$. In addition, other model fit indices such as CMIN/DF = 4.921 and CFI <0.90 failed to meet the requirements. To improve the model fit, we used to covariate some disturbances/error terms (e.g., e16 & e15, e17 & e16), which were the error terms of mediators. Though there were some improvements obtained where CMIN/DF < 3.00 and RMSEA < 0.05, most of the fit indices were still not satisfactory where Chi-square was still significant at $X^2 = 854.464$, df = 324 and $p = 0.001$, and none of the baseline comparisons was greater or equal to 0.95. Thus, we decided to covariate some error terms of observed variables (e.g., e4 & e5, and e1 & e3, e1 & e4, e1 & e2, e3 & e5). At this time, though we failed to meet Chi-square at $X^2 = 546.695$, df = 331, $p = 0.001$, most of the alternative model

| Table 2. Sequential regression results that show the predictive roles of previous English achievement and dimensions of English learning beliefs on College English test results. |
|---------------------------------------------------------------|
| **Unstandardized Coefficients** | **Standardized Coefficients** | t | Sig. | 95.0% Confidence Interval for B | Correlations | Collinearity Statistics |
|---------------------------------|-----------------------------|---|-----|-------------------------------|--------------|------------------------|
| (Constant)                      | 2.337                       | .270 | 8.645 | .000 | 1.806 | 2.868 |
| Authority - difficulty belief    | .460                        | .011 | .879 | 40.095 | .000 | .438 | .483 | .879 | .879 | .879 | 1.000 | 1.000 |
| Nature of English learning belief | .195                        | .027 | .205 | 7.341 | .000 | .143 | .247 | .701 | .321 | .153 | .554 | 1.805 |
| Risk-taking belief              | .193                        | .031 | .161 | 6.230 | .000 | .132 | .253 | .659 | .276 | .125 | .603 | 1.660 |
| Previous English achievement    | .043                        | .007 | .132 | 6.007 | .000 | .029 | .057 | .531 | .268 | .116 | .774 | 1.293 |
| a. Dependent Variable: Eng. test result. |

| Table 3. Sequential regression results that show the predictive roles of previous English achievement and dimensions of English learning belief on SGPA. |
|---------------------------------------------------------------|
| **Unstandardized Coefficients** | **Standardized Coefficients** | t | Sig. | 95.0% Confidence Interval for B | Correlations | Collinearity Statistics |
|---------------------------------|-----------------------------|---|-----|-------------------------------|--------------|------------------------|
| (Constant)                      | 1.210                       | .080 | 15.099 | .000 | 1.053 | 1.368 |
| Previous English achievement    | .029                        | .002 | .608 | 16.625 | .000 | .025 | .032 | .608 | .608 | .608 | 1.000 | 1.000 |
| Authority - difficulty belief    | .026                        | .003 | .342 | 8.939 | .000 | .020 | .032 | .552 | .381 | .303 | .782 | 1.279 |
| Nature of English learning belief | .021                        | .006 | .153 | 3.392 | .001 | .009 | .033 | .478 | .155 | .114 | .550 | 1.819 |
| a. Dependent Variable: semester grade point average (SGPA). |
Figure 2. The final path model where broken lines represents insignificant correlation coefficients (**represents p < 0.001 and P < 0.05).

The direct effects of the predictors in the path model are presented in Figure 2. The standardized path coefficients and the R-squares ($R^2$) that show how strong the predictors were in predicting DVs in the model are provided in this figure. Generally, the predictors (both the causal variable and mediators) explained English test scores 89% while they predicted SGPA 50%, though risk taking belief failed to reach a level of significance ($p > 0.05$).

The specific results in Table 4 showed that previous English performance significantly and positively predicted dimensions of English learning beliefs (mediators), English test scores, and semester GPA. Again, authority and difficulty, nature of English learning and risk-taking beliefs also significantly and positively predicted English test results. However, authority-difficulty beliefs significantly and positively predicted SGPA but risk-taking belief did not predict respondents' general academic performances. This result is consistent with results of regression model in which risk-taking belief was not a significant predictor to SGPA.

In comparison, the direct effects of previous English achievement on overall semester GPA was greater ($z$-value = 16, $p < 0.001$; see Table 3) than its influence on college English achievement ($z$-value = 6, $p < 0.001$; see Table 2), that was different from the researchers' expectation. The results of the path analysis also viewed that the direct effects of previous English achievement on college English achievement and SGPA had been almost the same (see Table 4). Again, when we compare the direct effects of English learning beliefs on English test scores and SGPA, the effects of the mediators on criterion variables indicated that the effects of those beliefs on English achievement was greater than its influence on SGPA (evaluate the critical ratios/C.R/in Table 4), which means that learning beliefs predict more specific course performance than general academic achievements.

Finally, we compared the direct effects of previous English achievement on mediators and outcome variables, and the results showed that its effect on the mediators (learning beliefs) was greater that its direct effect on criterion constructs (college English test scores and SGPA).

### 4.3.3. The indirect and total effects of previous English achievement on college English test scores and SGPA in SEM model

To overcome the limitations of multiple regressions, structural equation model was applied to assess the indirect and total effects of previous English achievement on college English test scores and SGPA at the same time. For this purpose, the authors employed user-defined estimand to compute specific indirect effects, total indirect effects, and the total effects of previous English achievement on those outcome variables through the mediators.

As demonstrated in Table 5, the specific indirect effects of previous English achievement on college English test scorers via all dimensions of English learning beliefs had been significant. Similarly, its specific indirect effects on SGPA had been significant via English learning and authority-difficulty beliefs, but its effect on SGPA via risk taking belief was not significant. Further, the sum of specific indirect effects of the causal

### Table 4. Direct effects of independent variables on dependent ones in the path model.

| DVs | Predictors | $\beta$ Estimate | B Estimate | S.E. | C.R. | P  |
|-----|------------|------------------|------------|------|------|----|
| Authority difficulty belief ← Previous English achievement | 0.49 | 0.048 | 0.003 | 15.318 | *** |
| English learning belief ← Previous English achievement | 0.413 | 0.032 | 0.003 | 11.038 | *** |
| Risk-taking belief ← Previous English achievement | 0.377 | 0.027 | 0.003 | 9.932 | *** |
| English test result ← Authority difficulty belief | 0.721 | 2.401 | 0.147 | 16.362 | *** |
| English test result ← Risk-taking belief | 0.102 | 0.465 | 0.129 | 3.613 | *** |
| English test result ← English learning belief | 0.113 | 0.476 | 0.155 | 3.066 | 0.002 |
| English test result ← Previous English achievement | 0.089 | 0.029 | 0.005 | 5.494 | *** |
| SGPA ← Authority difficulty belief | 0.237 | 0.114 | 0.031 | 3.665 | *** |
| SGPA ← English learning belief | 0.148 | 0.091 | 0.037 | 2.472 | 0.013 |
| SGPA ← Risk-taking belief | 0.048 | 0.032 | 0.03 | 1.036 | 0.30 |
| SGPA ← Previous English achievement | 0.407 | 0.019 | 0.001 | 15.151 | *** |
variable imposed on test scores and SGPA through the mediators (the total indirect effects) had been significant. This means that secondary school English achievement had meaningful indirect effects of on specific and general academic performances at college. In the meantime, the results indicated that the total effects (direct plus indirect) of previous English achievement on English test scores and SGPA were also found to be significant, which means that secondary school English performance had both direct and indirect effects on college learning.

### 4.5. Discussions and implications

The purpose of the present study was examining the effects of previous English achievement and English learning beliefs on college English test scores and SGPA using English learning beliefs as mediators. The findings revealed that the predictors (previous English achievement and dimensions of English learning beliefs together) jointly explained 89% of variance in college English achievement and 50% of the variance in College GPA. Since predictors (previous English achievement and English learning beliefs) are course-specific assessments, they had stronger influence on English test scores than they did on SGPA that favored domain-specific perspectives (Abedini et al., 2011; Bataineh, 2019; Buehl et al., 2002; Schommer-Aikins and Duell, 2013).

The analysis compared the effects of previous English achievement on college English test scores and GPA. The findings revealed that previous English achievement had stronger predictive power on college GPA ($\beta = 0.407, t = 15.15, p = 0.001$) than it did on college English test scores ($\beta = 0.089, t = 5.50, p = 0.001$). Similarly, Waluyo and Panmei (2021) revealed stronger predictive powers of students’ English grades on their GPAs. This means that language background is more than scoring good marks/grades in communicative or sophomore English in a non-English speaking nation like Ethiopia. In a globalized world, the language policies and strategies of the country should also create situations that promote students’ engagement with English language. The other comparison also showed that the influence of English learning beliefs on English test scores was stronger than they did on SGPA (see the path coefficients), which is consistent with domain-specific perspective (Bataineh, 2019; Buehl et al., 2002).

Generally, no matter how the extent of the effects of previous English achievement vary on test results and general academic achievement, these findings showed the importance of English competence to do better at higher education institutions. In other words, those students who come to college with better English ability are more likely to deal more effectively with academic activities such as reading materials, doing assignments and projects, writing various tasks assigned to them like tests and exams, and making oral defense in English in front of classmates.

On the other hand, the findings in relation to risk-taking belief look meaningful in many ways. Firstly, while risk-taking beliefs directly predicted college English test scores, it did not predict the general academic performance (SGPA) significantly. Basically, language learning is more of drilling and practicing which requires students’ ability to feel confident and take risk of making errors and tolerating mistakes. It can be presumed that students who are willing to practice through making and correcting errors will learn more faster and better than those students who feel less confident and feel ashamed and embarrassed to make mistakes and errors in front of others. Thus, those students who dare to practice a new language are more likely to perform in a given language. Secondly, this dimension of learning belief also did not mediate the influence of previous English achievement on SGPA (see Table 5). This means that risk-taking beliefs do not guarantee to predict the overall academic performances, which means some courses could need more critical thinking and analysis than simple language learning skills, comprehension, grammar, vocabulary, listening, speech, etc. Though the risk-taking behavior of students is limited in relation to other subjects, the study revealed that those who have better English language background would perform well in English courses, implying its instrumental value in academic courses in general.

Studies indicated that the English language background has its own impacts on learning variables like academic motivation and use of learning strategies that would in turn affect academic achievement. In most cases, those who achieved better in the past tend to have higher level of probability to display higher achievement motivation that impacts learning strategies and setting attainable achievement goals than those students who have poor English language background (Ames and Archer, 1988; Areeppattamanil et al., 2011; Buehl and Alexander, 2005; Nyholm, 2015; Trevino and DeFreitas, 2014; Yusuf, 2011). Further, Paulsen and Feldman (1999) indicated positive relations between epistemological beliefs and achievement motivation.

Though there are adequate evidence on the predictive roles of English performance on academic achievement (e.g., Alharbi and Yakout, 2018; Janku and Nauzeer, 2017; Kalyaydan et al., 2015; Millie et al., 2016; Ozowuba, 2018; Waluyo and Panmei, 2021), the existing literature lacks empirical findings that show the indirect effects of English language background on college academic performances.

Thus, one of the objectives of the current study was to fill a methodological gap in which the path model enabled us to materialize the indirect effects of secondary school English achievement on college academic performances. This means promoting language skills of students would serve as kicking two birds by a stone; that is; improving language promotes advanced learning beliefs of learners that consequently improve academic achievements of students. Indeed, this finding is the one of the unique contribution of the study.

To sum up, English achievement is not simply a matter of scoring high in English course tests. It has also direct relations with the quality of education. Educators stated that language performance have its own

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### Table 5. The indirect and total effects of previous English achievement on English test results and SGPA via mediators.

| Parameter Mediators | Estimate | Lower bound | Upper bound | P   |
|---------------------|----------|-------------|-------------|-----|
| I. Specific indirect effect |          |             |             |     |
| 1. Previous Eng. achievement (PEA) on English test results via authority-difficulty belief | 0.115 | 0.095 | 0.134 | 0.003 |
| 2. PEA on SGPA via authority-difficulty belief | 0.005 | 0.001 | 0.009 | 0.003 |
| 3. PEA on English test results via English learning belief | 0.015 | 0.004 | 0.029 | 0.006 |
| PEA on SGPA via English learning belief | 0.003 | 0.001 | 0.006 | 0.029 |
| PEA on English test results via risk-taking belief | 0.012 | 0.004 | 0.02 | 0.002 |
| PEA on SGPA via risk-taking belief | 0.001 | -0.001 | 0.003 | 0.338 |
| II. Total indirect effects of: |          |             |             |     |
| PEA on English test results |           |             |             |     |
| Via all three beliefs | 0.142 | 0.125 | 0.159 | 0.002 |
| PEA on SGPA |           |             |             |     |
| Via all three beliefs | 0.009 | 0.007 | 0.011 | 0.002 |
| III. Total effect of: |          |             |             |     |
| PEA on English test results |           |             |             |     |
| (direct + indirect) | 0.171 | 0.152 | 0.189 | 0.002 |
| PEA on SGPA |           |             |             |     |
| (direct + indirect) | 0.028 | 0.026 | 0.031 | 0.003 |
contribution to quality of education (e.g., Abiy, 2017). Even MOE (1994) recognized the instrumental functions of the English language in promoting quality of learning. Thus, all stakeholders in the Ethiopian education system need to rescue the deteriorating quality of education by improving the quality of English language learning in the country.

4.6. Conclusions

This study examined the direct and indirect effects of previous English achievement on college English test scores and SGPA. Based on the findings, we concluded that previous English achievements have meaningful direct and indirect impacts on both domain-specific and general academic performances at higher education institutions. In other words, previous English achievement backgrounds determine current learning perspectives that would consequently affect students’ academic achievements. In comparison, language background predicts both domain-specific and general academic achievement, but its effect on general achievement is stronger.

4.7. Limitations and future research

The present study used only quantitative data since the design of the study forced us to do so. However, we recognize the importance of investigating the subjective perspectives of respondents about the instrumental values of English language performance in affecting higher education achievement. In addition, we also recommend future research to consider the overall achievements of students at higher education entrance exams as well as course-specific performances (say math, aptitude test scores, and general scores) while examining their impacts on personal learning perspectives and academic performances at university level. Such studies would be more informative to take enrichment and remedial measures in all disciplines.

Declarations

Author contribution statement

Yihun Getachew Mulualem; Yalaw Endawoke Mulu; Tilahun Gidey Gebremeskal: Conceived and designed the experiments; Performed the experiments; Analyzed and interpreted the data; Contributed reagents, materials, analysis tools or data; Wrote the paper.

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Data will be made available on request.

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The authors declare no conflict of interest.

Additional information

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