Research article

Effects of English learning beliefs on English achievement: academic emotions as mediators

Yihun Getachew Mulualem a,*, Yalew Endawoke Mulu b, Tilahun Gidey Gebremeskal b

a Department of Psychology, Debre Markos University, Debre Markos, Ethiopia
b Department of Psychology, Bahir Dar University, Bahir Dar, Ethiopia

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ABSTRACT

This study aimed to investigate the effects of English learning beliefs (ELBs) on English achievement via academic emotions (AEs). The study also examined gender and domain differences in ELBs and AEs. English learning beliefs involved in this study included beliefs about authority, difficulty, risk-taking, and the nature of English language learning. Among academic emotions, this study used only embarrassment, anxiety, and enjoyment. Undergraduate students (N = 440) were selected using the multistage sampling technique. The study used an English achievement test and closed-ended questionnaires to collect data. The study employed exploratory factor analysis (EFA) to factorize the dimensions of English learning beliefs and academic emotions. The present researchers employed structural equation modeling to determine the direct and indirect effects of English learning beliefs on English test scores; an independent samples t-test to explain gender differences (m = 315, f = 125); and multivariate analysis of variance (MANOVA) to assess group differences (social science = 154, natural science = 194, and technology group = 92) in dimensions of ELBs and AEs. The findings indicated that English learning beliefs had both direct and indirect effects on English achievement via embarrassment, anxiety, and enjoyment. Further, significant gender differences took place in authority belief, risk-taking belief, difficulty belief, embarrassment, and anxiety, but no gender difference took place in enjoyment. Further, MANOVA results showed significant domain differences in all English learning beliefs, embarrassment, and anxiety that favored the technology group. Finally, the article provides details of the analysis results, interpretations, discussions, and implications of the study.

1. Introduction

The study aimed to investigate the relationships of English learning beliefs with academic emotions and English achievement. Researchers termed individuals’ beliefs about the difficulty of the English language, risk-taking beliefs, and beliefs about the nature of English learning as English learning beliefs (Horwitz, 1985, 1988; Kuntz, 1996; Mori, 1997, 1999; Nikitina and Furuoka, 2006; Peacock, 1999). These beliefs refer to personal understandings of individuals about the nature and ways of acquiring the English language effectively (Mori, 1997, 1999). For instance, some language learners could perceive authorities (e.g., teachers, books, and dictionaries) as sole sources of knowledge, while others prefer to learn academic contents by themselves. In addition, learning beliefs are subjective and characterized by either naive or advanced understandings about the nature of English language knowledge and ways of acquiring it.

The other constructs examined in this study were some emotional experiences related to English language learning. Obviously, learning a new/foreign language by its nature is full of emotions, where pronouncing vocabulary and extracting meanings from contexts could challenge learners. Some students perceive that making errors in the processes of learning is a common phenomenon, while others experience feelings of shame and fear of practising the language any more. The inquiry here is to what extent the ability to manage emotional experiences would depend on the epistemological beliefs of learners.

Thus, the current researchers took the initiative to investigate how English learning beliefs affect English achievement via academic emotions. Investigating the direct and indirect impacts of learning beliefs and emotional experiences on academic performance would help language teachers identify pertinent psychological constructs that promote learning in the Ethiopian context and elsewhere. The study would contribute to the existing literature by explaining the causal relations of...
the aforementioned variables. “Causal” relation in this study refers to the structural relations of learning beliefs on mediators that would in turn affect the criterion variable.

1.1. Background of the study

Epistemological beliefs refer to personal understandings of individuals about the nature of knowledge and ways of acquiring it (Elby, 2009; Hofer and Pintrich, 1997; Hofer and Bendixen, 2012). Hofer and Pintrich (1997) reviewed the development of personal epistemology and the dimensions of epistemological beliefs focusing on study results in the 1970s, 1980s, and 1990s. The review showed that the studies were domain-general, and focused on identifying dimensions of the construct. The researchers soon came to explore the nature of domain-general and specific epistemological beliefs (e.g., Buehl and Alexander, 2006; Buehl et al., 2002; Mori, 1997) and the understanding about the importance of domain-specific approach over the general ones prevailed that would help to take specific enriching and remedial actions in the teaching learning processes.

Individuals’ understandings about the nature of knowledge and methods of learning are meaningfully predictive of learning strategies and academic performance (Hofer and Pintrich, 1997; Schommer-Aikins and Easter, 2008; Schommer, 1990; Schommer et al., 1992; Schommer et al., 2005). This means that individuals with advanced epistemological beliefs outperform those with naive understandings of the nature of knowledge and methods of learning academically.

However, some study results indicate that students’ epistemological beliefs do not always explain their academic performances. For instance, Axslan and Demirtas (2016) examined the relations among dimensions of epistemic beliefs and academic achievement among university students and reported that, among dimensions of epistemological beliefs, a statistically significant correlation was observed only between “learning depending on talent” and grade point average (GPA). Further, Mohamed and El-Habbal (2013) revealed more contrasting findings in which high and average achievers possessed naive beliefs while low achievers displayed advanced belief scores, in contrast to other research findings (e.g., Aditomo, 2018; Vecaldo, 2017; Young, 2005). Nevertheless, these studies used domain-general measures and grade point average (GPA) that demand more specific research approaches.

On the other hand, classroom emotional states are also essential elements of learning (Goetz et al., 2007; Moon, 2008). Students get happy or bored/ashamed depending on either their internal factors (e.g., understanding of the nature of the English language), or the external factors like the teaching methods teachers use, or both. Further, English is a foreign language in the Ethiopian context. If something is ‘foreign’, it usually causes emotions in one way or another. Those emotional experiences in academic settings all together are named ‘academic emotions’ (Pekrun et al., 2002), which is a multidimensional construct concerning students’ experiences in attending classes, studying subjects, taking tests, and feelings about their academic achievements (Goetz et al., 2007). The current study used the phrase “academic emotions” to refer to its dimensions, not to pluralize the construct.

Researchers (e.g., Barcelos, 2015; Pekrun et al., 2002; Pekrun and Stephens, 2010) stated that academic emotions are essential flavors in school settings, but the most missing element in considering their effects on students’ learning and academic achievement. In classrooms, students experience emotions such as being excited or bored, could have hope for success or fear of failure, or feel proud of their accomplishments or feel ashamed by their “inability” to satisfy learning requirements, be surprised at discovering a new solution or having the feeling inferiority, or experiencing happiness for success or be anxious about failing in exams.

The existing literature shows enormous research endeavors that investigated the effects of epistemological belief on learning used Pearson correlations and multiple regression models. These models lack the capacity to determine the direct and indirect effects of personal variables like learning beliefs on academic performance. Similarly, foreign language studies that considered elements of emotions overwhelmingly used traditional correlational approaches (see the most recent review made by Teimouri et al., 2019). The present researchers considered these gaps to be methodological gaps. To fill such gaps, it is possible to use more advanced research designs that can help determine the direct and indirect effects of foreign language learning beliefs on academic achievement via different learning variables.

1.2. Statement of the problem

In the Ethiopian context, the English language is a compulsory subject where every learner attends it from lower to higher education level. It is an instructional language for secondary and tertiary education (MOE, 1994). Moreover, researchers noted that English language ability has an instrumental function for academic learning (Abiy, 2017; Martirosyan et al., 2015), which implies that language learning competence has a paramount influence on the overall academic performance of students. It is undoubtedly an essential instrument for social communication, education, business, and other purposes across the globe. In the educational systems of Ethiopia, almost all teaching and learning materials that serve at all levels use English language. Further, the education and training policy of the country also stated the essence of the English language to adopt, adapt, and/or develop science and technology in the country (MOE, 1994).

Nevertheless, government reports and research results indicate that the quality of education, in general, and students’ English performance, in particular, is questionable. Teachers and education stakeholders complain about students’ English ability (Geberew et al., 2018). Furthermore, the researchers themselves usually witnessed strong resistance from university students to avoid reading tasks that needed English abilities to understand the contents written in English. In the meantime, many students demand translations of lessons conducted in English into Amharic or any other local language. In the same token, Galmiche (2018) stated that “I have grown dissatisfied with the reticence to take part in communicative activities of most of my students of English as a foreign language (EFL)” p. 99, which shows that foreign language classrooms are very challenging these days.

Based on such review works and personal observations, the current researchers decided to investigate the influences of language learning beliefs and academic emotions on English achievement in the Ethiopian context. Rifkin (2000) stated that students’ beliefs about English language learning and its nature have critical contributions on their successes or failures. Further, Galmiche (2018) related poor foreign language performance of learners with shameful/embarrassing experiences of learners. We also believe that learning beliefs and emotional experiences could interplay and affect foreign language development. Hence, the researchers formulated the following research questions:

- What would be the effects of English learning beliefs on academic emotions and English achievement?
- What roles might gender and discipline orientation play in explaining differences in English learning beliefs and academic emotions?

1.3. Objectives of the study

The general aim of this study was to examine the relations of English learning beliefs with academic emotions and English achievement. More specifically, this research aimed to:

- Investigate the direct effects of English language learning beliefs on English achievement via academic emotions.
- Explore the indirect and cumulative effects of English learning beliefs on English test scores via academic emotions.
- State gender and domain differences in the dimensions of English learning beliefs and academic emotions.
1.4. Contributions of the study

The findings of this study would show the direct and indirect effects of English language learners’ beliefs on academic emotions and English performance at the higher education level. Thus, English language teachers would acquire the importance of enriching English learners’ beliefs and promoting positive emotions to improve the English scores of students in the Ethiopian context and elsewhere. From the enriching and remedial actions teachers apply, students would also benefit from having the opportunity to possess advancing English learning beliefs and positive emotions towards the English lessons. In addition, this research results would also motivate researchers in different disciplines to explore the effects of domain-specific epistemological beliefs and academic emotions on learning.

2. Literature review

This section reviews the existing literature to show the relations among the variables in the proposed model as indicated in Figure 1. Baron and Kenny (1986), as pioneer researchers in structural equation modeling, noted the importance of demonstrating the relations of variables in a path model.

2.1. Epistemic beliefs and academic emotions

Castelfranchi and Miceli (2009) and Reisenzein (2012) stated that emotions are mental compounds that emerge from the gestalt integration of beliefs, desires, and hedonic feelings. Similarly, Muis et al. (2015) explained that the cognitive states that arise from epistemic beliefs could activate emotions positively or negatively. When individuals use their solidified cognitive congruity, they might feel comfortable or become free of disturbance. However, when individuals possess naïve-thinking styles, they are more likely to suffer from uncertain mental states that consequently cause negative emotions. This implies that less advanced beliefs and challenging learning situations may cause negative emotions that would consequently affect academic achievement negatively, and the vice versa.

In brief, researchers stated that epistemic beliefs cause emotions, be they positive or negative, which in turn affect the use of learning strategies and academic performance (Gupta et al., 2018; Hofer, 2006; Muis et al., 2015; Reyes et al., 2012). Such reviews help hypothesize that those who have well-developed belief systems tend to manage their emotions, which in turn enhance effective learning.

It is also generally true that students vary in their learning beliefs and emotional management skills because of their family situations, academic background, learning motivation, and goal-orientations. For instance, while learning English as a foreign language, learners could repeatedly encounter different learning challenges, including being unable to pronounce words correctly, making use of wrong spellings in writing vocabulary, speaking or writing grammatically incorrect sentences, and composing paragraphs with silly punctuation problems and bad feedback. Such experiences make students feel shy about using the English language in the classroom or elsewhere, while others are courageous enough to learn from their own mistakes or errors. The motivating question here is why students are different in their emotions when learning English as a foreign language. Is it really because of their language learning beliefs? If so, do learning beliefs have either direct or indirect effects on English achievement? To answer such research questions, the researchers were motivated to examine the relations between English learning beliefs, academic emotions, and English achievement.

2.2. English language learning beliefs and English achievement

Mori (1997) examined the relations between domain-general epistemological beliefs and language learning beliefs. The findings indicated most of the dimensions of domain-general and language-specific epistemological beliefs were uncorrelated. Mori concluded that specific language learning beliefs were more relevant to explaining language performance than domain-general beliefs. Furthermore, Mori (1999) and Peacock (1999) studied the relationship between language learning beliefs and academic achievement. The findings revealed direct positive and significant correlations between language learning beliefs and test results. Mori’s study further showed that no dimension of language learning beliefs was significantly correlated with self-reported grade point average (GPA). One could hypothesize that specific epistemological beliefs would have different effects on use of learning strategies, general and specific academic performances.

However, the review results show inconsistent results. While some existing literature shows relevant empirical evidence about the significant effects of English learning beliefs on English language achievement, others reported no effects of English learning beliefs on academic performance. Even some researchers showed meaningful impacts of domain-specific epistemological beliefs on academic performance (Boudaud, 2015; Bråten and Strømsø, 2006; Cazan, 2013; Mori, 1997; Rastegar et al., 2016; Trautwein and Lüdtke, 2007; Venice, 2015). In contrast, Hayati (2015) and Hulin and Yulian (2016) examined the relations between English language beliefs and academic performance and their findings indicated no significant correlations between English language beliefs and English achievement, although the correlation coefficients were positive.

Regardless of these facts, educational researchers stated that the effects of epistemological beliefs are culture and context-specific (Hofer and Pintrich, 1997; Hofer and Bendixen, 2012; Hofer, 2001, 2004, 2006), which implies the importance of investigating the effects of learning beliefs in different cultural contexts that explore the direct and indirect effects of English learning beliefs on language performance using relevant mediators.

2.3. Academic emotions and academic achievement

Emotional experiences in the classroom are common components of learning. For instance, the review conducted by Pekrun (1992) on the effects of academic emotions on learning and academic achievement showed that: positive emotions (e.g., enjoyment, hope, relief, and pride) had positive impacts while the effects of negative emotions (e.g., anger, anxiety, hopelessness, disappointment, sadness, and shame) negatively affected learning and academic performance. Furthermore, other researchers (e.g., Dewaele and Macintyre, 2014; Gopang et al., 2016; Lucardie, 2014; Manasia, 2015; Minwuyelet, 2019; Pekrun et al., 2002; Piniel and Albert, 2018; Trevors et al., 2017; Young, 1986) investigated the correlations between academic emotions (enjoyment, anxiety, and shame) and English performance. The findings indicated enjoyable experiences had significant and positive effects on learning, while anxious and shameful experiences showed significant and negative impacts on language performance. In contrast, Razak et al. (2017) reported no significant correlations between anxiety scores and academic performance.

A meta-analysis conducted by Teimouri et al. (2019) also demonstrated the existence of inconsistent results between second language emotions and English achievement. Further, Teimouri et al. (2019) recommended the importance of considering the moderating effects of internal learners’ mechanisms, like learning beliefs and emotional experiences, in investigating the relations between second language emotions and foreign language development.

On the other hand, research results related to the effects of embarrassment on language performance and its relation to language learning beliefs are scarce but a few endeavors (e.g., Ross, 2015; Jiang and Dewaele, 2019). Pekrun (1992) theoretically discussed the effects of positive and negative emotions on learning and academic achievement, in which disappointment was one factor, and the definition provided was conceptually the same as embarrassment. The feeling of disappointment or shame (together called embarrassment in the current study) is a common phenomenon in learning a new language (Dewaele, Witney and
Dewaele, 2018). Thus, this study would contribute empirical evidence that shows the causal-relations of English learning beliefs to explain English achievement via academic emotions using structural equation modeling.

2.4. Crosscutting issues

Examining gender and domain differences in English learning beliefs and academic emotions was another concern of this research. Thus, this section analyzes the existing literature to show how gender and domain differences are prevalent in language learning beliefs and academic emotions.

Siebert (2003) compared the language-learning beliefs of males and females using eight items that assess English learning beliefs. The researcher used percentages of respondents’ degree of agreement to belief items. The findings indicated that females had more helpful language learning beliefs than males. Daif-Allah (2012) also revealed significant gender differences in aptitude beliefs, learning orientation beliefs, and communication beliefs in favor of girls, though no significant gender differences took place in difficulty and the nature of language learning beliefs. In contrast, Al-mekhlafi (2017) and Hong (2006) examined gender differences in English language learning beliefs among university students and reported no significant differences.

On the other hand, Erkan et al. (2006) conducted a study to explain the roles of academic emotions during university education and gender differences. The findings indicated significant gender differences in anger, anxiety, hope, and pride but revealed no significant differences in hopelessness, shame, joy, or boredom about learning. In contrast, the study conducted by Dewaele and Macintyre (2014) revealed that girls had higher scores in enjoyment and anxiety scales in foreign language learning than their male counterparts.

Though the nature versus nurture debate on gender differences in relation to emotions remains active so far, we attribute to psychological and socio-cultural factors for emotional differences between males and females. For instance, females are expected to be calm and passive, which limits the practice/use of new languages that might consequently promote negative emotions in the Ethiopian context. Studies conducted by Gerencehal (2016) and Razak et al. (2017) at university level in Ethiopia and Yemen respectively indicated that females are more anxious than males in English classes. In contrast, the study conducted by Bahmani et al. (2018) revealed no gender differences in both positive and negative emotions among Iranian university students.

Further, researchers explored domain differences in language learning beliefs and academic emotions. For instance, Paulsen and Wells (1998) examined domain differences in epistemological beliefs grouping university students as “hard” and “pure” (the natural sciences), “soft” and “pure” (humanities, fine arts, and social sciences), “soft and applied” (education and business) as well as pure and applied (e.g., engineering) groups. The findings showed that students majoring in “pure” fields were more sophisticated learners than those in applied disciplines, and students majoring in soft or pure fields held more advanced beliefs than other groups. More specifically, Hong (2006) examined domain differences in English language learning beliefs among some groups (humanities, natural science, social science, and Engineering majors). The findings indicated significant differences in English language learning beliefs that favored students majoring in engineering fields, though Hong’s study was domain-general.

Concerning classroom emotional experiences, some research results indicate domain variations. Wolter and Pintrich (2002) compared how much the influence of anxiety on learning varies across different domains (i.e., among students majoring in social science, mathematics, and English language). Analyses revealed that anxiety was highest in social studies, followed by mathematics and then English language learners. However, comparing students in different contexts and content can lead to misleading conclusions, so studies should compare learners on the same content to make more valid conclusions. Similarly, Cocoroda (2016) indicated a domain difference in anxiety but not in other dimensions of academic emotions.

To sum up, the existing knowledge showed the relations of epistemic beliefs with academic emotions and English achievements. The major finding was methodological gaps since most of the studies focused on examining simple correlations of language learning beliefs with academic emotions and English achievement. In addition, the results showed inconsistent results in gender and domain differences in language learning beliefs and academic emotions. Thus, the current study would examine the effects of English language learning beliefs and academic emotions on English achievement in the Ethiopian context applying more advanced research design.

2.5. Theoretical framework

The proposition in which people think “true” is termed “belief” that is subjective by its nature. In theorizing the relationship between beliefs and emotions, Frijda and Mesquita (2000) noted that emotions determine how people think and perceive the world. However, this could cause a sort of argument because emotional states are the results of emotional events around us, which means they do not happen by themselves. Against Frijda and Mesquita, Castelfranchi and Miceli (2009) explained the emotional experiences of individuals in relation to cognitive-motivational approaches that conceive emotions as mental compounds caused by epistemic beliefs, desires, and hedonic experiences of individuals. Furthermore, Reisenzein (2012, p. 1) proposed that “emotions are affective feelings caused by beliefs and desires.” In short, the latter researchers noted that emotions are reactions of individuals towards what is happening in their external environment.

More specifically, Muis et al. (2015) developed a theoretical framework that hypothesized the influence of epistemic beliefs on academic emotions and learning strategies that consequently determine learning outcomes. Muis and her colleagues proposed that the epistemological beliefs of learners determine what learning strategies to use and their emotional reactions. The present researchers believe that our perceptions of events around us determine our emotional states. With this theoretical understanding, we developed a conceptual framework that hypothesized personal beliefs affect emotional states of individuals that consequently affect learning and academic performance.

2.6. Conceptual framework of the study

Based on the empirical studies reviewed and the theoretical framework discussed above, the present study developed a conceptual framework that shows the relationship of variables in the study (see Figure 1).

The model visualized the hypothesized relations among three dimensions of English learning beliefs: beliefs about English language learning, beliefs about English achievement, and beliefs about English learning strategies. The proposed model suggests that beliefs about English language learning would have a direct positive effect on English achievement. The other hypothesis was that beliefs about English learning strategies would have a direct positive effect on English achievement. The other hypothesis was that beliefs about English learning strategies would have a direct positive effect on English achievement.

3. Methods

3.1. Design of the study

The current study used an explanatory design since it helps to explain the relationships among English learning beliefs (ELBs), academic emotions (AEs), and English test scores. Creswell (2007) stated that research designs that mainly focus on quantitative data should use explanatory designs while qualitative-focused studies favor exploratory approaches.
The study employed a path model to explain the relations of variables in the hypothesized model.

3.2. Participants

The participants of the study were first-year undergraduate students at Debre Mark University (DMU), Ethiopia. Males (n = 315) and females (n = 125) accounted for 72% and 28% of the samples, respectively. The participants had three categories at the time of data collection: technology, social, and natural science groups.

3.3. Sampling techniques

The researchers selected the participants using the multistage sampling technique. First, we planned to collect data from university students. Next, we selected batches that were active in attending English lessons. Among others, first-year students were engaged in a Sophomore English course that made them a convenient group to administer the English test preparation for this study. Then, the investigators selected 12 sections of students using a lottery system among 45 sections. Finally, those who were in class during data collection were involved in the study.

Hence, the total sample size consisted of 491. However, some cases had significant missing data and some others had univariate and multivariate outliers. After removing those cases, the final analysis was conducted with 440 cases, which was an adequate sample size for structural equation modeling as suggested by some authors (e.g., Khine, 2013; Kline, 2011; Tabachnick and Fidell, 2007, 2013).

3.4. Procedures

Firstly, the researchers adapted data gathering instruments from different sources, and experts validated them. Three English test experts judged the face and content validity of the English achievement test. Five measurement experts also validated the questionnaires that focused on psychological constructs. All the instruments had satisfied the requirements of the content validity index (see the details under the validation section). As part of the validation process, the study piloted the instruments on 87 students on the same day and time by coding the materials for later compilation, in which the administration used 30 min for the test and 20 min for the questionnaire. The tools achieved Cronbach’s alphas that ranged from 0.73 to 0.92. Twelve trained invigilators and two supervisors participated while administering the test and the questionnaires. Finally, the researchers made use of data clearing and assumption testing techniques before running the final analysis.

3.5. Measures

i) English language learning belief scale

This questionnaire was comprised of 15 items. The subscale adapted the items from Horwitz (198), Mori (1999), and Nikitina and Furuoka (2006) to assess authority belief, belief about the nature of English learning, risk-taking belief, and difficulty belief (see supplementary material 2). The adaptation took place by paraphrasing, shortening sentences, changing vocabulary or verbs and making minor editorial modifications. These instruments were preferred to others since they contained items that were relevant to the Ethiopian culture. Further, they are available online, and are better predictors of English performance (e.g., Castro and Andrade-Arechiga, 2017; Ghavamnia et al., 2011; Hulin and Yulian, 2016; Mori, 1999).

The first dimension contains items 1, 2, 3, and 4 that aimed at assessing beliefs of learners about “authority to knowledge,” which would come up with empirical data that shows whether participants usually depend on their own effort or on authorities. The second
dimension constituted items such as 5, 6, and 7 that aimed to examine respondents’ “belief about the nature of English language learning.” The other dimension was risk-taking belief, which aimed to explore participants’ belief in learning English language through practice and their readiness to learn from errors, contained items 8, 9, 10, and 11. Items 12, 13, 14, and 15 were used to investigate participants’ perceptions of the difficulty of learning English as a second language. In short, the belief scale presupposed four dimensions of English learning beliefs.

A 5-point Likert scale where numbers like 1 = “strongly disagree”, 2 = “disagree”, 3 = “neutral”, 4 = “agree” and 5 = “strongly agree” were used. While high scores indicate advanced English learning beliefs, the low score shows naïve beliefs of learners. Some ratings were scored as they were rated by the respondents (items 1, 3, 8, 9, and 10) while others were reversed (items 2, 4, 5, 6, 7, 11, 12, 13, and 14).

ii) Academic emotion scale

The academic emotion subscale contained three sub-elements that focused on assessing: embarrassment, anxiety, and enjoyment experiences of participants in learning the English language. Embarrassment focuses on the shameful and hopeless experiences of students while learning the English language. Studies that directly addressed embarrassment are in few, though some investigators used terms like shame and disappointment (see Galmiche, 2018; Pekrun et al., 2011; Pekrun and Stephens, 2010; Pishghadam et al., 2016). Anxiety also refers to the fear of using the English language publicly (both spoken and written), the fear of tests and exams, and the state of anticipating bad feedback and test results while learning English as a foreign language. Enjoyment, in this study, would focus on assessing the enjoyable experiences of English language learners. In addition, the study aimed to examine the mediating roles of anxiety and enjoyment in English language performance.

Previous research has shown that these variables (embarrassing, anxious, and enjoyable experiences of learners) have an impact on English language performance (Bekau, 2018; Botes et al., 2020; Boudreau and Macintyre, 1998; Everson et al., 1992). However, the related literature review showed a scarcity of empirical evidence to explain the mediating roles of emotional experiences of learners between English learning beliefs and English language performance among university students.

The emotion scale aimed to explore the emotional experiences of respondents while they were learning English. The scale had 17 items with three dimensions. The embarrassment dimension focused on assessing un-encouraging and disappointing experiences that used six items (1, 2, 3, 4, 5, and 6). The Enjoyment subscale had six items (7, 8, 9, 10, 11, and 12), and the anxiety subscale used five items (13, 14, 15, 16, and 17).

The researchers adapted these items from the Ross (2015) and Jiang and Dewaele (2019) subscales. Like the belief scale, the researchers adapted those items using different techniques such as paraphrasing, shortening, or adding some Ethiopian contexts (see supplementary material 2).

The emotion scale used a 5-point Likert scale where 1 = “strongly disagree,” 2 = “disagree,” 3 = “neutral,” 4 = “agree,” and 5 = “strongly agree.” High scores in enjoyment imply that the English learning experience of students was enjoyable, but high scores in the embarrassment subscale show embarrassing experience. Among the seventeen emotion items, item 14 was scored reversed since it was stated positively, though its aim was to assess the anxious experiences of respondents.

3.6. The English test

A 25-items test was used to assess reading comprehension, grammar, sentence comprehension, and vocabulary abilities of students based on college English (sophomore) and grade 12 English textbook contents. Once the test was developed by one of the researchers, it was given to three English language test experts to determine the face and content validities of the test.

3.7. Instrument validation

Chen’s (2002) instrument validation format was adapted to validate the data-gathering instruments. The criteria were appropriateness and clarity. Appropriateness was rated as 1 = “not appropriate”, 2 = “almost not appropriate”, 3 = “almost appropriate”, and 4 = “very appropriate”. Likewise, clarity was rated as 1 = “it is not clear,” 2 = “it is less clear”, 3 = “It is clear”, and 4 = “It is very clear.”

Three English language test experts validated the English test. The total items provided were 33, but the judges’ level of agreement was about 0.98 on 24 items. By adding one more question at the experts’ recommendation, the researchers finally used 25 questions and items for the pilot and final study.

Five measurement experts evaluated the appropriateness and clarity of items designed to assess some psychological constructs (English learning beliefs and academic emotions). Like on the English test, the researchers scored the ratings 1 and 2 as “0”, and 3 and 4 as “1.” Next, the researchers computed content validity indexes (CVI) and found them to be 0.97 and 0.99 for English learning beliefs and academic emotion subscales, respectively. The English language was the medium for the questionnaire.

3.8. Data analysis techniques

This study used different data analysis techniques. The researchers applied structural equation modeling (SEM) using AMOS-23 to explore the direct and indirect effects of English learning beliefs on English test scores via academic emotions (embarrassment, anxiety and enjoyment). In addition, the study employed an independent-sample t-test to explore gender differences in the dimensions of English learning beliefs and academic emotions. Furthermore, multivariate analysis (MANOVA) was employed to investigate domain differences in those independent constructs among social science, natural science, and technology groups.

3.9. Ethical considerations

This research was conducted after passing different ethical assessments. Firstly, it was approved by an Ethical committee of the Department of Psychology in Bahir Dar University which is named as “Ethical Committee of Psychology Department”. Then, two dissertation proposal evaluators approved the study project was appropriateness in terms of ethical principles and research methods.

Since we administered English test for the research purpose, a data collection technique called deceiving was employed stating that the test was part of their regular assessment that was declared via their English language instructors just to attract participants’ attention to the test. Immediately after the test, however, invigilators disclosed the purpose of the test and reported no complaint. Then informed consent from all participants was obtained to fill the questionnaires that were administered after the test. In addition, the first page of the questionnaire itself had a statement that informed the purposes of the research to participants and their rights to withdraw at any time if they felt discomfort.

4. Results

The purpose of the study was to investigate the effects of English learning beliefs on English achievement via academic emotions. As a prerequisite for SEM, the researchers conducted independent factor analyses for belief and emotion subscales.

4.1. Factor analysis results

i) English learning belief scale

Since the scale was developed by adapting items from different sources and administered in the Amharic language (i.e., a local
language because university students from different ethnic backgrounds use it), exploratory factor analysis was more important than confirmatory factor analysis. For this purpose, Varimax rotation is also employed because it assumes variables are uncorrelated. Though the English learning belief scale was supposed to have four factors as indicated in the hypothesized model (see Figure 1), the factor analysis extracted only three factors with meaningful factor loadings. Most of the items that were supposed to measure authority beliefs and the nature of English language knowledge learning beliefs (factor 1) appeared together. Nevertheless, items that aimed to assess the nature of English knowledge learning showed poor factor loadings in the path model and caused poor model fit. As a result, we avoided those “nature of English learning items” from the final analysis and used only those three factors.

Finally, we found three components/factors where factor 1, factor 2, and factor 3 are named as difficulty belief, authority belief, and risk-taking belief with four, four, and three items respectively (see Table 1). The alphas for difficulty belief, authority, and risk-taking subscales were found to be 0.85, 0.87, and 0.81, respectively, and the total alpha was about 0.90. All the communalities were far above the minimum requirement, i.e., 0.3 (i.e., the rule of thumb).

### ii) Academic emotion scale

The factor analysis for the emotion scale came up with those three presupposed emotional factors where factor 1 was “Embarrassment”, in which all six items (1, 2, 3, 4, 5, and 6) identified this component. Factor 2 was “Enjoyment” in which all six items (7, 8, 9, 10, 11, and 12) identified the component. The third factor was also called “Anxiety” dimension for which four items (13, 15, 16, and 17) were grouped in to this component (see Table 2).

All the communalities were found to be above the minimum requirement of 0.30 (rule of thumb). Most of enjoyment items had low factor loading compared to other dimensions, but all of them had above standardized factor loadings (>0.40) and all communalities were greater than 0.30. Thus, we maintained it for the final path analysis. Finally, we computed Cronbach’s alphas of embarrassment, enjoyment, and anxiety and found them to be 0.93, 0.71, and 0.88, respectively.

### 4.2. Model fit

In the model, there were 325 distinct sample movements and 66 distinct parameter estimations. Hence, the absolute model test was found

| Items | Component | Communalities |
|-------|-----------|---------------|
|       | Factor 1 (difficulty belief) | Factor 2 (authority belief) | Factor 3 (risk-taking belief) |
| Item 13 | .825 | .765 |
| Item 14 | .798 | .740 |
| Item 12 | .795 | .740 |
| Item 15 | .723 | .631 |
| Item 2 | .807 | .696 |
| Item 1 | .762 | .761 |
| Item 4 | .757 | .647 |
| Item 3 | .709 | .694 |
| Item 8 | .815 | .757 |
| Item 9 | .797 | .742 |
| Item 10 | .763 | .577 |
| Cronbach’s alpha per factor | 0.85 | 0.87 | 0.81 |
| Total Cronbach’s alpha | 0.90 |

| Items | Component | Communalities |
|-------|-----------|---------------|
|       | Factor 1 (Embarrassment) | Factor 2 (Enjoyment) | Factor 3 (Anxiety) |
| Item 5 | .801 | .707 |
| Item 2 | .786 | .717 |
| Item 1 | .783 | .685 |
| Item 3 | .781 | .692 |
| Item 4 | .748 | .604 |
| Item 6 | .693 | .625 |
| Item 8 | .719 | .577 |
| Item 9 | .699 | .581 |
| Item 11 | .678 | .536 |
| Item 7 | .670 | .521 |
| Item 10 | .669 | .458 |
| Item 12 | .545 | .364 |
| Item 15 | .783 | .702 |
| Item 16 | .720 | .678 |
| Item 13 | .704 | .578 |
| Item 17 | .684 | .618 |
| Cronbach’s alpha per factor | 0.93 | 0.71 | 0.88 |

Table 1. Components, factor loadings, communalities, and reliabilities of English learning beliefs.

Table 2. Components, factor loadings, communalities, and reliabilities of academic emotions.
One of the hypotheses derived from the proposed model was that the dimensions of English language learning beliefs would have positive correlations with enjoyment, English test scores, and negative relations with embarrassment and anxiety. The other hypothesis was that English language learning beliefs would have both direct and indirect effects on English achievement via academic emotions (enjoyment, anxiety, and embarrassment). Thus, the researchers tested the proposed model and explained the direct and indirect effects of English learning beliefs on English test scores via academic emotions (see Figure 2).

Figure 2 depicts structural relations of variables, where path coefficients and R-squares indicate the extent to which independent variables predict DVs in the model. For instance, all the independent variables in the model explained English test scores 89%. Dimensions of English learning beliefs together explained embarrassment, anxiety, and enjoyment at 78%, 69%, and 46%, respectively. However, the details with standardized and unstandardized regression weights are provided in Table 3.

The standardized and unstandardized estimates show how a unit change in a given predictor would affect the outcome variable. As indicated in Table 3, authority beliefs significantly and negatively predicted embarrassing and anxious experiences of respondents, but it predicted enjoyment positively and significantly. This means that when students believe in their own abilities rather than relying on authorities (e.g., teachers), their chances of feeling embarrassed and anxious while learning English as a foreign language are reduced, and vice versa. On the other hand, risk-taking belief also predicted the enjoyment experiences of language learners positively and significantly, while it did not predict embarrassing and anxious experiences. The results imply that advanced authority and risk-taking beliefs could maximize the state of enjoying learning experiences that could also moderate embarrassing and anxious feelings. This study showed that the risk-taking belief significantly and positively predicted English achievement and less effective in predicting negative emotions. These findings highlight the importance of encouraging foreign language learners to maximize their own efforts by engaging themselves in language practice.

The other dimension of English learning belief, i.e., difficulty belief, also predicted both embarrassing and anxious experiences negatively and significantly, which implies that when learners develop a better understanding of the nature of English language learning as a foreign language, they are more likely to have less negative emotional experiences. Further, Table 3 shows that the direct effect of this dimension belief on enjoyment was not significant, which means one’s belief in whether the English language is difficult or not in the process of learning does not predict the state of enjoyment. Finally, Table 3 shows that difficulty beliefs significantly and positively predicted English achievement.

In relation to the effects of emotion, Table 3 shows that embarrassment and anxiety predicted English performance negatively and significantly. This means when students attend less embarrassing and anxious English language lessons, they will have a greater probability to achieve better results or vice versa. However, the enjoyment experiences of learners were found to be insignificant predictors of English achievement, though the traditional regression model showed that enjoyment was a significant predictor of English performance at $F = 85.77$, $t = 9.26$, and $p = 0.001$. Methodologically, classroom practitioners learn that it is important to create an enjoyable learning environment that will have positive and significant effects on English language achievement.
4.4. **The indirect and total effects of English learning beliefs on English test scores**

Objective 2 was dedicated to exploring the indirect and total effects of English learning beliefs (causal variables) on English test scores via dimensions of academic emotions. Thus, using user-defined estimand in AMOS-23, we have examined the indirect and total (direct + indirect) effects of the causal variables (dimensions of English learning beliefs) on English test results.

As summarized in Table 4, authority belief was significantly mediated via embarrassment and anxiety at $p = 0.001$ and $p = 0.004$, which are also called specific indirect effects, but it was not mediated via enjoyment at $p = 0.103$. That means possessing sophisticated belief about authorities did not guarantee enjoyment in learning. In addition, the overall indirect effect (also called total indirect effect) of authority belief on English test results via those three dimensions of emotion was significant at $p = 0.001$. The third point, the total (direct and indirect) effect of authority beliefs on English test scores, was also significant at $p = 0.002$.

| Dependent variables | Predictors | $\beta$ Estimate | B Estimate | S.E. | C.R. | P |
|---------------------|------------|------------------|-----------|------|------|---|
| Embarrassment       | Authority belief | -0.438 | -0.461 | 0.096 | -4.806 | *** |
| Anxiety             | Authority belief | -0.339 | -0.311 | 0.101 | -3.082 | 0.002 |
| Enjoyment           | Authority belief | 0.456 | 0.289 | 0.093 | 3.097 | 0.002 |
| Embarrassment       | Risk-taking belief | -0.023 | -0.024 | 0.057 | -0.431 | 0.667 |
| Anxiety             | Risk-taking belief | -0.171 | -0.16 | 0.061 | -2.633 | 0.008 |
| Enjoyment           | Risk-taking belief | 0.257 | 0.167 | 0.056 | 2.965 | 0.003 |
| Embarrassment       | Difficulty belief | -0.454 | -0.525 | 0.107 | -4.916 | *** |
| Anxiety             | Difficulty belief | -0.376 | -0.379 | 0.112 | -3.378 | *** |
| Enjoyment           | Difficulty belief | 0.014 | 0.009 | 0.102 | 0.093 | 0.926 |
| English test result | Authority belief | 0.32 | 1.064 | 0.226 | 4.703 | *** |
| English test result | Risk-taking belief | 0.126 | 0.428 | 0.124 | 3.463 | *** |
| English test result | Difficulty belief | 0.246 | 0.898 | 0.242 | 3.705 | *** |
| English test result | Embarrassment | -0.176 | -0.557 | 0.145 | -3.842 | *** |
| English test result | Enjoyment | 0.053 | 0.279 | 0.157 | 1.784 | 0.074 |
| English test result | Anxiety | -0.115 | -0.417 | 0.144 | -2.887 | 0.004 |

This means that when students develop the beliefs that their own efforts are more valuable than the knowledge and efforts provided by authorities, they are more likely to perform better in the English language, which has an important implication for language teaching.

Similarly, the specific indirect effect of difficulty belief on English achievement via embarrassment and anxiety was significant at $p = 0.002$ and $p = 0.01$, that means difficulty beliefs was mediated significantly via embarrassment and anxiety. In fact enjoyment was not a significant mediator to difficulty belief at $p = 0.811$. The other finding was that the overall indirect effect of difficulty belief via the three dimensions of emotion was significant at $p = 0.002$. In relation to difficulty belief, the total effect (direct and indirect) of difficulty belief on English achievement was also significant at $p = 0.003$. This means when learners believe that English language is not a uniquely difficult subject to learn, they are more likely to manage their negative emotions and enjoy learning. This has paramount importance in facilitating foreign language learning.

The table also shows the indirect effects of risk-taking belief on college English achievement. Hence, this dimension of beliefs was significantly mediated via anxiety at $p = 0.008$, but embarrassment and enjoyment did not significantly mediate risk-taking belief at $p = 0.656$ and 0.092, respectively, but its overall indirect effect on English test results via those three dimensions of emotion was significant at $p = 0.03$. In addition, the total effect (direct plus indirect) of risk-taking belief was significant at $p = 0.001$. These findings suggest how risk-taking belief is an important factor in foreign language learning, though some dimensions of emotion did not mediate its effect. This means that the more risk-taking belief developed, the more learners would achieve more in foreign language learning by managing their emotions.

Generally, results in Table 4 show that, except for a few specific indirect effects, all total indirect and total effects of English learning beliefs on English achievement were significant through the mediators where possessing sophisticated beliefs would slacken negative emotions and maximize positive feelings towards the English language. In the meantime, the results imply the importance of promoting English learning beliefs to manage foreign language emotions that would help boost English achievement.

### 4.5. Gender and discipline differences in the dimensions of English learning beliefs and academic emotions

Examining gender and domain differences in English learning beliefs and academic emotions was another concern of the current study. Males were coded as “1” and females as “2”. Levene’s test met the null hypothesis assumption for all variables except the embarrassing experiences of respondents. Table 5 presents the results of gender differences in
dimensions of English learning beliefs and academic emotions. The results indicated significant gender differences in authority, difficulty, and risk-taking beliefs in favor of males. This means male respondents had relatively more advanced learning beliefs than their female counterparts that could in turn affect their academic performance.

As indicated in Table 5, male respondents had less embarrassment and anxious experiences than females in English language classrooms. On the other hand, males had significantly more enjoyable experiences than females. These empirical results imply that English lessons are less comfortable for girls than for males. Girls are not equally enjoying English language teaching and learning environments.

To examine domain differences among the three groups (social science, natural science, and technology), the investigators employed MAVOVA, where Wilks’ Lambda (at df = 18, F = 2.293, p = 0.002) indicated the presence of group differences. Further, the ‘tests of between-subject effects’ table indicated significant domain differences in authority belief, risk-taking belief, difficulty belief, embarrassment, and anxiety, but not in enjoyment scores. The researchers then performed Post-Hoc analyses to investigate specific domain differences using the least significant difference (LSD) method, which assumes the smallest significant mean differences.

The Post Hoc analysis results (see Table 6) indicated that technology students tend to have more sophisticated perspectives in the three dimensions of English learning beliefs (authority, risk-taking, and difficulty beliefs), but no significant differences had been observed between social and natural science students. For the researchers’ curiosity, the comparisons of English test scores of technology with other groups also showed that the technology group was still better than the scores of social science and natural science students. Likewise, group comparison in academic emotions indicated that the technology group had significantly fewer embarrassing and anxious experiences than social and natural science students did, but no significant difference took place between natural and social science students.

4.6. Discussions and educational implications

The study examined the direct and indirect effects of English learning beliefs via academic emotions to explain English test performance. The study results indicated that when learners depend more on their efforts than they perceive authorities as their main sources of information, their achievement would meaningfully improve. This has educational implications in Ethiopian teaching and learning contexts where students perceive the elderly and teachers as major sources of knowledge (Adinew, 2015; Adula and Kassahun, 2011; Wakweya, 2019), implying that changing learners’ learning beliefs would boost their efforts and use of various learning strategies. The other findings showed that when learners perceive that the English language is not more difficult to learn, they are more likely to do better in English language tests (i.e., the relationships are positive). Of course, the study results revealed that some dimensions of English learning beliefs have only direct effects rather than indirect effects (e.g., risk taking belief) on English achievement.

Risk-taking belief, by its nature, tends to practice the language new, 2015; Adula and Kassahun, 2011; Wakweya, 2019), implying that changing learners’ learning beliefs would boost their efforts and use of various learning strategies. The other findings showed that when learners perceive that the English language is not more difficult to learn, they are more likely to do better in English language tests (i.e., the relationships are positive). Of course, the study results revealed that some dimensions of English learning beliefs have only direct effects rather than indirect effects (e.g., risk taking belief) on English achievement.

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Table 5. Gender differences in dimensions of English learning belief and academic emotion.

| Variables                  | Levene’s Test for Equality of Variances | t-test for Equality of Means |
|----------------------------|----------------------------------------|------------------------------|
|                            | F          | Sig. | t   | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | Lower | Upper |                |
| Authority belief           | .959       | .328 | 2.811 | 438 | .005 | 1.40229          | .49525           | .42893 | 2.37564 |
| Risk-taking belief         | .186       | .666 | 3.589 | 438 | .000 | 1.32305          | .36863           | .59854 | 2.04756 |
| Difficulty belief          | 3.340      | .068 | 4.387 | 438 | .000 | 2.14273          | .48846           | 1.18271 | 3.10275 |
| Embarrassment              | 6.934      | .009 | 3.642 | 438 | .000 | -2.7194         | .75005          | -4.20607 | -1.25780 |
| Anxiety                    | .258       | .611 | -4.093 | 438 | .000 | -1.92648        | .47072           | -2.85162 | -1.00133 |
| Enjoyment                  | 1.654      | .199 | 4.168 | 438 | .000 | 1.13117         | .27141           | .59774 | 1.66461 |

Table 6. Post Hoc analysis results in comparing domains in authority belief, difficulty belief, risk-taking belief, anxiety, and embarrassment.

| Dependent Variables | Comparing variables | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval |
|---------------------|---------------------|-----------------------|------------|------|------------------------|
|                     | I                   | J                     | I-J        |      | Lower Bound             | Upper Bound      |
| Authority belief    | natural science     | social science        | .5216      | .49664 | .294 | - .4545 | 1.4977 |
|                     | technology          | social science        | 2.9451*    | .60635 | .000 | 1.7534 | 4.1368 |
|                     | natural science     |                          | 2.4235*    | .58251 | .000 | 1.2786 | 3.5863 |
| Risk taking belief  | natural science     | social science        | -.4466     | .37872 | .239 | -1.1910 | .2977 |
|                     | technology          | social science        | .8316      | .46238 | .073 | - .0772 | 1.7404 |
|                     | natural science     |                          | 1.2782*    | .44420 | .004 | .4052 | 2.1513 |
| Difficulty belief   | natural science     | social science        | .4743      | .50029 | .344 | -.5090 | 1.4576 |
|                     | technology          | social science        | 2.4688*    | .61081 | .000 | 1.2683 | 3.6693 |
|                     | natural science     |                          | 1.9945*    | .58679 | .001 | .8412 | 3.1478 |
| Embarrassment       | natural science     | social science        | -.6951     | .76567 | .364 | -2.1999 | .8998 |
|                     | technology          | social science        | -3.4505*   | .93482 | .000 | -5.2877 | -1.6132 |
|                     | natural science     |                          | -2.7554*   | .89805 | .002 | -4.5204 | -.9903 |
| Anxiety             | natural science     | social science        | -.6149     | .48080 | .202 | -1.5599 | .3300 |
|                     | technology          | social science        | -2.4129*   | .58702 | .000 | -3.5666 | -1.2592 |
|                     | natural science     |                          | -1.7980*   | .56393 | .002 | -2.9063 | -.6896 |
process of learning (for example, believing that making errors is part of learning), their feelings of embarrassment and anxiety would be less, which is an essential element for effective learning. These results imply that language teachers need to promote their students’ risk-taking beliefs as long as its direct effect on test scores is meaningful. In other words, English language teaching and learning processes should promote learning by doing, where learners practice a foreign language and consider their mistakes as part of learning. We would also like to note Thorndike’s theory, which advises enhancing learning through trial and error processes.

The results of this research are consistent with the theoretical framework suggested by Muis et al. (2015), in which epistemological beliefs affect academic emotions that consequently determine the state of excitement or self-defeating emotions. The theoretical framework and the findings imply that when learners depend on their own efforts to learn English as a foreign language rather than depending on teachers and other authorities, and when they believe that English is not uniquely challenging to learn, they enjoy English lessons with less frustration. In the same token, Aragão (2011) stated that the embarrassment and self-esteem dimensions of affect are best predicted by beliefs. Similarly, other research studies (e.g., Barcelos, 2015; Trevors et al., 2017) found that learning beliefs had a significant impact on adolescents’ emotional experiences and academic performance. Trevors et al. (2017) also clearly indicated that those who had advanced learning beliefs were able to manage their emotions, whereas naïve learners were found to be passive reliance on external factors. However, such thoughts should not be taken for granted since some aspects of learning beliefs could be mediated through some aspects of emotion while others might not be. The current study showed this well (see Table 4), though the overall results showed all three dimensions of ELBs had been mediated through all three dimensions of academic emotion.

Generally, it is believed that promoting advanced English learning beliefs and pleasant emotional experiences of foreign language learners promotes language learning (Abbasi and Izadpanah, 2018; Chiu et al., 2015; Filoteo et al., 2014; Repolchi, 2015). Aragão (2011) noted that beliefs play essential roles on emotional states of learners in foreign language classrooms and their achievement. White (2008) stated that beliefs serve as guiding principles for learners to interpret their experiences (for example, interpreting a classroom situation as embarrassing or enjoyable) and determine how to behave when learning a new language.

In examining the direct effects of embarrassment, anxiety, and enjoyment on English achievement, the present researchers found that negative emotions (embarrassment and anxiety) had more predictive roles in explaining English test scores than the positive emotions considered in the study (i.e., enjoyment). Embarrassment was the strongest predictor ($r = -0.78, p < 0.001$), anxiety was the second ($r = -0.43, p < 0.05$), and enjoyment took the third position, not a significant predictor where $r = 0.23, p > 0.05$. In contrast, some studies show that the predictive power of enjoyment is higher than anxiety. For instance, Dewaele’s (2018) study indicated a positive relationship between foreign language enjoyment (FLE) and test results (Rho $= -0.34, p < 0.0001$, $r^2 = 11.6$) and a negative relationship between foreign language classroom anxiety (FLCA) and test results (Rho $= -0.30, p < 0.0001$, $r^2 = 9.0$). The study results imply that it is important to create a more enjoyable learning environment in which learners practice new languages while having fun. Both teachers and classmates need to be committed in creating situations that are free from teasing and frustration that make students embarrassed.

The existing body of knowledge in relation to learning beliefs and academic performance is varied. Some previous studies indicated that there were no direct effects of English learning beliefs on English performance (e.g., Aksan, 2009; Hayati, 2015; Hong, 2006; Muis and Franco, 2009). In contrast, other research findings have shown the positive influence of language learning beliefs on academic performance (e.g., Balc and Durak, 2018; Buehl and Alexander, 2005; Hulin and Yulian, 2016; White, 2008) that are consistent to most of the present findings.

Furthermore, the path analysis conducted by Trevors et al. (2017) indicated more rigorous indirect effects of epistemic beliefs on learning than its direct effects via emotion. To the contrary, the current study revealed significant direct and indirect effects of learning beliefs on English achievement via emotional experiences of respondents. Thus, the researchers would like to take a safe position in advocating the double roles of English learning beliefs on the academic performance of learners.

The third purpose of the present study was to examine gender and domain differences in dimensions of English learning beliefs and academic emotions. The t-test results indicated significant differences between male and female students in authority, risk-taking, and difficult beliefs in favor of males. This means that girls are disadvantageous in that they lack sophisticated thinking perspectives. To our curiosity, we examined gender differences in English achievement and semester GPA, in which mean scores of males were significantly higher than females. In particular, the higher mean scores of males in GPA imply that those who possess more sophisticated English learning beliefs are more likely to do better in other academic tasks too.

Ethiopia is a male-dominated country where males are encouraged to be analysts whereas females are pushed to be shy at home and in schools. This means that females frequently lack opportunities to argue and reflect on their points of view aloud. Of course, some numerical changes are witnessed in the “boy to female” ratio at schools today. The increase in female teachers and female political figures (for example, nearly half of government secretaries are female) may inspire scholars to investigate how much the gaps in learning variables are closing in academic settings. Nevertheless, the present study results have shown that female students are still disadvantageous in the development of epistemological beliefs. We attribute psychological and socio-cultural factors to such types of gender differences. Thus, we suggest the importance of providing due attention to narrowing gender gaps by promoting the learning beliefs of girls that would have multifaceted effects on their academic performance.

In this regard, some previous study results are consistent with current finding while others are contradictory. For example, Siebert (2003) revealed gender differences in which males scored higher on most items that assess language-learning beliefs. In contrast, Daif-Allah (2012) showed that male and female students tend to have equivalent beliefs about the difficulty and nature of English language learning, but are different in other dimensions of language learning beliefs. Further, Üstün and Samur (2010) and Niguse (2013) reported that gender had no determining role in language learning beliefs.

Gender differences in academic emotions revealed that females had more embarrassing and anxious experiences in English language learning than their male counterparts as part of the third objective. Cultural and contextual factors are more responsible for the problem in a traditional society where females frequently face teasing and defeating feedback from male counterparts and, in some cases, from their teachers. Erkan et al. (2006) also found that females had significantly higher scores in academic anxiety, anger, hope, and pride. Other study findings also showed more mixed findings where females had more joyful and more anxious experiences (Dewaele et al., 2016; Dewaele and MacIntyre, 2014). Further, Pekrun (2000) stated that social factors like family, school, university, and classroom situations affect achievement emotions. Thus, foreign language teachers need to be emotionally sensitive to minimize the negative effect of embarrassing and anxious feelings and to create more enjoyable language classrooms.

On the other hand, our findings indicated that the enjoyable experiences of learners had no meaningful effect on English test scores among males and females. In principle, educationalists believe that enjoyable experiences in learning foster effective learning. Additionally, learning a new language, by its nature, demands more practice and enjoyable opportunities. Thus, English language teachers need to promote enjoyable learning experiences in foreign language classrooms by reducing embarrassing and anxious learning situations, which could be possible by applying effective, enjoyable, and less frustrating foreign
Another goal of the study was to examine domain differences in English learning beliefs and academic emotions under objective three, and the findings revealed that technology students had advanced English learning beliefs compared to social and natural science students. The researchers learned that engineering students joined the technology stream due to their better GPA in their first semester. To this point, the review conducted by Hofer and Pintrich (1997) showed that those who possess advanced epistemological beliefs are more likely to score higher than the naïve learners. Similarly, Hong (2006) found significant domain differences in epistemological beliefs in favor of engineering students when compared to respondents from the humanities, natural sciences, and social sciences. Niguse’s (2013) study in the Ethiopian context also showed that natural science and business majors had higher scores, while social science learners had the lowest scores in beliefs about English language learning. In contrast, Paulson and Wells (1998) examined domain differences in epistemological beliefs among university students, in which social science and humanities showed more sophisticated beliefs than those in “hard” and applied disciplines. Indeed, social science students are expected to have a more advanced/sophisticated understanding of the dynamic nature of this world due to the very fluid nature of learning content or the curriculum, but that is not always the case.

Concerning domain versus academic emotions, this study indicated that the technology group had more joyful and fewer embarrassing and anxious experiences. Consistent with this study, Wolter and Pintrich (2002) compared the influence of anxiety on learning among science, mathematics, and English students, finding that social science students showed a higher level of learning anxiety followed by mathematics and then English. In contrast, Cocoroda’s (2016) study compared academic emotions in different disciplines and indicated no domain differences in shame, enjoyment, pride, and hopelessness, but a significant difference was seen in anxiety between hard science and humanities students in favor of the humanity group.

In short, the present and previous studies showed that those groups who have advanced beliefs would enjoy classroom interaction and have fewer embarrassing and anxious feelings. Such types of teaching and learning situations are also critical preconditions to promoting foreign language performance. Thus, regardless of the stream/discipline students join, they all need to have learning environments that promote advanced learning beliefs and less anxious and embarrassing experiences, as well as enjoyable teaching and learning experiences that would in turn affect academic performances directly and indirectly. Further, study results indicated gender differences in learning beliefs and academic emotions in favor of males that need special attention from foreign language teachers to be gender sensitive in their classrooms. Regardless of the disciplines students choose at university, the stakeholders of education should promote sophisticated beliefs and a less embarrassing English learning environment.

4.7. Conclusions

English language learning beliefs have both significant direct and indirect effects on English test scores via academic emotions. Whereas some dimensions have both direct and indirect effects in explaining English language performance, some others had only direct effect. Thus, the adapted theoretical framework (e.g., Müs et al., 2015) demonstrates that epistemic beliefs affect academic emotions that consequently determine learning outcomes. Hence, we need to promote the English learning beliefs of students to promote foreign language achievement. Furthermore, academic emotions (embarrassing, anxiety, enjoyable experiences) are good mediators between English learning beliefs and English performance. As a result, we believe that practitioners need to give due attention to the language learning beliefs since their essence is like kicking two birds with a stone. The analogy is that when classroom situations facilitate sophisticated beliefs about learning English as a foreign language, it helps to manage emotional experiences that consequently affect language performance. In addition, practitioners need to be aware of the roles of gender and discipline orientations in the development of language learning beliefs and academic emotions in academic settings.

4.8. Limitations and future research

Study trends in personal epistemology have already shifted from domain-general to domain-specific studies. Thus, the current research focused on exploring the influences of English learning beliefs and academic emotions on English achievement. However, future research endeavors need to address this area by involving other dimensions of epistemological beliefs and academic emotions in other fields of study that would help enrich the existing body of knowledge using a path model. In addition, we examined gender and domain differences in dimensions of English learning beliefs and academic emotions, but investigating the impacts of those differences on academic achievement would be essential. Further, the current research was quantitative research since its main aim was to test hypotheses developed based on the proposed path model, but future researchers could fill this gap by triangulating quantitative results using personal reflections of respondents about the nature of the English language, ways of learning it and their emotional experiences.

Declarations

Author contribution statement

Yihun Getachew Mulualem; Yawel 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.

Declaration of interest’s statement

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