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A Case Study of English Education Majors' Academic Self-Efficacy Change: Evidence From Major-Transferred Undergraduates in China

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Abstract: This qualitative study explored: (a) How do the three English-Education-major (EE hereafter) undergraduates perceive their academic self-efficacy change experiences over the first two years after major transfer? (b) What are the personal and social factors that prompt their academic self-efficacy change? Data was collected from three EE students at S University in S city, China. Data sources include semi-structured interviews, reflections, and observation notes. Data analysis uses qualitative content analysis, adopting an inductive approach to allow themes to naturally emerge from the data. Findings reveal that participants experienced academic self-efficacy changes through continuous and uneasy processes. Significant changes were noted in the participants' academic self-efficacy. Key personal factors, including mastery experiences and physiological/emotional states, along with social factors, including verbal and social persuasion and vicarious experiences, were found to substantially influence self-efficacy. In light of the above findings, practical implications were proposed for EE programs and program developers from the three aspects: creating opportunities for mastery experiences within EE programs, incorporating elements of social persuasion and vicarious learning, and integrating modules focused on managing anxiety and fostering resilience. Limitations of this study and recommendations for future research were discussed.

Keywords: *Academic self-efficacy, academic self-efficacy change, English education major, influencing factors, major-transferred students.*

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Introduction

The English programs in China aim to cultivate students with high language proficiency levels and practical English-related skills such as English language teaching, according to the *Teaching Guidelines for English Majors in Undergraduate Programs of General Colleges and Universities*. While there is some literature focusing on English-Education-major (EE) students (Aktekin & Celebi, 2020; Alizadeh, 2018; Sevimel-Sahin, 2020), one particular group of EE students that is easily overlooked is those who have changed majors to this field. In general, Chinese undergraduates face significant obstacles when changing their majors after enrolling in university. Only a select few exceptional students can transfer to a different major through rigorous entrance exams. The major-transferred students not only have to work hard to meet the training requirements of the new program, but also adapt to a novel academic setting, which adds to additional difficulties and challenges. Despite the significant challenges faced by the major-transferred students, little attention has been paid to understand and facilitate these students' learning. There is a fundamental gap in knowledge regarding whether their actual learning experiences in the new major align with their initial expectations, as well as whether they are able to maintain strong performance in the new areas of study. Therefore, there is a need to explore major-transferred students' subsequent development and psychological changes to find implications of cultivation methods that are consistent with their cognitive and developmental patterns.

Research on self-efficacy has increased substantially in the last three decades (Duchatelet et al., 2020), with a considerable amount of research in higher education concentrating on fields like science, engineering, and mathematics (Klassen & Usher, 2010; Usher & Pajares, 2008). For second language learning, research has found that language learners' self-efficacy significantly predicts their motivation and language proficiency in the higher education contexts (Bai et al., 2013). Additionally, previous studies have confirmed the vital role of self-efficacy in predicting undergraduates' grade

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point average (GPA), strategic approaches to learning, self-confidence, and internal academic locus of control in a learning context (Cassidy, 2012). Self-efficacy not only affects students' academic performance but also influences their attitude towards difficulties and challenges (Bandura, 1986). While self-efficacy plays a crucial role in intricate learning environments, current studies (Bates & Khasawneh, 2007; Liu et al., 2021) primarily explore self-efficacy in general academic settings. There is a need for more context-specific research (Klassen & Usher, 2010; Usher & Pajares, 2008). While qualitative study can capture the personal, social, and temporal conditions under which students cognitively appraise their beliefs and experiences (Usher & Pajares, 2008), Klassen and Usher (2010) noted that 82% of the self-efficacy literature he reviewed was quantitative and 4% was qualitative research. There's a need for more in-depth qualitative research (Duchatelet et al., 2020).

This study aims to explore three major-transferred EE students' academic self-efficacy development and change in a major transfer context using a qualitative method. This study aims to examine the change of participants' self-efficacy during the initial two years after they entered the EE program, specifically from the beginning of their sophomore year through to the completion of their junior year. Additionally, it seeks to identify the various factors that shape both the process and outcomes of changes in self-efficacy. For these research purposes, two research questions guide this study:

(a) How do the three EE undergraduates perceive their academic self-efficacy change experiences over the first two years after major transfer?

What process of academic self-efficacy change do they experience over the two years?

What academic self-efficacy changes regarding perceived basic ability and perceived control do they experience over the two years?

(b) What are the personal and social factors that prompt their academic self-efficacy change?

Literature Review

Definitions of Academic Self-Efficacy

The concept of self-efficacy was first proposed by Bandura (1977). Bandura (1986, p. 391) defined self-efficacy as "People's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances". Subsequently, many psychologists and sociologists began to conduct extensive research on self-efficacy. In the learning context, Schunk (1989) defined academic self-efficacy as students' judgments about their abilities to control their learning behaviors to achieve goals, and it reflects the degree of confidence students have in their learning. Pajares (1996) defined academic self-efficacy as students' subjective judgments about their abilities to complete a task, including judgments about their abilities and skills. According to Bian (2003), academic self-efficacy is an individual's belief in their academic abilities and subjective judgment of their abilities to control learning behavior and academic performance. Table 1 presents the evolving definitions of academic self-efficacy.

Table 1. Definitions of Academic Self-Efficacy

Author(s)	Definition	Key Focus
Schunk, 1989	Beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments.	Achievement behaviors
Pajares, 1996	The confidence students hold about their abilities to accomplish tasks and succeed in academic domains.	Academic performance
Bian, 2003	An individual's confidence in their ability to successfully perform a specific task or action.	Task-specific confidence in academic settings

Academic self-efficacy in this study adopted Bian's (2003, p. 1) definition, "an individual's belief in his or her academic abilities, a learner's evaluation of his or her confidence in the abilities or skills required to accomplish learning tasks, and an individual's subjective judgment of his or her abilities to control learning behavior and academic performance". The participants in this study encountered a novel setting where they had to navigate unfamiliar learning conditions and actively manage their behaviors to reestablish academic self-efficacy. Bian's (2003) understanding of self-efficacy highlights students' beliefs in their academic abilities and their judgments of their abilities to control their performance, which are particularly crucial for students transitioning into a new field, as they might feel a loss of personal control in the learning environment.

Theoretical Support

A review of the literature finds that most academic self-efficacy theories concern the talent aspect and the context aspect of self-efficacy. For example, Jinks and Morgan's (1999) three-dimensional self-efficacy theory conceptualizes self-efficacy as perceived talent, perceived effort, and perceived context. In searching for the framework, I found a two-dimensional self-efficacy framework underpinned by Bian's (2003) basic ability-control theory most suitable, as it suggests that

academic self-efficacy encompasses the student's perception of their basic abilities, their feelings about the environment and their control over learning behaviors. It argues that academic self-efficacy consists of two dimensions: the student's perceived basic ability and the student's perceived control. Specifically, perceived basic ability is students' evaluation of their talent, their subjective judgment of their learning ability, and their subjective feelings of whether they can achieve good learning results, while perceived control is a subjective judgment of student's grasp of their learning tasks and their ability to control their learning behaviors. Bian's study finds that academic self-efficacy concerning perceived basic ability influences learning by affecting students' expectation, ambition, and choice of learning tasks, while academic self-efficacy concerning perceived control influences learning by controlling and regulating students' learning behaviors. Bian's theory caters to this study's purpose of exploring self-efficacy change in a new setting where students must build their self-efficacy, interact with the environment, and control their learning behaviors.

In line with Bian's (2003) basic ability-control theory, Bandura's (1997) social learning theory and social cognitive theory provide valuable insights into students' learning experiences. Social learning theory combines elements of both behavioral and cognitive learning theories to create a comprehensive model that explains the diverse learning experiences students encounter in everyday life. It suggests that learning occurs as a cognitive process within a social context, facilitating the understanding of the participants' learning experiences in the higher education context. An important factor in Social Learning Theory is the concept of reciprocal determinism. This notion states that people's behavior, environment, and personal qualities reciprocally influence each other. Bandura's (1986) social cognitive theory extended his social learning theory. Central to the social cognitive theory is the concept of self-efficacy, which emerges from individuals' interactions with the environment and their self-perceptions.

Studies of Academic Self-Efficacy Change

Bandura (1997) believed that self-efficacy is a changeable psychological factor, a dynamic construct subject to continuous change (Liu et al., 2021; Ouwenel et al., 2013; Usher & Pajares, 2008). Relevant studies have shown that students' self-efficacy developed over time in different contexts (Cassidy, 2012; Hao & Fang, 2024; Peura et al., 2021; Schweder & Raufelder, 2022; Song, 2024). Phan (2012) examined how the self-efficacy beliefs of elementary school students evolved over the course of a year. The results showed a notable enhancement in the students' English learning self-efficacy, underscoring the instability of self-efficacy beliefs throughout schooling. Some studies reported a decrease in students' self-efficacy in different contexts (Duchatelet et al., 2021; Peura et al., 2021). Caprara et al. (2008) examined the developmental course of student self-efficacy, choosing students between the ages of 12-22 as participants. The research reported a steady decrease in self-regulatory efficacy as students transitioned from junior to senior high school. Few studies have demonstrated a tendency for students' self-efficacy to be stable over time. Peura et al. extended previous research by investigating the trajectories of change in reading self-efficacy among elementary students over the span of 11 months. One of the four trajectories of change reported that the average level of students' reading self-efficacy remained relatively stable over time.

Studies of Factors of Academic Self-Efficacy Change

Bandura (1986, 1997) hypothesized that self-efficacy emerges and develops as students interpret information from four sources: First, students reflect on their past experiences, whether triumphs or setbacks, using these reflections as benchmarks for their perceived capabilities (mastery experience). Second, students observe and assess the performances and skills of their peers (vicarious experience). Third, students receive feedback, evaluations, and judgments regarding their performance from influential people in their lives (social persuasions). Lastly, students interpret physiological cues such as heart rate and emotional reactions like anxiety as insights into their self-efficacy (physiological/emotional state). Together, these four sources play a crucial role in shaping the development of self-efficacy.

Many researchers (Britner & Pajares, 2006; Gebauer et al., 2021; Hao & Fang, 2024; Klassen, 2004; Nob, 2021) have explored how Bandura's four hypothesized sources contribute to predicting self-efficacy. Usher and Pajares (2006) explored how Bandura's (1997) hypothesized sources affected the academic and self-regulatory efficacy of students who were entering middle school. In the full sample, all four factors: mastery experiences, vicarious experiences, social persuasion, and physiological/emotional states were found to predict academic self-efficacy independently, with mastery experience emerging as the most significant predictor. Additionally, the findings indicated that both mastery experiences and social encouragement were influential in shaping academic and self-regulatory efficacy, specifically among female students. The findings support and reaffirm the theoretical tenets of Bandura's social cognitive theory.

Some researchers examined the relationship between the four hypothesized sources and the trajectories of change in self-efficacy. Peura et al. (2021) discovered that the trajectories of change in reading self-efficacy among elementary school students were influenced by their varying interactions with four key sources of self-efficacy. Students who experienced greater mastery, received positive feedback, observed successful peers, and encountered less physiological stress tended to see a favorable progression in their self-efficacy development. The findings indicated that students who experienced decreases in social sources of self-efficacy, such as social persuasion and vicarious experiences, exhibited a downward trend in their self-efficacy.

Usher and Pajares (2006) stated that subsequent researchers should identify and examine sources of academic self-efficacy beyond the hypothesized ones to track the emergence and development of self-efficacy. Some researchers have identified sources other than the hypothesized ones through qualitative research methods. For example, Duchatelet et al. (2020) found through an in-depth longitudinal case study on four master students that sources of self-efficacy could be divided into three categories: personal sources, social sources, and contextual sources, which encompass and enrich the four previously hypothesized sources of self-efficacy. As Bandura (1997, p. 84) points out, "the reasoning process that controls the self-assessment of efficacy is better explained by analyzing how people select and integrate multidimensional efficacy information rather than by the relative weights they assign to a few preselected factors".

From the above statement, it can be concluded that the four hypothesized sources have been shown to predict self-efficacy and influence the emergence and development of self-efficacy. Meanwhile, more sources are waiting to be discovered beyond the hypothesized ones.

Methodology

The Analytical Framework

The conceptual framework helps grouping the data from the different sources. Table 2 shows that the first domain addresses the first research question on the student's academic self-efficacy change experiences, which consists of two aspects: the process of academic self-efficacy change and the outcomes of academic self-efficacy change. To better understand the process of academic self-efficacy change, I temporarily used "at the beginning", "during the 2-year study", and "by the end of the 2-year study" as analytical categories. The corresponding subcategories will be drawn from the emerging data of this study.

Regarding the outcomes of academic self-efficacy change, two analytical categories were drawn from Bian's (2003) basic ability-control theory: perceived basic ability and perceived control. The four corresponding subcategories were drawn from the related studies reviewed above and the context of this study, which specify possible attributes of self-efficacy that the student perceived, developed, and changed throughout the process.

The second domain helps answer the second research question on the personal and social factors that influence the process and outcomes of the student's academic self-efficacy change. The corresponding subcategories are drawn from both the above-reviewed literature and the data collected. Specifically, personal factors include mastery experiences and physiological/emotional states. Social factors include social persuasion and vicarious experiences. The subcategories within each of the analytical categories are updated during the process of data collection and analysis.

Table 2. A Conceptual Framework

Domains/ RQs	Analytical categories	Subcategories
Academic self-efficacy changes (RQ 1)	Process of academic self-efficacy change	At the beginning During the 2-year study By the end of the 2-year study (To be drawn from data)
	Outcomes of academic self-efficacy change	Perceived basic ability
		Perceived control
		Perceived command of knowledge Perceived learning ability
		Perceived control of the learning environment Perceived control of the learning behavior
Influencing factors (RQ 2)	Personal factors	Mastery experiences Physiological/emotional states
	Social factors	Vicarious experience
		Social persuasion

Setting

This case study was conducted in a four-year bachelor's program for EE majors at S university in S city, China. This EE program has a good reputation for its highly qualified teachers and students.

According to S University's major transfer policies, students who meet the requirements for transferring majors should take the selection test at the end of their first year. Students who distinguish themselves in the selection test will join the classes of their new majors in their sophomore year. The major-transferred students will be required to make up the first year's courses of the new major in later years. It could result in a postponement of their graduation if they cannot complete the courses and get the required credits within the following three academic years.

Participants

A purposeful sampling strategy was employed to select cases with significant information, because purposeful sampling allows researchers to gain deeper insights and more meaningful data (Patton, 2015). The three participants, Jennifer, Yinel, and Luisina, were chosen according to the principle of maximum differentiation from 5 Grade 3 undergraduates

who transferred their major to EE. At the beginning of the study, all five major-transferred students were contacted. Through further contact, Jennifer, Yinel, and Luisina were chosen as the participants for the following three reasons.

Firstly, the original majors of the three study participants differed significantly, which caters to the principle of maximum differentiation. Jennifer majored in Library, Information, and Archive Management in her first year, a cross-discipline between arts and sciences. Luisina originally majored in Sociology, a pure arts major. Yinel majored in Biopharmaceuticals, a pure science major. It is believed that the different educational backgrounds can provide a variety of perspectives for this study. Secondly, the three participants had different self-expectations in learning. Jennifer had high expectations of herself and expected to be the best, but she struggled to fulfill her ambition. Yinel was satisfied to be above average level in her class and thought that she had met her self-imposed expectations. Luisina didn't have high expectations of herself but worked hard for two years to maintain an outstanding academic performance. Lastly, the participants' willingness to share their experiences greatly facilitates data collection. Table 3 presents brief profiles of the three participants.

Table 3. The Participants' Profile Data

Name	Jennifer	Yinel	Luisina
Gender	female	female	female
Age	22	21	21
Native place	Jiangsu	Jiangsu	Shanghai
Educational background	- Library, Information and Archive Management - EE	- Biopharmaceutical - EE	- Sociology - EE

Data Collection

Data was collected from three sources: semi-structured interviews, reflections, and observation notes. In total, one round of semi-structured interviews for each participant, nine reflections, and three observation notes were collected.

The interview is a significant tool to collect data (Patton, 2015). Prior to the interviews, all participants expressed their enthusiasm to take part in this research. At the beginning of the interviews, I assured the participants that their responses would remain confidential. Additionally, I emphasized that they were free to withdraw from the interview at any point if they felt uneasy with any of the questions. The interview schedule was designed based on the research questions and the conceptual framework. A pilot interview was conducted to test whether the interview schedule could bring out the data for this study. After analysis, the interview schedule was modified and then used in the official interviews. After interviewing each participant, data analysis will be followed. Then, the interview schedule will be modified again and used in the next participant's interview to collect data more efficiently. To facilitate a full and unrestricted expression of their thoughts, all interviews were conducted in Chinese Mandarin.

Apart from interviews, case documents were collected to enrich or check data collected from other sources. For each participant, three reflections were collected at three points: the end of the first semester of their sophomore year, the middle of the first semester of their junior year, and the end of the second semester of their junior year. Field observations were conducted to gain insights into participants' learning experiences and social interactions. I took notes to record important moments of the participants' social interactions, such as classroom discussions, communications with teachers and classmates, etc. Table 4 presents detailed information of data collection.

Table 4. Detailed Information of Data Collection

Data source			Date	Length of time	Words
Semi-structured interviews	Yinel	1	May. 27, 2023	1:21:28	17293
	Luisina	1	Nov. 25, 2023	0:32:57	6679
	Jennifer	1	Feb. 01, 2024	0:39:51	6597
	Total	/		2:39:16	30569
Reflections	Yinel	3	Jan. 01, 2022	/	6857
	Luisina	3	Nov. 08, 2022	/	2889
	Jennifer	3	Jun. 25, 2023	/	3572
	Total (9 pieces)	/		/	13318
Observation notes	Yinel	1	May. 30, 2023	/	391
	Luisina	1	Jun. 09, 2023	/	374
	Jennifer	1	Jun. 15, 2023	/	301
	Total	/		/	1096

Data Analysis

For the analysis of the data, a qualitative content analysis method was employed, following an inductive approach that

allowed the themes to emerge naturally from the participants' perspectives rather than being constrained by a predetermined framework (Brown, 2008). The interviews were initially transcribed, and then a thorough review was conducted to pinpoint various codes and indicators related to academic self-efficacy, guided by this study's conceptual framework. For instance, references to the "rat race/ peer pressure" were coded as "perceived learning atmosphere", which served as evidential code to support the theme "perceived learning environment", which is a subcomponent of the "perceived control of the learning environment". To mitigate biases in data analysis, an investigator triangulation approach was adopted, involving multiple researchers in the coding process and subsequent discussion to reach consensus of the coding results, as is illustrated in Table 5. Furthermore, member checking was utilized, where participants reviewed and confirmed the accuracy of the interpretations, thus enhancing the study's reliability.

Table 5. Detailed Codes With Frequency Counts

Self-efficacy		Frequency			
		Yinel	Luisina	Jennifer	Total
Perceived command of knowledge	Expectation of learning results	4	3	3	10
	Perceived ability to achieve learning goals	8	7	6	21
Perceived learning ability	Perceived talent	2	1	1	4
	Perceived attention ability	5	1	4	10
	Perceived adaptability	4	2	3	9
Perceived control of the learning environment	Perceived learning environment	7	3	5	15
	Perceived social interaction	5	2	3	10
Perceived control of the learning behavior	Completing learning tasks as planned	4	1	3	8
	Excluding external interference	3	0	2	5
	Making efforts when learning	6	6	1	13

Findings

Academic Self-Efficacy Change Experiences

Yinel: Struggle to Adapt to the Art Major; Handle Parents' Expectations; Build Confidence in Pedagogical Skills

Yinel followed her parents' decision and transferred her major to EE from Biopharmaceutical. Despite her interest in English, Yinel was vehemently opposed to her parents' decision at the time because she hoped to become a doctor. However, considering that the teaching profession offered a "good salary, stability, and two vacations", she ultimately compromised. Before Yinel entered the EE major, she had already heard about the peer pressure and "rat race" in the new environment, to which she held the belief that "I always think that as long as you have tried your best, you should leave the rest to chance, and accept all the results".

Struggle to adapt to the art major. When Yinel first came to the EE major, she found many differences between art and science students. To begin with, she did "not adapt" to how art students answer the questions. She found that science students focused on the answer while art students focused on the process of reaching the answer. In addition, Yinel found that the EE major required good memorization skills, whereas her former major mainly trained her comprehension and problem-solving skills. As Yinel shared in the interview, in the new major, she needed to "memorize a lot, and it was easy to confuse this with that". What's more, almost all the courses in the new major were delivered in English, with the content of the lectures related to English. These gave Yinel a sense of "having to learn English every day" and made her feel somewhat "bored" and "burnout". Due to all these differences, Yinel put great effort into improving her memorization skills and changing her ways of thinking to adapt to the new major.

Handle parents' expectations. During her study, Yinel was happy with her learning achievements because she "has never asked myself (herself) to be one of the best", as she said, "being above the average level has already met my expectations". However, Yinel's parents had high expectations and demands on her. Yinel felt that her parents had a "parental vanity", as they tended to compare her with other children and negate her efforts when she failed to achieve good academic results. Once Yinel did not achieve good grades on a grammar exam despite her efforts. Her parents thought it was because Yinel didn't work hard enough, which added to her frustration. While admitting that she wanted to fulfill her parents' expectations and win their recognition, Yinel was determined to be her own master in her study, as she said, "I don't want people to put too much pressure, too much anxiety on me; I just have my own pace".

Build confidence in pedagogical skills. Although Yinel was not initially willing to pursue a career as a teacher, she still worked hard to learn pedagogical knowledge. Like the other two participants, Yinel mentioned that she found the pedagogy she studied during the junior year challenging. However, unlike the other two participants, Yinel shared her success in carrying out micro lectures in the education practical training course. Before her micro lecture, Yinel had practiced delivering a good lesson by studying from an experienced off-campus tutor. After sufficient preparation, she achieved an outstanding performance in this session. The course teacher greatly praised Yinel's performance and asked

her to present the lecture to the graduate students, which significantly boosted Yinel's confidence and gave her a positive attitude toward her future teaching career, as she shared in the interview:

Last time, Mr. Heng recognized me, and he asked me to present my grammar lesson to the graduate students. I think that was a great encouragement, and it made me feel that it's good to be a teacher.

Luisina: Strive to Keep up in Learning; Win the Teachers' Recognition; Learn From Role Models

Once Luisina entered the major of Sociology in her first year, she decided to change her major. It was a decision "forced" to be made under the influence of her parents, but Luisina also agreed that Sociology majors faced a competitive job market. Taking her career plan and her perceived good skills in English into consideration, Luisina changed her major to EE in her sophomore year. Although she "didn't have high expectations" of her future learning, Luisina was ready to face the uncertainties in the new major, and she said, "When it comes to difficulties, I didn't have any preconceived ideas at the time; I just focused on moving forward".

Strive to keep up in learning. After the first week of study in the EE major, Luisina felt "unable to keep up" and was overwhelmed by the course difficulty, task volume, teachers' various requirements, and peer pressure. She felt anxious and even less confident because of her uncertainty about whether she could maintain good grades and rankings. However, instead of letting difficulties beat her down, she spent great effort "previewing and reviewing, organizing notes" every day and "recording some questions in class". Luisina's hard work yielded positive results in the subsequent exams. She found her solution to the difficulties, which was turning anxiety into actual deeds and "keeping learning every day, every weekend".

Win the teachers' recognition. In the first semester of her sophomore year, encouraged by the teacher, Luisina showed the initiative in seeking help from others when she met problems. When Luisina asked Mr. Sun questions, she always got positive feedback like "Luisina asked a good question" and "Luisina worked very hard", as she quoted in the interview. The teacher's verbal encouragement gave her "a feeling of being trusted" and made her determined to "keep learning". In the second semester, Luisina received high marks from her teachers. She emphasized that the acknowledgment from her teachers significantly contributed to facilitating her learning, as she shared in the interview:

He just encouraged me, and I felt like I needed to continue learning, and I kept working hard. Although I didn't feel like I would succeed, I just kept learning..... I will continue to consolidate my grammar knowledge in the future, and I think some of Mr. Xu's suggestions on writing are pretty useful, so I will use them in my future writing. (interview 1, November 15, 2023)

Learn from role models. During her junior year, Luisina encountered pedagogical concepts for the first time, and it left her feeling rather "incompetent". Unlike her familiarity with English, this realm of knowledge was entirely uncharted territory for her. Almost at the same time, Luisina was preparing for a speech competition. In Luisina's words, she was facing "unknown knowledge and an unknown situation". At this point, she learned the courage to face the unknown from a senior student. This senior student is "someone who dares to step out of his comfort zone and take up challenging activities like traveling, diving, voluntary teaching, model UN committee, speech competitions, and debates". Luisina thought the senior student had "really set a good example for her" and felt "very encouraged", as she shared in the interview:

I remember he said to us that he had participated in a speech competition, and at that time, I was also preparing for a speech competition. Although I failed later, I still felt inspired and touched while thinking of the process of trying and the effort I put in. (Interview 1, November 15, 2023)

Jennifer: Suffer From Overestimation of Ability; Regain Control Over Learning; Make Progress From Failures

Jennifer transferred her major from Library, Information, and Archives Management to EE. She made this decision in the second semester of her first year when she realized that she was becoming increasingly disenchanted with her original major. Jennifer enjoyed English and felt that there would be a goal (to become a good teacher) to strive for in the new major. Jennifer had won two English competition awards in her first year. With confidence, she envisioned that she could achieve good academic performance in her new major despite the difficulties that she might encounter. As she said, "I enjoy facing challenges".

Suffer from overestimation of ability. Jennifer's confidence was soon thwarted during her first semester in the EE program. She took extra courses despite the already full recommended schedule because she wanted to make up for her first year and ensure that she would graduate on time. She thought she could handle such a large number of courses, but it turned out that the sheer volume of assignments proved to be too much for her to cope with. To make matters worse, Jennifer used the wrong strategy during the final term period. At that point, she believed that "the deadline drives productivity," and as a result, she didn't prioritize completing her tasks ahead of schedule, which only squeezed her time further. Insufficient review and challenging exams resulted in Jennifer achieving a disappointing result. This forced Jennifer to reflect on her learning and reevaluate her abilities.

Regain control over learning. When Jennifer first started taking online classes in the second semester of her sophomore year because of COVID-19, she felt very anxious because not only was she facing a lot of unknowns in the environment, but she also had to strive for good grades to make up for her poor performance in the first semester. With no peers around to communicate, it wasn't easy to judge her progress. Jennifer then realized that "this is the time to be the master of your learning". Following her teacher's advice, Jennifer reflected on the problems in the first semester and determined what to work on afterward. She learned the lesson and only chose the number of courses she could handle in the second semester. At the same time, she developed an English learning plan to consolidate her English foundation, a schedule to improve execution, and daily checks to enhance persistence. These study tools proved to be effective as they made Jennifer feel organized and ultimately helped her achieve excellent grades.

Make progress in failures. Jennifer's deepest impression of her junior year was that her "confidence was severely damaged". As the learning difficulty increased in the junior year, Jennifer experienced more failures. In the final exam of the first semester of her junior year, Jennifer scored only 80 in one course, the course Jennifer used to be best at. Not yet recovered from this failure, Jennifer suffered another setback in the National English Competition for College Students in the second semester, where she felt "ashamed to be overtaken by the junior students". Afterward, she suffered a massive failure in practicing micro lecture, losing her confidence in becoming a teacher, the long-term goal she had been striving for. At the same time, Jennifer's graduation thesis topic was almost rejected by her supervisor. Feeling a deep sense of self-doubt, powerlessness, and confusion, Jennifer put great effort into pulling herself together. She talked to her teachers and counselor to modify her negative beliefs. Additionally, she spent much effort accomplishing the challenging tasks she faced and eventually got her study back on track, as she said in the interview:

I lost confidence in all aspects of my abilities at that time. Faced with so many difficulties, I felt like I couldn't continue learning and wanted to drop out... I just persevered during the difficult time, and things eventually worked out... After surviving all these, I can see my growth. (Interview 1, November 15, 2023)

Table 6. Summary for Finding 1: Academic Self-efficacy Change Experiences

Finding 1:
The participants experienced academic self-efficacy change in different styles but through a similar process, which was continuous and uneasy.
Yinel
<i>Struggle to Adapt to the Art Major</i>
Yinel struggled with memorization, English courses, and adapting from science to arts students.
<i>Handle Parents' Expectations</i>
Yinel balanced her own study pace with her parents' high expectations and demands.
<i>Build Confidence in Pedagogical Skills</i>
Yinel excelled in teaching micro lectures, boosting her confidence and interest in a teaching career.
Luisina
<i>Strive to Keep up in Learning</i>
Luisina overcame initial anxiety through daily study efforts, achieving positive exam results.
<i>Win the Teachers' Recognition</i>
Encouraged by teachers, Luisina sought help, received positive feedback, and improved her learning.
<i>Learn From Role Models</i>
Luisina faced pedagogical challenges and gained courage from a senior student's example.
Jennifer
<i>Suffer from Overestimation of Ability</i>
Jennifer struggled with too many courses and poor time management, leading to disappointing performance.
<i>Regain Control over Learning</i>
Jennifer overcame anxiety by reflecting on her learning and implementing effective study strategies
<i>Make Progress from Failures</i>
Jennifer faced multiple setbacks and confidence issues, but sought help and regained her footing.

Changes in Perceived Basic Ability

Changes in Perceived Command of Knowledge

Overall, the three participants had different trajectories of change in perceived command of knowledge, which consists of two subcomponents, i.e., student's self-expectation in learning and student's judgment on the ability to achieve expectations. Yinel's perceived command of knowledge was essentially stable. Upon joining the EE program, her self-expectation was "not below average level or worse". Yinel felt that she had already surpassed her own benchmarks after her first mid-term exam in the new program. Although there have been ups and downs during her learning process later, she continued to assess her command of knowledge as "generally above average". Jennifer had a high assessment of her command of knowledge upon entering the EE program, believing that she could "achieve good results in the new major".

These made it easier for her to feel frustrated when she did not meet her expectations, leaving her more susceptible to setbacks and failures due to her unpreparedness. After experiencing failures, regaining confidence, and failing again, she reestablished a less positive evaluation of her abilities: "I've positioned myself as a good student, but not the best". In contrast to Jennifer, upon entering the new major, Luisina didn't have high self-expectations. After the first week's study, she was even "less confident" because she felt that the courses were "difficult" and she "couldn't keep up" with them. However, Luisina dedicated herself wholeheartedly to her studies, which ultimately resulted in outstanding test scores and recognitions from the teachers. Luisina's judgment of her command of knowledge changed positively. Luisina's confidence in her command of knowledge grew considerably during her junior year, particularly following her triumphs in the Teaching Credentials Exam, the IELTS, and the TEM-4 exam.

Changes in Perceived Learning Ability

All three participants experienced changes in their perceived learning ability, specifically in their perceived talent, perceived adaptability, and perceived attention ability. In terms of perceived talent, Yinel reported after failing the grammar test that "If you have done your best, but still get results like this, it means you're not cut out to learn this stuff". Regarding perceived adaptability, the participants reported "not adapting" to the new environment upon entering the EE program. With the accumulation of learning experience in the new major, all three participants gradually managed to adapt to the new major and developed their own learning styles. Concerning the participant's perceived attention ability, Jennifer tended to get distracted during class at the beginning of her sophomore year. After online learning during the pandemic, she discovered that staying alone while studying facilitates her concentration. As she wrote in her reflection, "When I study alone, I can depend on nobody but myself. This makes me more focused than usual".

Changes in Perceived Control

Changes in Perceived Control of the Learning Environment

All three participants experienced obvious changes in their perceived control of the learning environment. Initially, all three participants reported a sense of "loss of control" in the new learning environment. However, by the end of their junior year, they reported an enhanced ability in creating a better learning environment and the initiative to interact with their classmates and teachers. Jennifer felt "unable to manage" the heavy courseload when she entered the new major. However, in the second semester, she felt she had already created a "tight but manageable" learning schedule. All three participants tended to separate themselves from their classmates upon entering the new major and felt strange to the environment. However, they gradually integrated into the class, as they reported an initiative to seek help from others, with Luisina seeking help from the teachers more often, while Yinel and Jennifer from their classmates.

Changes in Perceived Control of the Learning Behavior

The three participants experienced changes in their perceived control of the learning behavior, which encompasses three aspects: being capable of completing learning tasks, excluding external interference, and making effects. Concerning completing learning tasks, Luisina has consistently reported commendable performance throughout her overall learning process, while Jennifer and Yinel have shown positive changes. For example, Yinel reported that if she did not finish the first task on the to-do list, "all the subsequent plans of the day would be scrapped". However, in the second semester of her junior year, she would "still complete the subsequent plans". Concerning excluding external interference, Yinel initially felt troubled by her parents' expectations and excessive control and became rebellious. However, in her junior year, she felt capable of explaining her outlook on learning to her parents and receiving their understanding. Concerning the sense of effort, all three participants showed positive changes. For example, Luisina had great self-consciousness of her effort spent in learning. She reported a strong sense of effort when talking about adapting to the new major. Afterward, encouraged by the teachers and the role models, Luisina demonstrated greater effort in learning.

Table 7. Summary for Finding 2: Academic Self-Efficacy Changes

Changes in Perceived Basic Ability
<i>Perceived Command of Knowledge</i>
Yinel: Maintained a stable self-expectation, generally assessing her command of knowledge as above average.
Jennifer: Initially overestimated her ability, faced setbacks, and adjusted her self-assessment to aim for being a good student.
Luisina: Started with low expectations, felt overwhelmed but improved confidence through excellent test scores and recognition.
<i>Perceived Learning Ability</i>
Yinel: Initially doubted her talent, but gradually adapted to the new major, improving memorization and thinking skills.
Jennifer: Experienced distractions, but learned to focus better during solitary study and adapted study plans during the pandemic.
Luisina: Initially less confident, but dedicated effort resulted in improved perceived talent, adaptability, and attention

ability.

Table 7. Continued

Changes in Perceived Control

Perceived Control of the Learning Environment

Yinel: Initially felt a loss of control, but developed a manageable schedule and integrated better with classmates and teachers.

Jennifer: Struggled with a heavy course load initially, but created an effective learning schedule and integrated more with peers over time.

Luisina: Initially felt lost, but sought help from teachers, integrated into the learning environment, and managed her learning better.

Perceived Control of the Learning Behavior

Yinel: Improved in completing learning tasks despite initial setbacks, handled external interference better, and showed a strong sense of effort.

Jennifer: Faced failures, overcame self-doubt, and improved in handling learning tasks and excluding external interference.

Luisina: Consistently performed well, improved in handling tasks and excluding interference, and demonstrated increased effort encouraged by role models.

*Personal Factors of Academic Self-Efficacy Change**Mastery Experiences*

Data analysis suggests that mastery experiences either facilitated or constrained the participants' academic self-efficacy development. The analysis of data reveals a clear distinction between the experiences tied to participants' successes and those linked to their failures. Generally, experiences associated with success tended to enhance academic self-efficacy, whereas those related to failure were often correlated with a decline in academic self-efficacy. However, in one case, although Luisina failed in a speech competition, she was still moved by her efforts and felt courageous. Different perspectives of interpreting their success-related or failure-related experiences bring out different results in the participants' self-efficacy change. Data analysis also finds that the mastery experiences that the participants gained from their original major contributed to their academic self-efficacy in the new major. When the participants find their original major more challenging than the EE major, their academic self-efficacy increases, and vice versa, it decreases.

Physiological/Emotional State

Data analysis suggests that physiological/emotional states had either positive or negative influences on the participants' academic self-efficacy change. Negative psychological/emotional states (e.g. anxiety) mainly had a negative influence on the participants' self-efficacy. In contrast, positive physiological/emotional states (e.g. pride) positively influenced participants' self-efficacy. For example, for Luisina, anxiety undermined her perceived control of the learning environment. The course arrangement was quite busy in Luisina's junior year, and many courses started early in the morning, making Luisina feel annoyed and anxious. She felt that her "anxiety also affected the moods of her teammates", so she was "annoyed on top of being annoyed". Jennifer scored high on the IELTS exam without much preparation, which made her "feel proud" and resulted in an increase in her self-efficacy.

Verbal and Social Persuasion

Data analysis suggests that verbal and social persuasion facilitated participants' academic self-efficacy development, except once. Once in Jennifer's case, she was highly praised by her teacher, but she felt that she had not done anything outstanding to deserve such praise. She thought the teacher's praise contained his expectations, so she became anxious and started to question her performance instead. Bandura (1997) defined social persuasion as concerning the direct messages provided by significant others. Nevertheless, data analysis distinguishes broader aspects that expand this definition beyond mere "direct" messages. The findings indicate that the other individuals' behavior can function as an "indirect" social persuasion. Yinel interpreted the teacher's kind class questioning as an encouragement, as she said, "She (the teacher) would call me up to answer questions, and I was happy because I knew the correct answers to the questions. The teacher's action just felt like an indirect encouragement".

Vicarious Experiences

Data analysis suggests that the vicarious experiences consistently influence the participants' academic self-efficacy change. For Luisina, observing a senior student's performance increased her confidence in facing the unknowns and gave her positive feelings about the effort she spent. This senior student, like the three participants, is major-transferred. For Yinel, observing her classmates helped her to assess her abilities. For example, Yinel scored 90 in a writing task, while

the model essays written by the other students scored 92. Yinel realized that her score was close to the model essays and thus felt more confident in her English writing. For Jennifer, the success of her peers who underwent a similar situation has always been the source of her self-efficacy. However, Jennifer also felt pressured by vicarious experiences. She would feel “less capable than them” when comparing herself to her outstanding classmates.

Table 8. Summary for Finding 3: Factors of Academic Self-efficacy Change

Personal Factors
<i>Mastery Experiences</i>
Success boosted self-efficacy; failure often decreased self-efficacy. The participant’s original major’s challenge level affected self-efficacy in EE.
<i>Physiological/Emotional State</i>
Positive states such as pride increased self-efficacy; negative states such as anxiety reduced self-efficacy.
Social Factors
<i>Verbal and Social Persuasion</i>
Verbal and social persuasion generally boosted self-efficacy, except when praise caused anxiety.
Indirect encouragements also played a role in boosting self-efficacy.
<i>Vicarious Experiences</i>
Observing peers and senior students consistently boosted the participant’s confidence.

Discussion

This study finds that the process of the three participants’ self-efficacy change is shaped by distinct pivotal experiences. Despite the different experiences, the three participants went through similar stages of self-efficacy change: struggling as a new EE student, striving to be an environment-adapted EE student, and learning to be a promising EE student.

This study highlights the critical role of perceived basic ability and perceived control in shaping academic self-efficacy, which supports Bian’s (2003) basic ability-control theory. While Bian’s theory was initially derived from investigations into students’ learning in mathematics, this study extends her theory by applying it to the context of English language learning and examining its relevance within the specific setting of major transfer. Data analysis indicates that academic self-efficacy was a dynamic characteristic. The undergraduates’ academic self-efficacy fluctuated over two years spanned 2-grade levels. The three participants’ self-efficacy decreased upon entering the new environment, then increased after they adapted to the new major, and fluctuated based on the participants’ individual experiences, with Yinel’s remaining essentially stable, Luisina’s increasing in a zigzag pattern and Jennifer decreasing in a zigzag pattern. This variation is consistent with Peura et al. (2021), who found multiple trajectories of self-efficacy change among students, including stable, increasing, and decreasing patterns. The self-efficacy change caused by the environment change can be interpreted by the study carried out by Caprara et al. (2008), which highlighted a noticeable decrease in students’ self-regulatory efficacy as they progressed from junior high to senior high school, as the transition between these educational stages involves a significant environmental shift that can challenge one’s academic self-efficacy. Similarly, under the new social structural arrangements, the major-transferred undergraduates have to reestablish their sense of efficacy, social connectedness, and status within a new network. During the adapting period, the major-transferred students sensed some loss of personal control and became less confident in themselves. This finding aligns with Liu et al. (2021) and Ouwenel et al. (2013), who noted that self-efficacy is a dynamic construct subject to continuous change. Additionally, Phan’s (2012) findings on the evolution of self-efficacy over a year among elementary students underscore the instability of self-efficacy during significant transitions.

This study finds that two groups of self-efficacy sources could be distinguished in contributing to self-efficacy change: personal sources (mastery experience, physiological/emotional state) and social sources (vicarious experience, social persuasion). Concerning personal sources, the findings underscored the crucial role of mastery experience, which encompasses both success-related and failure-related experiences, in contributing to self-efficacy change (Bates & Khasawneh, 2007; Lent et al., 1996; Metcalf & Wiener, 2018; Usher & Pajares, 2008). Physiological/emotional states consistently influence self-efficacy change (Bates & Khasawneh, 2007; Luzzo et al., 1999), with positive emotions improving students’ self-efficacy, while negative emotions make students doubt their abilities and their relationship with the environment.

Concerning social sources, while most previous studies reported the limited impact of vicarious experiences on self-efficacy change, this study highlighted the vicarious experience as a significant contributor to the overall process (Duchatelet et al., 2020). In most events, vicarious experiences were associated with an increase in participants’ self-efficacy, except once. One possible explanation is that the effect of vicarious experiences hinges on the way participants perceive them. As Bandura (1997) pointed out, “the same level of performance success may raise, leave unaffected, or lower perceived self-efficacy depending on how various personal and situational contributions are interpreted and weighted (p. 81)”. Concerning social persuasion, this research highlighted the influence of both “direct” messages, such as verbal feedback, and “indirect” messages (Duchatelet et al., 2020), like the teachers’ goodwill gestures. This expanded

Bandura's definition of social persuasion, which was originally focused solely on "direct" messages (Bandura, 1997). This study finds that students who received less effective social persuasion had decreased self-efficacy trajectories, which is consistent with the previous study's findings (Peura et al., 2021). Taking the Chinese context into consideration, the high parental expectations observed in Yineli's experiences reflect a cultural emphasis on academic achievement and familial pride which is common in many Asian contexts. This cultural pressure can lead to student's heightened anxiety, influencing self-efficacy both positively and negatively. Moreover, the participants' responses to peer comparisons and teacher feedback are also culturally mediated, reflecting the high value placed on respect for authority. Understanding these cultural contexts provides deeper insights into the participants' self-efficacy change and highlights the need for culturally sensitive approaches in educational interventions and support systems.

Conclusion

This qualitative case study finds that the participants experienced academic self-efficacy change in different styles but through a similar process, which was continuous and uneasy. The participants had various academic self-efficacy change outcomes during their studies in the new major. Personal and social factors are identified to influence the participants' academic self-efficacy change.

Based on the findings of the major-transferred EE students' self-efficacy change, implications can be drawn. Firstly, given the significant impact of mastery experiences on self-efficacy, EE programs should prioritize creating opportunities where students can achieve and recognize their successes. This can include project-based learning, regular formative assessments, and opportunities for students to reflect on their progress. Secondly, EE program developers should incorporate elements that utilize social persuasion and vicarious experiences. This can be achieved by facilitating peer learning, mentorship programs, and role model interactions. For example, Topping's (2005) research on peer tutoring programs demonstrated significant benefits in student confidence and learning outcomes. Additionally, encouraging teachers to give positive, constructive feedback and creating opportunities for students to observe successful peers can enhance their self-efficacy. Positive feedbacks given to students must be genuine and effective, as inappropriate feedback can lower students' self-efficacy and result in a loss of credibility of the individual who gives the feedback. Thirdly, EE programs should integrate modules on managing anxiety, fostering resilience, and promoting a growth mindset. Providing resources such as counseling support and workshops on stress management for students in need can help mitigate negative emotions that hinder self-efficacy.

Recommendations

Further research should account for diverse student demographics, including age, gender, socioeconomic status, and cultural backgrounds, to tailor interventions to meet the needs of different student populations. For example, exploring self-efficacy in non-traditional students, such as adult learners or first-generation college students, can give insights to support mechanisms required for these groups.

Limitations

There are certain limitations to this research. The sample size of interviewees is modest, and the insights gleaned are restricted regarding the ways in which self-efficacy develops among different gender groups, given that all the participants in this research are female.

Ethics Statements

The studies involving human participants were reviewed and approved by Soochow University. The participants provided their informed consent to participate in this study.

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