



Research article

Understanding college success through the lens of first-generation students in China: An interpretative phenomenological analysis

Ruihua Li^a, Norlizah Che Hassan^{a,*,1}, Norzihani Saharuddin^a, Sha Ouyang^b^a Faculty of Educational Studies, Universiti Putra Malaysia, Serdang, Selangor, Malaysia^b Shaanxi Railway Institute, China

ARTICLE INFO

Keywords:

First-generation college students
College success
Academic achievement
Personal growth
Career development
Career success

ABSTRACT

Background: First-generation college students face unique challenges in navigating the higher education system, and understanding their perceptions of college success is crucial for providing appropriate support.

Objective: This qualitative study aimed to explore the perceptions of 15 first-generation college students regarding college success and to identify the factors they consider important for achieving success in college.

Method: Semi-structured interviews were conducted with the participants, and the data were analyzed using interpretative phenomenological analysis.

Results: This study explores the varied perceptions of success among first-generation college students (FGCS) through five themes: Academic Achievement, Personal Development, Personal Well-being, Personal Fulfillment, and Career Success.

Conclusion: This study provides valuable insights into the perceptions of first-generation college students regarding college success. The identified themes shed light on the multifaceted nature of success in higher education. These findings have implications for supporting first-generation college students and developing targeted interventions to enhance their overall success and well-being.

1. Introduction

The pursuit of higher education is a significant milestone for many individuals, offering the promise of personal growth, expanded opportunities, and enhanced career prospects [1,2]. However, the experiences and perceptions of college success can vary among students, particularly among those who are the first in their families to attend college [3]. First-generation college students (FGCS), defined as individuals whose parents or

guardians have yet to attain a bachelor's degree, often face unique challenges and navigate unfamiliar territory as they strive for success in a college setting [4,5]. In this study, we aim to explore the perception of college success among FGCS. College success, in this context, refers to the subjective evaluation and interpretation of achievements, progress, and overall satisfaction in the college experience. It encompasses various dimensions, including academic performance, personal growth, social integration, and future

* Corresponding author. Universiti Putra Malaysia, 43400, Serdang, Selangor, Malaysia.

E-mail addresses: lruhua1990@gmail.com (R. Li), norzihani@upm.edu.my (N. Che Hassan), norlizah@upm.edu.my (N. Saharuddin), gs58634@student.upm.edu.my (S. Ouyang).

¹ Present/permanent address: Universiti Putra Malaysia, 43400, Serdang, Selangor, Malaysia.

<https://doi.org/10.1016/j.heliyon.2024.e30979>

Received 25 July 2023; Received in revised form 26 March 2024; Accepted 8 May 2024

Available online 9 May 2024

2405-8440/© 2024 The Authors. Published by Elsevier Ltd. This is an open access article under the CC BY-NC license (<http://creativecommons.org/licenses/by-nc/4.0/>).

aspirations [6]. By examining how first-generation students define and perceive their success, we aim to gain insight into their unique perspectives and shed light on the factors that shape their college journey.

1.1. First-generation college students

Universities worldwide have recently welcomed students whose parents and grandparents were historically barred from involvement in society and higher education due to racial, ethnic, socioeconomic, and linguistic diversity [7]. Many students who benefit from these efforts are from low socioeconomic origins, are the first in their families to attend college, or both. These students are referred to as FGCS [8–10]. According to the National Center for Education Statistics (NCES), in 2019, degree-granting institutions in the United States enrolled 16.8 million students in 2017, a 27 % increase from 2000. Although the number of undergraduate enrollments decreased slightly from 2010 to 2017, it was expected to increase by approximately 3 % from 2017 to 2018 [11]. Additionally, a study by Taylor Payne et al., in 2021 indicated that about one-third of high school graduates are first-generation college students, meaning they are the first members of their families to attend higher education institutions [12]. FGCS have a complex profile due to national circumstances. British first-generation university students are often equated with those whose families are economically poor or from lower social classes [13]. First-generation South African university students have lower family socioeconomic status, live in poor social environments, and often complete their education in a second or third language, which largely affects their educational participation and structural location [14]. Lacking sociocultural capital, the first generation of Indian university students face the dilemma of caste inequality and unfair and discriminatory treatment and are the main victims of inequality under extremely unfair regulations [15].

In 1999, China implemented a massive expansion of higher education, and 20 years later, in 2019, China officially moved from the stage of popularization of higher education to the stage of universalization, with a gross university enrolment rate of 54.4 %. According to Tsinghua University's "Chinese Undergraduate Study and Development Tracking Study," from 2011 to 2018, the proportion of FGCS in national undergraduate colleges has remained at more than 70 %, and the FGCS have become undergraduates [16]. First-generation Chinese college students (FGCCS) are generally hardworking and engaged in their studies. The academic gap between them and non-first-generation college students is almost nonexistent or even higher. The academic disadvantage is also limited to FGCS in rural areas [17].

A considerable volume of research has been dedicated to examining the journeys and obstacles encountered by first-generation college students (FGCS) in their pursuit of higher education. This body of work consistently highlights the distinctive academic and social challenges FGCS face, including unfamiliarity with college norms, constrained financial resources, and limited support networks, all of which can adversely affect their college experience and perceptions of success [18–20]. For instance, one line of inquiry has revealed that these students frequently navigate unique academic and social barriers, which can impede their progression and sense of belonging within the college environment. Additionally, Ives and Castillo-Montoya's systematic Review sheds light on the intricate academic and social hurdles confronting FGCS as they transition into higher education [21]. At the same time, another investigation delves into FGCS's perceptions of their lived experiences and their impact on academic and social integration [22]. Despite these insights, there remains a gap in our understanding of how FGCS defines and perceives success within the higher education context, signaling a pivotal area for further exploration.

1.2. College success

Here are some additional sources that provide insights into how college success can be defined. Alyahyan and Dustegor [23] defined student success in terms of academic achievement, engagement in educationally purposeful activities, satisfaction, acquisition of desired knowledge, skills, and competencies, persistence, attainment of educational outcomes, and post-college performance. It emphasizes the significance of academic resilience, specifically persistence, in achieving academic success. 's (2006) research covered student engagement, academic preparation, and institutional support. The report underscores the importance of student engagement in educationally purposeful activities like internships, research projects, and community service as key contributors to student success. Majid [24] conducted a study exploring the definition of student success at Sacramento State. The findings revealed administrators' desire for increased collaboration and communication among academic departments to support student success. Additionally, students defined success as the attainment of academic goals, the development of personal and professional skills, and the establishment of meaningful relationships with peers and faculty [25]. Weatherton and Schussler [26] argue that academic definitions of success are relevant and useful within higher education, but alternative views of success should also be considered. The Article emphasizes the importance of considering the social context in which students are situated in defining college success. These resources contribute to the ongoing discourse on student success by providing insights into the factors, strategies, and support systems that foster academic achievement, engagement, and persistence. By understanding the multifaceted nature of student success, educators and institutions can tailor their approaches better to support students' holistic development throughout their educational journeys.

1.3. Research framework

Vincent Tinto's Theory of Student Departure posits that a student's persistence in college is significantly influenced by their academic and social integration into the institution. Tinto's model emphasizes the role of integration into the college community for student retention and success. It posits that students are more likely to persist and succeed in college when they feel academically and socially integrated. Academic integration involves the students' interactions with the faculty, performance in coursework, and

commitment to academic goals. In contrast, social integration involves the students' interactions with peers and participation in campus activities [27]. Pierre Bourdieu's concept of cultural capital refers to the non-financial social assets that promote social mobility beyond economic means. These can include education, intellect, style of speech, dress, or physical appearance. For students, particularly FGCS, cultural capital encompasses the skills, knowledge, and behaviors that make navigation of the education system easier and more intuitive. Bourdieu's theory introduces the concept of cultural capital, which encompasses knowledge, skills, education, and other cultural assets that society deems valuable. In the context of higher education, cultural capital refers to the assets that facilitate navigation through the academic system and influence academic success and social integration [28,29]. James Marcia's Identity Status Theory explores identity development through the processes of exploration and commitment, offering a framework to understand how individuals develop and commit to certain roles, values, and beliefs. This theory is particularly relevant during the college years, a critical period for identity formation. Marcia's theory focuses on identity development through exploration and commitment across different areas of life, including occupation, ideology, and interpersonal relationships [30,31].

Integrating Tinto's, Bourdieu's, and Marcia's theories provides a comprehensive framework to understand the complex dynamics influencing FGCS's perceptions of academic success. Tinto's theory highlights the importance of integration for student retention, Bourdieu's concept of cultural capital elucidates the resources that aid or hinder academic navigation, and Marcia's theory on identity development offers insights into how personal and academic experiences contribute to FGCS's evolving sense of self. Together, these theoretical perspectives underscore the multifaceted nature of academic success for FGCS, encompassing academic achievements, skill development, personal growth, well-being, and the construction of a meaningful future.

1.4. Rational for this study

Previous studies have focused on the challenges and support mechanisms for these students, but only some have explored their subjective perspectives on success. First-generation students face unique academic and social obstacles, such as unfamiliarity with college expectations, financial constraints, and limited support networks. These factors significantly impact their perceptions of success and hinder their college progress. While objective measures of success, like graduation rates and G.P.A.s, have been widely studied, less attention has been given to subjective experiences and personal markers of success among first-generation students.

Understanding how FGCS perceives and defines success is of crucial importance for educational institutions, policymakers, and practitioners. By gaining insight into their perspectives, institutions can tailor support services and interventions to meet the needs of this population better. The findings of this study inform the development of inclusive policies and practices that promote equitable opportunities for all students. Moreover, by amplifying the voices and experiences of first-generation students, this research contributes to the broader conversation on diversity, equity, and inclusion within higher education.

In conclusion, this study aims to explore the perception of college success among FGCS. By delving into their unique experiences and perspectives, we seek to contribute to the existing literature, address the research gap regarding subjective perceptions of success, and provide valuable insights for enhancing the educational journey and outcomes of first-generation students.

2. Methodology

2.1. Research design

To investigate the perceptions of college success among FGCS in China, this study employed an interpretive phenomenological analysis (I.P.A.) research design. I.P.A. is based on phenomenology, hermeneutics, and concrete I.P.A., and it aims to explore the innermost deliberations of the "lived experiences" of research participants. It prioritizes understanding how participants personally make sense of their experiences rather than imposing external interpretations upon them [32]. The approach seeks to capture the intricate and profound meanings individuals attribute to specific phenomena, such as college success, in the context of this study. By delving into the participants' experiences and the broader significance they assign to those experiences, I.P.A. enables a comprehensive exploration of their understanding of success and the contextual factors that shape it. This method thus facilitates a thorough and nuanced comprehension of how FGCS in Chinese universities perceive and conceptualize college success. In summary, I.P.A. is an apt methodology for investigating the perceptions of FGCS in Chinese universities regarding college success, as it enables an in-depth examination of participants' perspectives and effectively captures the multifaceted and subtle meanings they associate with this concept [33].

2.2. Participants

The participants in this study were FGCS enrolled in various undergraduate programs at a prominent university in China. In the context of Interpretive Phenomenological Analysis (I.P.A.) research, Smith and Fieldsend [33] suggest the use of purposeful sampling as a means of recruiting a homogeneous sample of participants. In addition, when recruiting targeted participants using traditional methods proved challenging, Parker et al. [34] proposed the use of snowball sampling as an alternative method. Snowball sampling involves first identifying and recruiting several participants who meet the required criteria and then asking them to recommend other participants with similar characteristics. Therefore, in this study, purposive sampling and snowball sampling were used to enhance participant recruitment. By combining purposive sampling with snowball sampling, the researchers aimed to create a sample that would provide valuable insights into the perceptions of college success among FGCS in China. A total of 15 participants (7 males and 8 females) were selected to participate in the study. They were between the ages of 19 and 23 and represented a variety of academic

disciplines, including STEM, humanities, and social sciences. The participants' families originated from various regions across China, providing a breadth of cultural and regional perspectives. The sample size was determined based on the principle of data saturation, where new insights and themes no longer emerge from additional interviews, ensuring sufficient depth and comprehensiveness of the data. This section presents a comprehensive overview of the participant's age, gender, academic discipline, and regional backgrounds, offering valuable context for understanding their perceptions of college success.

Table 1 presents the demographic characteristics of the 15 study participants. The participants' ages ranged from 19 to 23, reflecting an even distribution across the age spectrum. In terms of gender, the sample consisted of seven males and eight females, providing a balanced representation. Academic disciplines were diverse, encompassing STEM, humanities, and social sciences. This diversity ensured a breadth of perspectives and experiences related to college success within different disciplinary contexts. Participants hailed from various regional backgrounds across China, including Eastern, Southern, Northern, Central, and Western China. This regional diversity added richness to the study by capturing the influence of regional cultures and socioeconomic factors on participants' perceptions of success.

2.3. Data collection

This study, employing an interpretive phenomenological analysis (I.P.A.) design, aimed to delve into the perceptions of college success held by first-generation Chinese college students. Our approach to data collection was twofold, involving both semi-structured interviews and the analysis of supplementary documents to gain a comprehensive understanding of participants' experiences and perceptions of success in college.

2.3.1. Data collection instruments

Semi-Structured Interviews: The primary instrument for data collection was semi-structured interviews, carefully designed to explore various dimensions of college success as perceived by the participants. The interviews were scheduled at mutually convenient times for the participants and the researcher, and rapport was established before the interviews to create a comfortable and trusting environment. Semi-structured interviews were conducted to explore the perceptions of college success among the 15 participants in this study. Details of the interview outline can be found in appendix A.

Supplementary Documents: Documents such as official university records, transcripts, and written assignments were collected and analyzed to provide supplementary information about participants' academic performance, achievements, and progress throughout their college journey. These documents offered an objective perspective that complemented the subjective accounts obtained through interviews. Researchers meticulously reviewed and analyzed these documents, extracting relevant data to enrich their understanding of participants' experiences and perceptions of college success.

2.3.2. Data collection procedures

Online meetings were chosen as the primary method for data collection to overcome geographical barriers and accommodate the participants' schedules. This approach allowed for greater accessibility and inclusivity, as participants from different locations and time zones could participate in the study without the need for travel. The use of online meetings also reduced logistical complexities and expenses associated with organizing face-to-face interviews. During the online interviews, participants were provided with guidelines on creating a private and quiet space to ensure confidentiality and minimize disruptions. They were informed about the purpose of the study, the confidentiality of their responses, and the secure handling of data. Ethical considerations were followed, and informed consent was obtained from all participants before the interviews.

Each interview lasted approximately 45–60 min, allowing participants to share their perceptions, experiences, and reflections on their college success. Informed consent was obtained from each participant, guaranteeing the confidentiality and anonymity of their responses. The interviews followed an interview guide developed from a review of relevant literature and research questions. This

Table 1
Demographic characteristics of study participants.

Participant ID	Age	Gender	Academic Discipline	Regional Background
P1	20	Male	STEM	Eastern China
P2	21	Female	Humanities	Southern China
P3	22	Male	Social Sciences	Northern China
P4	19	Female	STEM	Western China
P5	23	Male	Humanities	Eastern China
P6	20	Female	Social Sciences	Central China
P7	21	Male	STEM	Southern China
P8	19	Female	Humanities	Northern China
P9	22	Male	Social Sciences	Western China
P10	20	Female	STEM	Eastern China
P11	21	Male	Humanities	Southern China
P12	23	Female	Social Sciences	Central China
P13	20	Male	STEM	Northern China
P14	19	Female	Humanities	Western China
P15	22	Male	Social Sciences	Eastern China

guide consisted of open-ended and probing questions designed to explore different aspects of participants' understanding of success, factors influencing their definition of success, and their college journey. For instance, participants were asked to define success in their college experience and describe specific experiences or accomplishments they considered successful.

Follow-up questions were utilized during the interviews to elicit more detailed and nuanced responses. These follow-up questions aimed to gain further insight into participants' answers, clarify any ambiguous information, and encourage them to share additional insights. Examples of follow-up questions included requesting specific examples to illustrate their points or asking for further elaboration.

With participants' consent, audio recording devices were used to accurately capture their responses, ensuring that no details or nuances were missed. Additionally, detailed field notes were taken during and immediately after each interview. These field notes documented nonverbal cues, observations, and contextual information, such as participants' body language, mood, and overall demeanor, which contributed to the analysis.

The data collection process continued until data saturation was reached, indicating that new information and insights were no longer emerging from subsequent interviews. In our study, saturation occurred during the 13th interview. However, for additional validation, two more interviews were conducted.

Overall, the data collection process involved conducting semi-structured interviews in private and comfortable settings, following ethical research protocols approved by the university's Institutional Review Board. The use of audio recordings, detailed field notes, and carefully designed interview questions, including follow-up prompts, ensured the accurate capture of participant responses and contextual information for subsequent analysis. Purposeful sampling and snowball sampling techniques were employed to enhance the recruitment of a diverse yet homogeneous sample of FGCS from Chinese universities, facilitating a comprehensive exploration of their perceptions of college success.

Furthermore, memo writing played a significant role in the data collection process [35]. Throughout the study, researchers maintained reflective memos to record their thoughts, observations, and insights gained from interviews and document analysis. These memos facilitated personal reflection, capturing the researchers' interpretations and impressions, which later informed the data analysis and interpretation. The process of writing memos promoted researcher reflection, enhancing the rigor and credibility of the study [32].

2.4. Ethical considerations

Ethical considerations were carefully addressed throughout the research process [33]. Ethical approval was obtained from the Ethical Committee for Research Involving Human Subjects (JKEUPM) before data collection commenced (Approval No: JKEUPM-2023-309). Participants were assured of the voluntary nature of their participation, the confidentiality and anonymity of their responses, and their right to withdraw from the study at any point without penalty. All data were de-identified, and pseudonyms were used to protect participants' identities during data analysis and reporting. To ensure the privacy and confidentiality of the participants, all data were stored securely in password-protected electronic files. Only the research team had access to the data, and all members signed confidentiality agreements. Additionally, participants' identities and any identifying information were kept separate from the analysis and reporting process.

2.5. Data analysis

2.5.1. The data analysis followed the principles of interpretative phenomenological analysis

(I.P.A.) [33], which involved a systematic and iterative process (Table 2). The audio-recorded interviews were transcribed verbatim, capturing both verbal and non-verbal cues. The transcripts were read and re-read to gain familiarity with the data, immersing the researchers in participants' experiences and narratives. Initial codes were generated through line-by-line coding, where significant statements, phrases, and concepts related to participants' perceptions of college success were identified. These codes were collated and organized into broader themes, reflecting the shared meanings and experiences across participants. The researchers engaged in regular team meetings to discuss and refine the identified themes, ensuring consensus and agreement on the interpretation

Table 2
I.P.A. data analysis process.

Step number	Process	Description
Step1	Reading and re-reading	Immersing oneself in the original data.
Step2	Initial noting	Free association and exploring semantic content
Step3	Development of emergent themes	Focus on chunks of transcript and analysis of notes made into themes.
Step4	Searching for connections across emergent themes	Abstracting and integrating themes.
Step5	Moving to the next case	Trying to bracket previous themes and keep open-minded to do justice to the individuality of each new case
Step6	Looking for patterns across cases	Finding patterns of shared higher-order qualities across cases, noting idiosyncratic instances
Step7	Taking interpretations to deeper levels	Deepening the analysis by utilizing metaphors and temporal referents and by importing other theories as a lens through which to view the analysis

of the data. The identified themes were further analyzed and explored in-depth. Patterns, variations, and associations within and across the themes were examined, providing a rich understanding of participants' experiences and perspectives. The software NVivo was utilized to assist in organizing and managing the data throughout the analysis process, facilitating efficient coding and retrieval of relevant excerpts.

2.6. Reflectivity and rigor

To enhance the rigor and trustworthiness of the study, several measures were taken. The researchers engaged in reflexive practices, acknowledging their own cultural and disciplinary backgrounds, biases, and assumptions throughout the research process. Reflexivity was achieved through regular team meetings, where individual perspectives and interpretations were critically examined and challenged [36,37]. To ensure the credibility and validity of the findings, member checking was conducted. Participants were provided with a summary of their interviews and asked to validate the accuracy and interpretation of their responses [38]. This process allowed participants to confirm, modify, or elaborate on their original statements, ensuring their voices were accurately represented. Peer debriefing was also employed to seek external input and feedback from colleagues experienced in qualitative research [39]. This external Review provided valuable insights and alternative perspectives and further contributed to the rigor and credibility of the study.

3. Results

The qualitative analysis aimed to uncover the rich and nuanced perspectives of FGCS regarding their perception of college success. Through in-depth interviews, five prominent themes emerged, representing the shared experiences and interpretations of the participants (Fig. 1). Detailed information on coding can be found in Appendix B. These themes provide comprehensive insights into how FGCS defines and perceives success within the context of college. The themes are discussed below, accompanied by relevant quotations from the interviews to support and illustrate the findings. Excerpts from interview transcripts have been paraphrased for brevity and clarity.

3.1. Theme 1 academic achievement

In today's competitive educational landscape, evaluating student progress and potential heavily relies on academic achievement and attainment. The Academic Achievement and Achievement category explores the criteria and indicators of academic success. Participants in discussions emphasized the significance of factors such as G.P.A. and grades as markers of success, with high academic performance serving as a measure of achievement. They also shared insights into the challenges they face and the strategies they employ to meet these criteria for academic success.

Because academics are, after all, college students still in a student phase, and G.P.A. is feedback on academic performance, G.P.A. can be identified as meeting the criteria. (P11)

Because we pay four years of tuition in college, if we don't finish our studies, we are not successful compared to students who have four years of undergraduate studies. (P15)



Fig. 1. College success themes and subthemes.

If you have a high grade in your major, you end up with a high credit score. (P17)

However, two students also expressed that grades are not so important for success in college. One of them said: "I think that after you go to college, you have to come to society after all. I think grades are only an answer to yourself as a student, and they may reflect your understanding of the world or how it is, which will help you in society later" (P9).

In addition, participants emphasized the role of information-processing skills in academic achievement and the need for efficient cognitive skills to stand out in academic pursuits. The ability to self-learn for continuous improvement was another key aspect of the discussion, demonstrating the participants' commitment to continuous learning and personal growth.

Competence qualities, of course, include an intake or absorption of your professional knowledge, including, say, many aspects, such as social and social skills of language and socialization, and then including, say, information processing, self-learning such methodological skills, so these I think are viewed comprehensively. (P3)

The academic performance and achievement category also encompassed a holistic view of success, recognizing that academic success transcends achievement. Participants recognized the importance of competencies as a prerequisite for academic success, emphasizing the need for a well-rounded set of skills. They also discussed the importance of overall skill development, demonstrating their commitment to improving competencies beyond academic knowledge.

I do think that if we are talking about academic success, we might be thinking in these terms. However, I prefer that as a successful college student, the emphasis is more on the ability to have these skills first. You don't have these skills; you can't, for example, retrieve information, read literature, or write academically, and you are going to talk about it. This is also very difficult. Ability is a foundation, and success is the result of this latter. (P4)

In addition, participants recognized the significance of publishing as a marker of success, demonstrating their contribution to research and knowledge dissemination. "Academically, in addition, to say merit points, then include that you personally, because we will now also, for example, entering graduate school, have to say published papers, participate in academic forums, or have say related to this academic research achievements above" (P3).

The second category, skills development, emphasizes the acquisition and enhancement of a variety of skills to support academic success. Participants recognized the value of critical thinking, problem-solving, and effective communication as critical skills for success. Language skills were highlighted as key skills to be acquired to enable participants to engage with course material and communicate effectively. In addition, participants emphasized the importance of social skills in the university setting as they acknowledged the role of social interaction, collaboration, and networking in facilitating their academic journey.

Practical knowledge, because nowadays universities honestly have much theoretical knowledge? However, practical application to the workplace still requires you to take the initiative to develop some practical skills yourself. (P8)

After all, the university is a transition stage into society, and then over into society is a group environment; you need to learn how to get along with people, learn from different people, and get more opportunities. The success of the university. (P10)

In summary, this theme on academic success explored the multidimensional nature of academic achievement. It includes categories such as academic performance and achievement, focusing on specific criteria and indicators for achieving success, and skill development, emphasizing the acquisition of a variety of skills to support academic success. By understanding and addressing these different aspects, individuals can strengthen their academic journey and pave the way for future achievement.

3.2. Theme 2 personal development

Personal development was a major factor in participants' perceptions of college success. This theme encompasses a variety of aspects, including interpersonal relationships, self-growth and self-awareness, and personal values and character. The following sections provide a detailed description of each category, along with supporting quotes from the interview transcripts.

Relationships and social interactions are essential components of the college experience. Participants in this study discussed the importance of finding a compatible roommate, engaging in extracurricular activities, and traveling as ways to relax and unwind from academic pressures. They also reflected on the importance of balancing realistic expectations with societal pressures and the role of supportive friends in defining their success.

I believe that having supportive friends and a positive social network is crucial for my well-being and success in college. They provide emotional support and motivate me to strive for my goals. (P14)

Success for me is not only about completing my studies but also about forming meaningful relationships and connections with others. It's about building a network that will support me in my personal and professional growth. (P7)

Self-Growth and Self-Awareness: Participants discussed their experiences of self-growth and self-awareness during college. Overcoming academic challenges and completing projects or presentations were identified as confidence-boosting achievements. *One participant mentioned*, "Conquering academic obstacles and accomplishing tasks that seemed difficult at first has increased my self-confidence" (P10). College was seen as a transformative period for self-discovery and understanding personal identity, values, and goals. Participants expressed how their college experiences helped them learn more about their strengths, weaknesses, and aspirations. Engaging in group projects with diverse peers was highlighted as an opportunity for personal growth. A participant shared, "Working

with people from different backgrounds in various projects has improved my communication, collaboration, and leadership skills, contributing to my personal growth"(P9).

Personal Values and Character: Upholding integrity and ethical behavior was seen as essential in participants' personal and academic lives. They emphasized the importance of acting with integrity to build trust and foster personal growth. Resilience and perseverance were identified as qualities that participants developed during college. One participant mentioned, "Overcoming academic challenges, balancing multiple responsibilities, and adapting to new environments have strengthened my resilience" (P6). Empathy and understanding were also recognized as important values for personal development. Participants discussed the significance of being open-minded, accepting diversity, and developing a sense of empathy toward others. A participant shared, "Having empathy and understanding different perspectives has contributed to my personal growth"(P12).

These findings emphasize the holistic nature of personal development in the college context and underscore the significance of nurturing interpersonal relationships, fostering self-growth and self-awareness, and promoting values and character development for overall college success.

3.3. Theme 3 personal well-being

Personal well-being was a key factor in participants' perceptions of college success. Participants discussed the importance of physical and mental health, work-life balance, and emotional well-being. The following sections provide a detailed description of each category, including interview excerpts to support the findings.

Participants emphasized the essential role of maintaining good physical and mental health in achieving college success. Engaging in regular exercise was highlighted to stay physically fit and mentally alert. As one participant expressed, "Taking care of my physical health is important because it allows me to have the energy and stamina needed to cope with the demands of college life" (P13). Additionally, participants recognized the impact of exercise on their mental well-being, stating, "When I exercise, I feel more refreshed and focused, and it helps me manage stress better (P7)."

Participants recognized the significance of achieving a healthy work-life balance in college. They emphasized the importance of effective time management in allocating time for both academic commitments and personal activities. One participant shared, "Balancing my academic workload and personal life is crucial for my well-being. I try to plan my schedule, setting aside specific time for studying, socializing, and relaxation" (P15). Participants also highlighted the value of engaging in extracurricular activities to enrich their college experience and maintain a balanced lifestyle.

Emotional well-being was identified as a vital aspect of personal well-being and college success. Participants emphasized the importance of experiencing happiness and fulfillment in their college lives. One participant stated, "Feeling emotionally well is essential for me to stay motivated and focused on my goals. When I am happy and fulfilled, I am more likely to engage actively in my studies and perform better academically" (P1). Participants acknowledged the importance of engaging in activities that brought them joy and fulfillment, such as pursuing hobbies, spending time with friends, and participating in meaningful campus events.

Personal well-being is a complex and multifaceted concept that encompasses physical and mental health, work-life balance, and emotional well-being. Participants in this study recognized the importance of all these dimensions, and they emphasized the positive impact that personal well-being can have on college success. These findings suggest that institutions should promote and support students' physical, mental, and emotional well-being.

3.4. Theme 4 personal fulfillment

Personal fulfillment emerged as a significant theme in participants' perceptions of college success. This theme encompasses participants' experiences and perspectives on finding meaning and purpose, pursuing passions and interests, and achieving personal growth and self-actualization. The following sections provide a detailed description of each category and its corresponding codes, incorporating interview excerpts to support the findings.

Participants emphasized the importance of pursuing their passions and interests as a key aspect of personal fulfillment in college. They expressed a deep desire to engage in activities and subjects that sparked their curiosity and brought them joy. One participant shared,

Finding and pursuing my passions has been essential in my college journey. Whether it's through joining clubs, participating in artistic endeavors, or exploring new fields of study, these experiences have given me a sense of fulfillment and allowed me to develop a well-rounded perspective. (P5)

Participants stressed the significance of finding a sense of purpose and meaning in their college experience. They believed that having a clear direction and understanding of their goals provided a framework for personal fulfillment. One participant reflected, "Having a sense of purpose has been crucial for me. It gives me a sense of direction and motivation to work towards something meaningful. When I see how my studies and actions align with my values and contribute to a greater cause, it brings me a profound sense of fulfillment"(P11).

Personal assessment and growth explore the multifaceted nature of success beyond traditional metrics. Participants challenge the notion that G.P.A. alone determines success and highlight the importance of personal goals, continuous personal growth, and finding purpose. They emphasize the value of exploring personal passions and developing a sense of purpose beyond academic achievements.

I don't believe that G.P.A. is the sole determinant of success. Success in college encompasses academic achievements, finding a job, and building personal relationships. It's about achieving a well-rounded experience. (P6)

Success for me is about more than just reaching a certain milestone. It's about continuous personal growth and development throughout life. It's about pursuing my passions and finding a sense of purpose. (P2)

Participants in this study emphasized the importance of personal fulfillment in college. They stressed the need to pursue passions and interests, find a sense of purpose and meaning, and engage in personal assessment and growth. They highlighted the value of engaging in activities that brought them joy and sparked their curiosity. They stressed the importance of aligning their studies and actions with their values and goals. They also recognized the importance of personal assessment and continuous growth for achieving personal fulfillment. These findings suggest that educational institutions should provide opportunities for students to explore their passions, develop a sense of purpose, and engage in personal development initiatives.

3.5. Theme 5 career success

The theme of career success focuses on the participants' perceptions and expectations regarding the practical skills and knowledge they acquire during their college journey and the transition into their future careers. It explores their views on the importance of internships, practical experience, career fairs, and informational interviews in preparing them for the professional world. This theme sheds light on the participants' aspirations and concerns regarding their post-college prospects and the steps they take to enhance their career opportunities.

Practical Skills and Knowledge emphasizes the importance of acquiring practical skills and knowledge alongside theoretical understanding. Participants recognize that learning practical professional knowledge is a primary success factor. They highlight the need to go beyond the curriculum and take the initiative to develop practical skills.

Learning practical skills is crucial for my future career. It's not just about theoretical knowledge but also about applying that knowledge in real-world situations. (P8)

Taking the initiative to develop practical skills beyond what is taught in class is essential. It sets us apart and prepares us for the challenges of the professional world. (P11)

Transition and career opportunities focus on the transition from college to the next stage of life and the career opportunities that individuals strive for. Participants identify various measures of success, such as successfully transitioning to the next stage, obtaining graduate offers from reputable schools, securing well-paying jobs, and having bright prospects.

Success for me is successfully transitioning to the next phase of my life, whether it's entering a graduate program or starting my career. It's about taking that next step with confidence. (P9)

Getting offers from reputable schools or securing a well-paying job after graduation is a clear sign of success. It gives us a sense of accomplishment and opens doors for future opportunities. (P12)

The theme of prospects and life after college reveals that participants recognize the significance of practical skills and knowledge in preparing for their future careers. They value internships and practical experiences as opportunities to apply theoretical knowledge, develop industry-specific skills, and gain a competitive edge in the job market. The participants also emphasized the importance of transition and career opportunities, such as career fairs and informational interviews, in exploring different career paths, networking with professionals, and gathering valuable insights for their post-college journey. These findings underscore the need for educational institutions to provide robust career development programs and resources that equip students with practical skills, facilitate their transition into the professional world, and support their career aspirations.

4. Discussion

This discussion delves into the nuanced experiences of FGCS, guided by an analysis of five critical themes: academic achievement, personal development, personal well-being, personal fulfillment, and career success. These themes, illuminated by the insights of Tinto's Theory of Student Departure, Bourdieu's Theory of Cultural Capital, and Marcia's Identity Status Theory, offer a comprehensive view of the factors that shape FGCS' perceptions of success. Through the lens of these theoretical frameworks, we explore the significance of academic accomplishments, the impact of personal growth and interpersonal relationships, the importance of holistic well-being, the pursuit of individual passions and purpose, and the preparation for future endeavors.

4.1. Academic achievement

The theme of academic success highlighted the multifaceted nature of achieving success in academia [40]. Participants emphasized the importance of academic performance and achievement, with factors such as G.P.A., grades, and passing all subjects being recognized as indicators of success [41,42]. These findings align with existing literature on college success, where measures such as GPAs and grades have been traditionally used to assess student progress [43]. However, it was also noted that success in college goes beyond grades, with participants stressing the significance of holistic skill development, information processing abilities, and self-learning for continuous improvement. This aligns with the concept of high-impact educational practices, which emphasizes the

importance of engaging students in activities that promote deep learning, critical thinking, and personal development [44,45].

Furthermore, the recognition of the importance of publishing papers as a notable achievement within the academic sphere reflects the broader literature on scholarly productivity and its impact on career advancement. These findings suggest that a comprehensive definition of academic success, which encompasses not only grades but also overall competence and skill development, is crucial in supporting the academic journey of FGCS. This aligns with Tinto's model, which posits that academic integration is critical for student persistence. However, achieving this integration can be challenging for FGCS, who may need more inherent cultural capital than Bourdieu describes. The acquisition of academic and social skills, therefore, represents a form of accumulating cultural capital, enabling FGCS to navigate the academic system more effectively and secure their place within the college community.

4.2. Personal development

The theme of personal development sheds light on the practical skills, knowledge, and networking opportunities necessary for success in the professional realm. Participants recognized the importance of learning practical professional knowledge alongside theoretical concepts and highlighted the need for developing practical skills beyond the curriculum. These findings are in line with existing literature on career readiness and employability skills, which emphasize the importance of both theoretical knowledge and practical skills for successful career outcomes [46,47]. Moreover, the findings emphasized the significance of networking, socializing, and building professional relationships in facilitating career advancement and gaining diverse perspectives. This aligns with research highlighting the role of networking and social capital in accessing job opportunities and career success [48,49]. Engaging in internships, practical experiences, and campus work was viewed as valuable for gaining real-world experience and building a strong foundation for professional development. These findings highlight the importance of experiential learning opportunities and practical experiences in preparing FGCS for the workforce. The significance of interpersonal relationships, self-growth, and personal values highlighted by our participants underscores the critical role of social integration, as described by Tinto. These aspects of personal development are essential for FGCS to feel connected and supported within the college environment. Furthermore, these findings echo Marcia's Identity Status Theory, illustrating the college experience as a pivotal period for identity exploration and development. For FGCS, navigating academic and social challenges not only contributes to their personal growth but also shapes their evolving sense of self and place in the world.

4.3. Personal well-being

The theme of personal well-being emphasizes the importance of personal fulfillment, happiness, and supportive relationships in the lives of FGCS. Participants acknowledged the value of personal achievements in academia, the pursuit of personal interests, and maintaining a balanced approach to studying. These findings are consistent with existing literature on college student well-being, which highlights the importance of a holistic approach to success that considers both academic achievements and personal fulfillment [50,51]. Engaging in extracurricular activities, building supportive relationships, and taking time for relaxation and travel were seen as crucial for promoting well-being and personal growth. This aligns with research that emphasizes the positive impact of extracurricular involvement [52] and social support [53,54] on student well-being and academic success. These findings underscore the need for a holistic approach to college success that considers not only academic achievements but also personal fulfillment and supportive social environments. Bourdieu's concept of cultural capital extends beyond academic skills to encompass the broader social skills and personal attributes that contribute to one's success and fulfillment.

4.4. Personal fulfillment

The concept of personal fulfillment stands out as a crucial element in the tapestry of first-generation college students (FGCS) success narratives. Activities that resonate with personal passions serve not only as academic counterpoints but are intrinsic to the student's identity and holistic well-being. For FGCS, such engagements offer more than escapism—they are pivotal in crafting a balanced and enriched college experience. This is corroborated by Reed-Fitzke and Lucier-Greer [55], who note the significant role that personal interests play in bolstering students' overall life satisfaction. Moreover, FGCS draw motivation and solace from pursuits that mirror their intrinsic interests, which, as Hazari et al. [56] affirm, may positively influence their academic pathways. The drive to contribute to society, an aspect that extends beyond self-interest, encapsulates the altruistic dimensions of fulfillment. A robust sense of belonging can anchor individuals within a broader social matrix, granting them a sense of place and value—a notion that FGCS often internalize as they seek to leverage their education for societal betterment [57,58].

4.5. Career success

The theme of career success highlighted the transitional phase and career opportunities that FGCS envision for themselves. Participants viewed the successful transition to the next stage of life, obtaining graduate offers from reputable schools, securing well-paying jobs, and having bright prospects as markers of success. These aspirations align with the broader literature on college-to-career transitions and the pursuit of upward mobility [59–61]. However, participants challenged the notion that G.P.A. or external markers solely determine success. They emphasized the importance of varied goals, including academic achievements, finding a job, and building personal relationships. These findings resonate with research that recognizes the multidimensional nature of success and the importance of individual goals and values in shaping post-college trajectories [62]. Continuous personal growth, exploring

personal passions, and developing a sense of purpose were seen as lifelong pursuits that contribute to long-term success and fulfillment. In sum, the discussion of these five themes, through the theoretical lenses of Tinto, Bourdieu, and Marcia, illuminates the complex interplay of factors that shape FGCS's perceptions of college success.

4.6. College success

York, Gibson, and Rankin's literature review highlighted that the student voice is often neglected by researchers in this field [41]. The themes emerging from the participants' discussions shed light on the complexity of understanding academic success. Participants' definitions of academic success highlighted the relativity and subjectivity of the construct, and that academic success cannot be defined simplistically. Kenneth et al.'s Canadian study found that students' reasons for attending university varied from degree attainment to personal development and career objectives [63]. This is also demonstrated in the multiplicity of definitions of academic success in the literature as follows. Students in London defined academic success as a combination of measurable outcomes, for example, grades and degree attainment, together with more holistic student outcomes, such as personal development and achievements [64]. Students from six Australian universities characterized success in higher education expressed success as assessments of behaviors – how self or others 'measure up' in the esteem of their community [65]. Another research conducted in an Australian regional university found that while institutional measures such as feedback and grades are critical measures of success, students also experience success in more nuanced and immediate ways [66]. A qualitative study investigating South African students' experiences and perceptions of academic success found that participants equated it not merely with achievement but also with goal attainment, feelings of satisfaction, and the application of newly acquired skills [67]. In the same vein, conducted at a prestigious Swedish university, 87 semi-structured interviews uncover a complex perspective on academic success, emphasizing not just grades but also 'stress-less achievement,' strong self-confidence, relaxation, and the ability to juggle extracurricular activities [68]. Also, in a chapter from a recent publication on higher education success, Hannon et al. [69] discuss findings from a student-conducted study where participants defined success not just in terms of academic achievements, but also in managing family responsibilities and experiencing happiness.

York, Gibson, and Rankin's literature review and various international studies present a nuanced and diverse perspective on college success that surpasses basic definitions. College success extends beyond conventional measures like grades and degree completion to encompass a comprehensive view that includes personal growth, goal achievement, and work-life balance. These studies stress the significance of non-academic elements in defining success. Culture and environment play a crucial role in differences; for instance, studies from Australia highlight community recognition and localized success [64,65], while a Swedish study emphasizes stress-free accomplishment, [68]. Moreover, the focus on balancing family responsibilities and seeking personal happiness, as noted by Hannon, Smith and Lã [69], adds another layer to the concept of success. This collective discourse portrays academic success as a multifaceted concept shaped by cultural norms and educational environments, emphasizing the importance of integrating student perspectives in research. This inclusive definition underscores the intricate and subjective nature of college success as perceived by students worldwide, challenging simplistic interpretations and highlighting the diverse ways in which success is defined and experienced across different settings.

5. Theoretical and practical implications

The findings of this study have both theoretical and practical implications that contribute to the understanding of college success among first-generation students.

Contribution to the existing literature: This study expands upon the existing literature on college success by providing insights into the perceptions and definitions of success among FGCS. The identified themes align with and complement existing theoretical frameworks, such as the multifaceted nature of success and the importance of personal development and holistic learning. Understanding factors shaping the perception of success: By exploring the factors that shape first-generation students' perception of success, this study adds to the theoretical understanding of the complex interplay between individual experiences, cultural contexts, and societal expectations. The findings highlight the significance of considering diverse criteria and individual interpretations when conceptualizing and evaluating college success.

Contribution to Implementation of Practical Strategies: To better support FGCS, universities should establish a specialized unit called the "Academic Success Centre" to provide tailored workshops like "Mastering Academic Writing," "Effective Study Skills," and "Navigating University Resources." These workshops aim to address common challenges faced by first-generation students. For instance, a workshop named "Pathways to Academic Excellence" could blend interactive research sessions with peer-led groups to foster collaborative learning. Moreover, universities can encourage participation in extracurricular activities through interest clubs, promoting personal growth, expanding social networks, and enhancing leadership and teamwork skills. Collaborating with local and national businesses to create internship programs for first-generation students, along with organizing career development seminars and job fairs, can help students connect with potential employers effectively.

Educators should focus on diversity and inclusion in instructional design, for example, by incorporating case studies from diverse cultural backgrounds to ensure that all students find relevance and empathy in their learning. Group discussions and projects encourage student interaction and collaboration and develop communication and problem-solving skills. In addition, educators are encouraged to facilitate students' participation in curriculum-related internships and research projects. Students can benefit from partnering with industry experts to provide internships and inviting them to share real-world experiences and career advice in the classroom.

Policymakers need to ensure comprehensive support for FGCS. Policymakers can support comprehensive scholarship programs,

such as the First-Generation Future Scholarship, covering tuition, living expenses, and opportunities for studying abroad, to alleviate the financial burden on FGCS and enable them to pursue a more holistic college experience. Advocating for the establishment of mental health and academic planning services, providing students with tailored counseling services to help them cope with academic and life pressures. Additionally, policymakers can also establish partnerships with businesses to provide students with internship and job opportunities, offering practical support for students' career development.

A collaborative approach involving universities, educators, and policymakers is crucial for the comprehensive development of FGCS. Through coordinated efforts, these stakeholders can ensure that FGCS in China receives the essential tools, resources, and support needed to excel in higher education and beyond.

6. Limitations and Suggestions for future research

This study has several limitations that should be considered when interpreting the findings.

Firstly, the research conducted at a specific university in China may limit the generalizability of the results to other contexts due to variations in educational systems and societal norms across regions and countries. The perceptions of college success among FGCS can be significantly influenced by these differences, suggesting that experiences and definitions of success at one institution may not mirror those in diverse educational or cultural settings. Therefore, caution is advised when extrapolating these findings to other universities or geographic locations. Secondly, the study's sample size, though diverse in some respects, needed to be expanded. It aimed to include participants with different gender identities, academic majors, and academic performance levels to enhance the study's depth. However, this sample might only partially represent the wide range of experiences and backgrounds found in the larger population of FGCS. Therefore, the results are most relevant to the specific group studied and do not encompass the entire FGCS experience. In addition to the sample size, the study's reliance on self-reported data introduces the potential for certain biases, including recall bias and the influence of social desirability on participants' responses. While measures such as rapport building and data triangulation were employed to mitigate these biases, they cannot be eliminated. Lastly, the data collection approach, utilizing semi-structured interviews conducted through online platforms, although beneficial for logistical reasons, may influence the nature of the data collected. Non-verbal cues and environmental context, which can be rich sources of information in qualitative research, are less readily captured in online interactions compared to face-to-face interviews.

Based on the findings and limitations of this study, several avenues for future research can be explored. First, conducting similar studies in different cultural and educational contexts would provide a more comprehensive understanding of first-generation college students' perception of success. Second, longitudinal studies could examine the changes in the perception of success over time and explore the factors influencing these changes. Third, quantitative studies could complement the qualitative findings by investigating the relationships between different factors and the perception of success. Future research should explore different cultural contexts, employ longitudinal designs, and incorporate quantitative approaches to investigate further the factors influencing the perception of success among FGCS. By addressing these research gaps, we can gain a more comprehensive understanding of the experiences and needs of this student population and develop effective strategies to support their journey toward success in higher education.

7. Conclusion

In conclusion, this qualitative study explored the perceptions of college success among first-generation students. Recapitulating the main findings, the study identified five key themes: academic success, personal development, personal growth, well-being, and career success. These themes highlight the multifaceted nature of success and provide valuable insights into the experiences of first-generation students. The significance of these findings lies in their contribution to the existing literature on college success. By recognizing the importance of holistic measures of success beyond grades, this study challenges the narrow focus on academic performance. It highlights the significance of skill development, self-learning, and overall competence. Additionally, the findings emphasize the importance of personal fulfillment, happiness, and supportive relationships in college success, underscoring the need for a balanced approach to academic and personal development. The findings also have implications for educators, policymakers, and support services. Understanding the multifaceted nature of success can inform the development of interventions and support programs tailored to the unique needs of first-generation students. By incorporating practical skills, networking opportunities, and promoting personal growth, educational institutions can better equip students for future success in their careers and lives beyond college.

Ethical statement

This study was approved by the Ethics Committee for Research Involving Human Subject(JKEUPM)(Approval No: JKEUPM-2023-309). All research subjects signed an informed consent form.

Funding statement

The authors did not receive any direct financial support to conduct this study.

Data availability statement

All data generated or analyzed during this study are included in this published article and its supplementary information files.

CRediT authorship contribution statement

Ruihua Li: Writing – review & editing, Writing – original draft, Software, Methodology, Investigation, Formal analysis, Data curation, Conceptualization. **Norlizah Che Hassan:** Writing – review & editing, Supervision. **Norzihani Saharuddin:** Writing – review & editing, Supervision. **Sha Ouyang:** Writing – review & editing, Validation.

Declaration of Competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Acknowledgments

The authors would like to express their sincere gratitude to all participants for their assistance during the data collection process, and to Wang Xiaoyang for his encouragement and support during the paper writing process.

Appendix A. Supplementary data

Supplementary data to this article can be found online at <https://doi.org/10.1016/j.heliyon.2024.e30979>.

References

- [1] C. Fearon, S. Nachmias, H. McLaughlin, S. Jackson, Personal values, social capital, and higher education student career decidedness: a new "protean"-informed model, *Stud. High Educ.* 43 (2018) 269–291, <https://doi.org/10.1080/03075079.2016.1162781>.
- [2] R. Brooks, A. Gupta, S. Jayadeva, J. Abrahams, Students' views about the purpose of higher education: a comparative analysis of six European countries, *High Educ. Res. Dev.* 40 (2021) 1375–1388, <https://doi.org/10.1080/07294360.2020.1830039>.
- [3] C.M. Pires, L.A. Chapin, Barriers, support, and resilience of prospective first-in-family university students: Australian high school educators' perspective, *J. Community Psychol.* 50 (2022) 3221–3236, <https://doi.org/10.1002/jcop.22834>.
- [4] K.J. Peralta, M. Klonowski, Examining conceptual and operational definitions of "First-Generation college student" in research on retention, *J. Coll. Student Dev.* 58 (2017) 630–636, <https://doi.org/10.1353/csd.2017.0048>.
- [5] R.K. Toutkoushian, J.A. May-Trifiletti, A.B. Clayton, From "first in family" to "first to finish": does college graduation vary by how first-generation college status is defined? *Educ. Pol.* 35 (2021) 481–521, <https://doi.org/10.1177/0895904818823753>.
- [6] M. Weatherton, E.E. Schussler, Success for all? A call to Re-examine how student success is defined in higher education, *CBE-Life Sci. Educ.* 20 (2021) 13, <https://doi.org/10.1187/cbe.20-09-0223>.
- [7] A. Bell, L.J. Santamaria, *Understanding Experiences of First Generation University Students: Culturally Responsive and Sustaining Methodologies*, Bloomsbury Publishing, 2018.
- [8] B.N. Richards, Help-seeking behaviors as cultural capital: cultural guides and the transition from high school to college among low-income first generation students, *Soc. Probl.* 69 (2022) 241–260, <https://doi.org/10.1093/socpro/spaa023>.
- [9] J.K. Noel, H.A. Lakhan, C.J. Sammartino, S.R. Rosenthal, Depressive and Anxiety Symptoms in First Generation College Students, 2020, <https://doi.org/10.1080/07448481.2021.1950727>.
- [10] Z.h. Feng, Z. Lin, G. Fei, *The learning portrait of the first generation of college students: an analysis based on the. Survey on the Development and Tracking of Learning Among Chinese College Students*, Tsinghua University Education, Research, 2016, pp. 72–78.
- [11] C. Mead, K. Supriya, Y. Zheng, A.D. Anbar, J.P. Collins, P. LePore, S.E. Brownell, Online biology degree program broadens access for women, first-generation to college, and low-income students, but grade disparities remain, *PLoS One* 15 (2020) 23, <https://doi.org/10.1371/journal.pone.0243916>.
- [12] T. Payne, K. Muenks, E. Aguayo, "Just because I am first gen doesn't mean I'm not asking for help": a thematic analysis of first-generation college students' academic help-seeking behaviors, *J. Divers. High. Educ.* 13 (2021), <https://doi.org/10.1037/dhe0000382>.
- [13] C. Hunt, B. Collins, A. Wardrop, M. Hutchings, V. Heaslip, C. Pritchard, First- and second-generation design and engineering students: experience, attainment and factors influencing them to attend university, *High Educ. Res. Dev.* 37 (2018) 30–43, <https://doi.org/10.1080/07294360.2017.1342607>.
- [14] N. Norodien-Fataar, *First Generation Disadvantaged Students' Mediation Practices in the Uneven, field of a South African university*, 2018, pp. 95–109.
- [15] R. Wadhwa, Unequal origin, unequal treatment, and unequal educational attainment: does being first generation still a disadvantage in India? *High Educ.* 76 (2018) 279–300, <https://doi.org/10.1007/s10734-017-0208-z>.
- [16] G. Jiao, *A study of the school performance of first-generation college students from families based on survey data*, *China Higher Education Research* (2020) 13–19.
- [17] Y. Zhao, Z. Wang, Z.Y. Ren, Research on the influence of family capital on academic achievement of first-generation college students in China, *Front. Psychol.* 14 (2023) 13, <https://doi.org/10.3389/fpsyg.2023.1174345>.
- [18] P. Dean, C. Kelly, Educational travel for first-generation students, *Teach. Sociol.* 48 (2020) 341–352, <https://doi.org/10.1177/0092055x20952826>.
- [19] B. Ivemark, A. Ambrose, Habitus adaptation and first-generation university students' adjustment to higher education: a life course perspective, *Sociol. Educ.* 94 (2021) 191–207, <https://doi.org/10.1177/00380407211017060>.
- [20] D. Jones, M. McCalla, E.A. Beverly, Measuring grit, self-efficacy, curiosity, and intolerance of uncertainty in first-generation college and first-generation osteopathic medical students, *BMC Med. Educ.* 23 (2023) 13, <https://doi.org/10.1186/s12909-023-04181-9>.
- [21] J. Ives, M. Castillo-Montoya, First-generation college students as academic learners: a systematic review, *Rev. Educ. Res.* 90 (2020) 139–178, <https://doi.org/10.3102/0034654319899707>.
- [22] S.D. Herrmann, M.E.W. Varnum, B.C. Straka, S.E. Gaither, Social class identity integration and success for first-generation college students: antecedents, mechanisms, and generalizability, *Self Ident.* 21 (2022) 553–587, <https://doi.org/10.1080/15298868.2021.1924251>.
- [23] E. Alyahyan, D. Dustegor, Predicting academic success in higher education: literature review and best practices, *Int. J. Educ. Technol. High. Educ.* 17 (2020) 21, <https://doi.org/10.1186/s41239-020-0177-7>.
- [24] I. Majid, *Defining Student Success: an Examination of How Faculty, Staff, and Administrators Interpret and Act upon Institutional "College Completion" Policies and Practices*, 2017.
- [25] J. Ricks, J. Warren, Transitioning to college: experiences of successful first-generation college students, *Journal of Educational Research and Practice* 11 (2021) 1–15, <https://doi.org/10.5590/JERAP.2021.11.1.01>.

- [26] M. Weatherton, E.E. Schussler, Success for all? A call to Re-examine how student success is defined in higher education, *CBE-Life Sci. Educ.* 20 (2021) es3, <https://doi.org/10.1187/cbe.20-09-0223>.
- [27] V. Tinto, Dropout from higher education - theoretical synthesis of recent research, *Rev. Educ. Res.* 45 (1975) 89–125, <https://doi.org/10.3102/00346543045001089>.
- [28] P. Bourdieu, 3 stages of cultural capital, *Actes Rech. Sci. Soc.* (1979) 3–6.
- [29] J. Chang, S.W. Wang, C. Mancini, B. McGrath-Mahrer, S.O. de Jesus, The complexity of cultural mismatch in higher education: norms affecting first-generation college students' coping and help-seeking behaviors, *Cult. Divers. Ethn. Minor. Psychol.* 26 (2020) 280–294, <https://doi.org/10.1037/cdp0000311>.
- [30] J.E. Marcia, Development and validation of ego-identity status, *J. Pers. Soc. Psychol.* 3 (1966) 551, <https://doi.org/10.1037/h0023281>.
- [31] N.M. Stephens, S.A. Fryberg, H.R. Markus, C.S. Johnson, R. Covarrubias, Unseen disadvantage: how American universities' focus on independence undermines the academic performance of first-generation college students, *J. Pers. Soc. Psychol.* 102 (2012) 1178–1197, <https://doi.org/10.1037/a0027143>.
- [32] J.A. Smith, Participants and researchers searching for meaning: conceptual developments for interpretative phenomenological analysis, *Qual. Res. Psychol.* 16 (2019) 166–181, <https://doi.org/10.1080/14780887.2018.1540648>.
- [33] J.A. Smith, M. Fieldsend, Interpretative Phenomenological Analysis, American Psychological Association, 2021.
- [34] C. Parker, S. Scott, A. Geddes, Snowball Sampling, SAGE research methods foundations, 2019.
- [35] S.B. Merriam, E.J. Tisdell, *Qualitative Research: A Guide to Design and Implementation*, John Wiley & Sons, 2015.
- [36] V. Braun, V. Clarke, Reflecting on reflexive thematic analysis, *Qualitative Research in Sport Exercise and Health* 11 (2019) 589–597, <https://doi.org/10.1080/2159676x.2019.1628806>.
- [37] V. Braun, V. Clarke, One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qual. Res. Psychol.* 18 (2021) 328–352, <https://doi.org/10.1080/14780887.2020.1769238>.
- [38] L. Birt, S. Scott, D. Cavers, C. Campbell, F. Walter, Member checking: a tool to enhance trustworthiness or merely a nod to validation? *Qual. Health Res.* 26 (2016) 1802–1811, <https://doi.org/10.1177/1049732316654870>.
- [39] J.M. Morse, Critical analysis of strategies for determining rigor in qualitative inquiry, *Qual. Health Res.* 25 (2015) 1212–1222, <https://doi.org/10.1177/1049732315588501>.
- [40] E.T. Pascarella, P.T. Terenzini, *How College Affects Students: A Third Decade of Research*, vol. 2, ERIC, 2005.
- [41] T.T. York, C. Gibson, S. Rankin, Defining and measuring academic success, *Practical Assess. Res. Eval.* 20 (2015) 5.
- [42] M. Tadese, A. Yeshaneh, G.B. Mulu, Determinants of good academic performance among university students in Ethiopia: a cross-sectional study, *BMC Med. Educ.* 22 (2022) 395, <https://doi.org/10.1186/s12909-022-03461-0>.
- [43] G.D. Kuh, J.L. Kinzie, J.A. Buckley, B.K. Bridges, J.C. Hayek, *What Matters to Student Success: A Review of the Literature*, vol. 8, National Postsecondary Education Cooperative, Washington, DC, 2006.
- [44] H. Ke, N. Jianchao, L. Xiaojing, Z. Xiting, The actuality and influences of undergraduates' participation in high impact educational practices in Chinese universities, *Front. Psychol.* 13 (2022) 14, <https://doi.org/10.3389/fpsyg.2022.890493>.
- [45] X.T. Zhou, L.W. Zhang, X.M. Cao, High-impact educational practices: participation of Chinese and American undergraduates during the COVID-19 pandemic, *Asia Pac. Educ. Rev.* 15 (2022), <https://doi.org/10.1007/s12564-022-09807-z>.
- [46] K.E. Benson, L.Z. Owens, Unpacking the shortcomings of "college and career readiness" as an educative approach in urban schools as preparation for tomorrow's economy, *Educ. Sci.* 12 (2022) 15, <https://doi.org/10.3390/educsci12050357>.
- [47] S. Green, A. Sanczyk, C. Chambers, M. Mraz, D. Polly, College and career readiness: a literature synthesis, *Journal of Education-Us* 203 (2023) 222–229, <https://doi.org/10.1177/00220574211002209>.
- [48] D.M. Chan, M.D. Broda, J. Winslow, Q. Jones, C. Luce, H.A. McGinnis, C.A. Tomlinson, H. Hamid, J. Ma, The effects of prime supporters within a college student's support network, *Nonlinear Dynam. Psychol. Life Sci.* 26 (2022) 423–440.
- [49] E. Yucel, H. Jabbar, L. Schudde, Navigating transfer through networks: how community college students seek support from social ties throughout the transfer process, *Rev. High. Educ.* 45 (2022) 487–513, <https://doi.org/10.1353/rhe.2022.0006>.
- [50] D.D. Bi, X.Y. Li, Psychological flexibility profiles, college adjustment, and subjective well-being among college students in China: a latent profile analysis, *Journal of Contextual Behavioral Science* 20 (2021) 20–26, <https://doi.org/10.1016/j.jcbs.2021.01.008>.
- [51] P.F. Lin, The relationship between trait mindfulness and well-being in college students: the serial mediation role of flow experience and sports participation, *Psychol. Res. Behav. Manag.* 16 (2023) 2071–2083, <https://doi.org/10.2147/prbm.5414890>.
- [52] B.W. Yao, S.C. Takata, W.J. Mack, S.C. Roll, Modeling extracurricular activity participation with physical and mental health in college students over time, *J. Am. Coll. Health* 71 (2023) 1232–1240, <https://doi.org/10.1080/07448481.2021.1926263>.
- [53] J.A. Booker, E. Hernandez, K.E. Talley, J.C. Dunsmore, Connecting with others: dispositional and situational relatedness during the college transition, *J. Soc. Pers. Relat.* 39 (2022) 198–220, <https://doi.org/10.1177/02654075211034566>.
- [54] R.K. Hoffman, M.N. Cook, M.T. Balaguer, C.B. Gee, Exploring the interaction between social strain and support and its association with college students' psychological well-being, *Emerg. Adulthood* 11 (2023) 497–511, <https://doi.org/10.1177/21676968221128342>.
- [55] K. Reed-Fitzke, M. Lucier-Greer, Basic psychological need satisfaction and frustration: profiles among emerging adult college students and links to well-being, *Contemp. Fam. Ther.* 43 (2021) 20–34, <https://doi.org/10.1007/s10591-020-09550-w>.
- [56] Z. Hazari, D. Chari, G. Potvin, E. Brewé, The context dependence of physics identity: examining the role of performance/competence, recognition, interest, and sense of belonging for lower and upper female physics undergraduates, *J. Res. Sci. Teach.* 57 (2020) 1583–1607, <https://doi.org/10.1002/tea.21644>.
- [57] L.T. Phillips, N.M. Stephens, S.S.M. Townsend, S. Goudeau, Access is not enough: cultural mismatch persists to limit first-generation students' opportunities for achievement throughout college, *J. Pers. Soc. Psychol.* 119 (2020) 1112–1131, <https://doi.org/10.1037/pspi0000234>.
- [58] M.C. Murphy, M. Gopalan, E.R. Carter, K.T.U. Emerson, B.L. Bottoms, G.M. Walton, A customized belonging intervention improves retention of socially disadvantaged students at a broad-access university, *Sci. Adv.* 6 (2020) 7, <https://doi.org/10.1126/sciadv.aba4677>.
- [59] P. Akos, B. Hutson, A.J. Leonard, The relationship between work study and career development for undergraduate students, *J. Career Dev.* 49 (2022) 1097–1107, <https://doi.org/10.1177/08948453211012787>.
- [60] E.M.Y. Ding, A.D. Storey, B.M. Lee, A. Jhoslien, M. Cora, "Where do I even start?": exploring resources for anthropology students' college-to-career transitions, *Annals of Anthropological Practice* 12 (2023), <https://doi.org/10.1111/napa.12199>.
- [61] J.A. Kitchen, A. Kezar, L.I. Hypolite, At-promise college student major and career self-efficacy ecology model, *Journal of Diversity in Higher Education* 16 (2023) 369–383, <https://doi.org/10.1037/dhe0000324>.
- [62] A. Hirschi, D. Valero, Career adaptability profiles and their relationship to adaptivity and adapting, *J. Vocat. Behav.* 88 (2015) 220–229, <https://doi.org/10.1016/j.jvb.2015.03.010>.
- [63] D. Kennett, M. Reed, D. Lam, The importance of directly asking students their reasons for attending higher education, *Issues Educ. Res.* 21 (2011).
- [64] S. Lynam, M. Cachia, R. Stock, An evaluation of the factors that influence academic success as defined by engaged students, *Educ. Rev.* (2022), <https://doi.org/10.1080/00131911.2022.2052808>.
- [65] J. Delahunty, S. O'Shea, 'I'm happy, and I'm passing. That's all that matters!': exploring discourses of university academic success through linguistic analysis, *Lang. Educ.* 33 (2019) 302–321, <https://doi.org/10.1080/09500782.2018.1562468>.
- [66] C. Picton, E.R. Kahu, K. Nelson, 'Hardworking, determined and happy': first-year students' understanding and experience of success, *High Educ. Res. Dev.* 37 (2018) 1260–1273, <https://doi.org/10.1080/07294360.2018.1478803>.

- [67] A. Burger, L. Naude, In their own words-students' perceptions and experiences of academic success in higher education, *Educ. Stud.* 46 (2020) 624–639, <https://doi.org/10.1080/03055698.2019.1626699>.
- [68] A.-S. Nyström, C. Jackson, M. Salminen Karlsson, What counts as success? Constructions of achievement in prestigious higher education programmes, *Res. Pap. Educ.* 34 (2019) 465–482, <https://doi.org/10.1080/02671522.2018.1452964>.
- [69] O. Hannon, L.R. Smith, G. Lã, Success at university: the student perspective, in: L.N. Wood, Y.A. Breyer (Eds.), *Success in Higher Education: Transitions to, within and from University*, Springer Singapore, Singapore, 2017, pp. 257–268.