



The Use of AI Counselling to Enhance Self-Esteem in the Job Seeking Process for Chinese Undergraduate Students

Kangkang Zhou¹, Sirirat Petsangsri^{2*}, Kanyarat Sriwisathiyakun³

ARTICLE INFO

Article History:

Received: 01 July 2024

Received in revised form: 14 December 2024

Accepted: 30 December 2024

DOI: 10.14689/ejer.2024.114.08

Keywords

Artificial Intelligence (AI), Career Counseling platform, Job Seeking, Self-Esteem, Satisfaction

ABSTRACT

Purpose: This study aimed to find the effectiveness of using AI career counseling platform comprising career guidance, entrepreneurship guidance, Job-seeking guidance and alumni networks to enhance Chinese undergraduate students' self-esteem in the job seeking process. **Methods:** One-group pretest-posttest experimental design was utilized in this study, with a group of 60 undergraduate students, selected by purposive sampling method to participate in experiment. Furthermore, dependent t test was used to analyze the obtained data. **Results:** The result showed that there was a significant difference between pretest and posttest of students' self-esteem with P value as 0.00, the means score of satisfaction towards AI career counseling platform ranged from 4.35 to 4.58. **Implications for research and practice:** This study demonstrated that the AI career counseling platform is effective to enhance students' self-esteem. In addition,

the study also showed that students were very satisfied with using AI career counseling platform. Consequently, it is recommended that the AI career counselling platform be sustained and further developed to enhance undergraduate students' self-esteem in the process of job seeking.

© 2024 Ani Publishing Ltd. All rights reserved.

Introduction

The current employment environment for Chinese undergraduate students is generally presenting a severe situation (Miller et al., 2023). While the number of university graduates in 2024 reached 11.79 million, a historical high, the youth unemployment rate hit a record high of 21.3% in June 2023 (Wang & Wang, 2024). This suggested that despite the large

¹ School of Industrial Education and Technology, King Mongkut's Institute of Technology Ladkrabang, Thailand, ORCID: <https://orcid.org/0009-0002-2803-1899>, Email: zkk@newkk.com

² School of Industrial Education and Technology, King Mongkut's Institute of Technology Ladkrabang, Thailand, ORCID: <https://orcid.org/0000-0002-4828-1740>, Email: sirirat.pe@kmitl.ac.th

³ School of Industrial Education and Technology, King Mongkut's Institute of Technology Ladkrabang, Thailand, ORCID: <https://orcid.org/0000-0002-4533-6400>, Email: kanyarat.sr@kmitl.ac.th

*Correspondence: sirirat.pe@kmitl.ac.th

number of graduates, the growth rate of job opportunities lags far behind the increase in graduates, leading to more intense competition in job market. Self-esteem plays a crucial role in undergraduate students' job search, students with high self-esteem are more confident and better able to handle various challenges and pressures in the job-hunting process (Hamzah et al., 2021). Thereby, enhancing students' self-esteem in job seeking process is a vital task for the career counseling service of higher education institutions, it is also efficient measure to ensure students' success in the current intense competition job market. Meanwhile, the importance of AI in career guidance for undergraduate students has been widely recognized in education due to the contribution to personalized career planning, job market analysis, skills training (Joshi et al., 2020).

Hence, this study aimed to develop an AI career counseling platform which consisted of the functions of AI assistant like career guidance, entrepreneurship guidance, job seeking guidance and alumni networks to enhance undergraduate student's self-esteem in process of job seeking. In this study, an experimental study was conducted to find the effectiveness of using AI career counselling platform to enhance undergraduate students' self-esteem in process of job seeking. Besides, the satisfaction toward using AI career counseling platform was measured under the perspectives of usability, relevance, and perceived benefits for the consideration of further improvements. To achieve these objectives, the study was guided by followed two research questions: (1) Does AI career counseling platform in improve students' self-esteem in the job seeking? (2) Are students satisfied with AI career counseling platform?

The process of job-seeking for students is not just a matter of technical skills but also heavily influenced by psychological factors like self-esteem, self-confidence, self-worth, self-compassion, and resilience. The current study used the Rosenberg Self-Esteem Scale to better understand these elements and their impacts on job-seeking strategies. It was premised that building these psychological traits can help students cope with job search challenges, increasing their chances of securing employment while maintaining their emotional well-being. This study also reviewed the concepts of career guidance, entrepreneurship guidance, job-seeking guidance and alumni networks as components of career counseling for college students. Lastly, this study measured user's satisfaction of AI career counseling platform for better understanding of users' expectations and needs towards an AI career counselling platform, hence being able to continually improve the quality of career counseling services of the platform.

Literature review

Self-esteem in the process of job-seeking

Self-esteem refers to an individual's overall sense of self-worth and confidence in their abilities, it plays a crucial role in various aspects of life, including personal development, mental health, and career success. Having a healthy level of self-esteem is vital for individuals to navigate the complexities of the job market and make informed career decisions. Self-esteem not only affects their job-seeking behavior and interview performance but also directly influences their employment opportunities and job satisfaction (Dimopoulos, 2020). Therefore, developing and enhancing self-esteem is very important for the successful employment of undergraduate students. Furthermore,

undergraduate students also face several issues during the job search process. Many students lack a clear understanding of their abilities and interests, leading to a lack of clear direction and goals when choosing a career (Wanberg et al., 2020). Specifically, students with strong feelings of inferiority tend to lack confidence in their abilities when facing employment pressures, are hesitant to compete, and easily develop strong feelings of inadequacy when encountering setbacks (Zhang et al., 2020). Anxiety and unease arise from their uncertainty about future career prospects and the fear of not finding an ideal job. This ongoing worry makes them emotionally unstable, prone to irritability and frustration. Nervousness and timidity during interviews make them too anxious to speak freely and showcase their strengths. Faced with a tough job market, the negative impact of these issues is further amplified, which in turn undermines their self-esteem in the job search, leading to a lack of confidence and reduced success in interviews.

Self-esteem is fundamental in shaping students' perceptions of their capabilities and potential during the job search process, in the job-seeking context, students with a strong sense of self-worth are better equipped to handle the emotional challenges of the process, such as rejections or competition (Hamzah et al., 2021; Hutagalung & Suryadi, 2021). Self-confidence refers to belief in one's own abilities, particularly in achieving goals, is closely related to self-esteem but emphasizes confidence in specific tasks, such as interviewing or networking (Dimopoulos, 2020). Students with higher self-confidence are more likely to take initiative in their job search, apply for more positions, and use a wider range of strategies. Self-compassion, the practice of being kind and understanding toward oneself in the face of failure, plays a vital role in buffering the stress and anxiety of job-seeking, and helps individuals maintain emotional well-being during difficult times (Wasylikiw et al., 2020). The effectiveness of job-seeking strategies includes networking, attending career fairs, job boards, and cold applications, which are significantly influenced by students' power of resilience (Pignault et al., 2023). Resilience refers to the ability to bounce back from difficulties and maintain effort in the face of obstacles, an essential trait during the often-challenging job search process. Resilient students are more likely to persist despite initial job search failures, applying for more positions and learning from each rejection (Peláez-Fernández et al., 2021).

Components of Career counseling

Career counseling is a professional process aimed at guiding individuals in understanding and navigating their career paths by providing tailored support, resources, and expert advice. It involves evaluating a person's interests, skills, values, and personality to identify suitable career options and create strategies for achieving professional goals (Niles & Harris-Bowlsbey, 2016). Career counseling also addresses challenges such as career transitions, workplace conflicts, and decision-making, empowering individuals to make informed choices about education, training, and employment (Sharf, 2013).

Career guidance is a process that facilitates individuals in understanding their interests, skills, values, and aspirations to make informed decisions about their educational and professional paths. It is a key component of career counseling and focuses on providing information, advice, and support to help individuals explore career options, set realistic goals, and develop strategies to achieve them. In addition, career guidance helps students manage their time and resources effectively by creating detailed career plans, students can

better organize their time and energy, avoiding the frustration of aimless job searching (Yonanda et al., 2022). This well-prepared approach gives them a sense of direction, significantly improving their self-esteem as they know they are working toward clear objectives. Furthermore, career guidance helps students understand market demands and career development trends, enabling them to make informed career choices based on their academic background and market needs (Lu et al., 2021). This understanding of market demand enhances their self-esteem because they know that the career path they have chosen is promising, allowing them to approach the job search with greater confidence.

Career guidance helps students gain a deeper understanding of themselves, including their interests, hobbies, and abilities, allowing them to discover their potential and shortcomings (Dianovi et al., 2022). This process of self-awareness enables students to face the job market more confidently, as they have a clear understanding of their strengths and weaknesses and can choose a suitable career direction based on their talents and interests (Chuang et al., 2020). Career planning also helps students set clear career goals and improve their competitiveness through targeted learning and practice (Okolie et al., 2020). This goal-oriented learning process not only enhances their professional skills but also boosts their self-esteem during the job search process.

Entrepreneurship guidance is another component of career counseling that focuses on supporting individuals who aspire to start, manage, or grow their own businesses. It involves providing resources, advice, and strategies to help individuals develop entrepreneurial skills, identify viable business opportunities, and understand the challenges of entrepreneurship. The importance of entrepreneurship guidance in strengthening students' self-esteem during the job search lies in its ability to enhance their competitiveness and boost their confidence, helping them maintain a high level of self-esteem throughout the job-seeking process (Lu et al., 2021). Through systematic entrepreneurship planning education, students not only acquire the necessary professional skills and knowledge but also experience the joy of success through practical exercises, thereby improving their sense of self-esteem (Boldureanu et al., 2020). Entrepreneurship guidance also provides comprehensive career planning and skills training, helping students better understand both themselves and the job market (Burnette et al., 2020). Besides that, Entrepreneurship guidance also includes training in entrepreneurial knowledge and skills, which inspires students' entrepreneurial motivation. Even if students ultimately choose employment over entrepreneurship, this preparation will increase students' self-esteem in the job search process, helping them stand out among other job seekers.

Job-seeking guidance is a component of career counseling that focuses on assisting individuals in effectively navigating the job market to secure suitable employment. It involves providing practical tools, strategies, and support to help individuals identify job opportunities, prepare application materials (e.g., resumes, cover letters), and develop skills for successful interviews. It plays an important role in strengthening students' self-esteem during the job search. A proper job-seeking guidance and psychological adjustment methods can effectively boost students' confidence and self-esteem, helping them better cope with the challenges of the job search process (Kim et al., 2022). Job-seeking guidance helps students gain a correct understanding of themselves, including their interests, strengths, personality, and values, thereby clarifying their career goals (Yang et al., 2022).

This enhancement of self-awareness can increase students' confidence and self-esteem, making them believe more firmly that they can find a suitable job. Job-seeking guidance also uses psychological adjustment methods to help students overcome feelings of inferiority and anxiety that is common issue among undergraduate students during the job search process, but with proper psychological adjustment, students can correct their overly low self-assessment, recognize their strengths, and thus improve their self-esteem (Dong, 2023).

Alumni networks are also a component of career counseling that involve connecting individuals with former students or professionals from their educational institutions or organizations. These networks provide a platform for mentorship, knowledge sharing, and career opportunities. Alumni networks are valuable resources for career development, as they enable individuals to gain industry insights, build professional relationships, and access job opportunities through referrals and recommendations. It is able to provide students with abundant job opportunities and resources by broadening students' employment channels, making it easier for them to enter their desired companies through alumni recommendations and referrals (Obukhova & Kleinbaum, 2022). Alumni networks also could enhance students' confidence and career orientation. By actively participating in alumni events and leveraging social media platforms, students can build connections with successful alumni and learn valuable career development experiences and skills from alumni (Haj Youssef et al., 2024). Universities organize alumni gatherings, career development lectures, or industry sharing sessions to help students connect with professionals and peers in their fields, learn about industry trends and company cultures, and thus gain more job opportunities (Fisher & Price, 2021). Besides that, the success stories, and words of encouragement from seniors can greatly boost students' confidence, helping them clarify their career goals and development directions. Mutual support and encouragement among alumni, especially during times of job-search setbacks, can provide emotional comfort and practical help, assisting students in adjusting their mindset, learning from their experiences, and steadily moving toward their goals.

AI in career counseling

AI plays a transformative role in both career counseling and enhancing students' self-esteem, leveraging advanced technologies like natural language processing and machine learning to provide accessible, personalized, and evidence-based support. In career counseling, AI offers personalized career planning advice by analyzing a job seeker's educational background, work experience, skills, and interests to generate individualized career plans, helping clarify career goals and development paths (D'Silva et al., 2020). It also facilitates skill development by recommending tailored online courses, certifications, and other learning resources, empowering individuals to align their skills with their career aspirations. AI-powered tools intelligently match job seekers with suitable job positions and enhance the efficiency of employment services, ensuring individuals find the right jobs more effectively (Joshi et al., 2020). Additionally, studies show that individuals using AI-driven career counseling tools report increased self-awareness, improved decision-making, and greater confidence in their career exploration process (Shilaskar et al., 2024). However, challenges such as algorithmic biases and data privacy concerns must be addressed, as

biases in training data can lead to discriminatory outcomes, and safeguarding sensitive personal information is critical to maintain trust (Rahman et al., 2023).

Similarly, in enhancing students' self-esteem, AI counseling platforms provide scalable, cost-effective, and personalized mental health support. These platforms analyze students' emotional patterns and insecurities to offer interventions tailored to their needs. By incorporating evidence-based techniques, mindfulness, and positive psychology, AI tools empower students to reframe negative thoughts, build resilience, and foster a positive self-image. Features such as real-time feedback, positive reinforcement, and progress tracking help students recognize their strengths, celebrate achievements, and develop confidence. Furthermore, AI platforms create a safe, judgment-free space for students to express their concerns, which is particularly beneficial for those hesitant to seek traditional therapy due to stigma or cost barriers. By bridging the gap between self-help and professional therapy, these tools ensure that more students, especially those in underserved communities, can access vital mental health resources, fostering emotional resilience and self-worth. While AI cannot fully replicate the emotional depth of human therapists, it serves as a transformative supplement, normalizing mental health and career support in educational and employment settings, equipping individuals with the tools to thrive both personally and professionally.

User Satisfaction

User satisfaction, from the perspectives of usability, relevance and perceived benefits, explores the key factors that shape user experiences and their overall satisfaction with a product or service. Usability is often considered one of the most critical factors in determining user satisfaction, through usability testing, issues in the user interaction process can be identified, allowing for optimization of the software's design and interaction flow, thus improving user satisfaction and usage efficiency (Ahmad et al., 2021). Relevance refers to how well a product or service meets the specific needs and expectations of the user, it is the degree to which a system provides content, functions, or experiences that are useful, meaningful, and aligned with the user's objectives, when users find the system relevant to their needs, it increases their perceived usefulness, enhancing overall satisfaction (Ferreira et al., 2020). Perceived benefits refer to the user's evaluation of how a system or product improves their situation or fulfills their needs, are essential for assessing user satisfaction with new application software. Besides that, perceived usefulness also refers to the extent to which users believe that using new application software can improve their work efficiency or enhance their self-learning performance (Chan et al., 2021).

Methodology

Research Design

This study employed one-group pretest-posttest experimental design as shown in Figure 1, to measure the effectiveness of AI career counseling platform on the enhancement of Chinese undergraduate students' self-esteem. In addition, user satisfaction of using AI career counseling platform was also tested.

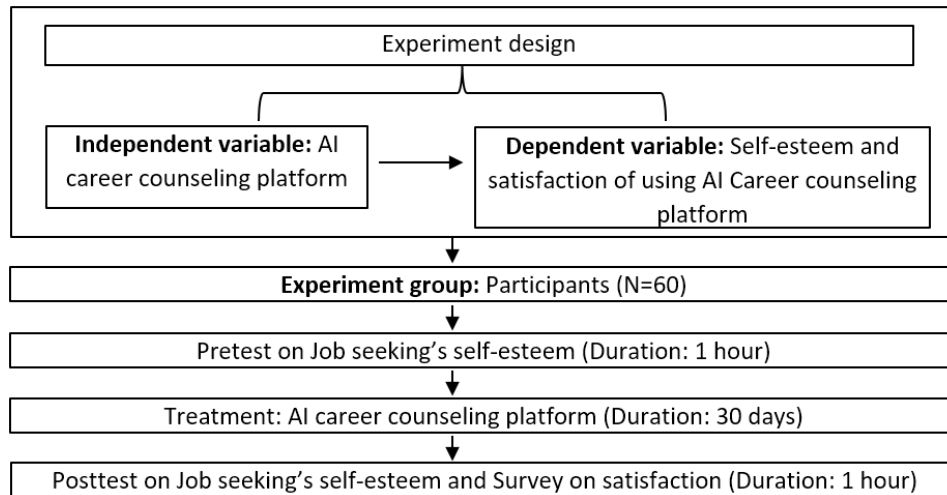


Figure 1: One-group pretest-posttest experimental design

Sampling and participants

There were 60 participants sampled from Nanjing university through purposive sampling method with the selection criteria: 1) Undergraduate students who were currently the fourth-year students; 2) Having strong willingness to find a job. 3) Having willingness to participate in this experimental study. Table 1 presents detailed demographic information of participants.

Table 1

Participants' Demographic Information

Demographic factors	Items	Number of participants (n=60)	Percentage
Gender	Male	24	40.0%
	Female	36	60.0%
Age	20-22 years	35	58.3%
	22-24 years	25	41.7%
Undergraduate Program	Arts & Humanities	12	20.0%
	Science & Technology	23	38.3%
	Business & Economics	15	25%
	Social Sciences	5	8.3%
Expected Monthly salary	Others	5	8.3%
	5,000-10,000 Yuan	35	58.3%
	10,000-15,000 Yuan	20	33.3%
	Above 150,000 Yuan	5	8.3%
GPA	3.0-3.5	45	75.0%
	3.5-4.0	15	25.0%

Research instruments

Two questionnaires were used in this study for data collection: self-esteem questionnaire and student satisfaction questionnaire. The self-esteem questionnaire was adopted from [Hutagalung and Suryadi \(2021\)](#) and [Hamzah et al. \(2021\)](#), which was used in pretest and posttest to measure the participants' job seeking self-esteem. This questionnaire consisted of six aspects viz., self-esteem, self-confidence, self-worth, resilience, self-compassion, and job-seeking strategies. There were 22 items in total for the tested questionnaires, each item was measured by 5-point Likert scale, with each option assigned score: 1 - Strongly Disagree; 2 - Disagree; 3 - Neutral; 4 - Agree; 5 - Strongly Agree. Five experts were invited to perform Item Objectives convergence (IOC) test to find validity of questionnaire, IOC values for six aspects respectively were 1.00, 0.85, 0.8, 0.85, 1.00 and 0.8, all of which were greater than 0.5. This meant that the questionnaire used in pretest and posttest was of a good quality. Meanwhile, the reliability of the questionnaire was also analyzed with Cronbach alpha, with overall value at 0.87, greater than 0.7, indicating that the questionnaire has a reliable consistency. [Table 2](#) presents self-esteem questionnaire used in this study, with all 6 dimensions.

Table 2

Questionnaire used in pretest and posttest

Dimensions	Items
1. Self-Esteem	1.1: I feel that I am a person of worth, at least on an equal plane with others in job seeking process. 1.2: I feel that I have a number of good qualities in job seeking process. 1.3: I am not inclined to feel that I am a failure in job seeking process. 1.4: I am able to do most things in job seeking process. 1.5: I feel I do have much to be proud of myself in job seeking process. 1.6: I take a positive attitude toward myself.
2. Self-Confidence	2.1: I believe in my abilities to succeed in my chosen career field. 2.2: I am generally confident in my skills and talents in job seeking process. 2.3: I feel self-assured when presenting myself to potential employers
3. Self-Worth	3.1: I am proud of my academic achievements and their potential impact on my career. 3.2: I feel that I am a valuable asset to any organization. 3.3: I deserve to find a job that aligns with my qualifications and aspirations.
4. Resilience	4.1: I am capable of bouncing back from job rejections and setbacks. 4.2: I see failures as opportunities to learn and grow in job seeking process. 4.3: I can maintain a positive attitude even when facing challenges in job seeking process.

Table 2 (continued)

Questionnaire used in pretest and posttest

5. Self-Compassion	5.1: I am kind and understanding towards myself, even if I face difficulties in finding a job. 5.2: I avoid being overly critical of myself during the job search process. 5.3: I treat myself with the same kindness I would offer to a friend in a similar situation in job seeking process.
6. Job-Seeking Strategies	6.1: I actively research and tailor my job applications to match the requirements of each position. 6.2: I network and connect with professionals in my desired industry to increase my job prospects. 6.3: I set realistic goals for my job search and celebrate small achievements along the way. 6.4: I am open to seeking advice and guidance from mentors or career counselors in job seeking process.

The second instrument was a student satisfaction questionnaire, which consisted of 16 items, designed with five-point Likert scale (1 - Strongly dissatisfied; 2 - dissatisfied; 3 - Neutral; 4 - Satisfied; 5 - Strongly satisfied). The questionnaire tested participants' satisfaction towards using AI career counseling platform in perspectives of usability, relevance, and perceived benefits. It enabled to understand participants' opinions about these perspectives and how they contributed to their job seeking process. Furthermore, the reliability of the satisfaction questionnaire was tested by Cronbach's alpha, from which a value of 0.95 was obtained, which is greater than 0.7, indicating that the satisfaction questionnaire is reliable to collect data.

Data collection

A total of 60 participants were asked to join the introduction session during the online meeting. The participants were guided to register at AI career platform (Zhidada), besides that the function introduction of AI platform, and the introduction of experimental study has also been introduced to participants. At the end, researcher has also distributed the pretest of self-esteem questionnaire to each participant.

Data analysis

Each the pretest and posttest on self-esteem has been analyzed by summing up all obtained score and divided by 22 to get an overall mean of self-esteem for each participant. The sample paired t test was used to compare the pretest and posttest to find out the effectiveness of AI career platforms on students' job seeking process and self-esteem. A significant difference with p-value less than 0.05 was obtained (Hsu & Lachenbruch, 2014). Prior to sample paired t test, the normality of data was tested by a Shapiro-Wilk test, and a significance value was observed ($P < 0.05$), which indicated that the data did not follow a normal distribution (Razali & Wah, 2011).

The satisfaction level for AI career platform was analyzed by calculating means and SD (Standard Deviation) to find out the satisfaction level of using AI career counseling platform with the criteria mentioned in Table 3.

Table 3

Satisfaction Criteria

Score	Level
1.00-1.80	Very unsatisfied
1.81-2.60	Unsatisfied
2.61-3.40	Neutral
3.41-4.20	Satisfied
4.21-5.00	Very Satisfied

Results

AI Career counseling platform

With the literature review above, the researcher developed an AI counseling platform to provide career guidance, entrepreneurship guidance, job seeking guidance and alumni networks to college students. The AI Career counseling platform used in this experiment was Zhidada (职搭搭) platform which consisted of the functions of AI assistant, Career guidance, entrepreneurship guidance, job seeking guidance and alumni networks, its function structure are shown in Figure 2, explained in Table 4.

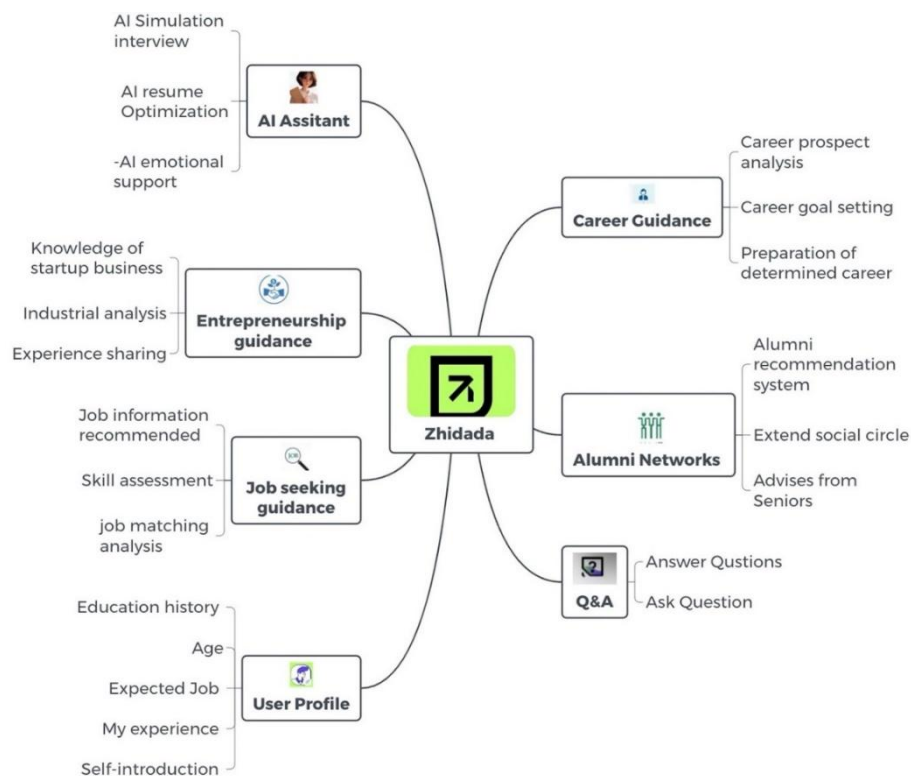


Figure 2: Function structure of Zhidada platform

Table 4*Introduction of mains functions of Zhidada platform*

AI platform component	Function
AI assistant	AI assistants are able to optimize users' resume based on expected job position. AI assistant will also provide users with various resume templates. When the user inputs the expected job position, the AI assistant is able to organize simulation interviews for users to practice.
Entrepreneurship guidance	Entrepreneurship guidance includes providing comprehensive entrepreneurial consulting and training services to those users who wanted to start up their own business. They not only assist entrepreneurs with market analysis, business plan writing, fundraising, and legal consulting, but also offer entrepreneurship training courses, lectures, and workshops to help enhance the skills and knowledge of entrepreneurs.
Job seeking guidance	Job seeking guidance helps users in job matching analysis. It would help users to analyze the fitness of user's and expected job based on users' situation. Besides that, skill assessment is also provided for user to better understand their own competencies, and job-hunting channels and information was provided based on users' needs.
User profile	The user profile comprises information like age, educational history, and work experiences. This information allows AI assistant, and the alumni recommendation system could to function according to users' needs.
Career guidance	Career guidance helps users to set up a clear goal by analyzing personality, interest, and competencies. It also provides prospect analysis and preparation services of determined career such as needed skills and certificates.
Alumni networks	This AI platform recommends the alumni based on user's profile. Users can check on the recommended alumni's profile prior to communicate with them.
Q&A Zone	The users can ask questions related to career development and life through Zhidada platform, and all the users on the platform could check and answer the questions.

Figure 3 illustrates the user interfaces for login, career counseling, and interview simulation features of the Zhidada platform. In the user login interface, students can enter their personal details, such as their university and major. This information is then utilized by the AI algorithm to recommend suitable job opportunities. Through the career counseling function, students can engage in conversations with AI to address their concerns regarding job hunting and career selection, receiving personalized responses in return. For the interview practice feature, students can record short videos of themselves answering specific questions and upload them to the platform, where the AI analyzes the content and provides suggestions for enhancing their interview skills.

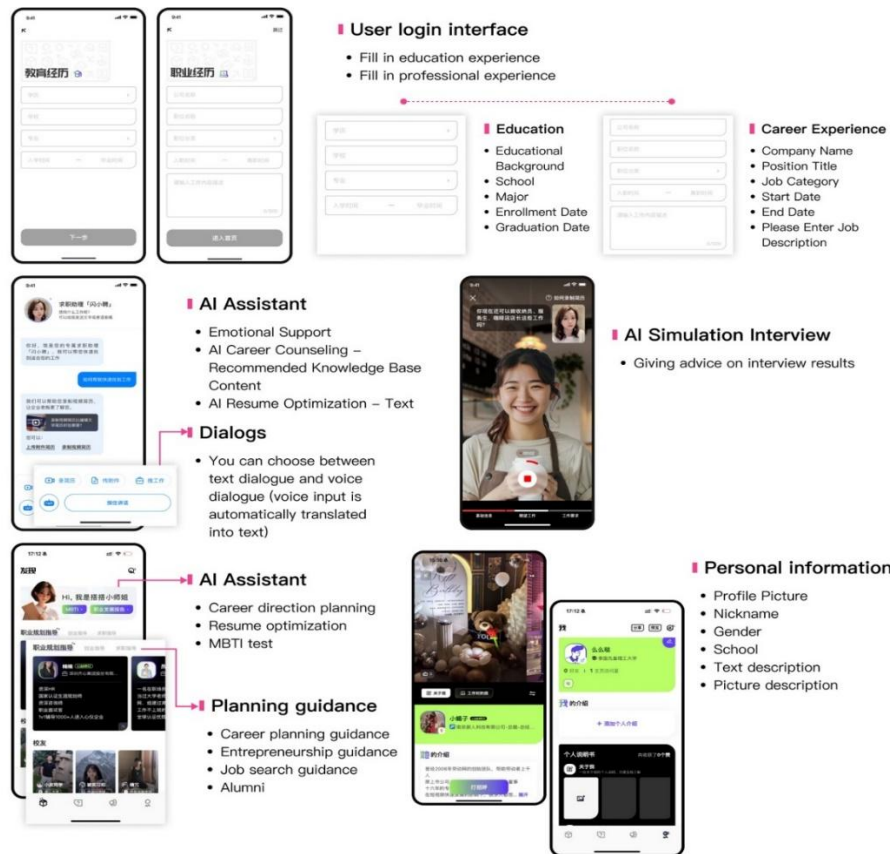


Figure 3: Interface of AI career counseling platform (Zhidada)

Self-Esteem

The normality of overall means of pretest and posttest on self-esteem was checked by the Shapiro-Wilk test. Table 5 shows that p-value was 0.140, which is greater than 0.05, the kurtosis (-0.583) shows an absolute value less than 10, and the skewness (-0.351) shows an absolute value less than 3, indicating there is no significant difference between pretest and posttest. Hence, the data met the criteria for normal distribution and was appropriate to be analyzed by a dependent t test.

Table 5

Result of normality test

Variables	n	Means	SD	Skewness	Kurtosis	S-W test
Pretest	60	2.508	0.256	-0.391	-0.66	-
Posttest	60	4.497	0.126	0.234	-0.03	-
Pretest paired with posttest	60	-1.99	0.281	-0.351	-0.583	0.140

The results of the dependent t-test as shown in Table 6, based on the pairing of the variable "overall means of pretest" with "overall means of posttest," the significance p-value is 0.000, which is greater than 0.005, indicating there was a significant difference between pretest and posttest. This demonstrated that the using of AI career counseling platform is effective to enhance participants 'self-esteem' in job seeking process.

Table 6

Results of dependent t test

Paired variables	Mean ± Standard Deviation			t	df	P
	pretest	posttest	Pairwise difference (pretest - posttest)			
pretest paired with posttest	2.508±0.256	4.497±0.126	-1.99±0.13	-54.831	59	0.00

User Satisfaction

There were sixteen items from three aspects: usability, relevance and perceived benefits to measure the satisfaction of using AI counseling platform (Zhidada) as showed in Table 7. The means of sixteen items ranged from 4.42 to 4.58, which were greater than 4.21. Besides, the overall means of usability, relevance and perceived benefits were respectively: 4.44, 4.52 and 4.45. Table 7 depicts the rubric standards of satisfaction, showing the extent to which participants were very satisfied in perspectives of usability, relevance and perceived benefits of Zhidada, the AI counseling platform.

Table 7

User satisfaction findings

NO	Question related to usability	Mean	SD	Level
1	How satisfied are you with the overall user interface and navigation of the career counseling platform?	4.48	0.50	Very satisfied
2	Rate the quality and relevance of the career advice and resources provided by the platform.	4.40	0.49	Very satisfied
3	How responsive and helpful are the support services (e.g., chat support, email assistance) been when you had questions or issues?	4.50	0.50	Very satisfied
4	Do you feel that the platform has effectively assisted you in exploring and identifying suitable career paths?	4.42	0.49	Very satisfied
5	How likely are you to continue using the platform for your career development needs in the future?	4.42	0.49	Very satisfied
6	Please rate your overall satisfaction with the artificial intelligence career counseling platform.	4.48	0.50	Very satisfied
7	How do you feel about your job-seeking preparation after using the AI career counseling platform?	4.40	0.49	Very satisfied
	Total	4.44	0.50	Very satisfied

Table 7 (continued)*User satisfaction findings*

NO	Question related to relevance	Mean	SD	Level
1	Do you think the AI platform helped clarify your career direction?	4.55	0.50	Very satisfied
2	Did the AI platform boost your confidence in interviews?	4.58	0.50	Very satisfied
3	Would you consider using the AI platform again when facing challenges in job-seeking?	4.45	0.50	Very satisfied
4	How would you rate the AI platform compared to other job-seeking resources?	4.48	0.50	Very satisfied
5	Do you feel that your job capabilities have improved after using the AI platform?	4.55	0.50	Very satisfied
6	Did the AI platform enhance your understanding of your occupational values?	4.50	0.50	Very satisfied
	Total	4.52	0.50	Very satisfied

NO	Questions related to perceived benefits	Mean	SD	Level
1	After using the AI platform, did you feel more esteemed in social situations (like interviews)?	4.46	0.50	Very satisfied
2	Do you believe that after using the platform, you could handle rejections better?	4.35	0.51	Very satisfied
3	Do you think your professional image has been enhanced after using the AI platform?	4.55	0.50	Very satisfied
	Total	4.45	0.51	Very satisfied

Discussion*AI career counseling platform on self-esteem*

The findings of this study illustrate a significant difference between pretest and posttest on student self-esteem in career counseling. This indicates that using of AI career counseling platform is effective to enhance participants 'self-esteem' in job seeking process. This finding is aligned with [Joshi et al. \(2020\)](#), who claimed that AI is increasingly being integrated into career development services, offering personalized support that plays a significant role in building students' self-esteem. Meanwhile, this study demonstrates that AI-powered platforms can analyze a student's academic background, skills, and interests to provide tailored career advice, allowing students to better understand their strengths and align their job search with suitable roles, those findings are equivalent with the result of [D'Silva et al. \(2020\)](#), AI-based tools for job matching help students find roles that are a strong fit for their profile, reducing the discouragement that comes from applying to jobs that are not suited to their skills by providing constructive feedback, refining their resumes and interview skills, giving them a sense of progress and boosting their self-esteem through incremental successes.

In this study, career counseling has been highlighted as a pivotal role in helping students understand themselves and the job market. Dianovi et al. (2022) also considers career guidance as a critical method to assist students in identifying their interests, strengths, and values, enabling them to understand themselves and set clear career goals. Okolie et al. (2020) argue that career counseling significantly boosts students' self-esteem in the job search process. The importance of entrepreneurship counseling has also been addressed by Lu et al. (2021), who explains that entrepreneurship counseling empowers students to think outside traditional career options, giving them the confidence to explore diverse paths that align with their strengths, ultimately increasing their self-esteem during the job-seeking process.

This study's findings also stated that job-seeking counseling can directly address the emotional and psychological aspects of job search, making it a critical tool for self-esteem enhancement. This aligns with the claim of Dong (2023), who claims that job-seeking counseling teaches students how to overcome rejection and maintain a positive mindset throughout the ups and downs of the job application process. This psychological adjustment helps students remain resilient, preventing feelings of inadequacy from developing when faced with challenges. Kim et al. (2022) also has expressed that job-seeking counselors are able to work with students on practical skills, such as resume building, networking, and interview preparation, which directly contribute to their confidence in securing a job.

The findings of this study also show that alumni networks serve as powerful support systems that enhance students' self-esteem by offering real-world connections and emotional encouragement. Fisher and Price (2021) state that interacting with alumni who have successfully navigated similar career paths could help students gain valuable insights into the job market and industry trends, which reduces uncertainty and strengthens their confidence. Moreover, alumni networks provide opportunities for students to receive mentorship and guidance, further boosting their confidence as they prepare for job interviews and make career decisions. Alumni who offer emotional support and practical advice during times of setbacks can help students regain their self-esteem and stay focused on their goals (Haj Youssef et al., 2024).

User Satisfaction on AI career counseling platform

The findings on user satisfaction show that undergraduate students are very satisfied with the AI career counseling platform, as it offers numerous benefits that contribute to high levels of user satisfaction. The AI platform offers them personalized advice based on each student's strengths, skills, interests, video interview simulations and real-time feedback on communication and academic background by analyzing large amounts of data (Talib et al., 2023). In addition, AI can also assist students in crafting more effective resumes and cover letters by analyzing industry trends and providing suggestions for improvement. Automated tools can help with formatting and tailoring applications for specific job roles, increasing the likelihood of success (Suresh et al., 2021). The platform empowers users to take control of their career planning, offering tailored advice and resources that help them navigate the job market with confidence (Joshi et al., 2020). However, areas such as the lack of human empathy and the need for continuously updated data remain challenges that AI platforms must address to further improve user satisfaction.

A hybrid approach, combining AI with human interaction, may provide the most effective solution for meeting the diverse needs of users while maintaining the efficiency and accessibility that AI offers.

Conclusion and Recommendation

This study conducted an experiment to measure the AI career counseling platform comprising tools like an AI assistant, career counseling, entrepreneurship counseling, job-seeking counseling, and alumni networks and Q&A Zone. These tools provided undergraduate students with comprehensive support that enhanced their self-esteem during the job search process. AI provided personalized needed industrial information, allowing students to make informed career decisions, while career counseling helped them gain self-awareness and confidence in their abilities. Entrepreneurship counseling fostered self-efficacy and problem-solving skills, job-seeking counseling addressed emotional resilience, and alumni networks offered both emotional and practical support. Together, these tools not only helped students in finding employment but also in building a strong sense of self-worth, which is critical for long-term career success. However, a successful AI career counseling platform shall extend its partnership networks with Chinese higher education institutes to cover as many as students and build a strong alumni network through platform. Besides that, the platform also needs to continuously refine and extend its counseling teams due to counseling teams will directly affect the service quality of counseling platform.

Future research studies should focus on building partnership with higher education institutes and the construction of an excellent counseling teams to allow this AI platform benefit more college students. There is a need for more students to register on this platform, so that alumni networks can be stronger. Secondly, the AI platform used in this study was restricted to only Chinese language version. It is strongly recommended to develop an international version, whereby, the platform could attract and benefit international students. Meanwhile, with the joining of international students, it would help Chinese students to find international friends and job opportunities in international market. Lastly, the researcher only investigated the AI counseling platform in this study, however, there are still lots of factors affecting students in process of job seeking such as interview skills, resume making skills self-evaluation skills. Last, but not the least, it is highly recommended that future researchers may conduct experimental study to evaluate the effectiveness of other factors related with job seeking with AI platform.

References

- Ahmad, N. A. N., Hamid, N. I. M., & Lokman, A. M. (2021). Performing Usability Evaluation on Multi-Platform Based Application for Efficiency, Effectiveness and Satisfaction Enhancement. *International Journal of Interactive Mobile Technologies*, 15(10), 103-117. <https://doi.org/10.3991/ijim.v15i10.20429>
- Boldureanu, G., Ionescu, A. M., Bercu, A. M., Bedrule-Grigoruță, M. V., & Boldureanu, D. (2020). Entrepreneurship education through successful entrepreneurial models in higher education institutions. *Sustainability (Switzerland)*, 12(3), 1267-1267. <https://doi.org/10.3390/su12031267>

- Burnette, J. L., Pollack, J. M., Forsyth, R. B., Hoyt, C. L., Babij, A. D., Thomas, F. N., & Coy, A. E. (2020). A Growth Mindset Intervention: Enhancing Students' Entrepreneurial Self-Efficacy and Career Development. *Entrepreneurship: Theory and Practice*, 44(5), 878-908. <https://doi.org/10.1177/1042258719864293>
- Chan, F. K. Y., Thong, J. Y. L., Brown, S. A., & Venkatesh, V. (2021). Service Design and Citizen Satisfaction with E-Government Services: A Multidimensional Perspective. *Public Administration Review*, 81(5), 874-894. <https://doi.org/10.1111/puar.13308>
- Chuang, N. K., Lee, P. C., & Kwok, L. (2020). Assisting students with career decision-making difficulties: Can career decision-making self-efficacy and career decision-making profile help? *Journal of Hospitality, Leisure, Sport and Tourism Education*, 26, 100235-100235. <https://doi.org/10.1016/j.jhlste.2019.100235>
- D'Silva, G., Jani, M., Jadhav, V., Bhoir, A., & Amin, P. (2020). Career counselling chatbot using cognitive science and artificial intelligence. Advanced Computing Technologies and Applications: Proceedings of 2nd International Conference on Advanced Computing Technologies and Applications—ICACTA 2020, https://doi.org/10.1007/978-981-15-3242-9_1
- Dianovi, A., Siregar, D., Mawaddah, I., & Suryaningsih, S. (2022). Guidance and Counselling in Education. *World Psychology*, 1(2). <https://doi.org/10.55849/wp.v1i2.95>
- Dimopoulos, A. (2020). Applicant's self confidence influence in employment interview process according to recruiters perceptions. an exploratory study in Greece. *International Journal of Human Resource Studies*, 10(2), 82. <https://doi.org/10.5296/ijhrs.v10i2.16701>
- Dong, J. (2023). A Preliminary Exploration of Guidance Strategies for College Students Job-seeking Positioning from the Perspective of Employment Education. *Adult and Higher Education*, 5(16), 28-33. <https://doi.org/10.23977/aduhe.2023.051605>
- Ferreira, J. M., Acuña, S. T., Dieste, O., Vegas, S., Santos, A., Rodríguez, F., & Juristo, N. (2020). Impact of usability mechanisms: An experiment on efficiency, effectiveness and user satisfaction. *Information and Software Technology*, 117, 106195-106195. <https://doi.org/10.1016/j.infsof.2019.106195>
- Fisher, J. F., & Price, R. (2021). Alumni Networks Reimagined: Innovations Expanding Alumni Connections to Improve Postsecondary Pathways. *Clayton Christensen Institute for Disruptive Innovation*. https://www.christenseninstitute.org/wp-content/uploads/2021/01/Alumni_Networks.pdf
- Haj Youssef, M., El Masri, T., Christodoulou, I., & Thanh, L. M. (2024). Graduate employability in Lebanon: leveraging alumni networks and cross-cultural competencies. *Journal of Asia Business Studies*. <https://doi.org/10.1108/JABS-02-2024-0113>
- Hamzah, S. R. a., Kai Le, K., & Musa, S. N. S. (2021). The mediating role of career decision self-efficacy on the relationship of career emotional intelligence and self-esteem with career adaptability among university students. *International Journal of Adolescence and Youth*, 26(1), 83-93. <https://doi.org/10.1080/02673843.2021.1886952>
- Hsu, H., & Lachenbruch, P. A. (2014). Paired t test. *Wiley StatsRef: statistics reference online*. <https://doi.org/10.1002/9781118445112.stat05929>

- Hutagalung, W. O., & Suryadi, D. (2021). The relationship between perceptions of social support and self-esteem in university graduates. *International Conference on Economics, Business, Social, and Humanities (ICEBSH 2021)*, <https://doi.org/10.2991/assehr.k.210805.087>
- Joshi, K., Goel, A. K., & Kumar, T. (2020). Online career counsellor system based on artificial intelligence: An approach. *2020 7th International Conference on Smart Structures and Systems (ICSSS)*, <https://doi.org/10.1109/ICSSS49621.2020.9202024>
- Kim, J., Oh, J., & Rajaguru, V. (2022). Job-Seeking Anxiety and Job Preparation Behavior of Undergraduate Students. *Healthcare (Switzerland)*, *10*(2), 288-288. <https://doi.org/10.3390/healthcare10020288>
- Lu, G., Song, Y., & Pan, B. (2021). How university entrepreneurship support affects college students' entrepreneurial intentions: An empirical analysis from China. *Sustainability (Switzerland)*, *13*(6), 3224. <https://doi.org/10.3390/su13063224>
- Miller, A. D., Batsaikhan, E., Gankhuyag, Z., & Ganbaatar, J. (2023). The Chinese Graduate Unemployment Crisis 2023. A Comprehensive Geo-Educational Study. *International Journal of Scientific Research and Management (IJSRM)*, *11*(11), 1603-1618. <https://doi.org/10.18535/ijrm/v11i11.sh05>
- Niles, S., & Harris-Bowlsbey, J. (2016). *Career Development Interventions* (Subscription). Pearson Education, Limited.
- Obukhova, E., & Kleinbaum, A. M. (2022). Scouting and Schmoozing: a Gender Difference in Networking During Job Search. *Academy of Management Discoveries*, *8*(2), 203-223. <https://doi.org/10.5465/amd.2020.0075>
- Okolie, U. C., Nwajiuba, C. A., Binuomote, M. O., Ehiobuche, C., Igu, N. C. N., & Ajoke, O. S. (2020). Career training with mentoring programs in higher education: Facilitating career development and employability of graduates. *Education and Training*, *62*(3), 214-234. <https://doi.org/10.1108/ET-04-2019-0071>
- Peláez-Fernández, M. A., Rey, L., & Extremera, N. (2021). A sequential path model testing: Emotional intelligence, resilient coping and self-esteem as predictors of depressive symptoms during unemployment. *International Journal of Environmental Research and Public Health*, *18*(2), 1-11. <https://doi.org/10.3390/ijerph18020697>
- Pignault, A., Rastoder, M., & Houssemand, C. (2023). The Relationship between Self-Esteem, Self-Efficacy, and Career Decision-Making Difficulties: Psychological Flourishing as a Mediator. *European Journal of Investigation in Health, Psychology and Education*, *13*(9), 1553-1568. <https://doi.org/10.3390/ejihpe13090113>
- Rahman, M., Figliolini, S., Kim, J., Cedeno, E., Kleier, C., Shah, C., & Chadha, A. (2023). Artificial Intelligence in Career Counseling: A Test Case with ResumAI. *arXiv preprint arXiv:2308.14301*. <https://doi.org/10.48550/arXiv.2308.14301>
- Razali, N. M., & Wah, Y. B. (2011). Power comparisons of shapiro-wilk, kolmogorov-smirnov, lilliefors and anderson-darling tests. *Journal of Statistical Modeling and Analytics*, *2*(1), 21-33. <https://www.researchgate.net/publication/267205556>
- Sharf, R. S. (2013). Advances in theories of career development. In *Handbook of vocational psychology* (pp. 3-32). Routledge
- Shilaskar, S., Bhatlawande, S., Sawle, P., Gupta, S., & Buche, R. (2024). Conversational AI for Career Counseling. *2024 MIT Art, Design and Technology School of Computing International Conference (MITADTSocCon)*, <https://doi.org/10.1109/MITADTSocCon60330.2024.10575379>

- Suresh, N., Mukabe, N., Hashiyana, V., Limbo, A., & Hauwanga, A. (2021). Career counseling chatbot on Facebook messenger using AI. Proceedings of the International Conference on Data Science, Machine Learning and Artificial Intelligence, <https://doi.org/10.1145/3484824.34848>
- Talib, A., Housni, M., & Radid, M. (2023). Utilizing M-Technologies for AI-Driven Career Guidance in Morocco: An Innovative Mobile Approach. *International Journal of Interactive Mobile Technologies*, 17(24), 173-188. <https://doi.org/10.3991/IJIM.V17I24.44263>
- Wanberg, C. R., Ali, A. A., & Csillag, B. (2020). Job Seeking: The Process and Experience of Looking for a Job. *Annual Review of Organizational Psychology and Organizational Behavior*, 7(1), 315-337. <https://doi.org/10.1146/annurev-orgpsych-012119-044939>
- Wang, H., & Wang, C. (2024). Review of the impacts of COVID-19 pandemic on the employment of college graduates in China and countermeasures to it. *Frontiers in Public Health*, 12. <https://doi.org/10.3389/fpubh.2024.1390055>
- Wasykwiw, L., Hanson, S., Lynch, L. M., Vaillancourt, E., & Wilson, C. (2020). Predicting undergraduate student outcomes: Competing or complementary roles of self-esteem, self-compassion, self-efficacy, and mindsets? *Canadian Journal of Higher Education*, 50(2), 1-14. <https://doi.org/10.47678/cjhe.v50i2.188679>
- Yang, S., Yang, J., Yue, L., Xu, J., Liu, X., Li, W., Cheng, H., & He, G. (2022). Impact of perception reduction of employment opportunities on employment pressure of college students under COVID-19 epidemic-joint moderating effects of employment policy support and job-searching self-efficacy. *Frontiers in Psychology*, 13, 986070. <https://doi.org/10.3389/fpsyg.2022.986070>
- Yonanda, N. R., Iswari, M., & Daharnis, D. (2022). Pentingnya Minat Dan Bakat Dalam Memilih Program Studi Yang Prospektif Di Industri Melalui Bimbingan Dan Konseling Karir Di Sekolah Menengah Kejuruan [the Importance of Interest and Talent in Choosing a Prospective Study Program in Industry Through Career Guidance and Counseling in Vocational Secondary School]. *Al-Ihtiram: Multidisciplinary Journal of Counseling and Social Research*, 1(1), 23-32. <https://doi.org/10.59027/alihtiram.v1i1.205>
- Zhang, C., Xu, W., & Lu, H. (2020). Longitudinal relationship between inferiority and aggression in Chinese college students: The moderation of left-behind experience. *Personality and individual differences*, 156, 109791. <https://doi.org/10.1016/j.paid.2019.109791>