

Staying Insecure or Adapting? Career Adaptability and Insecurity on Self-Efficacy in Final-Year Students in University

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Abstract

Purpose – This study aims to examine the effects of career adaptability and career insecurity on self-efficacy among final-year students in university, focusing on the mediating role of career self-management.

Methodology – A correlational multifactor model was used with a sample of 416 students from the academic year 2022/2023 in South Sulawesi, Central Sulawesi, and West Sulawesi Provinces, Indonesia. Data were collected using the Career Self-Management Inventory, Career Decision Self-Efficacy (CDSE), Career-Related Adaptability and Optimism (CFI), and Career Insecurity Scale. Data were analyzed using path analysis with the JASP application.

Findings – The findings revealed that career insecurity does not directly or indirectly affect self-efficacy, while career adaptability and optimism directly influence self-efficacy. Career insecurity showed no effect on adaptability, whereas optimism indirectly increased self-efficacy through career self-management. The career self-efficacy of final-year students is influenced by internal individual factors such as adaptability and career self-management, while career insecurity is an external factor that, although it affects students' feelings, does not diminish their confidence in achieving career success in the future.

Novelty – The study uniquely explores the relationship between career insecurity, career adaptability, and self-efficacy during the career transition period among final-year students at the University.

Significance – The findings can aid universities in developing curricula that not only prepare students in their fields of study but also enhance student's career adaptability and self-management to the working world.

Keywords: career transition, career insecurity, career adaptability, career self-efficacy, career self-management

1. Introduction

A final-years students in university particularly in the bachelor degree are dominated by the Z generation. The Z generation is a generation highly connected with information technology. Therefore, they are accustomed to receiving information quickly and staying actively connected to the internet (Aryani & Umar, 2020; Szymkowiak et al., 2021). Internet connectivity empowers Generation Z to access various information to develop themselves, especially in career advancement and job searching (Schroth, 2019). Research findings indicate that the strengths of Generation Z when entering the workforce lie in their high levels of creativity and innovation in navigating continuously changing environments (Vitelar, 2013). Additionally, they possess high flexibility and mobility, particularly regarding work style and location (Aryani & Umar, 2020).

Nevertheless, the strengths of Generation Z, such as high creativity and innovation in the workplace, can only be achieved if they choose majors and careers that align with their talents and interests (Rios et al., 2020). When Generation Z can choose careers and majors that match their potential, it will positively contribute to career adaptation and high career self-efficacy before and during their entry into the workforce (Sinring & Umar, 2023).

Career self-efficacy ideally begins when students select their major and continues to develop during their studies (Arghode et al., 2021). However, many Indonesian students admit choosing a major that does not match their interests or talents (Yuliawati & Ardyana, 2022), which often leads to changing majors or dropping out (Bäulke et al., 2022). The mistake in choosing a college major is closely related to career self-efficacy when entering the workforce (Sinring & Umar, 2023). Individuals who have chosen the right major tend to show good academic performance and

high self-efficacy. Conversely, those who have chosen the wrong major tend to feel insecure about their future careers and poor academic performance (Jackson & Tomlinson, 2020).

Final-year university students are in a transition period between academic life and the job market. During this stage, Generation Z students often face uncertainty about their career direction—such as where to work, whether to pursue jobs aligned with their major, and how to adapt to unfamiliar work environments (Cayubit, 2022). Individuals who have chosen the right major planned their careers well, and managed their career development during college will find it easier to answer these questions (Jackson & Tomlinson, 2020), contributing positively to good career adaptability and high self-efficacy (Hamzah et al., 2021). Conversely, if they do not choose a major that aligns with their potential, lack good career planning, and do not manage their career development during college, Generation Z tends to experience high career insecurity (Barhate & Dirani, 2022), and low self-efficacy (Gregor et al., 2021a).

High career self-efficacy is proven to have a positive relationship with high self-confidence, the ability to provide new ideas to tackle workplace challenges, and the ability to adapt to various work environments (Lev, 2021). Consistent with research findings (Wilhelm & Hirschi, 2019), individuals with low self-efficacy have difficulty adapting to work structures, poor self-management, and high levels of insecurity in the workplace (Alisic & Wiese, 2020).

Additionally, career self-management ability indirectly influences self-efficacy (Coetzee & Schreuder, 2018). Career self-management enhances self-efficacy and career adaptability (Agoes Salim et al., 2023). Generation Z possesses promising career self-management skills; they may be more capable of optimizing their adaptability skills in the workplace and using those experiences to boost their confidence in their career abilities (Alisic & Wiese, 2020). Consistent with the findings of (Hirschi & Koen, 2021), career self-management can also moderate the relationship between Generation Z's career self-efficacy and their ability to adjust to constantly changing work environments. If they have strong career self-management skills, they may be better able to overcome challenges and difficulties in the workplace, even if they are confident in their abilities (Haq et al., 2022).

Other research results indicate that career self-management can moderate the relationship between Generation Z's career insecurity and career self-efficacy. If Generation Z has strong career self-management skills, they may be better able to address insecurity in their careers and build confidence in their ability to achieve career goals (Artahayest, 2021). Individuals with good career self-management are more likely to develop effective strategies for addressing career insecurities, such as seeking career guidance, identifying career development opportunities, or setting clear career goals (Wendling & Sagas, 2020).

Therefore, this research examines the influence of career insecurity and career adaptability of Generation Z students on their career self-efficacy, moderated by career self-management. Suppose previous related research has examined insecurity and career adaptability in Generation Z's career self-efficacy, moderated by career self-management during the career planning phase and while in the workforce. In that case, this study focuses on Generation Z entering the transition phase when entering the workforce or during their final year in college. It is because the initial phase of entering the workforce represents a transition from the college environment to the actual work environment, characterized by feelings of excitement, anxiety, and uncertainty about what they will encounter in the workplace, as well as high expectations for the new work environment (Stankevičiūtė et al., 2021). When Generation Z can adapt well, it is predicted that they will be able to enhance their career self-efficacy and positively contribute to the success of entering the workforce. Conversely, when they cannot adapt and develop insecurity, it is predicted that they are more likely to have low career self-efficacy, including the involvement of career self-management in that variable.

2. Literature Review

Career self-efficacy is an individual's perception of their ability to manage and perform an action plan based on a career they want (Pitcher et al., 2022). Self-efficacy is included in Bandura's social cognitive theory, which explains the impact of self-efficacy on individual career attitude, and it is defined as the individual's belief to make the right decision about career development (Santos, 2021). Career self-efficacy has an important role in learning the career goals of a teenager, including the Z Gen and the uniqueness of the career choice (Kanten et al., 2021), indicators of career self-efficacy can help individual behavior in a different situations when deciding their career (To et al., 2022).

Career adaptability is the ability to adjust to change and maintain balance during career transitions (Chen et al., 2020). It reflects how individuals take control of their career development through awareness, self-control, and confidence (Xu et al., 2020). This concept includes two main dimensions: career exploration and career planning (Hu et al., 2021). Career adaptation has four dimensions: the tendency to be positively afraid of the future (career

concern), the belief that the future can be controlled (career control), the curiosity about the professional world (career curiosity), and self-confidence, to achieve the career goal and to solve a problem (Leung et al., 2021).

Career insecurity is the individual's fear of the potential to lose their job and be jobless (Bedemariam & Ramos, 2021), and has less control to defend what they want on their job (Spurk et al., 2022). Besides that, career insecurity is also defined as the inability to maintain the continuity of something they want in their job that is being treated. So, *career insecurity* has two dimensions, cognitive and affective, cognitive work insecurity refers to the perception of the possibility of losing a job, and affective work discomfort refers to the fear of losing the job (Stander & Rothmann, 2010).

Self-career management refers to the process of developing, applying, and controlling career goals and strategies (Haenggli et al., 2021). *Career self-management* also refers to the aspect of career behavior proven outside a particular field, like the involvement in exploring and deciding a career, seeking a job, balancing the job and nonjob roles, managing the identity in the workplace, and negotiating various work transition, and career self-management is also a dynamic process that can help someone to understand in achieving satisfaction in the working place and to adapt the job with their live (Pérez-López et al., 2019).

3. Methodology

3.1 Research Design

This study used a multifactor correlational model to investigate the influence of independent variables and dependent variables. The research variables consisted of some factors, including career self-efficacy as the exogen variable, career insecurity, career adaptability and optimism as the endogen variable, and career self-management as the moderator variable.

3.2 Sample and Data Collection

Table 1. Research Sample Demographics

	Frequencies	Percentages
Gender		
Woman	263	63.22
Man	153	36.79
Faculties		
Educational Science	111	26.68
Language	67	16.11
Technique	42	10.10
Mathematics and natural science	50	12.02
Economy	32	7.70
Social, Political and Legal	28	6.73
sports	23	5.52
Psychology	29	6.98
Health Sciences	34	8.17
Provinces		
South Sulawesi	195	46.88
Central Sulawesi	120	28.84
West Sulawesi	101	24.28
N total = 416		

The study involved 416 final-year undergraduate students enrolled in the 2022/2023 academic year across South Sulawesi, Central Sulawesi, and West Sulawesi Provinces, Indonesia. Participants were selected using a stratified proportional random sampling technique to ensure fair representation across provinces and faculties (Gay et al., 2012). The sampling process consisted of three stages. First, the total number of students in each province and university was identified. Second, three major universities—Makassar State University, Tadulako University, and

West Sulawesi University—were chosen as representative institutions based on their student population size and program diversity. Third, a proportional number of respondents from each faculty (Education, Engineering, Languages and Literature, Sports, Mathematics and Natural Sciences, Social and Political Sciences, Economics and Business, and Psychology) were randomly selected using student registry lists provided by each university. This approach ensured that every subgroup of the population was represented according to its actual proportion while maintaining elements of randomness within each stratum. Based on the data, the number of selected students was 15,000. Through the Slovin method p -value of 0.05, we determined the total samples are 416 students. Specifically, the samples' demography is presented in table 1.

3.3 Instrument

The career self-management instrument developed by Lent et al., (2017) and adapted by Umar et al., (2022) is a measurement tool that assesses individuals' ability to manage their own careers. The instrument includes three indicators—personal mastery, vicarious learning, and verbal persuasion. It has 12 items, eight of which measure emotional aspects of career management. Responses are recorded on a four-point Likert scale ranging from strongly disagree to strongly agree. The instrument has been analyzed using Confirmatory Factor Analysis (CFA) as presented in Table 2, with results indicating high reliability and adequate validity.

Table 2. The Model fit of the Career Self-Management Inventory Through CFA

Model Fit Indices	Criterion	Career Self-Management	Personal Mastery	Verbal Persuasion	Vicarious Learning
McDonald's ω (Reliability)	>0.60	0.861	0.871	0.818	0.793
Cronbach's α (Reliability)	>.0.60	0.856	0.853	0.814	0.970
RMSEA	≤ 0.08	0.053			
GFI	≥ 0.90	0.950			
CMIN/DF	$\leq 2,0$	90.263/51*			
CFI	≥ 0.90	0.963*			
TLI	≥ 0.90	0.952			
N: 416 Respondent					

The Career Decision Self-Efficacy Short-Form (CDSE Short Form) is an instrument developed by Presti et al., (2013) to measure self-efficacy in career decision-making using a shorter version. This instrument includes several key indicators: Self-Appraisal, Occupational Information, Planning, Goal Selection, and Problem Solving, with a total of 25 questions. In its adaptation, some indicators such as Problem Solving were excluded from the analysis because they pertain to skill aspects in career determination. According to Kim & Lee (2015), when measuring career self-efficacy, the belief in career decisions forms career self-efficacy rather than the problem-solving indicator. Therefore, the adapted CDSE consists of 20 questions encompassing the indicators: Self-Appraisal, Occupational Information, Planning and Goal Selection. The instrument uses a Likert scale model with response options of strongly agree, agree, disagree, and strongly disagree. Table 3 shows the results of the Confirmatory Factor Analysis (CFA) of the adapted CDSE scale.

Table 3. The Model Fit of Career Decision Self-efficacy (CDSE) Through CFA

Model Fit Indices	Criterion	Career Decision Self-efficacy	Self-Appraisals	Occupational Information	Planning and Goal Selection
McDonald's ω (Reliability)	>0.60	0.869	0.611	0.612	0.831
Cronbach's α (Reliability)	>.0.60	0.868	0.622	0.601	0.795
RMSEA	≤ 0.08	0.072			
GFI	≥ 0.90	0.856			
CMIN/DF	$\leq 2,0$	192.91/199*			
CFI	≥ 0.90	0.821			
TLI	≥ 0.90	0.796			
N: 416 Respondent					

The career insecurity scale developed by Höge et al., (2015) aims to measure the perceived level of insecurity individuals feel regarding the stability and sustainability of their careers. This instrument consists of two primary indicators: material worries related to financial aspects, and social worries related to interpersonal relationships within the career context. The scale comprises seven questions, with three focusing on material worries and four on social worries. Using a Likert scale, respondents indicate their agreement levels from strongly agree to strongly disagree. Table 4 presents the results of the Confirmatory Factor Analysis (CFA) of the instrument adaptation, validating its factorial structure.

Table 4. The Model Fit of Career Insecurity Instruments Through CFA

Model Fit Indices	Criterion	Career Insecurity	Material Worries	Social Worries
McDonald's ω (Reliability)	>0.60	0.874	0.868	0.855
Cronbach's α (Reliability)	>.0.60	0.875	0.867	0.861
RMSEA	≤ 0.08	0.113		
GFI	≥ 0.90	0.922		
CMIN/DF	$\leq 2,0$	108.206/13		
CFI	≥ 0.90	0.945		
TLI	≥ 0.90	0.911		
N: 416 Respondent				

Career-Related Adaptability and Optimism (CFI), developed by Rottinghaus et al., (2005), refers to the evaluation of individuals' ability to adapt and their optimistic outlook on career-related situations. This instrument consists of three main indicators: career adaptability, optimism, and knowledge. There are 25 questions designed to measure these constructs. The scale used is Likert with four response options: strongly agree, agree, disagree, and strongly disagree. The results of the Confirmatory Factor Analysis (CFA) for the instrument adaptation can be seen in Table 5, demonstrating reliability and validity.

Table 5. The Model fit of the Career Related Adaptability and Optimism Scale Through CFA

Model Fit Indices	Criterion	Career-Related Adaptability and Optimism	Career Adaptability	Career Optimism	Knowledge
McDonald's ω (Reliability)	>0.60	0.60	0.60	0.60	0.625
Cronbach's α (Reliability)	>.0.60	0.744	0.705	0.60	0.779
RMSEA	≤ 0.08	0.116			
GFI	≥ 0.90	0.994			
CMIN/DF	$\leq 2,0$	374.605/53			
CFI	≥ 0.90	0.796			
TLI	≥ 0.90	0.746			
N: 416 Respondent					

The Self-Efficacy Instrument developed by Tsai et al., (2014) is an assessment tool used to measure individuals' belief in their ability to build personal strengths and apply them in daily life. This instrument consists of 11 questions designed to be evaluated using a Likert scale with four response options: strongly agree, agree, disagree, and strongly disagree. The instrument has been analyzed using confirmatory factor analysis (CFA), demonstrating reliable results and appropriate validity as shown in Table 6.

Table 6. The Model Fit of Self-efficacy (SE) Scale Through CFA

Model Fit Indices	Criterion	Self-Efficacy
McDonald's ω (Reliability)	>0.60	0.884
Cronbach's α (Reliability)	>0.60	0.883
RMSEA	≤ 0.08	0.073
GFI	≥ 0.90	0.869
CMIN/DF	$\leq 2,0$	319.977/182
CFI	≥ 0.90	0.960
TLI	≥ 0.90	0.925
N: 416 Respondent		

3.4 Instrument Filling Procedure

The process of completing the instrument involves several stages, beginning with obtaining consent from respondents in accordance with the research ethics principles referenced from Gay et al., (2012), and the general principles of the *Ethical Principles of Psychologists and Code of Conduct* adopted by the *American Psychological Association*. Thus, in this study, respondents are provided with information about the research objectives, benefits, participation procedures, and their rights. They are assured that participation is voluntary and can be withdrawn at any time without negative consequences. Participation was voluntary and could be withdrawn at any time without consequence. The questionnaire was distributed online via Google Forms and shared through WhatsApp. Instructions were included on the first page, and respondents took about 15–20 minutes to complete it. After completing and reviewing their responses, respondents can submit their feedback by pressing the 'Submit' button. Data collected is kept confidential, and all responses are anonymized to protect the respondents' personal identities.

3.5 Analyzing of Data

The data analysis in this study was conducted using path analysis to examine both direct and indirect relationships among career insecurity, career adaptability, career self-management, and self-efficacy. Path analysis enables researchers to model and test causal relationships while estimating the strength and direction of effects between variables. The analysis was performed using the JASP statistical software (Version 0.18.3), which provides advanced features for path modeling and model-fit evaluation. Through JASP, the study generated key statistical indicators such as standardized path coefficients (β), z-values, p-values, and 95% confidence intervals, alongside model fit indices including CFI, TLI, GFI, and RMSEA. These indices were interpreted to assess the adequacy of the model fit and the significance of hypothesized relationships. The use of JASP allowed transparent computation and visualization of mediation effects and standardized paths in accordance with current best practices in quantitative social science research.

4. Results

Results of the path analysis on the endogen variables, career insecurity, and career adaptability, exogen variables, Career Self- Efficacy, and moderator variable, career self-management, are presented in Figure 1.

The results of the path analysis indicate that the overall model demonstrates an acceptable level of fit based on the obtained indices. While several values such as CFI = 0.821, TLI = 0.796, and GFI = 0.856 fall slightly below the conventional 0.90 threshold, they remain within the acceptable range for exploratory models in behavioral and social science research (Hair et al., 2021; Hooper et al., 2008). According to Hair et al. (2021), model-fit values between 0.70 and 0.89 are considered adequate for complex models with multiple latent constructs and moderate sample sizes (N = 416 in this study). Considering these conditions, the model can be regarded as statistically acceptable, providing reliable support for testing the hypothesized relationships among career adaptability, career insecurity, career self-management, and self-efficacy.

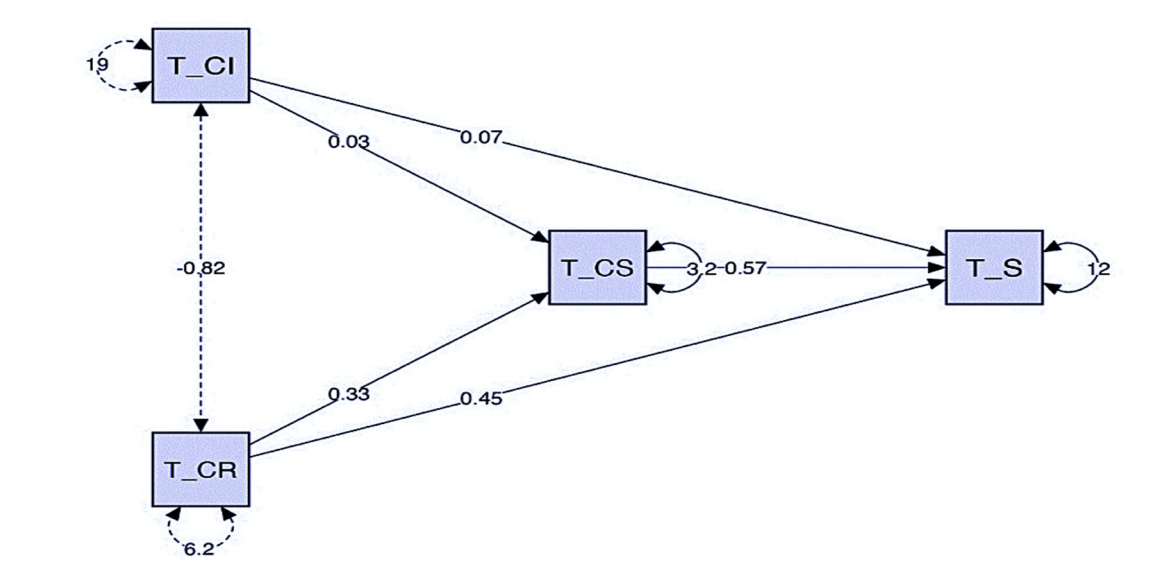


Figure 1. Model Path Plot

Table 7. Direct Effect

						95% Confidence Interval		
			Estimate	Std. Error	z-value	p	Lower	Upper
X ₁ (CI)	→	Y (SE)	0.069	0.039	1.752	0.080	-0.008	0.146
X ₃ (CA)	→	Y (SE)	0.448	0.075	5.992	<.001	0.302	0.595
Note. CI: Career Insecurity; CA: Career Adaptability; SE: Self-Efficacy								

Note. CI: Career Insecurity; CA: Career Adaptability; SE: Self-Efficacy

Based on the results of data analysis presented in table 7, analysis of the hypothesis is as below:

Hypothesis 1: X₁ (Career Insecurity) directly influences the Y (self-efficacy) of Z gen

Based on the results of direct effects analysis as presented in table 7, the influence of career insecurity on Z Gen self-efficacy had the value of (sig.) 0.080 where $p > 0.05$. It shows that there is no direct influence of career insecurity on the Z-gen self-efficacy because career insecurity is an external aspect that affects feelings, specifically feelings of worry, while self-efficacy is an individual's belief in themselves related to personal trust.

Hypothesis 2: X₃ (Career adaptability) directly influence the Z Gen Y (self-efficacy)

Based on the analysis of direct effect as presented in table 7, the influence of *career adaptability* on Z Gen self-efficacy had the sig value <.001 where $p < 0.05$. It indicates that *career adaptability* directly influences the self-efficacy of Z gen. Individuals with strong career adaptability tend to exhibit a high level of confidence when confronting challenges and opportunities in setting career goals.

Table 8. Indirect Effect

			Estimate	Std. Error	z-value	p	Lower	Upper
X ₁ (CI)	→	X ₂ (CSM) → Y (SE)	0.016	0.012	1.323	0.186	-0.008	0.039
X ₃ (CA)	→	X ₂ (CSM) → Y (SE)	0.186	0.037	5.055	<.001	-0.114	0.258

Note. CI: Career Insecurity; CSM: Career Self-Management; CA: Career Adaptability; SE: Self-Efficacy

Based on the results of the data analysis presented in table 8, the hypothesis can be explained below:

Hypothesis 3: X₁ (Career insecurity) indirectly influences Z Gen's Y (self-efficacy) through X₂ (Career self-management)

Based on the analysis of the indirect effects presented in table 8, the influence of career insecurity on self-efficacy

through career self-management got the value of (sig.) 0.186 where $p > 0.05$. It shows that career insecurity does not influence Z-gen self-efficacy through career self-management. Career insecurity, which includes concerns about individual career stability, does not directly influence self-efficacy because self-efficacy is an individual's belief in their ability to achieve goals and overcome challenges. Even with strong career management strategies, career insecurity may still lower individuals' confidence in achieving career goals. External factors such as social comparison can further weaken self-efficacy.

Hypothesis 4: X_3 (Career adaptability) indirectly influences the Z gen's Y (self-efficacy) through X_2 (career self-management)

Based on the indirect effect analysis as presented in table 8, the influence of *career adaptability* on self-efficacy through *career self-management* had the value of (sig.) $< .001$ where $p < 0.05$. It shows that *career adaptability* indirectly influences that self-efficacy through *career self-management*. Career adaptability encompasses complex abilities such as flexibility, openness, resilience, continuous learning, problem-solving skill, stress management, as well as understanding in the affective, psychomotor, and knowledge domains. All of these require a high level of self-awareness and significantly contribute to an individual's confidence in achieving their career goals, including in the context of affective career management. Career self-management helps individuals enhance their awareness of their potentials, strengths, weakness, challenges, interests, and opportunities relevant to the decision-making process. Thus, the higher students' career adaptability and optimism, the better they are at strengthening their self-efficacy through career self-management.

5. Discussion

Based on the results of the path analysis, the first hypothesis indicates that career insecurity does not directly affect the career self-efficacy of final-year Generation Z university students. This is because career insecurity is an external factor that influences an individual's feelings and tends to fluctuate. In contrast, career self-efficacy represents internal beliefs about personal abilities to achieve career goals, which continuously develop through various stages of career progression. Previous studies have shown that career insecurity often arises from uncertainties in the dynamic work environment, organizational changes, and social comparisons, leading to feelings of anxiety and insecurity (Hamouche et al., 2023; Rouvroye et al., 2024). Additionally, these feelings of insecurity can be influenced by social comparisons with others perceived as more successful and having better career prospects. Therefore, career insecurity tends to change based on environmental conditions and uncertain changes, differing from self-efficacy, which tends to remain stable as it results from the career development process, including career exploration, planning, and decision-making stages. This insecurity can also be influenced by social comparisons with others perceived as more successful and have better career prospects (Adekiya, 2024; Shoss et al., 2023).

On the other hand, career self-efficacy encompasses an individual's belief in their ability to succeed in their career goals (Martini et al., 2023; Sinring & Umar, 2023). Career self-efficacy includes the difficulty level of tasks, the strength of belief in personal competence, and the actions taken to achieve career goals (Suh & Flores, 2023). Research shows that students with high career self-efficacy tend to believe in overcoming future career challenges, allowing them to plan and manage their careers more effectively (Agoes Salim et al., 2023). Thus, although career insecurity can influence Generation Z students' feelings through external factors such as labor market conditions, material and social concerns, and social comparisons, it does not directly affect career self-efficacy, which is more related to internal beliefs and confidence in personal competence.

The second hypothesis finds that career adaptability directly impacts the career self-efficacy of Generation Z. Individuals with high career adaptability exhibit strong confidence in facing challenges and opportunities in planning their careers. Previous research supports that career adaptability involves being flexible with situational changes such as new policies, current technologies, and work dynamics (Zeng et al., 2023). It also includes openness to new learning and the ability to develop skills relevant to professional advancement (Bacanlı & Sarsıkoğlu, 2021), and resilience in facing failures or difficulties in achieving targets (Gregor et al., 2021b). This ability allows individuals to adjust their career strategies according to the demands of a dynamic work environment, aligned with the evolving needs of organizations or industries (Haenggli et al., 2021). Therefore, it can optimize career opportunities and achieve desired success (Green et al., 2020).

Moreover, career self-efficacy represents an individual's belief in overcoming career challenges, achieving goals, and utilizing career opportunities effectively (Arghode et al., 2021; Rigotti et al., 2020). Previous studies have shown that students with high self-efficacy tend to have strong motivation and stress resilience and can efficiently manage their careers (Hamzah et al., 2021; Schunk & DiBenedetto, 2021). With good career adaptability, Generation Z students

are better prepared to face career challenges, adapt to changes in the work environment, and overall have greater confidence in achieving career success.

The third hypothesis indicates that career insecurity does not indirectly affect career self-efficacy through career self-management. Career insecurity, which includes concerns about individual career stability, does not directly affect career self-efficacy levels. Research identifies that concerns related to material aspects such as salary, social status, and social recognition play a role in the experience of career insecurity (L. Jiang et al., 2021). Other factors include limited career opportunities, declining prestige and job qualification requirements, contract work conditions, unemployment, workplace changes, and the mismatch between individual resources and job demands (Spurk et al., 2022). Conversely, career self-efficacy plays a significant role, representing an individual's belief in their ability to make career decisions and achieve excellence (Arghode et al., 2021; Y. Jiang, 2021). Career self-management, which includes the strategies and behaviors individuals use to plan and manage their careers (Hirschi et al., 2022), is crucial in career planning and strategy (Wendling & Sagas, 2020). However, although career self-management is an essential factor in career management, research shows that individuals with high career insecurity levels tend to have negative perceptions of their abilities, which cannot constantly be improved by enhancing career self-management strategies involving career self-efficacy (Alisic & Wiese, 2020; Rouvroye et al., 2024).

The fourth hypothesis finds that career adaptability indirectly affects career self-efficacy through career self-management. Studies show that individuals with high career adaptability can effectively face changes and challenges in the work environment (Tahiry & Ekmekcioglu, 2023; Vashisht et al., 2023). Career adaptability, which includes flexibility, openness, and resilience, can help individuals become more aware of their potential, strengths, weaknesses, and career challenges and opportunities (Hamzah et al., 2021; Stead et al., 2022). This self-awareness contributes to developing an individual's confidence, a domain of career self-efficacy manifested in career self-management practices. Research also supports that individuals with career self-management can identify potential, strengths, weaknesses, interests, and opportunities (Krouwel et al., 2019), as well as set clear and realistic career goals, formulating concrete action plans to achieve them (Greco & Kraimer, 2020). Thus, career self-management can help strengthen career self-efficacy, making individuals feel more confident and capable of achieving their career goals.

Therefore, the findings of this study indicate that enhancing career adaptability and career self-management is crucial for strengthening the career self-efficacy of Generation Z students. Universities must develop programs to enhance these abilities through adaptive skills training, mentoring, and career counseling. Collaborative projects, internships, and relevant extracurricular activities should also be provided to support the development of students' career self-efficacy. Educational institutions and career counselors should develop career adaptability skills, flexibility and openness to new learning, and effective career management strategies. It will prepare students to face challenges in a dynamic work environment and achieve career success.

6. Conclusion

Based on the results and discussion, it can be concluded that career adaptability and optimism directly influence the self-efficacy of Generation Z students. This relationship exists because self-efficacy represents an individual's confidence in their own competence, while adaptability and optimism reflect the ability to adjust and remain positive when facing career-related challenges. Career adaptability also indirectly influences self-efficacy through career self-management. Likewise, optimism enhances self-efficacy indirectly by strengthening students' motivation and goal orientation. Individuals with strong adaptability and optimism tend to plan, evaluate, and set realistic career goals more effectively, which in turn reinforces their belief in their own capabilities. However, both directly and indirectly, career insecurity does not significantly affect self-efficacy. This is because career insecurity arises from external conditions beyond the individual's control and differs from self-efficacy, which is an internal belief rooted in self-confidence and perceived competence.

7. Recommendations

Future research should explore more specific criteria to generalize the findings better. While our study provides preliminary information about how career adaptability and optimism affect self-efficacy, additional research is needed to explain other aspects that can influence student career efficacy. Future studies could examine potential mediating or moderating variables in the relationship between career adaptability and career success or well-being, including job or career satisfaction.

8. Limitations

The results of this study have several advantages, such as the application of the method with multifactor model measurements and the accuracy of the results for samples in three significant population locations. However, referring to other empirical research, this research is also not free from limitations. First, this study did not generalize across academic disciplines, organizational contexts, or institutional backgrounds.

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Authors contributions

Nur Fadhilah Umar, Abdullah Pandang, St Kasmawati contributed to the conceptualization of the study, participated in data acquisition, and assisted in manuscript refinement. Aminuddin, was responsible for data collection and contributed to the revision of the manuscript. Muhammad Hasim prepared the initial draft of the manuscript, and provided critical intellectual input and substantive revisions. All authors have reviewed and approved the final version of the manuscript. As part of a special authorship arrangement, Nur Fadhilah Umar, Abdullah Pandang, and St Kasmawati are recognized as having contributed equally to this work. Likewise, Aminuddin and Muhammad Hasil are acknowledged as equal contributors to their respective roles in the study.

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