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CAREER ADAPTABILITY OF GENERATION Z: A SYSTEMATIC LITERATURE REVIEW

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Abstract

The rapid transformation of the workforce due to Industry 4.0 and technological automation has posed significant challenges for Generation Z high school students and university students in their career transitions. Many recent graduates lack the adaptability to cope with the ever-evolving changes in the industrial world. This study aimed to investigate the career adaptability of Generation Z high school students and university students through a systematic literature review (SLR) using the PRISMA approach. Fifteen studies from the past five years were analyzed to understand the research characteristics, influencing factors, and impacts of career adaptability. Findings indicate that career adaptability is influenced by both internal factors, such as emotional intelligence, self-efficacy, and career exploration, and external factors, such as social support from parents, teachers, and peers. Moreover, career adaptability positively impacts life satisfaction, sense of purpose, achievement motivation, academic engagement, and reduces career anxiety among students. This research concludes that career adaptability plays a crucial role in assisting Generation Z students in navigating the dynamic challenges of the modern workplace. Efforts to enhance career adaptability should be prioritized through strengthening students'

internal capabilities and empowering external support systems. By doing so, Generation Z students will be better prepared for career transitions and experience more positive outcomes. Future research could adopt a more diverse approach, such as qualitative or mixed methods, to enrich our understanding of career adaptability among high school students and Generation Z university students. Additionally, it is important to expand the geographic scope of studies to include various countries or regions, particularly Indonesia, to explore how local factors such as culture, education systems, and socioeconomic conditions influence the career adaptability of Generation Z students.

Keywords:

Career Adaptability, Generation Z, High School Students, University Students

1. Introduction

Industry 4.0 has profoundly transformed the way humans interact and operate across various spheres of life, including the workplace. The pervasive adoption of technology and the Internet of Things (IoT) in industrial settings is evident. Numerous industrial jobs previously performed by humans have been automated, displaced by technology and artificial intelligence (Harahap & Rafika, 2020; Setiadi, 2019; Tjandrawinata, 2016; Triyono et al., 2020; Wolter in Sung, 2018). In Indonesia, it is projected that approximately 23 million jobs will be replaced by technology by 2030 (Das et al., 2019), leading to job displacement and the emergence of new professions. The rapid advancement of Industry 4.0 has also significantly impacted the dynamics of work systems, patterns, structures, and the requisite competencies within industries (Triyono et al., 2020). However, this development has not been accompanied by commensurate human resource competencies. This is evidenced by the high number of high school and university graduates who are unprepared and unable to meet the demands of the evolving industrial landscape (Yahya, 2018). Data from the Central Bureau of Statistics (BPS) in 2023 corroborates this situation, revealing that 9.9 million Indonesians aged 15-24 are unemployed. The Minister of Manpower disclosed that a significant portion of this youth unemployment comprises graduates of high schools, vocational schools, and universities aged 18-24. BPS data from February 2024 further indicates that 369,500 Indonesians aged 15-29 have become "hopeless of job" (Idris, 2024; Setiawati, 2024). This cohort of unemployed youth primarily belongs to Generation Z. Born between 1995 and 2012, Generation Z has grown up in a socio-economic context distinct from previous generations, such as Millennials (Barhate & Dirani, 2022). They have developed and lived in an uncertain and complex environment shaped by rapid technological advancements. Having been exposed to technology from birth, Generation Z is often referred to as "digital natives" (Lanier, 2017). For Generation Z, technology is not a separate entity but an integral part of how the world functions and interacts with them.

Generation Z currently constitutes the largest generational cohort in Indonesia, comprising 27.94% of the total population of 74.93 million (IDN, 2024). By 2030, it is projected that Gen Z will represent approximately one-third of the total workforce (Ganguli et al., 2022). While a portion of this generation has already embarked on their careers as productive employees, others, primarily high school students and university students aged 15-24, are in the process of planning their future career paths (Firamadhina & Krisnani, 2020; Nadya & Farozin, 2021).

According to career development theory, 15-24-year-old Gen Z individuals are in the exploratory stage. This developmental phase is characterized by an exploration of various occupational roles, the formation of a clear and stable vocational self-concept, and the initiation of preparatory steps and planning to attain desired career goals (Zunker, 2015). These activities align with the developmental tasks of high school and university students who are part of Generation Z.

The career exploration phase undertaken by Generation Z high school and university students is significantly influenced by their unique generational characteristics that distinguish them from previous cohorts. These attributes shape their perspectives, behaviors, and values concerning the world of work. As Koulopoulos and Keldsen (2014) posit, generations represent groups of individuals sharing a common set of beliefs, experiences, and values regarding their worldview, including their views on work. When selecting occupations, Gen Z individuals prioritize roles that offer both competitive compensation and opportunities for social impact. They recognize the pivotal role that work plays in realizing their aspirations and may experience dissatisfaction if their career goals remain unfulfilled. Consequently, they are more inclined to seek alternative employment if they do not find fulfillment in their current positions (Ozkan & Solmaz, 2015). Gen Z individuals are also willing to switch jobs to secure more fulfilling and meaningful work opportunities that align with their values and needs (Dwidienawati & Gandasari, 2018; Iorgulescu, 2016; Ozkan & Solmaz, 2015; Paina & Irini, 2021). Furthermore, this generation is perceived as being more impatient and agile compared to previous generations. They actively seek new challenges in their professional lives and are not afraid of constant change (Tari, 2011). Gen Z individuals are also characterized by their energy, productivity, openness, creativity, innovation, initiative, engagement, tolerance, independence, social and emotional responsibility, broad knowledge, individualism, and a preference for autonomy (Iorgulescu, 2016; Ozkan & Solmaz, 2015; Paina & Irini, 2021).

Compared to Millennials, or Generation Y, Generation Z exhibits a lesser understanding of the concept of struggle. They tend to be more pragmatic and prioritize intelligence over wisdom (Tari, 2011). Generation Z is often perceived as the most challenging generation to retain and motivate in the workplace. In professional settings, they are considered to be less consistent in their attitudes and require a significant amount of time to adapt to organizational values, culture, and work styles (Paina & Irini, 2021). This is primarily due to Generation Z's inclination towards stable and secure employment. They are more likely to be engaged in work when organizations

offer personal development programs, opportunities for career advancement, and positive relationships with colleagues and supervisors. Additionally, they seek diverse work experiences and flexible arrangements, such as remote work options.

Bates (2016) asserts that knowledge workers in the digital age, particularly high school and university students from Generation Z, must be agile and adaptable to rapidly changing environments. Previous research indicates that a crucial skill required for Gen Z to successfully develop their careers is the ability to learn new things (Iorgulescu, 2016). Moreover, the capacity to adapt, innovate, and collaborate with technology is essential for navigating the challenges of the contemporary digital industrial landscape (Ellitan, 2020). These skills are paramount, especially considering the increasing volatility, uncertainty, complexity, and ambiguity (VUCA) of the current environment, driven by technological advancements and industrial revolutions. Given their close affinity with technology, high school and university students from Generation Z must continuously adapt to evolving workplace demands to remain competitive and foster their career growth. It is imperative that Gen Z individuals become more independent and proactive in comprehending work situations and managing their careers adaptively in dynamic contexts. This is because changes in the workplace and a dynamic environment can significantly influence an individual's career trajectory (Patton & McMahon, 2006).

According to career construction theory, high school and university students from Generation Z can achieve career success through career adaptability, which is the ability to adjust effectively to changing circumstances and attain both satisfaction and success (Savickas & Porfeli, 2012). Career adaptability refers to an individual's readiness to undertake predictable tasks and the capacity to proactively engage in work roles, adapting to unforeseen challenges arising from changes in the work environment. It represents an individual's resources for addressing current and future career development tasks, including job transitions (Savickas, 1997). Career adaptability is manifested through four dimensions: (a) concern, reflecting the extent to which individuals contemplate their future and engage in career planning and preparation; (b) control, indicating the degree to which individuals feel responsible for shaping their careers; (c) curiosity, demonstrated by exploring interests and seeking information about the world of work; and (d) confidence, reflecting an individual's belief in their ability to achieve career goals. Individuals with high career adaptability are characterized by optimism, proactivity in career planning, and a readiness to embrace change (concern). They are also responsible, self-disciplined in pursuing career goals,

and capable of making informed career decisions (control). Furthermore, they exhibit curiosity about self-exploration and the roles required in the workplace (curiosity) and possess confidence in their ability to achieve goals, overcome career challenges with perseverance, and maintain a resilient attitude (confidence) (Savickas, 1997). Consequently, it is essential for high school and university students from Generation Z to cultivate career adaptability to facilitate their future career development and prepare for the transition into the workforce. This capability equips them to navigate the challenges of the Industry 4.0 era and achieve greater career success.

Previous studies have extensively explored career adaptability among adolescents and adults (Cristy & Kurniawati, 2023; Rasyidi et al., 2021; Sulistiani & Handoyo, 2018); however, there is a dearth of research specifically focusing on career adaptability among Generation Z high school and university students. Understanding career adaptability among this demographic is crucial as they need to proactively prepare for and plan their future careers to remain competitive in the workforce. Moreover, to the best of our knowledge, no comprehensive review has provided insights into the research methodologies employed, influencing factors, and the impact of career adaptability on the career development of Generation Z high school and university students. Variations in research methodologies, including the use of different instruments and measurement tools, as well as cultural factors, can significantly influence study outcomes. Thus, a review of methodologies used to examine career adaptability among Generation Z high school and university students is warranted. This study focuses on career adaptability among Generation Z high school and university students, addressing the following research questions:

1. What are the characteristics of research (research objectives, research design, population and sample, country of population, research instruments) on career adaptability among Generation Z high school and university students in the past five years?
2. What factors influence career adaptability among Generation Z high school and university students?
3. How does career adaptability impact the career development of Generation Z high school and university students?

2. Method

A systematic literature review (SLR) has been employed in this study to address the research questions. SLR is a suitable method for identifying and synthesizing evidence related to a specific topic (Victor, 2008). By adopting SLR, researchers can mitigate bias by demonstrating a systematic decision trail for including studies in the review (Denyer & Tranfield, 2009). This SLR follows the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework. PRISMA assists researchers in conducting systematic literature reviews by guiding them through the processes of identifying, selecting, appraising, and synthesizing all relevant evidence related to the research questions. PRISMA adheres to rigorous standards and guidelines, ensuring that the resulting review is comprehensive, transparent, complete, and accurate (Moher et al., 2009; Page et al., 2021).

Three electronic databases (ScienceDirect, Scopus, and ProQuest) were utilized by the researcher to retrieve literature published within the past five years (January 1, 2020, to October 11, 2024). These databases were selected due to the researcher's unrestricted access to relevant literature. The literature search commenced on October 11, 2024. The initial step involved developing clear inclusion and exclusion criteria, identifying appropriate search terms, screening article titles and abstracts, and conducting a full-text review of selected articles. The inclusion and exclusion criteria established by the researcher are as follows:

Table 2.1 *Inclusion and Exclusion Criteria*

No	Inclusion Criteria	Exclusion Criteria
1	Published between January 1, 2020 and October 11, 2024	Published before January 1, 2020 or after October 11, 2024
2	English language	Not in English
3	Empirical research or primary research	Not empirical research or primary research (e.g. review)
4	Indexed in ScienceDirect, Scopus, and ProQuest	Proceedings, thesis, dissertation, book chapter, evaluation, or research instrument description
5	Subjects are high school students, vocational high school students, and generation Z university students (born between 1995-2012).	Research subjects are not high school students, vocational high school students, and generation Z university students (born between 1995-2012).
6	Full text can be accessed	Full text cannot be accessed

Table 2.2 *Search Keywords*

Search Keywords
("Career Adaptability" OR "Career Adapt-Ability")
AND
("Generation Z" OR "Gen Z" OR "High School Student*" OR "Vocational High School Student*" OR "Undergraduate Student*")

An initial keyword search across three databases (ScienceDirect, Scopus, and ProQuest) yielded 4,277 references (Figure 1). Following the application of inclusion and exclusion criteria, 36 articles were selected for title and abstract review. This stage revealed 8 duplicate articles, 6 that were not primary research, and 3 that were unrelated to the study's focus, either failing to address the research questions or involving participants outside the Generation Z age range. Consequently, 17 articles were excluded, leaving 19 for full-text review. Upon full-text examination, four articles (Carvalho & Mourao, 2021; Khampirat, 2024; Liu et al., 2023; Zorver et al., 2022) lacked participant age data, preventing the determination of Generation Z inclusion. Ultimately, 15 articles met the criteria for a narrative synthesis and were deemed relevant to addressing the research question concerning career adaptability among high school students and Generation Z university students. The results of this identification process are presented in Table 3.

Figure 1. PRISMA Flowchart

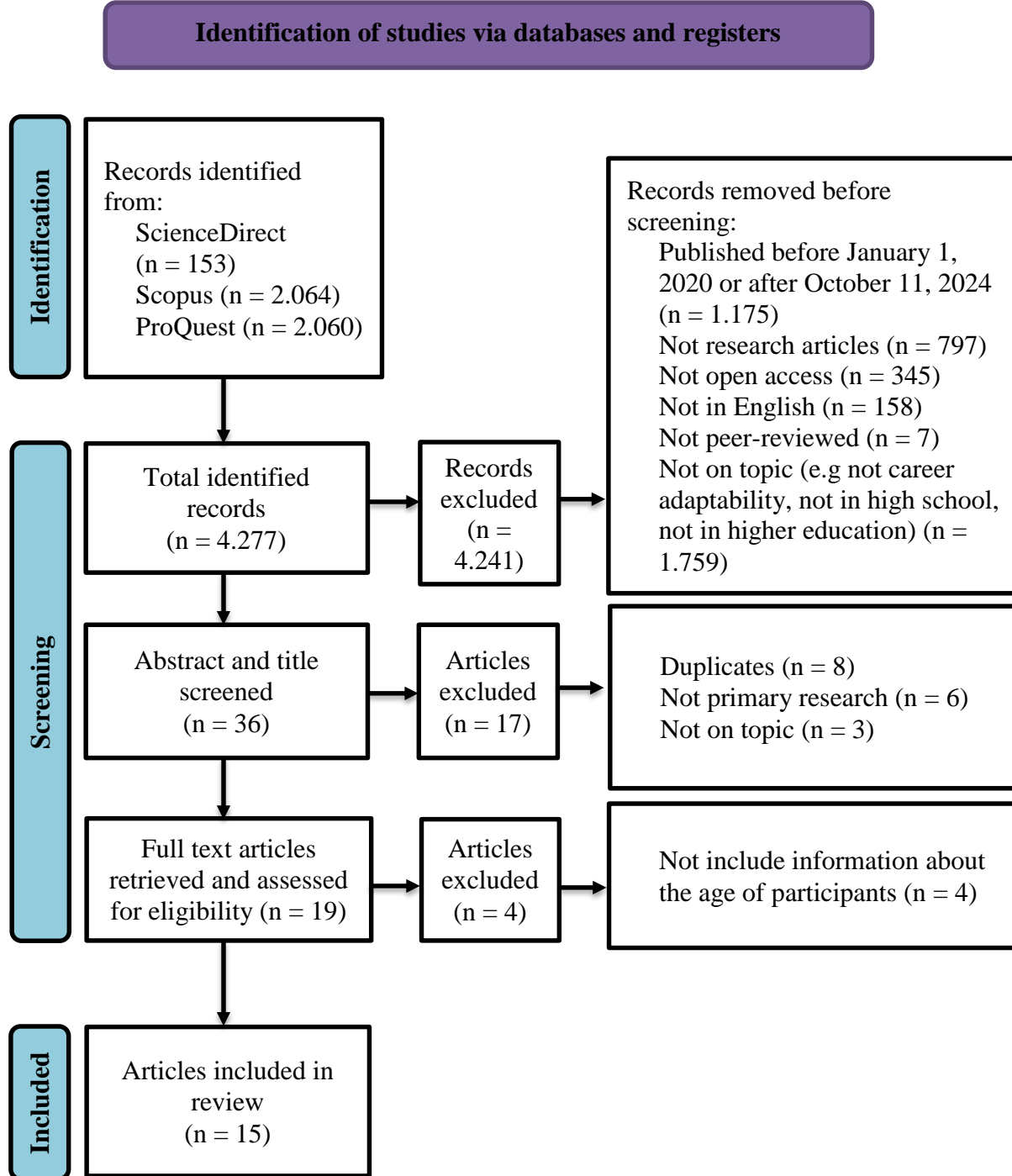


Table 2.3 *Summary of Included Studies*

Author	Objective	Method	Sample/Country	Research Instrument	Key Findings related to Career Adaptability
1. Xu et al. (2020)	Examining the mediating role of resilience in the relationship between career adaptability and mental health problems	Online survey, Quantitative	The study involved 327 high school students (aged 14-19, M=17.25) in China, consisting of 231 females and 141 males	Career adaptabilities scale-Chinese form 2.0 (Hou et al., 2012), Resilience scale (Hu & Gan, 2008), Mental health diagnostic test (Zhou, 1991)	<ul style="list-style-type: none"> - Career adaptability and resilience are negatively correlated with mental health problems; - There is a positive correlation between career adaptability and resilience; - Career adaptability influences mental health problems through the significant mediating role of resilience.
2. Ginting (2022)	Examining the relationships among emotional intelligence, career adaptability, and achievement motivation	Survey, Quantitative	The study involved 5,178 Indonesian university students (aged 19-23, M=22), consisting of 1,890 males and 3,288 females	Emotional Intelligence (Wong & Low, 2002), Career adaptability (Savickas), Achievement motivation (Tuan et al., 2005)	<ul style="list-style-type: none"> - Emotional intelligence is a significant positive predictor of career adaptability; - Career adaptability is a significant positive predictor of achievement motivation; - Career adaptability partially mediates the positive relationship between emotional intelligence and achievement motivation.
3. Hamzah et al. (2021)	-Examining the influence of personal resources (emotional intelligence and self-esteem) on	Survey, Quantitative	The study involved 205 final-year undergraduate students in Malaysia (aged 22-24, M=23),	Schutte Self Report Emotional Intelligence Test (SSEIT) (Salovey & Mayer, 1990),	<ul style="list-style-type: none"> - Emotional intelligence, self-esteem, and career decision-self-efficacy (CDSE) significantly influence career

	career adaptability; -Examining the mediating role of career decision self-efficacy (CDSE) in the relationship between personal resources (emotional intelligence and self-esteem) and career adaptability		consisting of 144 females and 61 males	Rosenberg Self-Esteem Scale (Rosenberg, 1965), The Career Decision Self-Efficacy Scale–Short Form (Betz et al., 1996), The Career Adapt-Abilities Scale (Savickas & Porfeli, 2012)	adaptability. CDSE is the strongest predictor of career adaptability; - There is a significant indirect effect of emotional intelligence and self-esteem on career adaptability through the mediator CDSE.
4. Zeng et al. (2022)	Exploring Predictive Factors of Life Satisfaction among Vocational High School Students	Online and field survey, Quantitative	The study involved 636 vocational high school students in China aged between 16 and 21 years (M=16.33), with a majority (50.8%) being male.	Hope Scale (Jiang et al., 2020), Future Work Self Scale (Guan et al., 2014), Career Adaptability Scale (Savickas & Porfeli, 2012), Academic Self-efficacy Scale (Liang, 2000; Pintrich & DeGroot, 1990), Life Satisfaction Scale (Zhang et al., 2004)	- Higher career adaptability predicts greater life satisfaction; - Male students have significantly higher levels of career adaptability; - Career adaptability partially mediates the relationship between hope and life satisfaction, as well as the relationship between future work self-concept (FWS) and life satisfaction; - Career adaptability and academic self-efficacy can serve as serial mediators in the relationship between hope and life satisfaction, and between future work self-concept (FWS) and life satisfaction, albeit with smaller effects.

5. Oliveira et al. (2023)	Examining the roles of socio-emotional skills and career adaptability in explaining students' agentic engagement	Online survey, Quantitative	A sample of 136 tenth-grade high school students in Portugal, aged 15-19 years (M=15.68), consisting of 86 females and 50 males	Questionnaire of the Study on Social and Emotional Skills (SSES), Career Adapt-Abilities Scale-Portugal Form (CAAS), Agentic Engagement Dimension from the Student Engagement in School: A Four-Dimensional Scale (SES-4DS)	Career adaptability makes a significant contribution to students' agentic engagement in school, with higher levels of career adaptability associated with higher levels of agentic engagement
6. Storme et al. (2020)	Analyzing the relationship between individual personality variability and career adaptability	Online survey, Quantitative	A sample of 452 undergraduate students in France, aged 18-25 years (M=20.71), with a majority of 57.30% being female	Big Five Inventory (BFI et al., 1999) French version, Career Adapt-Abilities Scale (Johnston et al., 2013; CAAS, Savickas & Porfeli, 2012) French version	Career adaptability is positively influenced by overall personality variability, above and beyond average trait levels
7. Salim et al. (2023)	Testing the mediating role of career decision self-efficacy (CDSE) in the influence of peer support on career adaptability	Survey, Quantitative	A sample of 538 final-year undergraduate students in Indonesia, aged 19-25 years, with a majority aged 21 and 371 (69%) being female	Career Adapt-Abilities Scale (CAAS) (Sulistiani et al, 2018), The Career-Related Peer Support Scale (CRPSS) (Zhang & Huang, The 2018), Career Decision Self-Efficacy-	-Students demonstrate moderate levels of career adaptability; -Peer support and career decision self-efficacy (CDSE) can influence career adaptability; -The effect of peer support on career adaptability is fully mediated by CDSE

				Short Form (CDSE-SF) (Sawitri, 2008)	
8. Xiao et al. (2024)	Examining whether career adaptability and meaning in life serve as mediators in the relationship between career-related parental support and engagement in learning	Online survey, Quantitative	A sample of 516 high school students in China, aged 15-19 years (M=16.28), with a majority of female students. The majority of parents had less than a high school education	Parental Career-Related Behaviors Scale (Guan et al., 2015), Career Adapt-Abilities Scale (Hou et al., 2012), Meaning in Life Questionnaire (Wang, 2013), Utrecht Work Engagement Scale for Student (Fang et al., 2008)	There is a serial mediation effect whereby career-related parental support positively influences the concern, control, and confidence dimensions of career adaptability, which in turn positively influences meaning in life, and meaning in life positively influences students' engagement in learning
9. Dostanic et al. (2020)	Examining the relationships between decision-making styles, career decision self-efficacy (CDSE), and career adaptability, and exploring the moderating role of gender in these relationships	Survey, Quantitative	A sample of 216 high school students in Serbia, aged 17-18 years, with a female majority of 61%	Career Adapt-Abilities Scale-International Serbia version (Mirkovic et al., 2020), General Decision-Making Styles Questionnaire (Scott & Bruce, 1995), Career Decision Self-Efficacy Scale (Betz et al., 1996)	- Decision-making styles (rational and intuitive) are positively related to career adaptability; -CDSE and rational decision-making style are the most significant predictors of career adaptability; -CDSE mediates the relationship between rational, intuitive, and dependent decision-making styles and career adaptability; -Gender moderates the relationship between rational decision-making style and CDSE in predicting career adaptability, such

					that for male students, CDSE is not a significant predictor of career adaptability when rational decision-making style is included
10. Hovorakova & Pauknerova (2024)	Investigating the key factors influencing Generation Z's successful transition into the workforce	Online survey, Quantitative	A sample of 804 final-year high school students in the Czech Republic, born in 2000 with a mean age of 18. Of these, 588 were female (73%) and 216 were male (27%)	Socio-demographic questionnaire with open-and closed-ended questions, A Life Values Inventory questionnaire (Brown, 1996), A Career Adaptability Scale Questionnaire (Savickas & Porfeli, 2012), A Career Resilience Scale Questionnaire (Savickas & Porfeli, 2012)	There is a significant relationship between career adaptability and both model variables (value orientation and career expectations). Financial prosperity is the most important value for students, followed by creativity, independence, prestige, and achievement
11. Boo et al. (2021)	Examining the relationships between career adaptability, future time perspective (FTP), and career anxiety, both individually and collectively, and exploring potential cultural differences in these relationships	Online survey, Quantitative	A sample of 560 undergraduate students from China and the United States was collected, with a mean age of 21.61 years. The sample consisted of 52.3% of U.S. undergraduate students and 47.7% of Chinese	Career Adapt-Abilities Scale (CAAS) (Savickas & Porfeli, 2012), Future Orientation Scale (Carstensen & Lang, 1996), Career Anxiety Scale (Tsai et al., 2017)	-The two dimensions of career adaptability, concern and curiosity, had a significant negative impact on career anxiety; -The dimensions of concern, control, and confidence were significantly and positively correlated with FTP; -FTP partially mediated the relationship between

			undergraduate students		career adaptability and career anxiety, wherein career adaptability positively influenced FTP, which in turn decreased career anxiety; -US students exhibited higher levels of career adaptability compared to Chinese students
12. Lu & Jia (2022)	Investigating the mediating role of career exploration in the relationship between future work self-salience (FWS-S) and career adaptability, and examining the moderating effects of teacher support and effective part-time work behaviors on these indirect relationships	Survey, Quantitative	A sample of 840 undergraduate students from China was collected, with a mean age of 19.43 years. The sample comprised 375 male students and 465 female students. Regarding academic year, there were 4 freshmen, 213 sophomores, 151 juniors, and 432 seniors	The Career Adaptability Scale (Hou et al., 2012), Future Work Self-Salience Scale (Strauss et al., 2012), Perceptions of teacher behavioral support (Ou, 2005), The Career Exploration Scale (Stumpf et al., 1983), Part-time Behavior Scale (Mingqian & Sanman, 2021)	-There was a significant positive correlation between FWS-S and career adaptability, as well as a significant positive correlation between career exploration and career adaptability; -Career exploration partially mediated the relationship between FWS-S and career adaptability; -The interaction between career exploration and effective part-time work behaviors showed a significant positive relationship with career adaptability, indicating that the positive relationship between career exploration and career adaptability was stronger at higher levels of

					<p>effective part-time work behaviors;</p> <p>-Higher levels of perceived teacher support and effective part-time work behaviors were associated with a stronger indirect effect of FWS-S on career adaptability through career exploration</p>
13. Di Maggio et al.(2020)	Examining the relationship between career adaptability, the tendency to consider systemic challenges for achieving sustainable development, and personal and societal expectations of a country's role in relation to the propensity to invest in higher education	Field survey, Quantitative	A sample of 416 high school and vocational high school students in Italy was collected, with a mean age of 17.28 years. The sample consisted of 175 (42.1%) males and 241 (57.9%) females	Career Adapt-Abilities Scale-Italian Form (Soresi et al., 2012), Instrument for measuring the United Nations' Sustainable Development Goals (Santilli et al., tidak dipublikasikan), Hope for the Future (Di Maggio et al., 2018), Tendency to Invest in Higher Education (Di Maggio et al., 2018)	Career adaptability indirectly influences the propensity to invest in higher education, with personal and societal expectations of a country's role fully mediating this relationship
14. Datu & Buenconsejo (2020)	Investigating the relationship between academic achievement and academic engagement (i.e., behavioral and emotional engagement) on career adaptability	Survey, Quantitative	A sample of 324 high school students in the Philippines was collected, with a mean age of 14.36 years	Academic Engagement and Disaffection Scale (Skinner et al., 2009), Career Adapt-Abilities Scale (Savickas & Porfeli, 2012),	<p>-Academic achievement positively influences career adaptability. However, academic achievement is the weakest predictor;</p> <p>-Both behavioral and emotional academic engagement</p>

				Overall Academic Achievement Questionnaire (0-100% scale)	positively influence career adaptability. However, behavioral engagement is the strongest predictor; -Age influences career adaptability on the control dimension, as older students tend to exert more effort in self-improvement and environmental modification through persistence and self-discipline
15. Zhai et al. (2022)	Examining whether grit predicts career construction and elucidating the underlying mechanisms	Field survey, Quantitative	A sample of 573 tenth-grade high school students in China was collected, with a mean age of 15.34. Males constituted the majority of the sample at 51%.	<i>The Short Grit Scale</i> (Duckworth & Quinn, 2009), <i>Career Construction Inventory</i> (Savickas et al, 2018), <i>The Adult Trait Hope Scale</i> (Synder et al., 1991), <i>Career Adapt-Abilities Scale</i> Chinese version (Hou et al., 2012)	-Hope significantly predicts career adaptability; -Career adaptability significantly predicts career construction; -The effect of grit on career construction is contingent on the mediating roles of hope and career adaptability, where hope and career adaptability serve as both separate and serial mediators

3. Results and Discussion

3.1 Results

3.1.1 Characteristics of Research

A comprehensive review of 15 studies examining career adaptability among high school and university students from Generation Z revealed a consistent quantitative research design across all studies. Data collection methods primarily involved online surveys, field surveys, or a combination of both. Participants were exclusively high school and university students from Generation Z, with six studies (60%) conducted at the high school and vocational levels, targeting individuals aged 14-21. The remaining five studies (40%) focused on university students aged 18-

25. While studies were conducted in various countries, a significant majority (40%) were carried out in China, with one study even incorporating a cross-cultural comparison between China and the United States. Beyond China, Asian countries such as Indonesia (n=2), Malaysia (n=1), and the Philippines (n=1) were represented in the research. Additionally, studies were conducted in Western countries, including the United States, Italy, France, Portugal, Serbia, and the Czech Republic.

Two Indonesian studies, conducted by Ginting (2022) and Salim et al. (2023), investigated career adaptability among Generation Z high school students and university students. Both studies exclusively focused on undergraduate students. Ginting (2022) research demonstrated that emotional intelligence significantly influences career adaptability, and furthermore, career adaptability serves as a significant positive predictor of academic achievement among Generation Z students in West Kalimantan who resumed face-to-face classes post-COVID-19 pandemic. Meanwhile, Salim et al. (2023) study revealed that peer support and career decision-making self-efficacy can significantly influence career adaptability. Importantly, the study highlighted that career decision-making self-efficacy mediates the relationship between peer support and career adaptability.

All studies in this review utilized the Career Adapt-Abilities Scale (CAAS), developed by Savickas and Porfeli (2012), to measure career adaptability. The CAAS was adapted into the respective languages of each country involved, including Indonesian, Mandarin, French, Portuguese, Italian, and Serbian. The CAAS measures four dimensions of career adaptability: concern, control, confidence, and curiosity.

3.1.2 Career Adaptability Factors

Career adaptability among Generation Z high school and university students is influenced by both internal and external factors. Internal factors include emotional intelligence, self-esteem (Hamzah et al., 2021), decision-making style (Dostanic et al., 2020), personality variability (Storme et al., 2020), expectations (Zeng et al., 2022; Zhai et al., 2022), values orientation and career expectations (Hovorakova & Pauknerova, 2024), grit (Zhai et al., 2022), academic achievement, academic engagement (both behavioral and emotional) (Datu & Buenconsejo, 2020), career exploration (Lu & Jia, 2022), effective part-time work behavior (Lu & Jia, 2022), and career decision-making self-efficacy, which is the strongest predictor of career

adaptability (Dostanic et al., 2020; Hamzah et al., 2021; Salim et al., 2023). Future work self (FWS) also influences career adaptability, with a clearer FWS leading to higher levels of career adaptability (Lu & Jia, 2022; Zeng et al., 2022). External factors influencing career adaptability include peer support, teacher support, and parental support related to career (Lu & Jia, 2022; Salim et al., 2023; Xiao et al., 2024). Generation Z students exhibit higher levels of career adaptability when they perceive greater support from peers and parents (Salim et al., 2023; Xiao et al., 2024). Similarly, Generation Z students experience higher levels of career adaptability when they perceive higher levels of teacher support, which is mediated by a clearer FWS and career exploration (Lu & Jia, 2022).

Other factors influencing career adaptability include sociodemographic variables such as gender, age, and cultural roles. Reviews have consistently shown that male students exhibit higher levels of career adaptability compared to female students (Zeng et al., 2022). Furthermore, gender moderates the relationship between decision-making styles and career adaptability, with male students employing a rational decision-making style able to influence their career adaptability without requiring high levels of career decision-making self-efficacy (Dostanic et al., 2020). Age also impacts career adaptability, particularly in terms of the control dimension, with older students tending to invest more effort in self and environmental improvement through perseverance and self-discipline (Datu & Buenconsejo, 2020). Moreover, cultural factors play a significant role in Gen Z students' career adaptability. Research has indicated that Gen Z students from the United States exhibit higher levels of career adaptability compared to their Chinese counterparts (Lu & Jia, 2022).

3.1.3 The Impact of Career Adaptability

Career adaptability is a significant positive variable that shapes the academic motivation of Gen Z students (Ginting, 2022). Higher levels of career adaptability predict higher levels of life satisfaction among Gen Z individuals. This is because high career adaptability enhances academic self-efficacy, ultimately leading to increased life satisfaction (Zeng et al., 2022). Moreover, career adaptability influences the sense of purpose in life among Gen Z individuals (Xiao et al., 2024). Career adaptability plays a crucial role in fostering a more positive future time perspective (FTP) among Gen Z students and reducing career anxiety. Gen Z students with high levels of attention and curiosity possess more psychological resources, enabling them to cope with challenges and

alleviate concerns about their personal capabilities and work environments (Boo et al., 2021). Beyond reducing career anxiety, career adaptability can mitigate mental health issues through resilience, which serves as a significant mediating factor between career adaptability and mental health problems (Xu et al., 2020). In educational settings, career adaptability promotes higher levels of agency engagement among Gen Z students in both learning processes and school activities (Oliveira et al., 2023). Additionally, career adaptability significantly predicts career construction (Zhai et al., 2022) and indirectly influences the inclination to invest in higher education through personal and societal expectations (Di Maggio et al., 2020).

3.2 Discussion

Savickas (1997) theory of career adaptability posits four primary dimensions: concern, control, curiosity, and confidence. These dimensions have served as the foundation for numerous empirical studies examining career adaptability among high school students and Gen Z university students. These studies have typically employed the Career Adapt-Abilities Scale (CAAS) developed by Savickas and Porfeli (2012), which has been adapted into various languages including Indonesian, Mandarin, Portuguese, French, Serbian, and Italian. While a substantial portion of this research has been conducted in China, only two studies have been carried out in Indonesia, with others dispersed across Europe, America, and other Asian countries. Despite the global interest in career adaptability among adolescents and young adults, research in Indonesia remains relatively limited. This is noteworthy given that cultural differences across nations can significantly influence research outcomes. Cultural values and norms shape an individual's career development process. This aligns with Altan (2021) assertion that an individual's cultural background influences their career development as they consider cultural characteristics when planning, goal-setting, decision-making, and developing their careers, both before and after entering the workforce.

Furthermore, a review of 15 studies on career adaptability among high school students and Gen Z university students revealed that career adaptability is influenced by both internal and external factors. This aligns with Savickas (1997) assertion that career adaptability development is shaped by both internal and external influences. Previous research supports this finding, indicating that individual characteristics (internal) and contextual factors (external) are predictors of career adaptability (Cristy & Kurniawati, 2023; Johnston, 2016). A literature review suggests

that emotional intelligence can serve as an internal factor influencing the career adaptability of high school students and Gen Z university students (Hamzah et al., 2021). This finding is corroborated by previous research demonstrating a significant positive relationship between emotional intelligence and career adaptability, particularly an individual's ability to manage their emotions, which can enhance career planning, accountability for career experiences, exploration of career opportunities, and confidence in mastering career-related tasks and challenges (Coetzee & Harry, 2013). Another internal factor is individual differences in personality (Storme et al., 2020). Students' career adaptability varies based on their personality traits as measured by the five-factor model (extraversion, agreeableness, neuroticism, conscientiousness, and openness to experience). Extroverted students exhibit higher levels of career adaptability than introverted students, engaging in more career planning, goal setting, and career-related activities. Similarly, students high in agreeableness tend to have higher career adaptability. Differences are also observed in conscientiousness, with conscientious students demonstrating greater career responsibility, and openness to experience, indicating a more progressive attitude toward career development. Neuroticism, however, is associated with differences in career curiosity (Dursun & Argan, 2017).

Another significant internal factor influencing career adaptability among high school students and Generation Z university students is hope (Zeng et al., 2022; Zhai et al., 2022). Wilkins et al. (2014) similarly found that hope significantly predicted various dimensions of career adaptability in Italian high school students. In addition to hope, grit also significantly impacts career adaptability among high school students and Generation Z university students (Zhai et al., 2022). This finding aligns with previous research demonstrating that grit positively predicts career adaptability among Chinese university students. Students with greater grit are better equipped to handle both predictable tasks and roles, as well as unpredictable changes (Li et al., 2021). Furthermore, other internal factors include decision-making style (Dostanic et al., 2020), value orientation and career expectations (Hovorakova & Pauknerova, 2024), effective part-time work behavior (Lu & Jia, 2022), career exploration (Lu & Jia, 2022), and academic achievement (Datu & Buenconsejo, 2020). Previous studies have shown that students engaged in career exploration behaviors, such as seeking career information, participating in career-related activities, and reviewing obtained information, can enhance their career adaptability when facing various challenges during the transition to the workforce. Such exploratory behaviors can encourage

students to consider career opportunities and prepare for the future (Afifah & Salim, 2020). Previous studies have also shown a significant influence of academic achievement on career adaptability, indicating that students with high GPAs can adapt better to work environments, while those with low GPAs tend to be less adaptable (Lubis & Amaliana, 2024). These findings are consistent with those of Avram et al. (2019), who found a positive correlation between career adaptability and academic performance, where high school students with higher career adaptability achieved better academic results. Furthermore, the self-efficacy of high school students and Generation Z university students in making career decisions can predict career adaptability (Dostanic et al., 2020; Hamzah et al., 2021; Salim et al., 2023). This is in line with previous findings that there is a significant positive correlation between career decision-making self-efficacy and career adaptability among Chinese students, where individuals with strong self-efficacy in career decision-making demonstrate higher levels of career adaptability in their careers (Liu et al., 2023). Additionally, having a future work self-image also positively predicts career adaptability (Lu & Jia, 2022; Zeng et al., 2022). These results are consistent with Guan's (2014) research, which found that future work self-image consistently influences career adaptability.

Meanwhile, contextual or external factors such as social support from individuals in the student's environment, including parental, peer, and teacher support, can influence the career adaptability of high school students and Generation Z university students (Lu & Jia, 2022; Salim et al., 2023; Xiao et al., 2024). This finding is supported by previous research demonstrating that social support is a positive predictor of career adaptability among students (Tian & Fan, 2014). Han and Rojewski (2015) also showed that perceived school and family support among Korean high school students can influence their career adaptability. Social support can enhance students' readiness to prepare for and adapt to current or future work. School support can take the form of career courses, while family support can involve conversations with family members about the world of work, which can provide support for students' career development. Similar findings were shown in the research by Zulfani and Khaerani (2020) that the higher the family support, the higher the individual's career adaptability. Hlad'o et al. (2019) also showed that the career adaptability of vocational high school students in the Czech Republic is influenced by social support from parents, teachers, and peers. Furthermore, social support obtained from parents is also crucial for the career adaptability of high school students and Generation Z university students. As stated by Turner et al. (2003), parental support has been shown to increase individuals' self-confidence in achieving

their desired careers. This enables individuals to explore careers, understand their own and others' feelings in the context of career education, and make career decisions. Parental support can take the form of instrumental assistance, serving as a role model in the career field, providing verbal encouragement, and offering emotional support.

In addition to internal and external factors, sociodemographic factors such as gender, age, and culture can predict career adaptability among high school students and Generation Z university students (Datu & Buenconsejo, 2020; Lu & Jia, 2022; Zeng et al, 2022). Findings from previous studies (Coetzee & Harry, 2015; Ferreira, 2012) support these results, suggesting that gender significantly predicts career adaptability, with females demonstrating higher levels of career adaptability than males. Women tend to be more goal-oriented and positive in their career planning (Zhang, 2010). However, other research has found that gender and age do not influence the development of career adaptability in students (Hirschi, 2009), indicating that the results regarding gender and age as predictors of career adaptability are still mixed. The role of culture can also serve as an antecedent of individual career adaptability. As found by Rindanah (2018) in a study examining how career adaptability is influenced by different ethnic backgrounds, such as Javanese and Sundanese, Javanese students exhibited higher levels of career adaptability compared to Sundanese students. Furthermore, cultural orientation, particularly collectivist culture, can influence individuals' career aspirations and decision-making, where career congruence between individuals and parents is considered important in collectivist cultures (Sawitri & Creed, 2016).

This research also revealed the impacts of career adaptability on high school students and Generation Z university students, such as increased motivation to achieve, engagement in the learning process, a tendency to invest in higher education driven by both personal and societal expectations, and higher levels of life satisfaction and meaning (Di Maggio et al., 2020; Ginting, 2022; Xiao et al., 2024; Zeng et al., 2022). These findings align with previous research indicating that career adaptability has a positive impact on career satisfaction and work volition, both of which can influence individuals' life satisfaction (Nguyen et al., 2021). Another positive impact is a decrease in career anxiety among high school students and Generation Z university students. This suggests that career adaptability and career anxiety have a significant negative correlation, meaning that the higher the level of career adaptability, the lower the level of career anxiety experienced by individuals (Febrianti et al., 2023). The reduction in mental health problems experienced by students is also a result of career adaptability. These findings are consistent with

career construction theory, which posits that career adaptability can serve as a relevant resource for strengthening individuals' mental health (Rudolph et al., 2017).

This literature review has several limitations. Firstly, all the studies reviewed employed a quantitative approach with surveys as the primary data collection method. This indicates a lack of diversity in research design and data collection techniques, limiting the exploration of the nuanced experiences of students related to career adaptability. The uniform research design tends to overlook insights that can be gained through qualitative or mixed methods approaches, which can delve deeper into students' subjective experiences. This is in line with Pregoner (2024) argument that qualitative research offers in-depth and contextual insights into individuals' experiences and perspectives, enabling a comprehensive understanding of a phenomenon. Meanwhile, mixed methods research can bridge quantitative and qualitative research by integrating data obtained from both approaches, providing a comprehensive understanding. Secondly, the majority of studies were conducted in China, with only a few studies conducted in Indonesia or other countries. This geographic imbalance limits the generalizability of the findings, especially in the context of varying cultural and normative differences across countries. Another limitation is the lack of exploration of a wider range of sociodemographic factors. For instance, existing research tends to focus only on variables such as age and gender, while the influence of other factors such as socioeconomic background, geographic location, and cultural dynamics has been less explored.

To address these limitations, future research could adopt a more diverse approach, such as qualitative or mixed methods, to enrich our understanding of career adaptability among high school students and Generation Z university students. These methods can delve into students' subjective experiences and provide deeper insights into how students navigate career challenges. Additionally, it is important to expand the geographic scope of studies to include various countries or regions, particularly Indonesia, to explore how local factors such as culture, education systems, and socioeconomic conditions influence the career adaptability of Generation Z students. This can help identify both universal and culturally specific elements that influence the career adaptability of Generation Z students in the face of changing work environments. With these insights, career development programs can be designed to be more contextual and relevant to the needs of each culture.

4. Conclusion

A review of 15 studies on the career adaptability of high school students and Generation Z university students revealed that students' career adaptability is influenced by internal, external, and sociodemographic factors. Internal factors include emotional intelligence, self-esteem, decision-making styles, personality traits, hope, value orientation, career expectations, grit, academic achievement, academic engagement, career exploration, effective part-time behaviors, career decision-making self-efficacy, and future work self-image. External factors include social support from parents, peers, and teachers, while sociodemographic factors include gender, age, and culture. Furthermore, the results of this study indicated that career adaptability has a significant impact on high school students and Generation Z university students, such as increased motivation to achieve, higher life satisfaction, a sense of purpose, a more positive future time perspective (FTP), decreased career anxiety, reduced mental health problems, increased student agency, and a tendency to invest in higher education driven by both personal and societal expectations.

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