

## GENDER DIFFERENCES IN HIGH SCHOOL STUDENTS' CAREER ADAPTABILITY

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### Abstract

The Industrial Era 5.0 has brought significant changes to the fields of education and employment, including the financial and educational sectors, through the utilization of AI and blockchain technologies. This study aims to explore the influence of career adaptability among high school students in terms of gender differences. The research involved 452 students from public senior high schools across Semarang City. Data analysis was conducted using hypothesis testing through the Mann Whitney U Test, preceded by tests of normality and homogeneity using the JASP software. The results indicated that male students demonstrated a higher level of career adaptability compared to female students. This study also highlights the importance of social support and education that is responsive to adolescents' needs, as well as the necessity for inclusive and relevant career education policies in alignment with the demands of Era 5.0. Recommendations for future research include exploring broader social and cultural contexts and examining the impact of technology on career adaptability

**Keywords:** : *career adaptability, gender, high school students*

### Introduction

The emergence of the Industry 5.0 era brings profound implications for education and the workforce, emphasizing the integration of advanced technologies such as artificial intelligence (AI) and blockchain within the financial and education sectors (Khoiriah et al., 2023; Ramadhani & Masrina, 2023). These technological disruptions generate both opportunities and challenges, particularly regarding data security, operational costs, and the urgent demand for highly skilled labor. In this context, the development of *career adaptability* has become increasingly important as a psychosocial resource that enables individuals to manage transitions, developmental tasks, and unexpected challenges throughout their career paths (Maria et al., 2024). Moreover, parental involvement in guiding adolescents through the digital age is essential to fostering adaptive capabilities that are sustainable and aligned with societal needs (Puspita et al., 2024).

*Career adaptability* is broadly defined as an individual's psychosocial capacity to effectively cope with vocational tasks, transitions, and unpredictable work-related challenges (Savickas & Porfeli, 2012). This competence is particularly critical for adolescents at transitional stages, such as 12th-grade high school students who stand at the intersection between secondary education and higher education or entry into the labor market (Autin et al., 2017; Super, 1994). With rapid digital transformation, the demand for technological literacy, cognitive flexibility, and analytical reasoning has become increasingly central as determinants of career readiness and long-term success (Moraes et al., 2023).

A preliminary investigation conducted at SMA Negeri 2 and SMA Negeri 15 in Semarang involving 97 students illustrated concerning trends regarding adolescents' career preparation. The findings revealed that 53% of students reported uncertainty in career decision-making, 65% lacked sufficient understanding of available career options, 59% perceived limited social support, and 73% expressed low self-confidence in choosing their career trajectories. These issues, if left unaddressed, may escalate into long-term consequences such as heightened stress levels, academic disorientation, and misalignment between chosen study programs and future careers (Bocciardi et al., 2017; Li et al., 2023; Xiang et al., 2024). Indeed, the phenomenon of study-program mismatch is pervasive in Indonesia, with evidence suggesting that approximately 87% of university students experience incongruence between their chosen majors and actual aspirations or labor market demands (Harahap, 2014). Such findings highlight systemic weaknesses in career guidance during adolescence, underscoring the urgent need for responsive educational interventions.

One underexplored yet crucial dimension of career adaptability is gender. Research indicates that males and females often exhibit divergent adaptation strategies influenced by sociocultural norms, structural inequalities, and gendered expectations (Chan, 2020; Patel et al., 2008). Recent findings by Liu et al. (2024) identified significant cognitive differences between genders: males are typically motivated by curiosity and the pursuit of novel opportunities, whereas females prioritize personally meaningful decisions and relational considerations. These findings align with Sikora and Saha (2008), who argued that females often demonstrate higher adaptive capacities, a phenomenon driven by ambition, resilience, and the social encouragement they receive to pursue professional roles.

Gender-specific pathways to career adaptability also manifest through differential access to resources and support systems. Hadi and Aryani (2023) emphasized that gender perceptions strongly shape adolescents' career trajectories, with females frequently benefitting from stronger support networks provided by families and schools. Such support structures are further reinforced by empirical evidence showing higher academic achievement among females, which enhances their adaptability (Shi, 2022). Conversely, males are more prone to difficulties in cultivating career self-efficacy and decisiveness, which may hinder their ability to make confident and strategic career decisions.

The integration of gender perspectives into the framework of Industry 5.0 carries significant implications. Industry 5.0 emphasizes not only digital proficiency but also *soft skills* such as critical thinking, problem-solving, collaboration, and effective communication (Polakova et al., 2023; Zhang et al., 2019). These demands highlight the necessity of developing meta-problem-solving skills, autonomy, and collaborative competencies as foundational components of career adaptability (Finch et al., 2023). Moreover, career identity and proactive personality traits have been shown to contribute significantly to adaptability by mediating developmental outcomes in workplace contexts (Zhao et al., 2022). These insights reinforce the idea that fostering adaptability requires holistic approaches that integrate technological, psychosocial, and gender-sensitive considerations.

Beyond individual and gender-related factors, the sociopolitical context must also be taken into account when analyzing career adaptability. Adolescents from refugee or marginalized backgrounds, for instance, experience adaptability as a process shaped by complex systemic barriers, cultural dislocation, and disrupted educational pathways. Abkhezr et al. (2021) argued that career adaptability among such populations is deeply contextual, necessitating targeted interventions that consider sociocultural realities. Educational practices such as active learning strategies have been shown to enhance adaptability by equipping students with experiential tools that facilitate problem-solving,

reflection, and resilience, further demonstrating the transformative potential of pedagogical innovation (Abkhezr et al., 2021).

In light of these multidimensional challenges, there is an urgent need for empirical research exploring the role of gender in shaping career adaptability among adolescents in Indonesia. Such studies are particularly relevant for 12th-grade high school students, who represent a critical population at the threshold of higher education and workforce participation. By analyzing gender-specific patterns of adaptability, researchers can provide evidence-based insights that inform policy-making, educational interventions, and career guidance practices.

The practical implications of this research extend to the formulation of inclusive and future-oriented career education policies. Promoting gender-inclusive career exploration initiatives, as emphasized by Sulistiani and Handoyo (2018), represents a strategic pathway for addressing systemic inequalities and enhancing adolescents' preparedness for the labor market. Tailoring mentoring programs and curriculum design to account for gender dynamics will further ensure that career guidance initiatives are responsive to diverse needs and aligned with the demands of Industry 5.0.

Ultimately, advancing the discourse on career adaptability requires an interdisciplinary approach that integrates psychological theories of career development, sociological analyses of gender norms, and educational frameworks that emphasize technological and socioemotional competencies. The intersection of these perspectives provides fertile ground for innovative interventions aimed at strengthening adolescents' career adaptability and ensuring that they are adequately prepared to navigate the uncertainties of the digital era.

In conclusion, the Industry 5.0 era underscores the need for holistic strategies that address technological, psychosocial, and gender-related dimensions of career adaptability. By exploring the gendered nature of adaptability among Indonesian adolescents, this study seeks to contribute to the development of responsive, inclusive, and evidence-based policies that empower youth to thrive in an era characterized by rapid change, uncertainty, and opportunity.

## Method

This study was conducted to analyze Career Adaptability in terms of gender. The population of the study consisted of high school students from public senior high schools across the city of Semarang. The sample size was determined using multistage random sampling, resulting in a total of 452 participants, including 193 males and 259 females.

The instrument used in this study was the Career Adapt-Abilities Scale Form 2.0 (CAAS), developed by Savickas and Porfeli (2012) and later adapted into Indonesian by Sulistiani et al. (2019), with further modifications by the researcher. The CAAS consists of 24 items rated on a 5-point Likert scale (1 = not strong; 5 = strongest) that measure four dimensions of career adaptability: (1) Concern, or orientation toward and preparation for the future (e.g., "Thinking about what my future will be like," "Planning how to achieve my goals"); (2) Control, reflecting responsibility and decision-making (e.g., "Making decisions by myself," "Doing what's right for me"); (3) Curiosity, or exploration of career opportunities (e.g., "Exploring my surroundings," "Investigating options before making a choice"); and (4) Confidence, representing self-belief in solving problems and overcoming challenges (e.g., "Overcoming obstacles," "Solving problems"). The Cronbach's alpha coefficient reported by Savickas and Porfeli (2012) was .92, and in this study the scale showed acceptable reliability and validity (CR = .83, AVE = .55, DV = .74, Cronbach's alpha = .86). Data were analyzed using the Mann-Whitney U test after normality and homogeneity checks with JASP software.

## Result and Discussion

This study aims to examine the differences in adaptability levels based on gender. The data description specifically presents the intercorrelation, means, and standard deviations for each gender group. The results of the descriptive analysis indicate that the mean adaptability score for males is higher ( $M = 99.07$ ;  $SD = 13.59$ ) compared to females ( $M = 96.38$ ;  $SD = 13.38$ ). The descriptive statistics show that the mean ( $M$ ) in both groups is greater than the standard deviation ( $SD$ ), suggesting that the data distribution is relatively concentrated and the mean serves as a good representation of the overall data pattern.

**Table 1.** Statistical Description of Adaptability Based on Gender

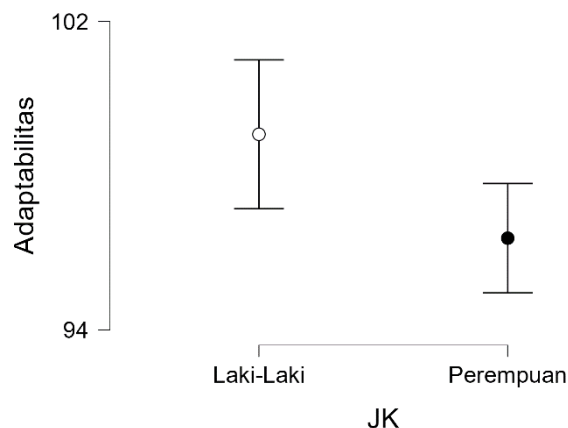
Group	Gender	N	Mean	SD	Mean Rank	Sum Rank
Career Adaptability	Male	193	99.07	13.59	291.82	56,322
	Female	349	96.38	13.47	260.26	90,831

The next step was conducting a normality test and a homogeneity test. Based on the Shapiro-Wilk normality test, the results indicated that the data were not normally distributed. Subsequently, a homogeneity test was conducted, which showed that the data were homogeneous or had equal variances. Therefore, to determine the differences in career adaptability levels based on gender, the Mann-Whitney U test was employed, as presented in Table 2.

**Tabel 2 Hasil Mann-Whitney U Test**

Variabel	U	Rank-Biserial r	SE r	p
Adaptabilitas	37601.000	0.116	0.052	<0.05

The results indicated a statistically significant difference in adaptability between males and females ( $p < 0.05$ ). Furthermore, the differences in Career Adaptability based on gender are illustrated in Figure 1.



**Figure 1.** Gender Differences in Career Adaptability

The analysis of the data reveals that the average level of adaptability among male individuals is significantly higher compared to females. This finding reflects a consistent difference in adaptive capabilities between the two gender groups. The higher average adaptability observed in males may be influenced by various factors such as experience, educational background, and their approach to situations that require adjustment.

The results of this study indicate a statistically significant difference between males and females in terms of career adaptability. This suggests that, on average, males demonstrate greater adaptability than females. This disparity highlights a consistent trend

in adaptive capacity, potentially shaped by factors such as prior experiences, educational attainment, and individual coping strategies in the face of change.

In terms of concern, male students showed greater awareness and preparation for future careers compared to female students. This indicates that males are more likely to plan ahead and think strategically about their future goals. However, female students tended to show a more cautious approach, which may reflect a stronger emphasis on relational and meaningful decision-making.

Regarding control, male students demonstrated stronger responsibility and independence in career decision-making. This suggests that they feel more confident in taking charge of their own career paths. On the other hand, female students sometimes relied more on external input, particularly from family and peers, which may reduce their perceived autonomy in decision-making.

In the dimension of curiosity, male students were more active in exploring various career options and seeking information about potential opportunities. Their willingness to investigate new possibilities reflects greater openness to change. Conversely, female students displayed curiosity in a more selective way, focusing on opportunities that aligned with personal values and meaningful goals.

Finally, in confidence, male students reported higher levels of self-belief in their ability to overcome career-related challenges. This confidence may stem from broader exposure to diverse experiences and societal expectations that encourage assertiveness. Female students, while also confident in certain contexts, often expressed lower levels of self-efficacy in facing competition in the job market, which may be influenced by cultural and social expectations.

One possible explanation for why males often exhibit higher adaptability is their accumulated experience and educational background. Research by Calin (2017) indicates that men tend to show greater adaptability in professional contexts, possibly due to their ability to leverage prior experiences and organize their work style effectively. In other words, broader exposure to diverse work situations may offer men an advantage in adapting to changes in the workplace.

Additionally, significant gender differences in emotional and social adjustment may play an important role. Men are often found to be more adaptable in these areas, which may be explained by societal expectations and gender roles that encourage men to think assertively and adjust more readily in social contexts (Lalchhuanawma et al., 2020; Shah & Shah, 2023). This indicates that social norms shaping male and female behavior may influence how each gender adapts to social and professional environments.

The heritability of adaptive traits also varies by gender. A study by Hayashi et al. (2021) found that males exhibit higher heritability in school-related adaptation, which may contribute to their overall adaptability. These findings suggest that biological factors may also play a role in gender differences in adaptability. Males often demonstrate greater psychosocial adaptability, which is associated with job satisfaction and organizational behavior. Such adaptability is marked by the ability to adjust to new tasks and unfamiliar environments (Calin, 2017).

The observed differences in adaptability levels between men and women reflect the complex interplay between biological, social, and environmental factors. Further research is needed to better understand the mechanisms underlying these differences and how they apply in social and professional contexts. In the era of Industry 5.0, where technological advancement and labor market dynamics continue to evolve, understanding these differences is essential for designing more effective education and training policies.

Despite the findings of this study indicating higher adaptability among men, other studies have reported that women exhibit greater adaptability in certain contexts. For instance, some research has shown that women are often more capable of adjusting to

social and emotional changes and possess superior interpersonal skills, which enhance their ability to thrive in dynamic work environments (Hadi & Aryani, 2023; Sikora & Saha, 2008).

These differing findings may be attributed to various factors, including the social and cultural context and the research methodology employed. In certain settings, women may be better trained in social and emotional skills, enabling them to adapt more effectively in collaborative and communicative situations. Research by Liu et al. (2024) suggests that women tend to be more oriented toward personally meaningful decisions, which may make them more flexible in facing career-related challenges.

Furthermore, differences in educational experiences and social support may influence research outcomes. Hadi and Aryani (2023) report that women often receive greater support from family and school environments, which can enhance their adaptive capacity. Higher academic performance among women (Shi, 2022) may also contribute to better adaptability in educational and career settings.

These findings emphasize the importance of avoiding a one-sided interpretation of research results. It is crucial to consider the broader context and the multitude of factors that influence career adaptability. Future studies should examine the four indicators of career adaptability more deeply concern, control, curiosity, and confidence to identify gender-specific strengths and weaknesses that can be addressed in career education programs.

This study has several limitations worth noting. First, differences in social and cultural contexts may affect the findings, limiting the generalizability of the results. Second, the methodology employed such as the use of surveys may have limitations in capturing the full scope of adaptability. Additionally, unmeasured variables, such as psychological factors and social support, may contribute to the observed gender differences. The limited sample size may also reduce the applicability of the findings to a broader population.

Future research is recommended to be conducted across various cultural and social settings to understand how local norms and values influence career adaptability. A more diverse methodological approach, such as longitudinal or qualitative studies, could provide deeper insights into the adaptation process. It is also important to include additional variables such as social support and interpersonal skills, which may affect adaptability. Given the rapid pace of technological change, future research could also explore how technology shapes career adaptability, especially in the context of the Industry 5.0 era.

## Conclusion

The research findings indicate a statistically significant difference in career adaptability between male and female students. On average, males demonstrated higher levels of adaptability compared to females, suggesting a consistent variation in adaptive abilities between the two gender groups. This finding may reflect the influence of various factors such as differing experiences, educational backgrounds, and approaches to situations requiring adjustment. Therefore, it is essential to take these factors into account when developing educational programs and career support systems that are more inclusive and responsive to the unique needs of each gender.

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### Author Contributions Statement

AS designed the research framework, conducted the study, and drafted the manuscript. DY supervised the research process and provided academic guidance. SN performed the data analysis. MW contributed to the development of the theoretical framework. All authors reviewed and approved the final version of this manuscript.

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