

Empowering the Future Workforce: How Self-Concept and Career Attitudes Shape Readiness Among Undergraduate Interns

Mia Ajeng Alifiana^{1,2*}, Tur Nastiti², Nadia Utami Wibowo², Akh. Sokhibi¹, Dina Lusianti¹, & Agung Prihandono³

¹Department of Management, Universitas Muria Kudus, Indonesia

²Department of Management, Universitas Gadjah Mada, Indonesia

³Ph.D. in Information Technology, Universiti Muhammadiyah Malaysia, Malaysia

*Corresponding email: mia.ajeng@umk.ac.id

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Abstract: This study examines the relationship between self-concept (self-management and self-esteem) and career readiness among students participating. It examines the mediating role of career attitudes in this relationship by testing five hypothesized pathways. The internship experience is positioned as a structured learning context that supports the development of self-regulation and positive self-evaluation. A quantitative, cross-sectional survey design was used to examine the role of self-concept in career readiness. Data were collected by online questionnaire from 8,877 undergraduate students who participated in the now-concluded national internship program “Certified Internship and Independent Study (MSIB) in its fifth cohort (2023). Data analysis was conducted using multiple regression and path analysis in SmartPLS 4.0 to test relationships and mediation effects. The results showed that both components of self-concept, self-management ($\hat{\alpha} = 0.427$, $p < 0.001$) and self-esteem ($\hat{\alpha} = 0.265$, $p < 0.001$) had significant, positive effects on career readiness. In addition, self-management ($\hat{\alpha} = 0.536$, $p < 0.001$) and self-esteem ($\hat{\alpha} = 0.333$, $p < 0.001$) were positively associated with career attitudes, which, in turn, were significantly associated with career readiness ($\hat{\alpha} = 0.380$, $p < 0.001$). Mediation analysis confirmed that career attitudes partially mediate the relationship between self-management, self-esteem, and career readiness. The research model explained 74.0% of the variance in career readiness ($R^2 = 0.740$), indicating that the constructs studied are substantial predictors of students’ work readiness. According to the study’s findings, to make students career-ready, it is necessary to adopt a two-fold approach. First, enhancing self-esteem through positive internship experiences and constructive criticism. Second, providing students with structured internship programs to help them develop self-regulatory skills. To maximize graduates’ readiness to enter the workforce, higher education institutions are advised to design career development programs that simultaneously enhance self-management skills, foster adaptive professional attitudes, and promote healthy self-esteem by integrating these programs into the core curriculum, permanent career services, and a standardized internship reflection system.

Keywords: career readiness; internship; self-concept; career attitudes; undergraduate students.

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■ INTRODUCTION

In discussions of career decision-making, four prominent issues are emerging: willingness to compromise, adopting a maximizing or satisficing strategy, embracing ambiguity and uncertainty, and recognizing the role of unconscious processes (Gati, 2021). In line with these dynamics, the complexity of the modern job

market and the expanding variety of career options make it increasingly difficult for individuals to commit to a single career path. Thus, vocational psychology is essential for exploring the factors that affect career decision-making and for helping individuals make the best, most informed decisions (Spurk, 2021). According to the Life Span Life Space Theory, teenagers ages 15 to

24 are in the exploration stage, gathering as much information as possible about potential jobs and career paths. The post-exploration stage is the establishment stage, in which these teens analyze their career choice and develop a strategy to achieve it. Adolescence is considered a critical phase for vocational identity formation and adaptive career decision-making, during which the development of competencies and self-regulatory capacities becomes essential (Lent & Brown, 2013; Savickas, 2013). A key component of the Life Span Life Space Theory is self-concept, the perception of an individual's abilities, interests, and values (Super, 1980). The cognitive information processing theory parallels this theory, serving as a guiding framework for career decision-making. Information processing domains form the base of the pyramid, and knowledge domains are the foundation stones for making career decisions, including self-knowledge and occupational knowledge. Self-knowledge encompasses an individual's interests, values, personality, and skills (Lent et al., 1994). Taking this as the point of departure, this study aims to understand the impact of self-concept on an individual's future career readiness behavior.

Self-esteem is the perception of self-worth an individual has and the extent to which they respect themselves (Boyle et al., 2015; Monteiro et al., 2022; Rosenberg, 2016). Self-management is one's ability to regulate internal emotions, thoughts, and impulses, translating them into behavior and action in line with the situation at hand (Goleman, 2011). These two self-concepts are determinants of an individual's ability to manage themselves and, to an extent, of the effort and self-motivation that drive them to work towards their goals, which, in this sense, means making career decisions.

According to Super (1980), career choice reflects the expression of one's self-concept, in which individuals seek occupations congruent with their values, abilities, and self-perceptions.

In line with this framework, recent empirical studies indexed in Scopus indicate that among senior high school students, higher levels of career decision-making self-efficacy are associated with greater confidence in career choices and related learning engagement (Liu, Mei, & Ji, 2024). The study also identified gender-based differences, with evaluative aspects of self-concept, such as self-esteem, being more influential among male students. Several studies have shown gender differences in the relationship between career decision-making self-efficacy and components of career behavior, with women often showing greater involvement and attention in aspects of career decision-making than men (Chen et al., 2021). These findings indicate that career decision-making is not solely a rational, cognitive process but is also influenced by affective factors and individual subjective constructs. This perspective is reinforced by Career Construction Theory, which views careers as the result of a process of constructing meaning through self-narratives and adaptability to constantly changing social contexts (Savickas, 2005; 2013). In the Indonesian context, Umar et al. (2025) found that career adaptability directly influenced the self-efficacy of final-year students, whereas career insecurity did not.

Furthermore, individual career paths are difficult to predict deterministically, according to Chaos Theory in Careers, as they evolve within a complex, non-linear system susceptible to emotional influences and unanticipated events (Bright & Pryor, 2019; Pryor & Bright, 2022). Super's classical theory is still a good conceptual foundation. However, when combined with more recent methods that highlight meaning construction, uncertainty, and psychosocial dynamics in contemporary career decision-making, its applicability increases.

They must equip themselves with essential knowledge and skills to advance their career. Recent studies elaborate that the key skills most

employers seek in candidates include communication, teamwork, collaboration, and leadership (Hoque et al., 2023; Pengnate, 2018; Prikshat et al., 2019). Having adequate levels of these skills is considered a form of career readiness, as these individuals can exhibit the behaviors and mannerisms needed for the line of work. Hence, this study will examine the associations between self-concept and future career-readiness behaviors, including the ability to work with others, communicate, and demonstrate leadership.

Career attitudes are the attitudes one holds towards a specific career role, based on perceptions of that role. One's attitude becomes the cornerstone of one's behavior towards a specific thing, as well as one's level of future career readiness. Therefore, this study introduces a mediating variable, career attitude, and examines whether career attitude mediates the relationship between self-concept/self-esteem and self-management in future career readiness behavior. Furthermore, a study by Luo et al. reveals that job realities and work simulations influence perceptions of a job role and career aspirations (Luo et al., 2019). Internship programs are a form of job reality and work simulation, as they provide a short workplace experience where individuals immerse themselves in the world of work and experience all aspects of that specific job role. The study participants were 8,877 undergraduate students who had completed the fifth (2023) cohort of the Certified Independent Study and Internship (MSIB) program. This internship and independent studies program complements the existing higher education curriculum, equipping undergraduate students with the employability skills needed to meet employment needs.

This lends credence to the idea that factors beyond logical reasoning influence job decisions. However, there is still limited research examining how self-management and self-esteem interact

to influence career readiness, particularly in the context of a structured national internship program like MSIB, considering the mediating role of career attitudes. An empirical study by Jackson & Wilton (2017) shows that research on work readiness and employability in higher education is fragmented, with a separation between individual psychological factors and work experiences, and with little examination of the psychological mechanisms underlying these relationships. Similarly, an integrative review by Hirschi and Koen (2021) confirms that career research remains dominated by examining direct relationships between variables. In contrast, process models explaining how psychological resources and work experiences shape career outcomes, including through career attitudes, remain relatively limited. This aligns with the findings of Umar et al. (2025), who examined the mediating role of career self-management in the relationships among career adaptability, career insecurity, and self-efficacy among final-year students in Indonesia. This gap underscores the urgency of research that tests integrated models to understand the mechanisms shaping career readiness in Indonesian higher education.

However, few studies have examined how self-management and self-esteem interact to influence career preparedness, particularly in the context of structured national internship programs such as MSIB, while accounting for the mediating role of career attitudes. Most studies focus on either internship outcomes or psychological factors in isolation. Therefore, this study proposes an integrated mediation model that examines the interaction between personal resources (self-management and self-esteem) in shaping career readiness, with career attitudes as the primary mediator. Unlike previous research, this model focuses on the context of the structured national internship program, MSIB, in Indonesia, which has rarely been studied from a career psychology perspective. Previous studies rarely account for

career attitudes as a mechanism by which personal resources translate into work readiness, and they typically examine internship experiences and psychological factors independently.

Findings from a systematic literature review by Suroto et al. (2022) that emphasized the limited understanding of the dynamic interaction between work-based experiences and personal dispositions in shaping work readiness in educational contexts and developing countries are thus in line with the study's response to Hirschi and Koen's (2021) call for the importance of a process model that integrates psychological factors and work experiences. Therefore, this study fills this gap by integrating both experiential and psychological perspectives through a mediation model.

This study aims to examine how internship experiences, reflected in the development of self-management and self-esteem, influence students' career readiness, both directly and indirectly through career attitudes as a mediator. "What is the role of career attitudes in mediating the influence of self-management and self-esteem on

students' career readiness in the MSIB national internship program?" is the research question. Based on the integration of Super's (1980) life-span and life-space theory, Social Cognitive Career Theory (Lent et al., 1994), and the career self-regulation model (Hirschi & Koen, 2021), this study formulates the following hypotheses: (H1a) Self-management has a positive direct effect on future career behavior readiness; (H1b) Self-esteem has a positive direct effect on future career behavior readiness; (H2a) Career attitudes mediate the influence of self-management on future career behavior readiness; (H2b) Career attitudes mediate the influence of self-esteem on future career behavior readiness; (H3) Career attitudes have a positive effect on future career behavior readiness.

By examining the direct and indirect pathways as described in the conceptual model (see Figure 1), this study is expected to uncover the psychological mechanisms that bridge internship experiences, personal resources, and students' work readiness in the context of Indonesian higher education.

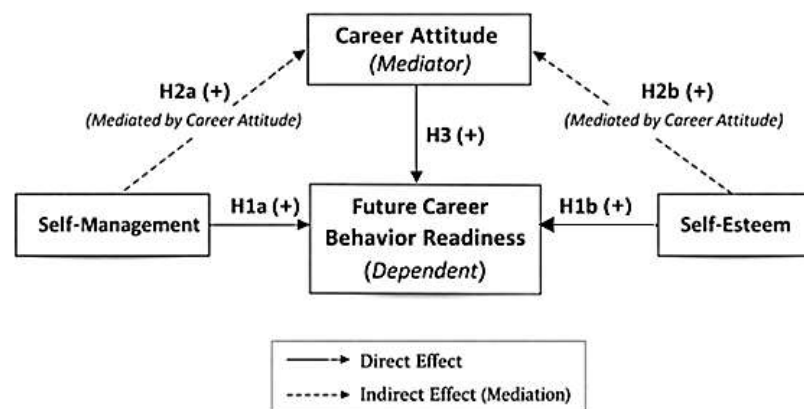


Figure 1. Theoretical framework

METHOD

Participants

The study participants were 8,877 undergraduate students who had completed the fifth (2023) cohort of the Certified Independent

Study and Internship (MSIB) program, a national program of the Ministry of Education, Culture, Research, and Technology (Kemdikbudristek) aimed at improving competency and work readiness (Kemdikbudristek, 2021). Active

student status, fulfillment of all MSIB internship requirements in Batch 5, and willingness to participate were among the inclusion criteria. The demographic diversity of participants in the national program was reflected in the sample, which was selected from the intern population using an online questionnaire. The use of a large sample from a single, structured program cohort provided a controlled context for empirically testing relationships among variables (Sekaran & Bougie, 2016).

Research Design and Procedures

A cross-sectional, quantitative survey design was used in this investigation. Once participants finished the MSIB national internship program in 2023, measurements were taken. Based on their thoughts about their internship experience, respondents assessed their levels of self-management, self-esteem, career attitudes, and career readiness. This cross-sectional design is suitable for testing relationships between variables and for mediation models at a single point in time within a relatively large population (Creswell, 2018). However, it allows only associations between variables to be drawn, not causal relationships or longitudinal changes (Spector, 2019). Data were analyzed using path analysis with Partial Least Squares Structural Equation Modeling (PLS-SEM) in SmartPLS 4.0, which is considered suitable for testing complex structural models and does not require strict assumptions of data normality (Hair et al., 2020). It can clarify the identification of patterns, relationships, and influences among variables, thereby enabling the attainment of suitability in answering research objectives that require strong empirical evidence (Sekaran et al., 2016).

Instrument

The operationalization of variables in this study was carried out by adapting and developing instruments from scales and scientific articles that

have been theoretically and empirically tested. All items were measured using a Likert scale and contextualized in the “after program” condition. The variables that will be analyzed include (1) self-management, (2) self-esteem, (3) career attitude, and (4) future career behavior readiness. The theoretical framework for this study is shown in Figure 1, in which self-esteem and self-management are the two independent variables, career attitude is the mediating variable, and future career behavior readiness is the dependent variable.

Self-esteem, as a construct (X1), was assessed by modifying the Rosenberg Self-Esteem Scale (RSES) developed by Rosenberg (1965). The RSES remains the most widely used measure of global self-worth, demonstrating strong construct validity and consistently high internal consistency reliability ($\alpha > .80$) across diverse cultural contexts (Orth & Robins, 2022). The indicators used in this study reflect positive self-evaluations, namely feelings of pride in oneself, a perception of oneself as a valuable individual, and a positive attitude toward oneself. Example items include: “I feel I have something to be proud of” and “I feel that I am a person of worth, at least on a par with others.”

Self-management (X2) was derived from the constructs of self-regulation and competency management of persons regarding employability development (Goleman, 2011; McHenry & Krishnan, 2022). The measurable constructs include the ability to work under pressure, the ability to differentiate between professional and private life, and behavioral control, especially in changing circumstances. For this particular dimension, examples of items are: “I can work or learn under pressure” and “I can control my behavior when circumstances change.” In this dimension, there is a conceptual congruence with the self-regulation theory of career self-management (Lent & Brown, 2013). For the present study, PLS-SEM analysis was performed

to assess construct validity, with outer loadings >0.70 , AVE >0.50 , and reliability >0.70 for Composite Reliability and Cronbach's alpha (Hair et al., 2020).

Career Attitude (X3 as a Mediator) was developed by drawing on career development literature and studies on career attitudes in the context of university-industry collaborations (Super, 1980; Luo et al., 2019). Indicators reflect responsibility in the learning process, the ability to apply knowledge to problem-solving, and perseverance and a positive mindset in the face of difficulties. Example items include: "I take responsibility for carrying out the learning process to the best of my ability" and "I never give up and think positively when facing difficulties." This instrument was tested for convergent and discriminant validity and demonstrated adequate internal reliability (CR >0.70).

The three dimensions of operationalization of Future Career Behavior Readiness (Y) comprise leadership, interpersonal and communication skills, and teamwork. The body of knowledge on employability and leadership competences (Villegas, 2024; Murillo-Zamorano & Montanero, 2018; Shomotova et al., 2024) is consulted. The ability to cooperate, influence others, and handle conflict is measured by the "I can get others to cooperate with me" dimension. Social empathy, idea organization, and idea expression are all reflected in the communication and interpersonal ability dimension (e.g., "I can organize ideas while speaking"). The leadership dimension measures the clarity of value communication and consistency of actions (e.g., "My actions are consistent with the values I believe in"). All dimensions demonstrate construct validity and internal reliability that meet psychometric standards (Hair et al., 2020).

All instruments underwent language adaptation and validity and reliability testing using PLS-SEM with criteria of outer loading >0.70 , AVE >0.50 , and Composite Reliability >0.70

as recommended by Hair et al. (2020), thus meeting adequate psychometric standards for hypothesis testing.

Data Analysis

This study was a cross-sectional survey, in which respondents were required to self-report their self-management, self-esteem, career attitude, and readiness for future career behavior after the MSIB Batch 5 program in 2023. Measurement scale: All elements were measured using a 5-point Likert scale: 1 = strongly disagree, 5 = strongly agree. The results were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0 to test structural relationships and the mediating effects of variables. PLS-SEM was chosen because it is well-suited to predictive models with latent constructs and can accommodate mediation models simultaneously (Hair et al., 2020).

The analysis process comprised two steps: measurement model evaluation and structural model evaluation. For convergent validity, outer loading values were above 0.70, whereas Average Variance Extracted values were above 0.50, based on the criteria proposed by Hair et al. (2020). Internal construct reliability was assessed using Composite Reliability (CR) and Cronbach's Alpha, with a minimum limit of 0.70, as recommended in modern structural equation modeling practice (Cheung et al., 2024). For discriminant validity, the Fornell-Larcker model is applied. For discriminant validity, the square root of the AVE of each construct needs to be higher than the correlation between constructs as mentioned in the Fornell-Larcker (1981) model. The analysis showed that all constructs met the validity and reliability criteria, making them suitable for testing the mediation hypothesis.

To gain a more nuanced understanding of the structural relationships, this study conducted multi-group analyses (MGA) to examine potential

moderating effects of gender and field of study. In particular, we contrasted students with STEM (Science, Technology, Engineering, and Mathematics) and non-STEM (Social Sciences and Humanities) backgrounds, as well as male and female students. To better examine their combination, four subgroups were defined: Male-STEM, Male-Non-STEM, Female-STEM, and Female-Non-STEM. The analysis was conducted using the PLS-MGA method in SmartPLS 4, a non-parametric test that assesses whether differences in path coefficients among groups are statistically significant (Hair et al., 2020; Henseler et al., 2016). In line with established guidelines, group differences were considered significant when the two-tailed p-value was below .05.

However, this study has some limitations. It is noteworthy that this study was conducted only among participants in MSIB Batch 5 of

2023; therefore, caution is required when extending these results to other batches or similar interventions. Secondly, this longitudinal study cannot measure long-term changes using cross-sectional measurement. It is noteworthy that some of these instruments had earlier been independently developed based on earlier literature searches and would require further validation to ensure psychometric stability. Nevertheless, this study is expected to make an empirical contribution by explaining how self-management and self-esteem influence future career behavioral readiness, using career attitudes as a mediating variable.

■ RESULT AND DISCUSSION

All research instruments met the established validity and reliability criteria (see Table 1). Data were then collected from 8,877 respondents who met the inclusion criteria.

Table 1. Outer loadings for convergent validity assessment

| Variable | Construct | Outer Loading | | |
|---------------------------------------|-----------|-----------------------|-----------------------|-------------|
| | | 1 st Model | 2 nd Model | Final Model |
| Self-Esteem (SE) | SE1 | 0.864 | 0.864 | 0.863 |
| | SE2 | 0.886 | 0.886 | 0.885 |
| | SE3 | 0.859 | 0.859 | 0.860 |
| Self-Management (SM) | SM1 | 0.801 | 0.800 | 0.799 |
| | SM2 | 0.880 | 0.881 | 0.881 |
| | SM3 | 0.877 | 0.877 | 0.878 |
| Career Attitude (CA) | CA1 | 0.897 | 0.897 | 0.897 |
| | CA2 | 0.914 | 0.914 | 0.914 |
| | CA3 | 0.875 | 0.875 | 0.875 |
| Future Career Behavior Readiness (FC) | FC1 | 0.796 | 0.799 | 0.793 |
| | FC2 | 0.708 | 0.685 | |
| | FC3 | 0.696 | | |
| | FC4 | 0.804 | 0.814 | 0.820 |
| | FC5 | 0.802 | 0.812 | 0.819 |
| | FC6 | 0.721 | 0.734 | 0.747 |
| | FC7 | 0.827 | 0.831 | 0.833 |
| | FC8 | 0.809 | 0.813 | 0.819 |
| | FC9 | 0.727 | 0.726 | 0.726 |

Source: Author's works

Table 1 shows that all indicators for Self-Esteem, Self-Management, and Career Attitude had outer loadings >0.70 at all stages of the analysis, confirming good convergent validity (Hair et al., 2020). For the Future Career Behavior Readiness construct, two indicators were removed because they did not meet the recommended threshold. Indicator FC3 (ability to accommodate conflict) in the first model had an outer loading of 0.696, while indicator FC2 (ability to influence others) in the second model showed an outer loading of 0.685. After stepwise elimination, the final model retained seven indicators (FC1, FC4–FC9) with outer loadings ranging from 0.726 to 0.833.

Conceptually, the three initial indicators (FC1, FC2, FC3) were designed to measure dimensions of the ability to work with others. FC1 (building cooperation) assesses basic collaborative efforts, while FC2 and FC3 measure more complex, context-dependent higher-order social skills, namely persuasion and conflict resolution. As junior interns, respondents likely had limited and highly variable experience applying these two specific skills due to limited authority and the short duration of their

internships. Consequently, responses to FC2 and FC3 reflect more situational variance in individual experiences than shared variance in the core construct of career readiness (Sarstedt et al., 2017). In contrast, FC1 measures collaborative initiatives that are more universal and frequently experienced across different types of internship placements. These differences in complexity reduce the reliability and validity of the overall measurement of the construct. Consequently, removing the two indicators enhances the validity of this collaboration dimension, as the remaining indicators (basic collaboration, interpersonal communication, and leadership) more accurately represent universal work experiences across almost all internship contexts.

In addition to convergent validity, the discriminant validity of the measurement model was also tested using the Fornell-Larcker Criterion (Fornell & Larcker, 1981; Hair, 2020). The Fornell-Larcker criterion requires that the square root of AVE (“AVE”) for each construct exceed its correlations with other constructs. As shown in Table 2, all “AVE values (diagonal) were higher than the corresponding inter-construct correlations, confirming adequate discriminant.

Table 2. Fornell-Larcker discriminant validity

| Construct | SE | SM | CA | FC |
|-----------|-------|-------|-------|-------|
| SE | 0.870 | | | |
| SM | 0.605 | 0.854 | | |
| CA | 0.657 | 0.737 | 0.895 | |
| FC | 0.702 | 0.773 | 0.795 | 0.795 |

Source: Author’s works

Hypothesis Testing

After all measurement instruments met the validity and reliability analysis criteria (outer loadings $e^{>0.70}$), the online questionnaire was ready for data collection. The questionnaire produced a sample of 8,877 respondents who met the inclusion criteria. Figure 2 and Table 3 present the path coefficients resulting the analysis.

Self-Esteem (SE) and Self-Management (SM) account for 61.4% of the variance in Career Attitude (CA), according to the coefficient of determination (R^2) value of 0.614. In contrast, the Future Career Behavior Readiness (FC) R^2 value of 0.740 shows that SE, SM, and CA account for 74.0% of the variance in FC. In social research, an R^2 value greater than 0.50 is

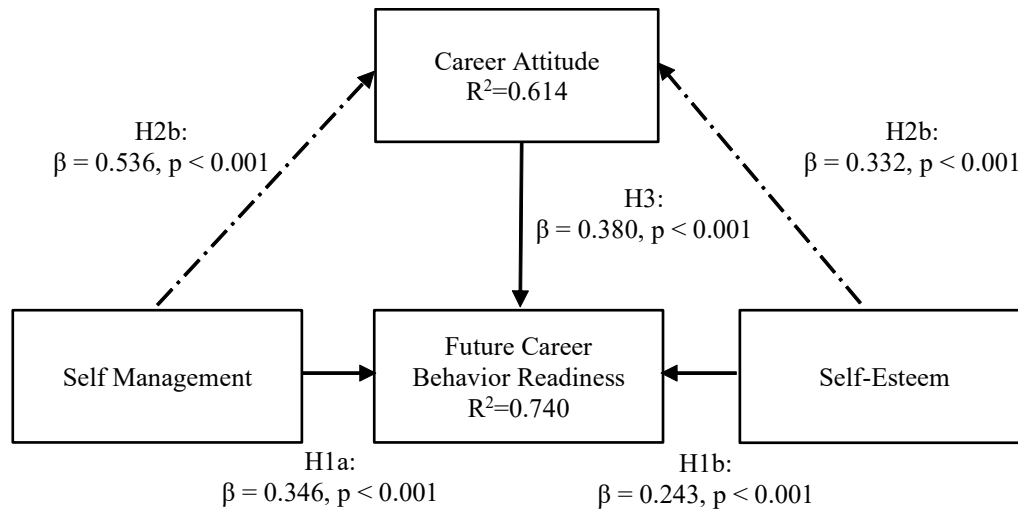


Figure 2. Path diagram

categorized as moderate to strong according to Hair et al.'s (2020) criteria.

Every path has positive, statistically significant coefficients ($p < 0.001$). Self-Esteem and Career Attitude are positively correlated ($\hat{\alpha} = 0.332$, $p < 0.001$), but Self-Management is more strongly correlated ($\hat{\alpha} = 0.536$, $p < 0.001$). On Future Career Behavior Readiness, Self-Esteem has a direct effect with $\hat{\alpha} = 0.243$ ($p < 0.001$), Self-Management with $\hat{\alpha} = 0.346$ ($p < 0.001$), and Career Attitude with $\hat{\alpha} = 0.380$ ($p < 0.001$). High t-statistic values across all paths indicate the stability of the model estimates through the bootstrapping procedure. Overall, these results indicate that both self-management ($\hat{\alpha} = 0.427$, $p < 0.001$) and self-esteem ($\hat{\alpha} = 0.265$, $p < 0.001$) are significant predictors of career readiness, with self-management exerting a more substantial direct effect.

Before hypothesis testing, multicollinearity among the variables was assessed using the Variance Inflation Factor (VIF). The results revealed that all variables had VIFs below 5.00, ranging from 1.247 to 3.894. Thus, it was confirmed that there was no multicollinearity in the research model (Hair et al., 2020; Sarstedt et al., 2024).

Following the assessment of overall model fit and multicollinearity, hypothesis testing was

conducted using bootstrapping with 5,000 resamples. The results for each hypothesis are presented below.

Hypothesis 1a: Self-management has a positive direct effect on future career behavior readiness

The first hypothesis (H1a) tested the direct effect of self-management on future career behavior readiness. Consistent with the Social Cognitive Career Theory framework (Lent et al., 1994; Brown & Lent, 2019), which emphasizes the role of personal agency in career development, the analysis showed that Self-Management (SM) had a positive and significant effect on Future Career Behavior Readiness (FC) ($\hat{\alpha} = 0.346$; $t\text{-stat} = 34.302$; $p < 0.001$). Thus, H1a was supported.

This finding indicates that students who are better able to regulate their emotions, thoughts, and behaviors tend to report higher levels of career readiness, as evidenced by leadership skills, interpersonal communication, and teamwork. The positive path coefficient confirmed that a one-standard-unit increase in self-management will lead to a 0.346-standard-unit increase in career readiness, assuming other variables remain constant. These results strengthen the argument that self-regulatory capacity is an important

predictor of work readiness during the transition from education to work (Hirschi & Koen, 2021).

Hypothesis 1b: Self-esteem has a positive direct effect on future career behavior readiness

Hypothesis H1b tests the direct influence of self-esteem on career readiness. Based on the Life-Span, Life-Space theory (Super, 1980; Villarreal et al., 2015), which positions self-concept as the foundation of career choice and development, the results of this study support this hypothesis. Self-Esteem (SE) was shown to have a positive and significant influence on FC ($\hat{\alpha} = 0.243$; $t = 26.956$; $p < 0.001$). Therefore, H1b is supported.

These results imply that an individual's positive perception of their self-worth directly contributes to their confidence and readiness to face the challenges of the working world. The higher the students' self-esteem, the more prepared they are to demonstrate adaptive career behaviors. This finding is consistent with the study by Iriani et al. (2023), which found that positive self-concept correlates with career maturity, and with the study by Orth & Robins (2022), which affirms the benefits of high self-esteem across different life situations, including role transitions.

Hypothesis 2a: Career attitudes mediate the influence of self-management on future career behavior readiness

Hypothesis H2a aims to investigate the mediating role of career attitudes in the relationship between self-management and career readiness. The mediation effect was examined by computing the indirect effect and assessing its significance using bootstrapping (Hair et al., 2020; Preacher & Hayes, 2008). The indirect effect of SM on FC through CA was calculated by multiplying the path coefficients of SM'!CA and CA'!FC, i.e., $\hat{\alpha} = 0.536 \times 0.380 = 0.204$.

The analysis confirmed that this indirect effect was statistically significant ($\hat{\alpha} = 0.204$; $t = 28.594$; $p < 0.001$). Since the direct effect of SM'!FC ($\hat{\alpha} = 0.346$; $p < 0.001$) remained significant after the mediator was included in the model, this indicated partial mediation. Thus, H2a was supported.

The mediation proportion, based on the Variance Accounted For (VAF) approach, was calculated as the indirect effect divided by the total effect (direct and indirect). The VAF for this path was $0.204 / (0.346 + 0.204) = 0.371$, or 37.1%, which falls within the partial mediation range (20% - 80%) according to Hair et al.'s (2020) criteria. This discovery is consistent with the study by Gao et al. (2019), which established a partial mediation role for career self-management in the relationship between career adaptability and performance. It is also consistent with the study by Umar et al. (2026), which established the role of career self-management among Indonesian college students.

Hypothesis 2b: Career attitudes mediate the influence of self-esteem on future career behavior readiness

Hypothesis H2b tested the mediating role of career attitudes in the influence of self-esteem on career readiness. The indirect effect of SE on FC through CA was $\hat{\alpha} = 0.333 \times 0.380 = 0.127$. Bootstrapping results showed that this indirect effect was statistically significant ($\hat{\alpha} = 0.127$; $t = 22.598$; $p < 0.001$). The direct effect of SE '! FC ($\hat{\alpha} = 0.243$; $p < 0.001$) also remained significant, further confirming the existence of partial mediation. Thus, H2b was supported.

The VAF for this path was $0.127 / (0.243 + 0.127) = 0.343$, or 34.3%, which also falls within the partial mediation range. These results suggest that self-esteem not only directly impacts career readiness but also operates through the development of positive career attitudes, such as taking responsibility for learning, applying

knowledge to problem-solving, and persevering in the face of adversity. These results add to our understanding of the psychological processes linking positive self-judgments to career outcomes, as described in the Social Cognitive Career Theory model proposed by Lent and his colleagues (Lent et al., 1994).

Hypothesis 3: Career attitudes have a positive influence on readiness for future career behavior.

The final hypothesis (H3) tested the direct relationship between career attitudes and career readiness. Consistent with the Theory of Planned Behavior (Ajzen, 2001; Sussman & Gifford, 2019), which states that attitude is an important determinant of behavior, the analysis results showed that Career Attitude (CA) had a positive

and significant influence on Future Career Behavior Readiness (FC) ($\hat{\alpha} = 0.380$; $t = 34.193$; $p < 0.001$). Therefore, H3 was supported.

This shows that students who display positive attitudes, such as taking responsibility for learning and persevering in the face of adversity, are more likely to exhibit behaviors that align with career readiness. The coefficient of influence of career attitudes on career readiness ($\hat{\alpha} = 0.380$) was the largest compared to the direct influences of self-management ($\hat{\alpha} = 0.346$) and self-esteem ($\hat{\alpha} = 0.243$), indicating that career attitudes play a central role in determining students' work readiness. These results are consistent with research by Luo et al. (2019), which found a positive correlation between career attitudes and career aspirations in university-industry collaboration programs.

Table 3. Results of path analysis

| Hypothesis (H) | Path | Direct Effect (β) | Indirect Effect (β) | Total Effect (β) | p-values | VAF (%) | Decision |
|----------------|----------|---------------------------|-----------------------------|--------------------------|----------|---------|-------------------|
| H1a | SM→FC | 0.346 | - | 0.346 | 0.000 | - | Supported |
| H1b | SE→FC | 0.243 | - | 0.243 | 0.000 | - | Supported |
| H2a: | SM→CA→FC | 0.346 | 0.204 | 0.550 | 0.000 | 37.1% | Partial Mediation |
| H2b | SE→CA→FC | 0.243 | 0.127 | 0.370 | 0.000 | 34.3% | Partial Mediation |
| H3 | CA→FC | 0.380 | - | 0.380 | 0.000 | - | Supported |

Note: SM = Self-Management; SE = Self-Esteem; CA = Career Attitude; FC = Future Career Behavior Readiness. A VAF (Variance Accounted For) between 20%-80% indicates partial mediation (Hair et al., 2020). All effects are significant at $p < 0.001$.

Multi-Group Analysis

We conducted a multi-group analysis (MGA) to examine the moderating effects of academic background (STEM vs. non-STEM) and gender. Academic background was classified into 10 study programs. STEM (coded as 1) comprises Natural Sciences, Health, Engineering, and Agriculture, whereas Non-STEM (coded as 0) includes Religion, Humanities, Arts, Economics, Education, and other social science disciplines. Gender was coded as 0 for males and 1 for females. To capture intersectional effects, four groups were constructed as Male-

STEM, Male-Non-STEM, Female-STEM, and Female-Non-STEM.

Before conducting MGA, we assessed measurement invariance using the Measurement Invariance of Composite Models (MICOM) procedure (Henseler et al., 2016). The MICOM results confirmed partial measurement invariance, which permits meaningful comparison of structural path coefficients across groups (Henseler et al., 2016; Hair et al., 2020).

As presented in Table 4, the multi-group analysis (PLS-MGA) results indicate that no statistically significant differences emerged among

Table 4. Multi-Group analysis (PLS MGA) results: gender and field of study moderation

| Path | Group 1 | Group 2 | Group 3 | Group 4 |
|---------|-------------------|-------------------|-------------------|-------------------|
| | $\Delta\beta$ (p) | $\Delta\beta$ (p) | $\Delta\beta$ (p) | $\Delta\beta$ (p) |
| SE → CA | 0.005 (0.854) | 0.026 (0.483) | -0.036 (0.295) | -0.015 (0.633) |
| SE → FC | 0.006 (0.816) | -0.039 (0.223) | 0.031 (0.303) | -0.014 (0.616) |
| SM → CA | 0.012 (0.655) | -0.015 (0.675) | 0.032 (0.324) | 0.006 (0.842) |
| SM → FC | -0.034 (0.210) | -0.028 (0.439) | 0.037 (0.286) | 0.042 (0.148) |
| CA → FC | 0.032 (0.282) | 0.055 (0.155) | -0.050 (0.167) | -0.027 (0.394) |

Notes:

- G1: Male-STEM vs Female-STEM; G2: Male-NonSTEM vs Female-NonSTEM; G3: Male-STEM vs Male-NonSTEM; G4: Female-STEM vs Female-NonSTEM
- $\Delta\beta$ = Difference in path coefficients between groups
- SM → FC (female): $\Delta\beta = 0.042$, $p = 0.148$; not significant.
- No moderating effects were statistically significant at $\alpha = 0.05$

the compared groups at the conventional $\alpha = 0.05$ level. In line with the nonparametric PLS-MGA procedure recommended by Hair et al. (2020), group differences are considered significant only when the bootstrapped p-value falls below the predefined significance threshold. First, comparisons between male and female students within STEM fields revealed no significant differences across all structural paths. For example, the effect of self-esteem on career readiness (SE → FC) did not differ between male and female STEM students ($\Delta\beta = 0.006$, $p = 0.816$), nor did the effect of self-management on career attitudes (SM → CA) ($\Delta\beta = 0.012$, $p = 0.655$).

Second, comparisons between male and female students in non-STEM fields also showed no significant gender moderation. $\Delta\beta = -0.039$ ($p = 0.223$) was obtained from the path from self-esteem to career readiness (SE → FC), and $\Delta\beta = -0.015$ ($p = 0.675$) was obtained from the path from self-management to career attitudes (SM → CA). Third, there were no discernible differences in any structural relationships among male students from STEM and non-STEM academic backgrounds. Likewise, no statistically significant differences were found among female students with different academic backgrounds.

Despite a comparatively greater coefficient difference ($\Delta\beta = 0.042$, $p = 0.148$) on the path from self-management to career readiness (SM → FC), this difference was not statistically significant and did not suggest a moderating effect.

Overall, consistent with the guidelines for PLS-MGA interpretation (Hair et al., 2020; Henseler et al., 2016), the findings suggest that neither gender nor academic background individually or in intersection moderates the structural relationships among self-esteem, self-management, career attitudes, and career readiness in this sample.

The first hypothesis (H1a) examined the direct effect of self-management on career readiness. The integration of Social Cognitive Career Theory (Lent et al., 1994; Brown & Lent, 2019) and Social Cognitive Theory (Schunk & Dibenedetto, 2020) describes personal resources as a facilitating agency in the development of future-oriented personal agency. Personal resources function as an agency mechanism that influences future orientation in this framework. In other words, self-management is a self-regulatory system that enables people to engage in purposeful action (Schunk & DiBenedetto, 2020). Therefore, the discovery of a positive relationship between self-management and career

readiness ($\hat{\alpha} = 0.346$; $p < 0.001$) supports the theoretical basis of self-management. According to Lent et al. (1994), self-management is a motivating factor that helps promote the conversion of self-beliefs into action orientations, a finding further supported by recent studies on self-management in other cultures (Gao et al., 2019; Umar et al., 2026). Students with strong self-regulatory capacity are likely to exhibit leadership, communication, and teamwork skills, which are critical to workplace success, a point reinforced by Hirschi and Koen (2021), who argue that self-regulatory capacity is a key predictor of work readiness in educational-to-work transitions.

The second hypothesis (H1b) tested the direct effect of self-esteem on career readiness. Self-esteem is a general assessment of one's worth that influences how an individual interprets their career experiences (Schunk & DiBenedetto, 2020). The positive impact of self-esteem on career preparedness was found to be significant ($\hat{\alpha} = 0.243$, $p < 0.001$), supporting the Life Span, Life Space Theory (Super, 1980; Villarreal et al., 2015) and the Cognitive Information Processing Approach (Peterson et al., 2025) in their claim that self-awareness is an essential element in the development of a sound career decision-making strategy. A person with a positive self-image tends to be more confident in making decisions and implementing them in their career path (Iriani et al., 2023). This research has supported the positive outcomes of high self-esteem, which was also supported by Orth & Robins (2022) in their research on the benefits of high self-esteem in role transition situations. The difference in the value of self-esteem in relation to self-management, being lower in the study ($\hat{\alpha} = 0.243$) than in self-regulation ($\hat{\alpha} = 0.346$), may indicate a more immediate impact of self-regulatory skills in a controlled internship setting.

The third and fourth hypotheses (H2a and H2b) examined the mediating role of career

attitudes. The finding of partial mediation through career attitudes (VAF = 37.1% for H2a; 34.3% for H2b) reinforces the idea that career behavioral readiness is constructed through multiple pathways. The Theory of Planned Behavior (Ajzen, 2001; Sussman & Gifford, 2019) explains that attitudes are important determinants of behavior, but that individual abilities also contribute directly. These results align with Luo et al. (2019), who found a positive correlation between career attitudes and career-readiness behavior in university-industry cooperation programs. The mediation effects are similar to those reported by Gao et al. (2019), who found that career self-management partially mediates the adaptability-performance relationship, and to those reported by Umar et al. (2026), who replicated similar findings with Indonesian students. This implies that internship experiences contribute to career readiness not just by developing competencies but also by instilling favorable work stances.

The fifth hypothesis (H3) tested the direct effect of career attitudes on career readiness. Career attitudes demonstrated a positive and significant effect on career readiness ($\hat{\alpha} = 0.380$; $p < 0.001$), the largest of the direct effects, followed by self-management and self-esteem. This underscores the significance of career attitudes in shaping students' preparedness for work. For example, students who assume responsibility for learning, overcome obstacles, and maintain positive attitudes tend to demonstrate preparedness. This aligns with the findings of Luo et al. (2019) and the Theory of Planned Behavior (Ajzen, 2001; Sussman & Gifford, 2019), which indicate that attitudes are determinants of behavior.

Regarding the multi-group analysis, this study further investigated whether students' gender and academic background moderated the structural relationships. The results showed full structural invariance across gender and field of study, as none of the moderating effects were

statistically significant. With a large sample size of 8,877, which is considered robust for detecting minor group differences in PLS-SEM analyses (Hair et al., 2020), the non-significant findings indicate that the proposed relationships are robust and generalizable across demographic subgroups. The standardized MSIB internship program might have served as an equalizing factor, with all subgroups having an equal experience in a work-learning program. This is based on research indicating that an effective work-learning environment minimizes differences in outcomes across students (Wilton, 2017; Hirschi & Koen, 2021).

Previous studies exploring gender differences in career self-efficacy have found mixed evidence. Other studies, according to Social Cognitive Career Theory, indicate that there may be differences in self-efficacy beliefs between females and males in specific domains, such as STEM efficacy and goal formation (Inda, Rodríguez, & Peña, 2013). However, other studies indicate no significant gender differences in career decision-making self-efficacy among university students (Jiang, 2014).

The presence of structural invariance across demographic groups validates the practical feasibility of designing universal career development interventions at scale. In a broader sense, these results support the idea that large-scale internship programs help develop human capital. They also support the idea that psychological processes underlying self-management, self-esteem, career attitudes, and career readiness operate similarly for both men and women across all fields of study in organized internship settings.

These findings illustrate that higher education institutions play an essential role in helping students pursue career advancement. Higher education institutions are central places for students to explore career interests. They must provide organized career development programs

that include chances for hands-on learning, the development of self-regulation skills, the building of positive self-images, and the instilling of flexible career attitudes. Gao et al. (2019) stressed that self-managing one's career is an important way to turn personal resources into positive outcomes. This makes interventions that help students improve their self-management skills very smart. Strategic interventions that can assist students in developing self-awareness, exploring personal interests and values, and becoming prepared for the workforce include career guidance services, integrated internship programs, career planning workshops, and professional mentoring (Savickas, 2005).

Various limitations of this study should be taken into account. First, data are collected only once in the cross-sectional correlational design. This design only identifies correlations between variables; it cannot establish causation (Spector, 2019). Second, a control group of students who did not take part in the internship program was not included in the study. Therefore, future research is recommended to use longitudinal designs with repeated measures or quasi-experimental designs with a control group to more definitively test the causal contribution of internship programs (Maier et al., 2023; Mize & Manago, 2022). Furthermore, further exploration of the role of work reality and other contextual variables is needed to enrich the understanding of the mechanisms of career-readiness formation. Interesting findings from Umar et al. (2026) show that while career insecurity impacts students' feelings, it does not diminish their confidence in achieving future career success. This indicates that internal factors such as adaptability are more dominant in shaping career readiness. The continuity of this process is also supported by Gao et al. (2019) in China and Umar et al. (2026) in Indonesian studies, which, although using different samples (employees and students), found a similar effect of career self-management

patterns as a mediator in an Asian context. This strengthens the external validity of the finding that an individual's internal resources play a dominant role in career outcomes.

■ CONCLUSION

The current research study examines whether internship completion affects students' personal resources and job readiness, with career attitudes as a mediating factor. This study found positive, significant associations between participation in the structured MSIB internship program and levels of self-management, self-esteem, career attitudes, and career readiness among undergraduate students. The results revealed that self-esteem ($\hat{\alpha} = 0.265$; $p < 0.001$) and self-management ($\hat{\alpha} = 0.427$; $p < 0.001$) had a positive relationship with career readiness, both directly and indirectly through the partial mediator of career attitudes (indirect effect: $SE'!CA'!FC = 0.127$; $SM'!CA'!FC = 0.204$). These findings indicate that career attitudes serve as a significant mediating mechanism between internship experiences, personal resources, and career readiness. These findings indicate that career attitudes act as a significant mediating mechanism between internship experiences, personal resources, and students' career readiness.

It is important to emphasize that this study used a cross-sectional correlational design without a control group, so all findings are associative and cannot be interpreted as causal evidence regarding the effectiveness or success of the MSIB program (Spector, 2019). Although there are positive correlations, we cannot say that an intern program makes students better prepared for their careers; we can only say that there appears to be a significant correlation between these groups in the sample involved in the program. Therefore, although there is a positive correlation, it does not necessarily imply that internship programs increase students' career

readiness; rather, it indicates a significant relationship. If one wishes to make causal claims, then they will need to gather additional data through design-based methods (Maier et al., 2023; Mize & Manago, 2022).

Beyond these core findings, this study also examined whether the proposed relationships were contingent upon students' demographic characteristics. We performed rigorous multi-group tests and determined full structural invariance across gender and field of study, suggesting that the direct and indirect effects of self-management and self-esteem on career readiness through career attitudes are equivalent for male and female students and for STEM and non-STEM students; in light of the high statistical power provided by our large sample size (Hair et al., 2020), this result confirms the universality of career development processes in the internship context, as posited by the contextual assumption of Career Development and Counseling and existing evidence that work-integrated learning contexts can provide a standardized outcome for employability across student groups (Jackson & Wilton, 2017; Hirschi & Koen, 2021), although recognizing that other contextual variables might be used as boundary conditions as implied by modern career construction theories (Brown & Lent, 2019).

Although the specific MBKM-MSIB program has ended, the policy legacy and empirical findings of this study offer important lessons for designing an integrated, sustainable career-readiness ecosystem in Indonesian higher education. Based on these associative findings, three strategic steps are recommended. First, career attitudes, as a key determinant, need to be institutionalized by integrating career and professional identity construction modules into the core curriculum and into permanent career services at each university. Second, to ensure that the internship experience is associated with increased cognitive work readiness, all credit-

based internship programs must implement a uniform and standardized pre- and post-internship reflection structure. Third, the national monitoring system needs to be expanded to include psychological indicators, such as career flexibility and self-management competencies, in the tracer study monitoring board. This way, the best ideas from this pilot program can be integrated into the mainstream higher education environment, which, in turn, helps produce graduates who are not only work-ready but also resilient and proactive in their career mindset.

■ DECLARATION OF GENERATIVE AI USAGE IN THE WRITING PROCESS

During the drafting of this manuscript, the authors used Grammarly to refine sentence structure. Following the use of this tool, the authors reviewed and revised the content as necessary and accept full responsibility for the final content of the article.

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