

Gender Differences in Career Maturity Among University Students: A Comparative Analysis

Arina Husna Zaini^{1,*}, Arini Farah Adiba², Tari Indriani³, Sekar Ayu Luh Jingga¹,
Muchammad Ainur Rofiqi¹, & Sofiyatul 'Ida Fitria¹

¹Department of Islamic Psychology, UIN Sayyid Ali Rahmatullah Tulungagung, Indonesia

²Al-Azhar University Cairo, Egypt

³Institut Agama Islam Negeri Pontianak, Indonesia

*Corresponding email: arinahusna@uinsatu.ac.id

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Abstract: Rapid digital transformation demands that university students possess high career maturity to navigate the transition from academic to professional life. Although prior studies suggest that career maturity differs between male and female students due to structural barriers and social role stereotypes, findings on this difference remain inconsistent across cultural and institutional contexts. Most research has examined students in general, overlooking the specific pressures faced by final-year students approaching career transition, and few studies have addressed Islamic higher education institutions in Indonesia, where gender norms may interact with religious and local values. This study examined differences in career maturity, both overall and across its constituent dimensions, between male and female final-year students at UIN Sayyid Ali Rahmatullah Tulungagung. Using a quantitative causal-comparative design, 330 final-year students (165 male, 165 female) were selected through quota sampling. Career maturity was measured using a modified, valid, and reliable version of the Crites-based Career Maturity Questionnaire, covering four dimensions: Career Planning, Career Exploration, Decision Making, and Self-Concept. Multivariate normality and homogeneity assumptions were satisfied, and hypotheses were tested using MANOVA followed by univariate ANOVA for each dimension. Results revealed a significant multivariate gender difference in career maturity (Pillai's Trace = 0.069; $p < 0.05$), confirmed by significant univariate differences across all four dimensions ($p < 0.05$), with small-to-moderate effect sizes. Based on mean scores, male students consistently showed higher career maturity than female students across all dimensions. These findings suggest that the difference reflects an interaction among self-efficacy, sociocultural gender-role construction, and the socio-religious campus ecosystem, rather than a dominant or universally generalizable gender effect. As an implication, Islamic higher education institutions should integrate gender-sensitive career counseling and provide professional role models for female students to strengthen exploratory confidence and decision-making self-efficacy, while ensuring equitable career readiness for all graduates.

Keywords: career maturity, gender differences, final-year students.

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■ INTRODUCTION

The rapid transformation of the global labor market in the current era of digitalization has fundamentally altered the competencies required to adapt to an increasingly renewable and digitized professional landscape (Alhloul & Kiss, 2022). This transformation is marked by the

accelerating integration of digital technology, artificial intelligence, automation, and human-centered innovation across sectors, creating a career environment that is increasingly dynamic and uncertain (Kolade & Owoseni, 2022). Amid this shifting landscape, career adaptability has emerged as a critical resource that enables

individuals to cope with current and foreseeable career development demands, occupational transitions, and unpredictable challenges (Rudolph et al., 2017). Empirical evidence indicates that this adaptive capacity functions as a key mediating resource, linking graduates' personal traits to their career motivation and shaping their perceived readiness to enter the workforce (Azalea et al., 2024; Lin, 2024). In this context, university graduates are no longer expected to rely solely on academic achievement or technical expertise; rather, they are required to possess psychological adaptability, readiness for career development decision-making, and robust competencies for long-term employability (Ananthram et al., 2024; Azalea et al., 2024; Lin, 2024; Zhang et al., 2025).

The contemporary career system is characterized by career maturity that transcends mere job selection, encompassing flexibility, non-linear trajectories, and continuous transitions. These dynamics require individuals to proactively manage their career paths amidst evolving professional demands and rapidly shifting uncertainties (Hirschi & Koen, 2021). Consequently, psychological readiness for career development has become an increasingly critical issue in higher education institutions worldwide.

One demographic particularly vulnerable to these labor market shifts is final-year university students transitioning from higher education to the workforce. This transition is a critical developmental period in which students must translate academic experiences into a sustainable professional identity while navigating uncertainty about future job opportunities and career stability (Akkermans et al., 2021). Previous studies indicate that the transition from higher education to the workforce often brings heightened career anxiety, fear of failure, concerns about employability, and psychological distress among final-year students (Lee et al., 2022; Monteiro et al., 2019).

Increasing competition in the modern labor market intensifies the pressure on students to demonstrate adaptability, autonomy, and confidence in making career-related decisions. In this context, students who struggle with career planning, procrastinate in decision-making, and feel less confident addressing professional challenges face adverse impacts on their psychological readiness and well-being during the transition (Magnano et al., 2021). Consequently, understanding the psychological resources that facilitate successful career transitions has become increasingly imperative in contemporary career development research.

One psychological construct that has consistently received attention in career development literature is career maturity. Traditionally, Super (1953) defined career maturity as an individual's readiness to make appropriate career decisions, encompassing the psychological, social, and physical preparedness to complete career development tasks (Ni et al., 2023). However, contemporary career development scholars argue that the meaning of career maturity has evolved substantially in response to changes in modern work systems (Hirschi & Koen, 2021).

Career maturity no longer involves only readiness in selecting a job; it also encompasses adaptability, self-management, resilience amid uncertainty, the ability to continuously align career goals with shifting labor market demands, and openness to new opportunities (Alkal, 2025). Individuals with higher career maturity tend to demonstrate stronger career planning, clearer vocational identity, and greater self-efficacy in responding to transitions and workplace disruptions (Alkal, 2025; Ni et al., 2023). Conversely, inadequate career maturity has been linked to career uncertainty, lower perceived employability, and difficulties in adapting to rapidly changing work environments (Datu & Buenconsejo, 2021; Tong et al., 2025). These

findings suggest that career maturity is highly relevant for understanding how students navigate contemporary career challenges amid the ongoing digital transformation of the labor market.

Although modern career systems have become increasingly flexible, gender remains a significant factor influencing students' career development. Social Role Theory explains that men and women are often socialized into distinct occupational expectations and behavioral orientations that shape their career aspirations, self-confidence, and decision-making processes (Eagly & Karau, 2002; Eagly et al., 2016). Traditionally, men are associated with agentic roles emphasizing leadership, independence, and economic responsibility, whereas women are more frequently associated with communal roles emphasizing service and interpersonal orientation. These gender expectations may influence how students evaluate career opportunities, perceive professional obstacles, and develop self-efficacy regarding their future employment (Tokbaeva & Achtenhagen, 2023).

Nevertheless, recent transformations in work systems associated with digitalization and flexible career paths may also challenge traditional gender boundaries. The emergence of remote work, digital entrepreneurship, hybrid employment, and technology-driven careers has created more flexible opportunities that potentially mitigate conventional gender segmentation in the labor market (Kolade & Owoseni, 2022). Notwithstanding this, it is undeniable that sociocultural expectations and structural inequalities will continue to differentially influence career progression across genders, particularly in collectivistic societies where traditional gender norms remain relatively pervasive.

Within the Indonesian context, gender-related career expectations remain highly relevant in shaping students' career development experiences. Reports from the World Economic

Forum (2024) and studies by Prasetya et al. (2024) and Sawitri et al. (2014) indicate that despite female students in Indonesia frequently demonstrating exceptional academic performance, they continue to encounter structural barriers concerning domestic role expectations, which may undermine their motivation to explore diverse career paths. Prior research suggests that sociocultural values and patriarchal norms continue to influence career aspirations, professional self-efficacy, and career-related decision-making among university students (Retnaningsih et al., 2022).

Female students experience additional pressure regarding domestic role expectations, whereas male students are often encouraged to prioritize job stability and financial responsibility (Liu, 2025). Such social expectations subsequently influence students' career self-efficacy, career exploration behaviors, and readiness to pursue non-traditional occupations (Chen et al., 2021; Hamzah et al., 2021). At the same time, the expansion of digital work systems and flexible career opportunities is gradually shifting traditional career patterns among the younger generation. Consequently, examining career maturity through a gendered perspective has become increasingly essential to understand whether traditional gender-based career patterns remain relevant within contemporary higher education environments.

Although numerous studies have examined gender differences in career maturity, findings remain inconsistent. Some studies report that female students show higher levels of career maturity than their male counterparts (Stead et al., 2022; Irshad & Azmi, 2026). Conversely, other studies have found that male students tend to exhibit higher levels of career self-efficacy and greater career assertiveness, enabling them to make autonomous career decisions (Yamani & Almazroa, 2024; Guo et al., 2025). Meanwhile, emerging evidence suggests that contemporary

career systems and digital work environments provide significant opportunities to mitigate traditional gender inequalities in career development outcomes (Kolade & Owoseni, 2022). These inconsistencies indicate that gender differences in career maturity may no longer manifest in the same manner within the evolving structure of the contemporary labor market.

Based on these considerations and using Crites' theoretical framework, which conceptualizes career maturity as a multidimensional construct comprising several distinct dimensions rather than a single unitary trait, this quantitative study aims to empirically analyze the dynamics of career maturity both as an overall construct and across its constituent dimensions. This research re-examines gender differences in career maturity among university students at both the multivariate level (career maturity as a whole) and the univariate level (each dimension of career maturity), amid the ongoing transformation of the contemporary labor market. This study is expected to contribute to the career development literature by examining whether traditional gender-based career maturity patterns remain evident amid evolving work structures and social expectations. Furthermore, this research aims to offer practical implications for higher education institutions and career counseling practitioners by informing the development of adaptive, gender-responsive career intervention programs that support students' readiness to navigate the challenges of the contemporary labor market. Consequently, this study addresses the following research questions: (1) Are there multivariate differences in career maturity between male and female university students? (2) Are there univariate differences in the dimensions of career maturity between male and female university students? Based on the preceding literature, the following hypotheses are proposed: H1: There are significant multivariate differences in career maturity between male and female students. H2:

There are significant univariate differences in the dimensions of career maturity between male and female students.

METHOD

Research Design and Procedure

This study used a non-experimental design that examines existing factual data rather than administering an intervention (Gay, Mills, & Airasian, 2012). Accordingly, a quantitative, causal-comparative design was appropriate for comparing career maturity levels between sexes without manipulating or intervening in the research variables. The variables in this study consisted of career maturity as the dependent variable and sex as the independent variable. This study focused on identifying natural differences between groups based on sex without administering any treatment to the participants.

This study was conducted through three main stages. In the preparation stage, the researcher adapted the instrument by modifying 14 items, then tested content validity using Aiken's V coefficient and piloted it with a sample of students to ensure reliability before the main data collection. In the implementation stage, the instrument was distributed offline and online via Google Forms, with two field assistants to ensure the sample quota of 330 final-year students (thesis/final project stage) was met. During the process, participants were informed about the study's identity and were required to provide informed consent to confirm voluntary participation. After data collection, the researcher scored all collected data and conducted the analysis.

Data collection was conducted over one month, from June 3 to 28, 2024. All participant responses were kept strictly confidential and used solely for this research.

Participants

The study population comprised all final-year undergraduate students at UIN Sayyid Ali

Rahmatullah Tulungagung, totaling 5,136 individuals. Final-year students were selected as the target population because they are transitioning from the academic environment to the professional workforce, a period when career maturity becomes a crucial competency.

The sample size was determined using the Isaac and Michael (1981) table with a 5% margin of error, yielding a minimum sample size of 330 students. The sampling technique employed was quota sampling, a non-probability technique in which the population is divided into subgroups based on specific characteristics, and participants are then selected from each subgroup until the predetermined proportion is met (Moser & Stuart, 1953). This technique was chosen because the study targeted students completing their final assignment (thesis) while ensuring a balanced distribution of male and female respondents. Based on these criteria, the final sample included 330 students: 165 male students (50%) and 165 female students (50%).

Instrument

This study used a Career Maturity Scale adapted from the Career Maturity Questionnaire (CMQ) developed by Ismail et al. (2022), grounded in Crites' (1969) theory of career maturity. The original instrument consisted of 14 items, all phrased favorably and contextually relevant to vocational high school (SMK) students. During adaptation, the wording of these 14 items was revised to fit the context of higher

education and the transition from academic life to the workforce. For example, the original item "After graduating from vocational high school, I have a solid plan to develop my career" was revised to "I have a plan to work or continue my studies after graduating from university." In addition, the researchers added 10 unfavorably worded items to balance response direction, resulting in a final 24-item instrument measured on a Likert-type scale.

The instrument measures four dimensions of career maturity: Career Planning, Career Exploration, Decision Making, and Self Concept, each contributing an equal weight of 25%. Career Planning refers to individuals' efforts to seek information related to their intended career path, encompassing indicators of awareness of career insight and preparation, the ability to consider alternative career options, and the possession of future career plans. Career Exploration refers to individuals' competence in exploring career-related information from various sources, comprising indicators of the ability to obtain career information from multiple sources and the ability to utilize the information obtained. Decision Making refers to individuals' ability to apply knowledge and reasoning in formulating career plans. Self-Concept comprises two indicators: the ability to recognize one's interests, abilities, and limitations, and the ability to understand work tasks and appropriate behavior within a work environment. The comparison between the original and modified items is presented in Table 1

Table 1. Comparison of original and modified items

No	Aspect	Indicator	Original Item (CMQ)	Modified Item – Favorable	Modified Item – Unfavorable
1	Career Planning	Awareness of career insight and preparation	I am always enthusiastic about joining skill development programs	(1) I am enthusiastic about attending seminars or training that support my career choice	(5) Attending job training does not make it easier for me to get a job

2	Career Exploration	Consideration of alternative career options	I have planned several alternative approaches for my future career	(9) I have alternative career options if my initial career plan fails	(21) I have no other outlook if my chosen career is not achieved
		Future career planning	After graduating from vocational high school, I have a solid plan to develop my career	(17) I have a plan to work or continue my studies after graduating from university	(13) I have no short-term or long-term plan for my future career
		Obtaining information from various sources	I always look for more than one job opportunity	(2) I actively seek various information related to my career interests	(10) The only career information I know comes from friends
		Obtaining information from various sources	I always search for the job I want	(6) I seek career-related information from credible sources	–
		Utilizing career information	If I obtain job information, I will use it to prepare myself for that job	(18) I use the information I obtain to prepare myself to achieve my chosen career	(14) It is not important for me to consider information from friends when determining my future career
3	Decision Making	Utilizing career information	I discuss my career with my family, teachers, and friends	(22) I determine my career choice based on the information I have obtained	–
		Applying knowledge and reasoning in career planning	I choose a job based on my talents and interests	(3) I plan my future career based on my talents and interests	(7) I am reluctant to discuss my career plans with family or lecturers
		Applying knowledge and reasoning in career planning	I am responsible for the choices I make regarding my future career	(15) I am ready to take responsibility for the outcomes of my career choice	(11) When choosing a career, I do not consider whether the career environment is good or bad
		Applying knowledge and reasoning in career planning	By attending vocational high school, I have already envisioned what I will become in 5–10 years	(23) I am able to envision my future in the next 5–10 years	(19) I chose my study program due to pressure from others

4	Self Concept	Recognizing interests, abilities, and limitations	I know my talents and interests very well	(4) I know my talents and interests well	(8) It is difficult for me to identify my talents
		Recognizing interests, abilities, and limitations	I can investigate factors that may support or hinder my career	(12) I am able to identify factors that support or hinder my career	–
		Understanding work tasks and workplace behavior	I can adapt to new conditions	(16) I am able to adapt to new environments	(20) I do not understand the future conditions of my career
		Understanding work tasks and workplace behavior	To achieve my dream job, I will put in my best effort	(24) I make maximum effort to achieve my planned career	–

Note: Some original items do not have a corresponding unfavorable item ("–") because the 10 added unfavorable items were not evenly distributed across all original items, but were assigned selectively to balance response direction within each indicator.

Content validity was assessed using Aiken's V method (Almanasreh, Moles, & Chen, 2019) with five psychology experts, yielding coefficients ranging from 0.85 to 1.00 and confirming the instrument's content validity. Regarding reliability, the instrument demonstrated a Cronbach's Alpha of 0.70, indicating an acceptable level of internal consistency, as a reliability coefficient of $e^2 = 0.70$ is generally considered the minimum threshold for the acceptability of a psychological instrument (Nunnally, 1978). The instrument's overall difficulty level was deemed appropriate, and it was shown to provide optimal information for students with high, moderate, and low levels of career maturity.

Data Analysis

Data were analyzed using IBM SPSS Statistics. Descriptive statistics were initially computed to summarize the respondents' demographic characteristics and career maturity

scores. Prior to hypothesis testing, the assumption of normality and homogeneity of variance were examined using the Kolmogorov-Smirnov and Levene's tests, respectively. To determine whether significant differences existed in career maturity between male and female students, an independent-samples t-test and manova was performed at a significance level of 0.05. In addition to statistical significance, mean scores were examined to interpret the magnitude and direction of differences between the two groups.

RESULT AND DISCUSSION

Participant Characteristics

This study involved 330 final-year undergraduate students at UIN Sayyid Ali Rahmatullah Tulungagung, consisting of 165 males and 165 females. The participants' characteristics include gender, age, and work experience. The distribution of these characteristics is presented in Table 2.

Table 2. Research data description

Category		Quantity	Percentage
Gender	Male	165	50%
	Female	165	50%
Age	20	3	1%

	21	83	25%
	22	207	63%
	23	27	8%
	24	8	2%
	25	2	1%
	26	3	1%
Work Experience	No	226	64%
	Yes	104	36%

Based on the distribution shown in Table 2, most participants were 22 years old (63%), followed by 21-year-olds (25%) and 23-year-olds (8%). The remainder were distributed across the 20, 24, 25, and 26 age ranges. In terms of work experience, most participants (64%) reported no prior work experience, while the remaining 36% reported professional work experience.

Table 3. Categorization of respondent scores

Category	Male	Female
High	32	22
Medium	117	107
Low	16	36

Based on empirical categorization, most students in both groups fall into the moderate category. Specifically, 117 male respondents and 107 female respondents are categorized as having a moderate level of career maturity. These results indicate that, overall, students in both groups tend to fall into the moderate category. However, female students' scores appear more concentrated in the low category than their male counterparts'. This categorization provides a general overview of respondents' career maturity levels before hypothesis testing using inferential analysis.

The categorization of respondents into High, Medium, and Low levels was carried out using an empirical (norm-referenced) categorization technique based on the theoretical/empirical distribution of the career maturity scale scores,

following the hypothetical mean and standard deviation approach commonly used in psychological measurement (Almanasreh, Moles, & Chen, 2019). Descriptive statistics of the total score were first calculated, yielding a mean (M) of 68.72 and a standard deviation (SD) of 7.60. These two values were then used as the basis for determining the cut-off points that separate the three categories, using the following formula: High category: $X \geq (M + 1SD)$; Medium category: $(M - 1SD) \leq X < (M + 1SD)$; Low category: $X < (M - 1SD)$.

Substituting the obtained values of $M = 68.72$ and $SD = 7.60$ into the formula produced the following cut-off scores: High = $X \geq 76.32$ (rounded to $X > 76$); Medium = $61.12 \leq X < 76.32$ (rounded to $61-76$); and Low = $X < 61.12$ (rounded to $X < 61$). Each respondent's total score was then classified into one of these three categories, and the resulting frequency distribution for male and female respondents is presented in Table 2 above.

Assumption Testing

Before conducting the MANOVA, we examined two prerequisite assumptions: multivariate normality and homogeneity of the variance-covariance matrices across the two sample groups (male and female).

Multivariate normality was examined using the Mahalanobis distance approach, in which the squared Mahalanobis distance for each case was plotted against its corresponding chi-square quantile (q_i) in a Q-Q plot. This approach is

commonly used to assess multivariate normality because it evaluates the joint distribution of the dependent variables as a set, as required for MANOVA, rather than each variable in isolation. As shown in Figure 1, the data points are closely aligned along the diagonal reference line, with a

coefficient of determination (R^2 Linear) of 0.956. This high R^2 value indicates a strong linear relationship between the observed and expected values, suggesting that the assumption of multivariate normality was reasonably satisfied.

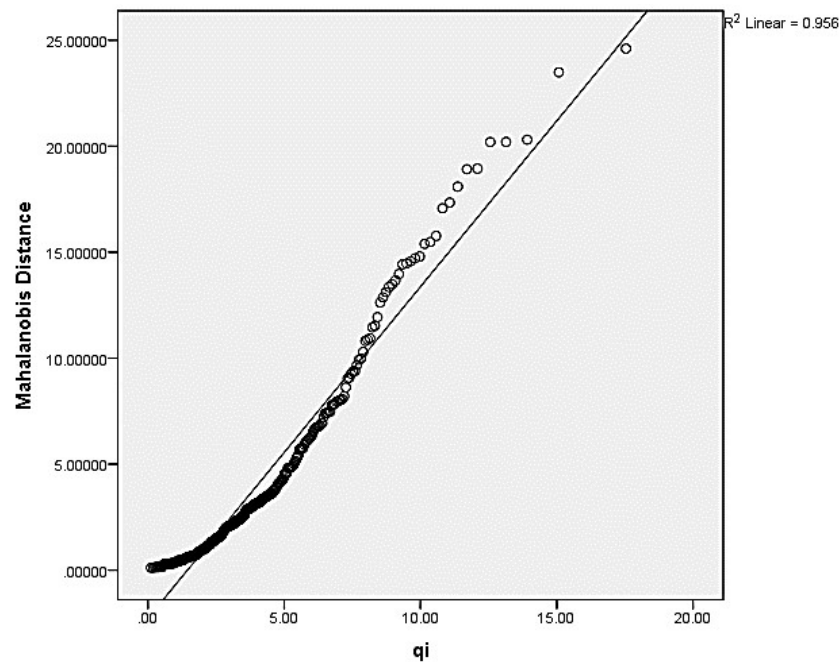


Figure 1. Q–Q plot of mahalanobis distance for the multivariate normality test

The homogeneity of the variance–covariance matrices across groups was then examined using Box’s M test. This test evaluates the null hypothesis that the observed covariance matrices of the dependent variables are equal across groups, and is the test appropriate for multivariate analyses such as MANOVA, as opposed to Levene’s test, which addresses homogeneity of variance for each dependent variable individually and is therefore more directly relevant to the univariate follow-up tests reported

later in this section. The results, presented in Table 4, show a Box’s M value of 46.620, $F(10, 514345.817) = 4.601$, with a significance value of 0.321. Because this significance value exceeds 0.05, the null hypothesis is retained, indicating that the variance–covariance matrices are homogeneous across the two gender groups. This confirms that the homogeneity-of-covariance-matrices assumption was met, thereby satisfying the prerequisites for conducting the MANOVA.

Table 4. Box’s test of equality of covariance matrices

Box's M	F	df1	df2	Sig.
46.620	4.601	10	514345.817	0.321

Design: Intercept + Gender

Hypothesis Testing

The results and discussion below are organized according to the hypotheses proposed in this study. Each hypothesis is presented first through its statistical test results, followed directly by a discussion that relates the findings to relevant theories and previous research.

Multivariate Differences in Career Maturity by Gender

To examine differences in career maturity between male and female students across the four dimensions of career maturity (Career Planning,

Career Exploration, Decision Making, and Self-Concept) simultaneously, a MANOVA was conducted. With the multivariate normality and homogeneity-of-covariance-matrices assumptions satisfied (see Assumption Testing above), the homogeneity of variance for each individual dependent variable was additionally examined using Levene's Test of Equality of Error Variances, as this test constitutes the relevant assumption check for the univariate between-subjects tests that follow the omnibus MANOVA. The results are presented in Table 6.

Table 5. Levene's test of equality of error variances

Dimension	F	df1	df2	Sig.
Career Planning	3.579	1	328	0.059
Career Exploration	12.248	1	328	0.001
Decision Making	13.779	1	328	0.000
Self-Concept	3.209	1	328	0.074

The results of Levene's Test in Table 5 indicate that the assumption of homogeneity of variance was met for the Career Planning dimension ($F = 3.579$; $p = 0.059$) and the Self-Concept dimension ($F = 3.209$; $p = 0.074$), but was violated for the Career Exploration dimension ($F = 12.248$; $p = 0.001$) and the Decision Making dimension ($F = 13.779$; $p = 0.000$). This assumption violation for these two dimensions warrants an interpretive caveat. Nevertheless, because the two gender groups in

this study were of equal size ($n = 165$ for each group), the impact of this assumption violation on the validity of the F test is relatively tolerable, consistent with the statistical literature indicating that designs with equal cell sizes render the F test fairly robust to variance heterogeneity. As an additional precaution, the interpretation of the multivariate results in this study was based on Pillai's Trace, as this statistic is known to be more robust to assumption violations than Wilks' Lambda.

Table 6. Multivariate test results (effect: gender)

Multivariate Test	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Pillai's Trace	0.069	6.011	4	325	0.000	0.069
Wilks' Lambda	0.931	6.011	4	325	0.000	0.069
Hotelling's Trace	0.074	6.011	4	325	0.000	0.069
Roy's Largest Root	0.074	6.011	4	325	0.000	0.069

The multivariate analysis results in Table 7 show a Pillai's Trace value of 0.069, with $F(4, 325) = 6.011$ and a significance level of 0.000 ($p < 0.05$). The other three multivariate statistics also

indicated the same significance level (Wilks' Lambda = 0.931; Hotelling's Trace = 0.074; Roy's Largest Root = 0.074), so the conclusion remains consistent despite the slight violation of

the homogeneity assumption in two dimensions. These results indicate that gender has a statistically significant simultaneous effect on students' career maturity when the four measured dimensions are considered jointly as a single set of dependent variables. Accordingly, the hypothesis proposing a difference in career maturity between male and female students is statistically supported at the multivariate level.

Although the effect of gender was statistically significant, its magnitude (partial eta squared = 0.069) falls into the small-to-medium range according to Cohen's criteria. This indicates that gender accounts for only about 6.9% of the combined variance across the four career maturity dimensions, with the remaining 93.1% explained by factors other than gender. This finding is important for tempering the practical interpretation of the results, as high statistical significance ($p = 0.000$) in a large sample ($N = 330$) does not necessarily correspond to a substantial practical effect size. It is also worth reiterating that this omnibus multivariate result rests on assumptions that were formally satisfied: multivariate normality was reasonably met (Mahalanobis Q-Q plot, $R^2 = 0.956$) and the variance-covariance matrices were homogeneous across groups (Box's $M = 46.620$, $p = 0.321$), lending confidence to the validity of the MANOVA result independent of the univariate Levene's Test outcomes discussed below.

This finding corroborates several previous studies that have consistently found gender-based differences in career maturity, although effect sizes vary across contexts. Luzzo, studying 401 college students, found that female students scored significantly higher than male students on career maturity attitudes, career decision-making skills, and vocational congruence (Luzzo, 1995). A similar pattern was reported in a career development intervention study among high school students, which found that the career maturation process unfolded differently for men

and women, with women showing greater improvement in career congruence and reduced career indecision. In contrast, men were more affected in decision-making self-efficacy (Cassie & Chen, 2012). These findings support the general direction of the MANOVA results in the present study, although the effect size observed here is moderate and should be interpreted proportionately.

This difference can be explained through Super's career development theory, which positions self-concept as central to career maturation. According to this theory, an individual's career choices and readiness are fundamentally an attempt to implement their self-concept into life roles, including the work role (Super, Starishevsky, Matlin, & Jordaan, 1963). Because self-concept is formed through socialization processes that differ between men and women, these two groups may exhibit different patterns of career maturity. However, as the effect size in this study indicates, these differences are moderate rather than dominant. Super also asserted that career maturity is multidimensional and develops through the individual's interaction with their environment across the life span (the life-span, life-space approach), such that contextual factors like gender help shape the pace and direction of this development, alongside other factors not measured in this study (Super, 1980).

For the Decision Making dimension, the difference between male and female students can also be understood through the lens of Social Cognitive Career Theory (SCCT), developed from Bandura's social cognitive theory. SCCT explains that self-efficacy, outcome expectations, and personal goals interact to shape an individual's career decisions. These three determinants are influenced by contextual factors such as gender, social support, and barriers encountered by the individual (Lent, Brown, & Hackett, 1994; Wang & Jiao, 2023; Yaw

Milledzi, Asamani, Opoku Mensah, & Naamwanuru, 2024). Career self-efficacy in women and men is shaped through mastery experiences, vicarious learning, verbal persuasion, and affective states that differ according to the social contexts they experience (Bandura, 1997). Hackett and Betz even found that women tend to have lower self-efficacy in career fields traditionally dominated by men, which can affect their confidence in making career decisions in those fields (Hackett & Betz, 1981). These gender-role socialization patterns may help explain why the Decision Making dimension contributes to the multivariate difference found, although its contribution to the overall difference is limited.

Nevertheless, findings on gender-based differences in career maturity have not been fully consistent in the literature. Some studies among Indonesian college students have found no significant difference in career maturity between male and female students, identifying only a descriptive tendency toward difference (Ismail et al., 2025). This inconsistency is in line with the results of a large-scale meta-analysis of adolescent vocational interests, which concluded that the magnitude of gender differences in career-related aspects depends heavily on the dimension measured, the instrument used, and the cultural and educational context in which the research is conducted (MacDonald, Benson, Sakaluk, & Schermer, 2023). Accordingly, the significant results obtained in this study need to be interpreted contextually and proportionately to their effect size, that is, as a depiction of the career maturity conditions of students in this particular research setting, with a moderate gender effect, rather than as an absolute generalization applicable universally to the entire student population.

The difference in career maturity between male and female students also cannot be separated from broader socio-structural factors,

such as gender-role expectations within the family, the availability of role models, and cultural norms regarding career paths considered appropriate for each gender. A study on women's managerial career development, for example, shows that the formation of women's career aspirations and decisions is strongly influenced by the socio-cognitive environment that shapes their self-beliefs and expectations regarding particular career roles (Bonesso & Cortellazzo, 2025). These contextual factors likely contributed to the score differences in the Career Planning and Career Exploration dimensions, as both relate to how actively individuals seek information and opportunities about the world of work. However, this study did not test the specific contribution of each factor separately.

In practical terms, and bearing in mind that the sample was drawn exclusively from a State Islamic Religious University (UIN) rather than higher education in general, this finding has implications for providing career guidance and counseling services within Islamic higher education institutions. Because male and female students show statistically different patterns of career maturity, albeit of moderate magnitude, career counseling services in this setting should continue to consider each gender group's specific needs across each career maturity dimension, without assuming gender is the sole determining factor. For instance, if women show higher maturity in career planning and exploration but lower decision-making self-efficacy in non-traditional fields, counseling interventions could focus on strengthening women's confidence in making career decisions in those fields, in ways sensitive to the religious and cultural expectations that may accompany such choices in this context. Conversely, if men show weaknesses in career exploration or career self-concept, career development programs could encourage more active career information exploration among this group.

Overall, the MANOVA results provide empirical evidence that gender contributes significantly, albeit with a moderate magnitude, to differences in career maturity among students at this Islamic state university. This finding is consistent with various international studies emphasizing the role of self-concept, self-efficacy, and gender-role socialization in the career development process, while also confirming that gender is not the sole, let alone the dominant, factor shaping students' career maturity. These results underscore the importance of a gender-sensitive approach, without disregarding other

contributing factors, in designing educational and career guidance programs within Islamic higher education, a context whose socio-cultural particularities are examined further below.

Univariate Differences in Career Maturity Dimensions by Gender

As a follow-up to the MANOVA results, ANOVA tests (Tests of Between-Subjects Effects) were conducted to examine differences in career maturity between male and female students on each dimension separately. The test results are presented in Table 7.

Table 7. Tests of between-subjects effects

Source	Dependent Variable	Mean Square	df	F	Sig.	Partial Eta Squared
Gender	Career Planning (CP)	61.967	1	11.322	0.001	0.033
	Decision Making (DM)	98.182	1	15.120	0.000	0.044
	Self-Concept (SC)	89.648	1	15.003	0.000	0.044
	Career Exploration (CE)	99.276	1	16.039	0.000	0.047

The ANOVA results in Table 7 show that gender has a statistically significant effect on all four career maturity dimensions: Career Planning ($F(1,328) = 11.322$; $p = 0.001$; partial $\eta^2 = 0.033$), Decision Making ($F(1,328) = 15.120$; $p = 0.000$; partial $\eta^2 = 0.044$), Self-Concept ($F(1,328) = 15.003$; $p = 0.000$; partial $\eta^2 = 0.044$), and Career Exploration ($F(1,328) = 16.039$; $p = 0.000$; partial $\eta^2 = 0.047$). This finding reinforces the previous MANOVA results, which showed a significant multivariate difference between male and female students (Pillai's Trace = 0.069; $p = 0.000$). The partial eta squared values across the four dimensions range from 0.033 to 0.047, which, according to Cohen's (1988) criteria, fall into the small-effect category, indicating that gender explains approximately 3.3%–4.7% of the variance in each career maturity dimension, with most of the remaining variance explained by factors other than gender.

To clarify the pattern of mean differences between groups and show the precision of these

estimates, Figure 2 presents descriptive statistics for each career maturity aspect as a grouped bar chart with 95% confidence interval (CI) error bars. The 95% CI error bars were calculated using the formula $M \pm 1.96 \times (SD/\sqrt{n})$, representing the range of values statistically believed to contain the true population means at the 95% confidence level.

Figure 2 shows that male students obtained higher mean scores than female students on all aspects examined. On the Career Planning aspect, male students obtained a mean score of 17.98 (95% CI: 17.70–18.26), while female students obtained 16.37 (95% CI: 15.98–16.76). On the Decision Making aspect, male students had a mean score of 18.32 (95% CI: 18.06–18.58), while female students had 16.27 (95% CI: 15.82–16.72). For Self-Concept, male students had a mean score of 17.45 (95% CI: 17.13–17.77), compared with 16.03 (95% CI: 15.62–16.44) for female students. Finally, for Career Exploration, male students had a mean

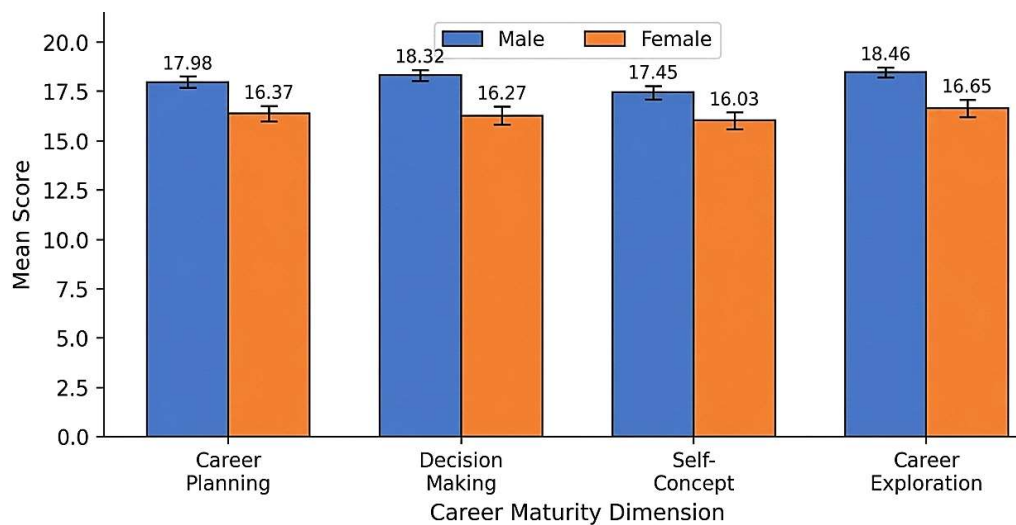


Figure 2. Mean career maturity scores by gender per dimension (error bars = 95% CI)

score of 18.46 (95% CI: 18.20–18.72), while female students scored 16.65 (95% CI: 16.21–17.09).

A notable feature in Figure 2 is that the 95% CI error bar ranges for the male and female groups do not overlap across all four dimensions, which is visually consistent with the significance test results in Table 8. The error bars for the female group also appear consistently wider than those for the male group across all dimensions, indicating greater variability in career maturity scores among female students (as shown by their higher standard deviation values on each aspect), which is also consistent with the violation of the homogeneity of variance assumption found in Levene's Test (Table 6) for the Career Exploration and Decision Making dimensions. Nevertheless, as previously discussed, the visually apparent gap between groups in Figure 2 must still be interpreted proportionately, given that the partial eta squared values across all dimensions are small (0.033–0.047).

On the Career Planning dimension, male students ($M = 17.98$) showed statistically higher scores than female students ($M = 16.37$), though the effect size was small (partial $\eta^2 = 0.033$). This finding may indicate that male students in this study tend to have a slightly more mature long-

term planning orientation. This difference is consistent with the results of a large-scale meta-analysis of adolescent vocational interests and orientations, which concluded that the magnitude of gender differences in career planning is strongly influenced by the extent to which the social environment provides clear encouragement and role models to each gender group (MacDonald, Benson, Sakaluk, & Schermer, 2023). In a cultural context that still positions men as the primary breadwinner, external encouragement to plan a career path early likely targets male students more. However, the contribution of this factor to the score difference is limited.

On the Career Exploration dimension, male students ($M = 18.46$) also outperformed female students ($M = 16.65$), with an effect size of 0.047 — which, although the largest among the four dimensions, remains small. It should also be noted that this dimension is one of the two dimensions showing a violation of the homogeneity of variance assumption in Levene's Test (Table 6). Therefore, interpreting the mean difference for this dimension warrants greater caution. Studies grounded in Social Cognitive Career Theory explain that career exploration behavior is influenced by an individual's self-efficacy regarding their ability to access and utilize career

information, and this self-efficacy is shaped by mastery experiences, social models, and environmental support received from an early age (Lent, Brown, & Hackett, 1994). When family and social environments provide more room for exploration, male students may show more intense career exploration than female students, who in many contexts face social and cultural role restrictions.

On the Decision Making dimension, male students ($M = 18.32$) obtained statistically higher scores than female students ($M = 16.27$), with partial $\eta^2 = 0.044$. As with Career Exploration, this dimension also violated the homogeneity of variance assumption in Levene's Test, so this finding should be read with due consideration of this methodological limitation. With that caveat, this finding is consistent with research among South Korean college students showing that implicit gender-career stereotypes significantly lower career decision self-efficacy among female students, but not among male students, ultimately reducing women's overall career adaptability (Shin, Lee, & Seo, 2019). In societies still strongly shaped by traditional gender-role norms, as has also been found in various collectivist cultural contexts including Indonesia, women may be more susceptible to internalizing doubts about their capacity to make risky career decisions. A similar pattern has also been reported among female college students in China, where high self-objectification was negatively correlated with career decision-making self-efficacy and overall career aspirations (Sun, 2023), indicating that social pressure on women's self-image is also related to their career decision-making maturity.

On the Self-Concept dimension, male students ($M = 17.45$) similarly showed statistically higher scores than female students ($M = 16.03$), with partial $\eta^2 = 0.044$. This difference may indicate that male students in this study have a slightly more integrated understanding of their interests, personal values, and capacities in

relation to career demands. Career self-concept forms through a long process of implementing the self into life roles, including the work role, as explained within the framework of career construction theory, which views career as a narrative individuals construct based on the meaning they assign to their life experiences (Savickas, 2013). Because this meaning-making and career identity formation occurs within a social context laden with gender expectations, female students may face additional barriers to consolidating their career self-concept. The consistent direction of male advantage across all four dimensions suggests a pattern of gender socialization related to career maturity, although the magnitude of influence remains statistically small.

Interestingly, the direction of this study's findings differs from that of several classic studies in Western contexts, which instead found female students to be superior in career maturity attitudes and skills (Luzzo, 1995; Cassie & Chen, 2012; Chung, 2002). This difference in direction is not a contradiction that undermines the validity of the present findings; rather, it confirms that career maturity is a construct sensitive to the socio-cultural context in which the research is conducted. In societies with more egalitarian gender structures, women tend to have access, support, and freedom of career exploration equal to that of men, allowing their career maturity to develop optimally or even surpass that of men. Conversely, in societies that still adhere to more traditional gender-role divisions, as may be reflected in the context of this study, men are likely to experience more opportunities and encouragement to actively develop career maturity. However, this effect is moderate rather than dominant. This interpretation also aligns with findings that women's managerial career development depends on the socio-cognitive environment that shapes their self-beliefs and expectations about particular career roles (Bonesso & Cortellazzo, 2025).

The Socio-Religious Campus Ecosystem and Gender Role Segregation

A methodologically important qualification to the interpretation offered above is that the sample in this study was drawn exclusively from a State Islamic Religious University (Universitas Islam Negeri, UIN), rather than from higher education institutions in general. This is not merely a sampling detail: UIN campuses constitute a distinctive socio-cultural ecosystem in which mandatory religious coursework, gender-inflected norms of dress and conduct, and, in many faculties, gender-differentiated social and organizational life converge to shape how male and female students come to understand their roles, both within the campus environment and in anticipation of life after graduation. Any explanation of the gender differences reported here therefore needs to be anchored in this specific institutional context rather than treated as evidence of a generic, context-free gender gap in career maturity.

Survey-based evidence on religiosity and gender role attitudes among Indonesian Muslims indicates that higher religiosity, particularly its cognitive and behavioral dimensions such as the frequency of prayer and the perceived importance of religion in daily life, is associated with more traditional views on gender roles, including greater agreement that men should be prioritized for employment when jobs are scarce (Kasmiarno & Susanto, 2024). Within an institutional environment such as a UIN, where religious practice and identity are reinforced not only informally but through the formal curriculum and campus culture, such gender role attitudes are less an individual disposition than a pattern that is embedded in, and continuously reproduced by, the campus ecosystem itself. This form of institutionally reinforced gender role segregation offers a plausible explanation for why male students in the present sample scored consistently

higher across all four career maturity dimensions, including Career Exploration and Decision Making: broader exploration of, and greater confidence in pursuing, career paths outside conventional or domestic roles may be more actively encouraged and normalized for male students than for female students within this religiously conservative institutional climate.

At the same time, evidence from other Islamic university settings is not entirely uniform, which suggests that gender role segregation within these campuses is not monolithic. A comparative study conducted at a different UIN found no statistically significant difference in overall career maturity between male and female students, with only a slight, non-significant tendency toward greater proactivity among female students specifically in career exploration (Effiom, Balogun, Ogunsola, & Oyekola, 2025), a pattern that runs in the opposite direction to the Career Exploration finding of the present study. Similarly, research among Islamic psychology students examining career maturity in relation to gender and school of origin found that gender-related differences varied depending on students' specific educational background rather than following a single, uniform pattern (Ismail et al., 2025). This variability suggests that the strength and even the direction of gender role segregation on Islamic campuses likely depend on factors such as faculty or disciplinary culture, the institution's specific religious pedagogy and organizational-Islam affiliation, and regional context, rather than reflecting a fixed feature of Islamic higher education as a whole.

Taken together, these considerations suggest that the gender differences documented in this study are best understood as a situated outcome of a particular socio-religious campus ecosystem rather than as evidence of a universal gender gap in career maturity. The consistent male advantage observed here may partly reflect forms

of gender role segregation, whether explicit or implicit, that are reinforced through the religious-institutional environment of the university in question, including prevailing expectations regarding women's eventual domestic and marital roles, which can compete for time, attention, and encouragement with the career exploration and decision-making processes captured by the instrument used in this study. Consequently, the practical implications discussed above, and the counseling recommendations offered later in this section, should be understood as most directly applicable to Islamic state university (UIN or PTKIN) settings, and their extension to secular public or private universities should be treated as a hypothesis for future research rather than an established generalization.

In practical terms, this finding has implications for developing career guidance and counseling services within Islamic higher education, the specific setting from which this study's sample was drawn (see the discussion of the socio-religious campus ecosystem above). Because female students in this study consistently, albeit modestly, scored lower across all career maturity dimensions, career counseling interventions at UIN and similar institutions could be designed to strengthen self-efficacy, exploratory courage, and decision-making confidence among female students, while acknowledging that factors beyond gender likely make a greater contribution to students' career maturity in general. Such programs could include providing successful female role models across various career fields, including fields not conventionally associated with women within the campus's religious-cultural climate; assertiveness training in decision-making; and strengthening career information literacy equally among male and female students.

This study has several limitations that warrant attention when interpreting its results. First, the cross-sectional design does not allow

causal conclusions about the mechanisms underlying career maturity differences between the two gender groups. Second, this study did not control for other contextual variables that may influence career maturity, such as socioeconomic background, parenting patterns, and students' field of study. Third, although the assumptions underlying the omnibus MANOVA itself (multivariate normality and homogeneity of the variance-covariance matrices) were formally satisfied, the univariate homogeneity-of-variance assumption was not fully met for the Career Exploration and Decision Making dimensions, so the interpretation of the follow-up univariate results for these two dimensions requires additional caution. However, the balanced sample size between groups helps maintain the F test's robustness. Fourth, the magnitude of the gender effect across all dimensions is small (partial $\eta^2 = 0.033-0.047$), indicating that most of the variance in students' career maturity is explained by factors beyond gender that were not measured in this study. Fifth, and importantly, the sample was drawn exclusively from a single State Islamic Religious University (UIN), a socio-religious campus ecosystem discussed in detail above; consequently, the findings and their practical implications cannot be assumed to generalize to secular public or private universities, or even uniformly to all Islamic higher education institutions, given that other UIN-based studies have reported different, and in some respects opposite, patterns of gender difference in career maturity (Ismail et al., 2025; Effiom et al., 2025). Accordingly, future research is recommended to employ a mixed-methods approach to explore in greater depth the social and psychological factors underlying this gender gap, to replicate the analysis across secular and religious institutions to test the boundary conditions of the observed effect, to identify other variables that contribute more substantially to career maturity, and to test the effectiveness of gender-responsive

career counseling interventions tailored to Islamic higher education settings.

Overall, the ANOVA results provide empirical evidence that gender contributes statistically significantly, albeit with a small effect size, to all four dimensions of career maturity among students at this Islamic state university, with male students showing slightly higher levels of maturity than female students on every dimension. This finding enriches the international body of research on gender gaps in career development, while also confirming that gender is one of many factors, and not the dominant factor, shaping students' career maturity. A gender-sensitive approach to career education remains relevant in this setting. However, it should be informed by the socio-religious campus ecosystem discussed above and balanced with attention to other factors that also contribute to students' overall career maturity, rather than being generalized uncritically to higher education as a whole.

■ LIMITATION OF THE REVIEW

Beyond the specific methodological caveats already noted alongside the hypothesis testing above, several broader limitations qualify how the present findings should be read. Foremost among these is the reliance on a single self-report instrument administered at one point in time; because career maturity was captured through participants' own ratings on a Likert-type scale, the results are susceptible to social desirability and common-method bias, and cannot capture how career maturity fluctuates as final-year students move closer to graduation. Relatedly, although the adapted 24-item Career Maturity Questionnaire showed acceptable content validity and internal consistency, it was derived from an instrument originally built for vocational high school students. The reliability coefficient obtained here ($\alpha = 0.70$) sits only at the minimum conventionally acceptable threshold, leaving comparatively little room to rule out measurement

error as a contributor to the observed group differences.

A second limitation concerns the sample's scope and representativeness. Quota sampling by sex, while useful for ensuring a balanced comparison group, is a non-probability technique, so the 330 participants cannot be assumed to be statistically representative of the full population of 5,136 final-year students at the institution, let alone of final-year students more broadly. Compounding this, as discussed at length above, the sample was drawn from a single State Islamic Religious University; the socio-religious campus ecosystem specific to this setting means the direction and magnitude of the gender effect documented here should not be generalized to secular institutions, to Islamic higher education in general, or to other cultural and national contexts without further comparative evidence.

Third, the causal-comparative design permits the identification of statistical differences between male and female students but not causal explanations for them; the theoretical mechanisms invoked in the discussion above, including self-efficacy, gender-role socialization, and the socio-religious campus climate, remain plausible interpretations rather than empirically tested pathways, since no mediating or moderating variables were directly measured. Fourth, several established correlates of career maturity, such as socioeconomic background, parenting style, field of study, and prior work experience, were recorded only descriptively or not at all, so the study could not statistically control for their potential confounding influence on the gender difference. Finally, as emphasized throughout the discussion, the effect sizes obtained (partial $\eta^2 = 0.033$ – 0.047 at the univariate level and 0.069 at the multivariate level) are small to moderate by conventional standards; readers should therefore avoid over-interpreting the practical significance of the male–female gap despite its statistical significance in this reasonably large sample.

■ CONCLUSION

This study examined whether career maturity differs between male and female final-year students at UIN Sayyid Ali Rahmatullah Tulungagung, both as an overall construct and across its four constituent dimensions. The MANOVA results revealed a statistically significant multivariate difference in career maturity by gender (Pillai's Trace = 0.069; $p < 0.05$), and this pattern was confirmed by significant univariate differences on all four dimensions, Career Planning, Career Exploration, Decision Making, and Self-Concept (all $p < 0.05$). Descriptively, male students obtained consistently higher mean scores than female students across every dimension. However, the corresponding effect sizes were uniformly small to moderate (partial η^2 ranging from 0.033 to 0.047 at the univariate level, and 0.069 at the multivariate level), indicating that gender accounts for only a limited proportion of the total variance in students' career maturity, with the majority explained by factors not measured in this study. Both hypotheses proposed at the outset, H1 concerning multivariate differences and H2 concerning univariate differences across dimensions, were therefore supported. However, the gender effect should be interpreted as modest rather than dominant.

Taken together with the socio-religious campus ecosystem discussed above, these findings suggest that the observed gender gap is best understood as a situated outcome shaped by the interaction of self-efficacy, sociocultural gender-role construction, and the specific institutional climate of an Islamic state university, rather than as evidence of a universal or context-free pattern of gender difference in career maturity. This interpretation is reinforced by the mixed findings reported in other Islamic higher education settings, some of which found no significant gender difference or even a pattern running in the opposite direction, underscoring

that the direction and strength of gender-based career maturity differences are contingent on institutional and cultural context rather than fixed.

Practically, these results suggest that career guidance and counseling services at UIN and comparable Islamic higher education institutions should adopt a gender-sensitive approach that strengthens female students' exploratory confidence and decision-making self-efficacy, for example through visible professional role models, assertiveness training, and equitable access to career information, while avoiding the assumption that gender alone determines students' readiness for the workforce. Theoretically, the study extends the career maturity literature by situating gender differences within the specific socio-religious ecosystem of an Islamic state university, a context that has received comparatively little attention in prior research. Given the limitations outlined above, particularly the single-institution, cross-sectional design and the small effect sizes obtained, future studies are encouraged to employ longitudinal and mixed-methods designs, to compare secular and religious institutions directly, and to incorporate additional explanatory variables such as socioeconomic background, field of study, and prior work experience to build a more complete picture of what drives career maturity among Indonesian university students.

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