Jupiter: Jurnal Pendidikan Terapan
Homepage : https://journal.diginus.id/jupiter/index
Email: jurnalpendidikanterapan@gmail.com

p-ISSN : 2985-3214; e-ISSN : 2964-3171
Jupiter, Vol. 4, No. 3, July 2026
Page 632-644

The Mediating Role of Soft Skills in the Effects of Perceived Campus Support and Industrial Internship Experience on Graduates' Work Readiness: From the Department of Informatics and Computer Engineering, Universitas Negeri Makassar

Ariyani Zulkarnain[1*], Faisal Syafar[2], Anas Arfandi[3]
[1] Universitas Negeri Makasaar, Sulawesi Selatan, Indonesia

ARTICLE INFO

Article history:
Submitted: July 10
Final Revised: July 30, 2026
Accepted: July 30, 2026
Published: July 31, 2026

Keywords: Perceived Campus Support; Industrial Internship Experience; Soft Skills; Work Readiness; SEM-PLS

ABSTRACT

The increasing demand for work-ready graduates in the digital era has encouraged higher education institutions to strengthen academic support and industrial internship programs. However, limited studies have examined the mediating role of soft skills in the effects of perceived campus support, industrial internship experience, and graduates' work readiness, particularly in the context of informatics and computer engineering higher education. This study aims to examine the effects of perßceived campus support and industrial internship experience on graduates' work readiness, with soft skills serving as a mediating variable among graduates of the Department of Informatics and Computer Engineering, Universitas Negeri Makassar. This study employed a quantitative approach using an ex post facto research design. A total of 220 graduates were selected through proportional random sampling. Data were collected using a structured questionnaire and analyzed using Structural Equation Modeling Partial Least Squares (SEM-PLS) with SmartPLS 4. The results indicate that perceived campus support and industrial internship experience have positive and significant effects on soft skills. Industrial internship experience and soft skills also have positive and significant effects on graduates' work readiness, whereas perceived campus support has no direct effect on work readiness. Furthermore, soft skills significantly mediate the effects perceived campus support, industrial internship experience, and graduates' work readiness. The novelty of this study lies in explaining the mediating role of soft skills in the effects of perceived campus support and industrial internship experience on graduates' work readiness within the context of informatics and computer engineering higher education. The findings imply that higher education institutions should strengthen campus support systems and improve the quality of industrial internship programs to foster graduates' soft skills and enhance their work readiness.

Doi: https://doi.org/10.61255/jupiter.v4i3.1664

INTRODUCTION

The rapid advancement of digital technologies and the transformation of the global labor market have significantly reshaped the competencies expected of university graduates. Beyond technical expertise, employers increasingly seek graduates who possess strong communication, teamwork, problem-solving, adaptability, and leadership skills to effectively navigate dynamic workplace environments. Consequently, higher education institutions are expected not only to provide disciplinary knowledge but also to cultivate graduates' work readiness through the integration of technical competencies and transferable skills (*OECD Skills Outlook 2025*, 2025) .

Graduate work readiness has become one of the primary indicators of higher education quality, reflecting the extent to which graduates are prepared to successfully transition from academic settings to professional employment (Damme & Zahner, 2022). Work readiness encompasses a combination of knowledge, practical skills, attitudes, and personal attributes that enable graduates to perform effectively in organizational environments. Despite continuous improvements in higher education curricula, numerous studies have reported a persistent gap between graduates' competencies and the

expectations of employers, particularly regarding soft skills. This discrepancy has become a major concern for universities seeking to enhance graduate employability in an increasingly competitive labor market. Within the context of engineering and information technology education, the issue of graduate work readiness has become even more critical due to the rapid evolution of digital technologies, artificial intelligence, and Industry 4.0 (Nilsson, 2010). Employers no longer evaluate graduates solely on their technical capabilities but also emphasize interpersonal competencies, adaptability, critical thinking, communication, collaboration, and continuous learning abilities (Souppez, 2023). Consequently, universities are required to establish learning environments that effectively facilitate the development of these competencies throughout students' academic journey (Adegbite & Hoole, 2024). Perceived campus support represents one of the essential factors influencing students' competency development. Campus support reflects students' perceptions of the academic environment, including learning facilities, academic advising, curriculum quality, career services, extracurricular activities, and opportunities for professional development provided by higher education institutions (Nugroho et al., 2024). Previous studies have suggested that perceived campus support contributes positively to students' learning experiences and competency development. However, empirical findings regarding the direct influence of perceived campus support on graduates' work readiness remain inconsistent, suggesting that the effects may operate through other intervening variables (Jackson & Wilton, 2017). Another important determinant of graduate work readiness is industrial internship experience. Industrial internships provide students with authentic workplace exposure, allowing them to apply theoretical knowledge in real organizational settings while simultaneously developing professional attitudes, workplace behaviors, and interpersonal competencies (Jackson, 2015). Through direct interaction with supervisors, colleagues, and organizational cultures, students gain valuable practical experiences that complement classroom learning. Accordingly, industrial internship programs have become an integral component of higher education curricula aimed at improving graduate employability.

Among the various competencies developed during higher education, soft skills have received increasing attention from both researchers and employers (Succi & Canovi, 2020). Soft skills encompass communication, teamwork, leadership, critical thinking, adaptability, emotional intelligence, and problem-solving abilities that enable graduates to perform effectively within multidisciplinary work environments (Heckman & Kautz, 2012). Numerous international studies have consistently demonstrated that soft skills constitute one of the strongest predictors of graduate employability and career success (Ku & Ho, 2010). Nevertheless, universities continue to face challenges in systematically integrating soft skills development into academic curricula and experiential learning activities. Although previous research has extensively examined the effects among perceived campus support, industrial internship experience, soft skills, and work readiness several research gaps remain (Jackson & Wilton, 2017). First, most studies have investigated these variables independently rather than within an integrated structural framework. Second, empirical evidence examining the mediating role of soft skills in explaining how perceived campus support and industrial internship experience contribute to graduates' work readiness remains limited, particularly within the context of Indonesian higher education (Sofirudin & Feng, 2026). Third, studies focusing specifically on graduates of Informatics and

Computer Engineering programs are still relatively scarce, despite the increasing demand for digitally competent professionals equipped with strong interpersonal competencies (Prickett et al., 2024). Moreover, existing studies have produced inconsistent findings regarding the direct effect of perceived campus support on graduates' work readiness, suggesting that additional explanatory mechanisms should be explored. To better explain the effects among the research variables, this study draws on three complementary theoretical perspectives. Human Capital Theory explains that investments in education and competency development enhance graduates' productivity and employability. Experiential Learning Theory emphasizes that learning through authentic workplace experiences, such as industrial internships, facilitates the acquisition of professional competencies. Meanwhile, the Graduate Employability Framework highlights the importance of perceived campus support and transferable skills in preparing graduates for successful employment. These theoretical perspectives collectively provide a foundation for examining the effects of perceived campus support, industrial internship experience, soft skills, and graduates' work readiness. Addressing these gaps, the present study develops and empirically tests a structural model that examines the relationships among perceived campus support, industrial internship experience, soft skills, and graduates' work readiness using Structural Equation Modeling Partial Least Squares (SEM-PLS).

Unlike previous studies that primarily focused on direct effects among these variables, this study investigates the mediating role of soft skills in explaining the mechanisms through which perceived campus support and industrial internship experience influence graduates' work readiness (Mutiarani Saraswati & Lambert, 2023). The findings of this study are expected to contribute both theoretically and practically. Theoretically, the study extends the literature on graduate employability by integrating Human Capital Theory, Experiential Learning Theory, and the Graduate Employability Framework into a comprehensive empirical model (Dacre Pool & Sewell, 2007). Practically, the findings

provide evidence-based recommendations for higher education institutions in designing academic policies, strengthening industrial partnerships, and implementing learning strategies that enhance graduates' soft skills and work readiness in response to the evolving demands of the digital workforce. Based on the identified research gaps, this study addresses the following research question: How do perceived campus support and industrial internship experience influence graduates' work readiness, and to what extent do soft skills mediate the effects these variables among graduates of the Department of Informatics and Computer Engineering, Universitas Negeri Makassar?

Research Hypotheses

Based on Human Capital Theory, Experiential Learning Theory, the Graduate Employability Framework, and previous empirical studies, the following hypotheses are proposed:

H1: Perceived campus support has a positive effect on soft skills.
H2: Perceived campus support has a positive effect on graduates' work readiness.
H3: Industrial internship experience has a positive effect on soft skills.
H4: Industrial internship experience has a positive effect on graduates' work readiness.
H5: Soft skills have a positive effect on graduates' work readiness.
H6: Soft skills mediate the effects perceived campus support on graduates' work readiness.
H7: Soft skills mediate the effects industrial internship experience on graduates' work readiness.

METHOD

This study employed a quantitative approach using an ex post facto research design to examine the effects among perceived campus support, industrial internship experience, soft skills, and work readiness. The ex post facto design was selected because it investigates naturally occurring phenomena without manipulating the independent variables. The effects among the latent variables were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The study was conducted at the Department of Informatics and Computer Engineering, Faculty of Engineering, Universitas Negeri Makassar, Indonesia. The target population consisted of graduates who had completed their industrial internship and graduated between 2021 and 2024, totaling 489 graduates based on the faculty's graduate tracer study database.

Table 1. Population Distribution and Proportional Sample Allocation by Graduation Year

Graduation Year	Population (N)	Population (%)	Proportional Sample (n)
2021	56	11.45	25
2022	84	17.18	38
2023	200	40.90	90
2024	149	30.47	67
Total	**489**	**100.00**	**220**

The study population consisted of 489 graduates from the Department of Informatics and Computer Engineering, Universitas Negeri Makassar, who graduated between 2021 and 2024. The population included graduates from the Informatics and Computer Engineering Education (PTIK) and Computer Engineering (Tekkom) study programs. As presented in Table 1, the population was distributed across four graduation cohorts. To ensure proportional representation of each cohort, proportional random sampling was employed. The sampling procedure consisted of four stages. First, the researchers obtained the official list of graduates from the Department of Informatics and Computer Engineering. Second, the graduates were grouped according to their graduation year (2021–2024). Third, the required sample size for each cohort was calculated proportionally based on the population size. The sampling frame was based on the official graduate database maintained by the Faculty of Engineering, Universitas Negeri Makassar. Finally, respondents within each cohort were randomly selected until the required sample size for each graduation year was achieved This procedure resulted in a final sample of 220 respondents.

The study employed a structured questionnaire consisting of four latent variables. Each variable was operationalized using measurement indicators adapted from previously validated instruments. Table 2 presents the operational definitions, dimensions, number of items, and sources of the measurement indicators.

Table 2. Operational Definition of Variables and Measurement Indicators

Variable	Dimensions	Number of Items	Source
Perceived Campus Support	Academic facilities; Academic and administrative services; Industry collaboration	12	(Gusti et al., n.d.)
Industrial Internship Experience	Internship duration and intensity; Internship relevance; Competency development	10	(Rahmawati & Saputra, 2022)
Soft Skills	Communication; Teamwork; Work ethics	12	(Setiawan & Yusnaini, 2021)
Work Readiness	Understanding of the world of work; Technical skills; Career maturity	14	(Mardyasari & Indarto, 2017)

Primary data were collected using a structured online questionnaire adapted from previously validated instruments. As presented in Table 2, the instrument consisted of 48 measurement items, including 12 items measuring perceived campus support, 10 items measuring industrial internship experience, 12 items measuring soft skills, and 14 items measuring work readiness. All items were assessed using a four-point Likert scale ranging from 1 (strongly disagree) to 4 (strongly agree). The four-point scale was selected to reduce respondents' tendency to choose neutral responses and encourage more discriminative judgments. Prior to the main survey, the questionnaire underwent content validation by two experts with expertise in vocational education and educational research methodology, who evaluated the relevance, clarity, and appropriateness of each measurement item, and the instrument was revised based on their recommendations before distribution. Data were collected through Google Forms, and participation was voluntary Only fully completed questionnaires were included in the final analysis; incomplete responses were excluded from the dataset. Respondents were informed about the objectives of the study, the confidentiality of their responses, and their right to withdraw from the survey at any stage without any consequences. All collected data were used solely for academic purposes. Data were analyzed using SmartPLS 4. Partial Least Squares Structural Equation Modeling (PLS-SEM) was selected because it is appropriate for examining effects among multiple latent variables and evaluating the mediating role of soft skills. The analysis followed a two-stage evaluation procedure. The measurement model (outer model) was evaluated using outer loadings (≥ 0.70), Average Variance Extracted (AVE ≥ 0.50), the Heterotrait–Monotrait Ratio (HTMT < 0.90), Cronbach's Alpha and Composite Reliability, whereas The structural model (inner model) was evaluated using the Variance Inflation Factor (VIF) to assess multicollinearity, the coefficient of determination (R^2), predictive relevance (Q^2), and hypothesis testing using a bootstrapping procedure with 5,000 resamples. Statistical significance was determined at $p < 0.05$ and t-values greater than 1.96.

RESULT

Respondent Data Description

Table 3. Respondent Gender

Gender	Frequency (n)	Percentage (%)
Woman	108	49.1%
man	112	50.9%

Table 3 shows that the study involved 220 respondents, consisting of 112 males (50.9%) and 108 females (49.1%). The gender distribution was relatively balanced, with a slight predominance of male respondents. This balanced composition indicates that both gender groups were adequately represented in the study sample.

Descriptive Statistical Analysis

Table 4. Descriptive Statistical

Variabel	N	Min	Max	Mean	Std
Perceived Campus Support	220	22	48	37.62	5.67
Industrial Internship Experience	220	28	40	30.67	4.82
Soft Skills	220	24	48	37.20	4.83
Work Readiness	220	26	56	42.19	6.52

Table 4 presents the descriptive statistics of the study variables based on responses from 220 respondents. The mean scores ranged from 30.67 to 42.19, indicating variations in respondents' perceptions across the measured constructs. Work Readiness recorded the highest mean score (M = 42.19; SD = 6.52), followed by Perceived Campus Support (M = 37.62; SD = 5.67), soft skills (M = 37.20; SD = 4.83), and industrial internship experience (M = 30.67; SD = 4.82). The standard deviations indicate the spread of responses around the mean and suggest moderate variability among respondents. These descriptive statistics provide an overview of the data before proceeding to the measurement and structural model evaluation using SEM-PLS.

Measurement Model (Outer Model)

The measurement model was initially evaluated by examining the outer loading values of each indicator to assess convergent validity. Following the recommendation of (Hair et al. 2022), indicators with outer loading values of 0.70 or higher were considered acceptable, whereas indicators with loading values below the threshold were evaluated for possible removal to improve the measurement model.

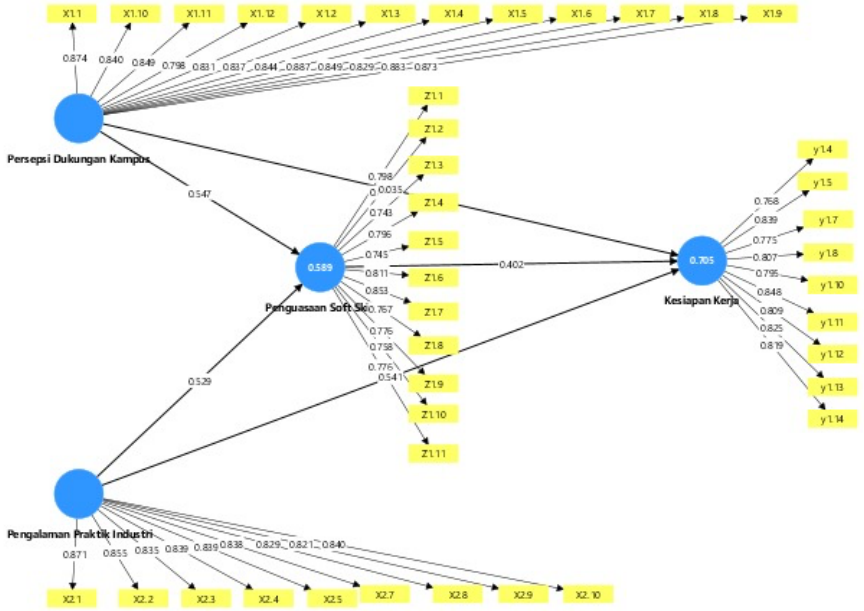

Figure 1. Outer Loading Value

Tabel 5. Indicators Removed during Measurement Model Evaluation

Construct	Indicator	Outer Loading	Decision	Reason
Work Readiness	Y1.1	0.636	Removed	Loading <0.70
Work Readiness	Y1.2	0.690	Removed	Loading <0.70
Work Readiness	Y1.3	0.695	Removed	Loading <0.70
Work Readiness	Y1.6	0.695	Removed	Loading <0.70
Work Readiness	Y1.9	0.594	Removed	Loading <0.70
Industrial Internship Experience	X2.6	0.690	Removed	Loading <0.70
Soft Skills	Z1.12	0.548	Removed	Loading <0.70

As presented in Table 5, the initial measurement model assessment identified five indicators of work readiness, one indicator of industrial internship experience, and one indicator of soft skills with outer loading values below 0.70. These indicators were removed to improve convergent validity. Following the elimination process, all remaining indicators achieved outer loading values above the recommended threshold and were retained for subsequent analysis. The results of the convergent validity test show that all twelve indicators of perceived campus support met the convergent validity criteria, Nine of the ten indicators of industrial internship experience were retained, Eleven of the twelve soft skill indicators were retained, and Nine of the fourteen work readiness indicators were retained. Although several indicators were removed during the measurement model evaluation, the retained indicators continued to represent the conceptual dimensions of each construct established during instrument development. Therefore, the elimination process improved the psychometric quality of the measurement model without substantially reducing the content validity of the constructs.

Following the evaluation of indicator reliability through outer loading values, convergent validity at the construct level was assessed using the Average Variance Extracted (AVE). In addition, internal consistency reliability was evaluated using Cronbach's alpha and composite reliability. According to (Hair et al., 2022), an AVE value greater than 0.50 and reliability coefficients above 0.70 indicate that the measurement model demonstrates satisfactory convergent validity and internal consistency reliability.

Table 6. AVE Value, Cronbach's Alpha and Composite Reliability

Construct	Ave	Cronbach's Alpha	Composite Reliability
Perceived Campus Support	0.722	0.965	0.966
Industrial Internship Experience	0.707	0.948	0.948
Soft Skills	0.618	0.938	0.939
Work Readiness	0.604	0.934	0.935

As presented in Table 6, the AVE values ranged from 0.604 to 0.722, exceeding the recommended threshold of 0.50. These findings indicate that each construct explains more than half of the variance of its indicators, thereby confirming adequate convergent validity. Furthermore, Cronbach's alpha values ranged from 0.934 to 0.965, while composite reliability values ranged from 0.935 to 0.966, both exceeding the recommended threshold of 0.70. These results demonstrate satisfactory internal consistency reliability for all constructs. Although the Cronbach's alpha value for perceived campus support (0.965) is relatively high and may indicate some overlap among indicators, the composite reliability and AVE values confirm that the construct remains reliable and valid (Hair et al., 2022).

Discriminant Validity Test Results

Discriminant validity was subsequently evaluated using the Heterotrait-Monotrait Ratio (HTMT). The HTMT criterion was employed to assess the degree of distinctiveness between latent constructs. According to Hair et al. (2022), HTMT values below 0.90 indicate adequate discriminant validity, suggesting that each construct measures a conceptually distinct phenomenon. The results of the HTMT analysis are presented in Table 7.

Table 7. HTMT (Heterotrait Monotrait Ratio)

Construct	HTMT
Perceived Campus Support ↔ Industrial Internship Experience	0,059
Perceived Campus Support ↔ Work Readiness	0,325
Perceived Campus Support ↔ Soft skill	0,582
Industrial Internship Experience ↔ Work Readiness	0,791
Industrial Internship Experience ↔ Soft Skills	0,569
Soft Skill ↔ Work Readiness	0,797

As presented in Table 7, all HTMT values ranged from 0.059 to 0.797, which are below the recommended threshold of 0.90. These findings indicate that the constructs demonstrate satisfactory discriminant validity and are empirically distinct from one another. The particularly low HTMT value (0.059) between perceived campus support and industrial internship experience was rechecked against the original dataset and measurement specification. The result confirms that the two constructs represent different conceptual domains rather than indicating a coding or data specification error. Therefore, the discriminant validity of the measurement model is considered acceptable

Structural Model (Inner Model)

The structural model was evaluated by examining the coefficient of determination (R^2) to assess the explanatory power of the endogenous constructs. According to (Hair et al., 2022), R^2 values of 0.75, 0.50, and 0.25 indicate substantial, moderate, and weak levels of explanatory power, respectively. The results are presented in Table 8.

Table 8. Results R-Square

Variabel Endogen	*R-Square*	Coefficient of Determination (R^2)
Work Readiness	0,705	(*Moderate)*
Soft Skill	0,589	(*Moderate)*

As presented in Table 8, the R^2 value for graduates' work readiness is 0.705, indicating that 70.5% of the variance in work readiness is jointly explained by perceived campus support, industrial internship experience, and soft skills, while the remaining 29.5% is attributable to factors outside the proposed research model. Meanwhile, the R^2 value for soft skills is 0.589, indicating that 58.9% of its variance is explained by perceived campus support and industrial internship experience, with the remaining 41.1% explained by other variables not included in the model. Overall, these

findings suggest that the structural model demonstrates moderate to substantial explanatory power in explaining the endogenous constructs.

The predictive relevance of the structural model was evaluated using Stone Geisser's Q^2 value obtained through the blindfolding procedure. According to (Hair et al., 2022), Q^2 values greater than zero indicate that the structural model has predictive relevance for a particular endogenous construct. The results are presented in Table 9.

Table 9. Predictive Relevance (Q^2) Results

Variabel Endogen	*Q^2predict*	Criteria (>0)
Work Readiness	0,579	Predictive Relevance Established
Soft Skill	0,629	Predictive Relevance Established

As presented in Table 9, the Q^2 values for graduates' work readiness (0.579) and soft skills (0.629) are both greater than zero. These findings indicate that the structural model demonstrates predictive relevance for both endogenous constructs. However, the Q^2 statistic reflects predictive relevance within the sample and should not be interpreted as evidence of predictive performance comparable to out-of-sample prediction, which requires additional assessment using PLS predict (Hair et al., 2022).

Hypothesis Testing

The direct effects among the latent constructs were evaluated using the bootstrapping procedure in SmartPLS 4. The significance of each hypothesis was determined based on the path coefficient (β), t-value, and p-value. A effects was considered significant when the p-value was less than 0.05. The results of the direct effect analysis are presented in Table 10.

Table 10. Hypothesis Test Results (Direct Effect)

Hypothesis	Effects	β	t-value	p-value	Decision
H1	Perceived Campus Support → Soft Skills	0.547	13.458	<0.001	Supported
H2	Perceived Campus Support → Work Readiness	0.035	0.739	0.460	Not Supported
H3	Industrial Internship Experience → Soft Skills	0.529	12.018	<0.001	Supported
H4	Industrial Internship Experience → Work Readiness	0.541	9.870	<0.001	Supported
H5	Soft Skills → Work Readiness	0.402	6.275	<0.001	Supported

As presented in Table 10, perceived campus support had a positive and significant effect on soft skills ($\beta = 0.547$, $t = 13.458$, $p < 0.001$), supporting H1. However, perceived campus support did not have a significant direct effect on work readiness ($\beta = 0.035$, $t = 0.739$, $p = 0.460$); therefore, H2 was not supported. Industrial internship experience significantly influenced soft skills ($\beta = 0.529$, $t = 12.018$, $p < 0.001$) and work readiness ($\beta = 0.541$, $t = 9.870$, $p < 0.001$), supporting H3 and H4. Furthermore, soft skills had a positive and significant effect on work readiness ($\beta = 0.402$, $t = 6.275$, $p < 0.001$), indicating support for H5

Table 11. Hypothesis Test Results (indirect/mediating effects)

Hypothesis	Effects	β	t-value	p-value	Decision
H6	Perceived Campus Support → Soft Skill → Work Readiness	0.220	5.659	<0.000	Supported
H7	Industrial Internship Experience → Soft Skills → Work Readiness	0.213	5.530	<0.000	Supported

The results of the indirect effect test indicate that soft skill acts as a mediating variable in the effects between perceived campus support and work readiness ($\beta = 0.220$; $t = 5.659$; $p < 0.001$), so the sixth hypothesis is accepted. In addition, soft skill also positively and significantly mediates the effect of industrial practice experience on work readiness ($\beta = 0.213$; $t = 5.530$; $p < 0.001$), so the seventh hypothesis is accepted. These findings indicate that increasing graduates' work R\readiness can be achieved by strengthening soft skills developed from campus support and industrial practice experience.

DISCUSSION

1. The Influence of Perceived Campus Support on Soft Skill

The empirical results indicate that perceived campus support is positively associated with graduates' soft skill. Adopting the recommended structural progression (findings mechanisms comparison context implications), this relationship is driven by a socio-constructivist learning environment wherein institutional infrastructure serves as a crucial catalyst for non-technical competency development (Tomlinson, 2008; Succi & Canovi,2020). Rather than soft skills evolving solely as an inherent byproduct of maturation or isolated academic study, institutional provisions such as active faculty mentorship, collaborative project facilities, career guidance, and industry partnered initiatives provide the structural scaffolding necessary for students to practice communication, leadership, and adaptive problem-solving (Yorke & Knight, 2004; Jackson & Dean, 2023). Psychologically, positive perceptions of organizational support foster student engagement, motivating active participation in experiential learning opportunities that reinforce interpersonal capabilities.

Within the specific context of the Informatics and Computer Engineering Department at Makassar State University, this mechanism aligns with a curriculum heavily anchored in team-based software engineering projects, laboratory practice, and the Independent Campus (MBKM) experiential learning initiatives. These collaborative formats require continuous peer interaction and industry interface, converting perceived institutional backing into tangible interpersonal competencies. These findings mirror global workforce trends, where contemporary employers increasingly prioritize cognitive flexibility, resilience, analytical thinking, and cross-functional collaboration alongside domain-specific technical proficiencies (World Economic Forum, 2023). Consequently, higher education institutions must view investments in support infrastructure not merely as administrative overhead, but as an essential strategic enabler for graduate employability in digital-era labor markets.

2. The Influence of Perceived Campus Support on Work Readiness

The results of the hypothesis testing indicate that perceived campus support does not significantly influence the work readiness of graduates of the Informatics and Computer Engineering Department at Makassar State University ($\beta = 0.035$; $t = 0.739$; $p = 0.460$). This finding indicates that the quality of support provided by universities does not directly improve graduates' work readiness. Therefore, the second hypothesis is rejected. These findings indicate that although students receive academic support in the form of learning facilities, administrative services, and various self-development programs, this support is insufficient to foster work readiness if it is not accompanied by learning experiences that provide direct exposure to the world of work. Work readiness is a multidimensional construct influenced by the integration of knowledge, professional experience, adaptability, and of non-technical competencies that develop through interaction with the real work environment, not solely through the academic environment (Caballero & Walker, 2010; Tomlinson & Jackson, 2021).

The results of this study indicate that institutional support functions more as an enabling factor than a direct determinant in developing work readiness. This means that campus support provides resources, facilities, and learning opportunities, but graduates' success in building work-readiness depends on their ability to leverage these opportunities to develop competencies relevant to industry needs. In other words, the benefits of institutional support will only be apparent if graduates internalize these learning experiences into soft skills and professional experience that can be applied in the workplace. Theoretically, these findings support the Graduate Employability perspective proposed by (Yorke & Knight, 2004), which states that work-readiness is the result of an interaction between learning quality, individual characteristics, work experience, and competency development, and therefore cannot be explained by a single institutional factor. These results also reinforce the findings of (Tomlinson, 2008), who explained that graduates with access to various educational facilities do not necessarily have high work-readiness if they are unable to develop graduate capital in the form of competencies, professional networks, career identity, and work experience. These research findings differ from those of (Baird & Parayitam, 2019), which found that institutional support directly influences students' work-readiness. This difference is likely due to the characteristics of the respondents and the research context. In this study, respondents were Information Technology and Computer Engineering graduates entering an industry with rapidly changing technological dynamics. In this context, work readiness is more influenced by industrial practice experience and soft skills than by perceptions of campus support alone. Conversely, the results of this study align with those of (Jackson & Dean, 2023), who asserted that industry-based learning experiences are a more significant determinant of work readiness than direct campus support.

The practical implication of these findings is that universities cannot simply improve the quality of academic services. Universities also need to ensure that all forms of institutional support are integrated with authentic learning experiences, such as project-based learning, work-integrated learning, industry internships, and soft skills development.

Thus, campus support not only improves the quality of the learning process but also produces graduates who are truly prepared to face the demands of the workforce.

3. The Influence of Industrial Internship Experience on Soft Skill

The empirical results demonstrate that industrial internship experience is positively and significantly associated with soft skill among graduates ($\beta = 0.529$, $p < 0.001$). Framed within Experiential Learning Theory (Kolb & Kolb, 2017), this relationship is driven by a concrete learning-by-doing mechanism where real-world organizational environments push students beyond abstract academic exercises into active problem-solving, communication, and professional adaptation. Unlike structured classroom settings, authentic workplace exposure imposes real world constraints such as strict deadlines, client specifications, and organizational hierarchies that force students to actively exercise and refine their interpersonal capabilities. In the specific context of informatics and computer engineering, technical deliverables (e.g., software architecture, system analysis) inherently require continuous interdisciplinary collaboration, agile sprint iterations, and user-requirement negotiation. Participating in industry internships converts technical knowledge into holistic soft skills, such as team communication, conflict resolution, and self-regulation (Ayala Calvo & Manzano García, 2021). These findings corroborate prior work-integrated learning research (Jackson, 2015; Succi & Canovi,.2020), which emphasizes that practical exposure builds crucial graduate capital prior to formal labor market entry. Crucially, this study demonstrates that soft skill development is a major, primary direct outcome of industrial internships, which subsequently serves as a vital foundation for overall work readiness in tech-driven sectors.

4. The Influence of Industrial Internship Experience on Work Readiness

The empirical testing confirms that industrial internship experience directly and significantly predicts work t\readiness ($\beta = 0.541$, $p < 0.001$). Anchored in Experiential Learning Theory (Kolb & Kolb, 2017), authentic workplace engagement serves as a critical bridge during the transition from student to professional. Direct immersion in industry settings enables students to internalize professional norms, navigate deadline-driven performance expectations, and operate within formal organizational hierarchies. Crucially, because both this direct path and the indirect path (via soft skills) are statistically significant and operate in the same positive direction, this relationship underscores a complementary partial mediation mechanism (Zhao et al., 2010). This indicates that while internship experiences directly build workforce readiness, a substantial portion of their efficacy is channeled through the concurrent enhancement of soft skills. In the fast-evolving field of informatics and computer engineering, this direct effect highlights the necessity of real-world exposure to bridge the gap between theoretical curricula and rapidly shifting industry standards. These findings align with prior work-integrated learning literature (Caballero & Walker, 2010; Jackson, 2015; Osmani et al., 2015), which emphasizes that authentic professional experience accelerates graduate acculturation to industry expectations. Practically, these results imply that universities must move beyond treating internships as a mere credit-fulfillment exercise. Institutional partnerships must focus on securing high-quality, project-aligned industry placements that expose students to realistic technical and operational workflows.

5. The Influence of Soft Skill on Work Readiness

Hypothesis testing confirms that soft skill exerts a positive and significant direct effect on graduates' work readiness ($\beta = 0.402$, $p < 0.001$). Because the direct effect of perceived campus support on word readiness is statistically non-significant ($\beta = 0.035$, $p = 0.460$), this structural pattern is formally classified as an indirect-only mediation Anchored in Human Capital Theory (Schultz, 1961), non-technical capabilities represent essential personal capital that directly enhances an individual's operational adaptability and productivity in professional settings. In technology-driven disciplines, while hard skills provide the technical baseline, soft skills such as agile communication, cross-functional collaboration, critical problem-solving, and time management enable graduates to effectively deploy their technical knowledge within complex organizational frameworks. These empirical findings mirror recruitment trends across modern industries, where employers consistently rate interpersonal and self-regulatory competencies as decisive factors in determining candidate work Readiness (Andrews & Higson, 2008; Finch et al., 2013; Robles, 2012). Crucially, in this research model, soft skill serves a dual function: it operates as a direct predictor of work readiness ($\beta = 0.402$) and functions as a key mediating mechanism for institutional support and internship experiences. Consequently, higher education institutions must structurally integrate soft skill development into the core curriculum through project-based learning and interactive assessments, rather than treating non-technical training as an optional co-curricular activity.

6. The Influence of Perceived Campus Support on Work Readiness through Soft Skill

Hypothesis testing confirms that soft skill significantly mediates the relationship between perceived campus support and work Readiness ($\beta = 0.220$, $p < 0.001$). Empirically, this demonstrates that institutional support mechanisms such as academic infrastructure, faculty guidance, and career services do not independently generate work force readiness.

Instead, their value is realized exclusively through the enabling mechanism of soft skill .This finding directly supports the Graduate Employability framework (Yorke & Knight, 2004) and (Tomlinson's., 2017) Graduate Capital Model, which argue that institutional resources must be converted into personal human and social capital before impacting employability outcomes. These results align with prior literature (Succi & Canovi,.2020; Jackson & Rowe, 2023), confirming that non-technical competencies serve as the vital bridge between academic environments and labor market entry. In the context of the Informatics and Computer Engineering Department, institutional initiatives (e.g., MBKM programs, project-based learning facilities) successfully foster work Readiness only when they actively engage students in developing communication, adaptability, and problem-solving skills. Practically, university administrators should design support services not as standalone offerings, but as structured, competency-building pathways explicitly tailored to develop soft skills.

7. The Influence of Industrial Practical Experience on Work Readiness through Soft Skill

The structural model evaluation reveals that soft skill significantly mediates the relationship between industrial internship experience and graduates' work Readiness ($\beta = 0.213$, $p < 0.00$). Because both the direct path ($\beta = 0.541$, $p < 0.001$) and the indirect path are statistically significant and point in the same positive direction, this structural relationship is formally classified as a complementary partial mediation (Zhao et al., 2010). This empirical pattern demonstrates a dual-action mechanism: workplace immersion directly builds work readiness while simultaneously enhancing non-technical competencies that further amplify overall graduate employability. Grounded in Experiential Learning Theory (Kolb & Kolb, 2017), authentic workplace environments act as a dual-learning mechanism. Technical tasks during internships provide direct practical exposure, whereas real-world organizational dynamics force students to exercise adaptive communication, conflict resolution, and collaborative problem-solving. These findings reinforce prior work-integrated learning research (Ferns & Lilly, 2015; Ferns et al., 2019; Jackson & Rowe, 2023), confirming that non-technical skill acquisition bridges academic training and professional labor market integration. For the Informatics and Computer Engineering Department, these results imply that industrial internships should be strategically structured not merely as field placements, but as deliberate soft-skill incubators where project involvement, professional mentorship, and team dynamics are actively evaluated to maximize work readiness.

CONCLUSION

This study evaluated the predictive structural relationships among perceived institutional support, industrial internship experience, soft skill, and work readiness among Informatics and Computer Engineering graduates at Makassar State University. The empirical findings indicate that industrial internship experience and soft skill are positively associated with graduates' work readiness. Conversely, perceived institutional support shows no statistically significant direct relationship with work readiness, as its association is realized exclusively through the indirect pathway of soft skill, demonstrating an indirect-only mediation. Furthermore, soft skill functions as a complementary partial mediator in the relationship between industrial internship experience and work readiness, highlighting a dual-action pathway where workplace immersion directly links to work Readiness while concurrently enhancing non-technical competencies. Several methodological boundaries must be acknowledged to contextualize these findings and avoid over-generalization. Given the non-experimental, cross-sectional nature of the research design, the observed structural relationships represent predictive associations rather than definitive causal mechanisms. Additionally, the data rely on graduates' self-perceptions within a single department at one university, which limits direct generalizability to broader institutional or geographic settings and carries potential common method bias.

Furthermore, the elimination of several measurement indicators during model validation narrowed the empirical domain of the constructs, while unexamined external factors such as academic performance, internship duration, and broader labor market dynamics were not controlled. To translate these empirical insights into practice, higher education institutions should adopt actionable operational strategies. Universities should embed formal soft skill assessment metrics directly into industrial internship curricula, shifting evaluation criteria beyond administrative attendance toward active problem solving, communication, and teamwork. Furthermore, engaging industry supervisors directly in multi-source competency evaluations will balance students' self-perceptions with objective workplace feedback, while aligning institutional support with hands on, team-based projects that simulate realistic technological challenges. Ultimately, future research should incorporate longitudinal multi-site designs, gather objective evaluation data from graduate users or industry supervisors, and evaluate additional personal and environmental predictors to expand the understanding of graduate employability.

ACKNOWLEDGEMENT

Praise be to Allah; I express my deepest gratitude to Allah SWT, who has bestowed upon me His countless blessings and gifts. May peace and blessings always be upon the Prophet Muhammad SAW. For the grace and blessings that have been given to the researcher, it is possible to complete this paper entitled "The Mediating Role of Soft Skills in the effects Perceived Campus Support, Industrial Internship Experience, and Graduates' Work Readiness: From the Department of Informatics and Computer Engineering, Universitas Negeri Makassar." The gratitude and joy that I feel I dedicate to the people I love and who are meaningful in my life.

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AI DISCLOSURE STATEMENT

AI tools did not contribute to the study design, data collection, data analysis, or interpretation of results. All intellectual content, ideas, and conclusions presented in this work are the sole responsibility of the authors. The authors have carefully reviewed and verified the accuracy and integrity of the manuscript.

***Ariyani Zulkarnain (Corresponding Author)**
Universitas Negeri Makassar,
Jl. Bonto Langkasa, Banta-Bantaeng, Kec. Rappocini, Kota Makassar, Sulawesi Selatan 90222
Email: Ariyani.Zulkarnain.240020301006@student.unm.ac.id

Faisal Syafar
Universitas Negeri Makassar,
Jl. Bonto Langkasa, Banta-Bantaeng, Kec. Rappocini, Kota Makassar, Sulawesi Selatan 90222
Email: Faisal.Syafar@unm.ac.id

Anas Arfandi
Universitas Negeri Makassar,
Jl. Bonto Langkasa, Banta-Bantaeng, Kec. Rappocini, Kota Makassar, Sulawesi Selatan 90222
Email: Anas.Arfandi@unm.ac.id