

# Analysis of Interns Work readiness: The Roles of Program quality, Mentor Support, and Project Management Tools Using SEM–PLS

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**Abstract:** Internship programs are an important strategy for improving graduates work readiness in accordance with industry demands. However, the effectiveness of internship programs is influenced by various supporting factors during their implementation. This study aims to analyze the effect of internship program quality and mentor support on interns work readiness, as well as to examine the moderating role of project management tools usage. This research employed a quantitative approach with a survey design involving interns who had completed internship programs. Data were collected using a five point Likert scale questionnaire and analyzed using structural equation modelling–partial least squares (SEM–PLS). The results indicate that internship program quality and mentor support have a positive and significant effect on interns work readiness. Furthermore, the use of project management tools was found to strengthen the relationship between these variables and work readiness. These findings highlight the importance of synergy between program quality, mentor roles, and technology utilization in enhancing interns work readiness.

**Keywords:** Internship program quality, Mentor support, Project management tools, Structural equation modelling–partial least squares (SEM–PLS), Work readiness

**Abstrak:** Program pemagangan merupakan salah satu strategi penting dalam meningkatkan kesiapan kerja lulusan agar sesuai dengan kebutuhan dunia Industri. Namun, efektivitas program magang masih dipengaruhi oleh berbagai faktor pendukung selama pelaksanaannya. Penelitian ini bertujuan untuk menganalisis pengaruh kualitas program magang dan dukungan mentor terhadap kesiapan kerja peserta magang, serta menguji peran penggunaan tools manajemen proyek sebagai variabel moderasi. Metode penelitian yang digunakan adalah pendekatan kuantitatif dengan desain survei terhadap peserta magang yang telah menyelesaikan program pemagangan. Data dikumpulkan melalui kuesioner berskala Likert lima poin dan dianalisis menggunakan structural equation modelling–partial least squares (SEM–PLS). Hasil penelitian menunjukkan bahwa kualitas program magang dan dukungan mentor berpengaruh positif dan signifikan terhadap kesiapan kerja peserta magang. Selain itu, penggunaan tools manajemen proyek terbukti memperkuat hubungan antara kedua variabel tersebut dengan kesiapan kerja. Temuan ini menegaskan pentingnya sinergi antara kualitas program, peran mentor, dan pemanfaatan teknologi dalam meningkatkan kesiapan kerja peserta magang.

**Kata Kunci:** Kualitas program magang, Dukungan mentor, Manajemen tools proyek, Structural equation modelling–partial least squares (SEM–PLS), Kesiapan kerja

## 1. Introduction

Internship programs in Indonesia are increasingly occupying a strategic position in the National workforce development agenda. The government, through the Ministry of Manpower (Kemnaker) consistently promotes internships as an instrument to enhance the employability of the younger generation and as a means to bridge the gap between education and the real needs of industry. Internships are positioned as a form of work based learning that allows participants to gain practical experience, strengthen technical competencies, and develop soft skills relevant to labor market demands [1]. This work based learning concept also aligns with the framework of work integrated learning which emphasizes the integration of academic learning and real work experience [2].

Along with recent developments, the implementation of internship programs in Indonesia has shown significant progress marked by an increasing number of participants, expanding Industrial sectors involved, and more intensive collaboration between companies, universities, and vocational education institutions. Nevertheless, employment challenges remain relatively high, particularly regarding the work readiness of secondary and higher education graduates. Employment data show that the open unemployment rate is still dominated by young people and new graduates one of the main causes being the mismatch between graduates competencies and labor market needs

[3]. Empirical findings in the context of internship training show that training effectiveness does not always have a significant relationship with participants work readiness, making program implementation quality a crucial issue that needs further study [4]. On the other hand, research on internships in the Industrial sector also emphasizes the importance of instilling soft skills as basic capital for participants in improving employability, including teamwork, communication, responsibility, and discipline [5]. This condition reinforces that increasing the quantity of internship programs must be accompanied by improvements in implementation quality to produce graduates who are truly ready to enter the workforce.

Various empirical studies indicate that internship experience plays a crucial role in enhancing participants work readiness through the strengthening of competencies, understanding of the work environment, and internalization of professional attitudes. Previous research has demonstrated that internship practice has a positive and significant effect on the work readiness of final year students, both in terms of technical skills and mental preparedness [6], [7]. In addition, internship experience also influences students career orientation and entrepreneurial intentions [8]. In the context of vocational education, the integration of entrepreneurship learning with Industrial internship practices has been shown to increase students work motivation and entrepreneurial motivation, reinforcing the relevance of internships as a form of contextual learning aligned with labor market demands [9]. The structural equation modelling–partial least squares (SEM–PLS) approach is widely employed in these studies due to its ability to analyze complex causal relationships among latent constructs. The SEM–PLS approach has been shown to be effective in identifying the relationships between needs, interests, and the sustainability of digital technology utilization in vocational education [10]. Other empirical findings indicate that perception and knowledge have a significant influence on competence development, highlighting that competence is formed through the interaction between cognitive factors and structured learning experiences. [11]. Other findings indicate that competence and social adaptation function as mediating variables in shaping individuals readiness to face social and professional environments, thereby strengthening the role of competence as a key mechanism linking experience and work readiness [12].

Although many studies on internships have been conducted, most previous research remains partial. Research that integrates internship program quality, mentor support, and participants work readiness into a comprehensive structural analysis framework is still relatively limited, especially in the context of internships in Indonesia. This condition indicates a research gap due to the lack of comprehensive studies analyzing the structural relationships among these factors on interns work readiness. Therefore, this study aims to analyze the effect of internship program quality and mentor support on interns work readiness, as well as to examine the moderating role of project management tools usage. The analysis is conducted using the structural equation modelling–partial least squares (SEM–PLS) approach, which allows simultaneous and predictive testing of relationships among variables [13].

## 2. Method and Experimental

This study adopts a quantitative approach aimed at explaining the causal relationships among the variables under investigation. The quantitative methodology was selected as it enables objective and systematic measurement of respondents perceptions and supports the simultaneous evaluation of structural relationships within the proposed research model. The study is explanatory in nature, focusing on analyzing the effects of internship program quality (KPM) and mentor support (DM) on interns work readiness (KK), while also examining the moderating role of project management tools utilization (MPI) within these relationships. This approach is consistent with structural equation modeling based research which emphasizes the assessment of latent constructs and predictive relationships among variables [14].

The research employed a cross–sectional survey design, in which data were collected at a single point in time. Data were obtained through questionnaire distribution to interns who had participated in, or were currently participating in, internship programs across government institutions and private sector organizations. Purposive sampling was applied, with inclusion criteria requiring respondents to have actively engaged in internship activities, been directly involved in work–related tasks, and utilized supporting or project management tools during their internship period. A total of 45 valid responses were collected, meeting the minimum sample size requirement for Partial Least Squares–Structural Equation Modeling (PLS–SEM) analysis based on the ten–times rule, which recommends a sample size of at least ten times the largest number of indicators or structural paths in the research model [15].

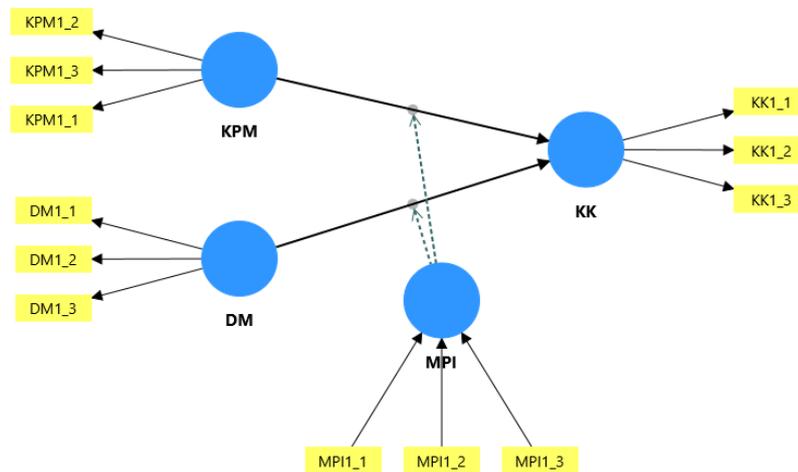
The research instrument consisted of a structured questionnaire measured using a five–point Likert scale, ranging from “strongly disagree” to “strongly agree.” The operationalization of the variables comprised

four latent constructs represented by twelve indicators, as presented in Table 1. Data analysis was conducted using SmartPLS version 4.0, which was employed to assess the measurement model (validity and reliability) and the structural model, including the evaluation of path coefficients and moderating effects.

**Table 1. Variable and indicator for quantitative analysis**

Variable	Type	Code	Indicator
Internship program quality (KPM)	Independent	KPM1.1	1. How relevant is the internship training material to your field of work?
		KPM 1.2	2. Does the material provided help you understand job tasks?
		KPM 1.3	3. Is the training material aligned with the competencies required by the company?
Mentor support(DM)	Independent	DM 1.1	1. Does the mentor explain the tasks clearly?
		DM 1.2	2. Are the mentors instructions easy to understand?
		DM 1.3	3. Does the mentor provide explanations when you are confused?
Work readiness (KK)	Dependent	KK 1.1	1. Do you feel more prepared to enter the workforce after the internship?
		KK 1.2	2. Does the internship help you understand how to work professionally?
		KK 1.3	3. Does the internship experience improve your mental readiness to work?
Project Management Tools Usage (MPI)	Moderator	MPI 1.1	1. Are the project management tools you use easy to learn?
		MPI 1.2	2. Do the tools interface and features help you understand the tasks assigned?
		MPI 1.3	3. Can you operate the tools without much difficulty?

The analysis involved the evaluation of the measurement model to assess construct validity and reliability, followed by the assessment of the structural model to examine the relationships among latent variables, as illustrated in Figure 1.



**Fig. 1 Model Diagram and Intersubject Relationships**

The SEM-PLS method was chosen because it can accommodate complex research models, does not require normal data distribution, and is suitable for relatively small sample sizes [16]. The moderator variable testing was conducted through interaction effect analysis between internship program quality (KPM) and mentor support(DM) with project management tools usage (MPI) on work readiness(KK), following the moderation approach in SEM-PLS [17].

### 3. Result and Discussion

Measurement model testing (outer model) was conducted to assess the validity and reliability of the constructs used in this study (Table 2) namely internship program quality (KPM), mentor support (DM), work readiness (KK), and project management tools usage (MPI) as a moderating variable. The analysis results showed that all indicators had outer loading values above the minimum threshold of 0.70, indicating that these indicators adequately represent their respective constructs. Additionally, the Variance inflation factor (VIF) values for all indicators were below the threshold of 5, signifying no multicollinearity issues in the model (Table 2). Furthermore, convergent validity testing showed that all constructs had average variance extracted (AVE) values above 0.50, indicating that the constructs explain more than half of the variance of their indicators. From a reliability perspective, the Cronbachs Alpha and Composite Reliability ( $\rho_c$ ) values for all variables were above 0.70, demonstrating good internal consistency and high construct reliability (Table 2). Therefore, it can be concluded that the measurement model in this study meets the validity and reliability criteria, making it suitable for structural model testing [18].

**Table 2. Construct validity and reliability**

Construct & Indicator	Loading Factor	AVE	Cronbachs Alpha	Composite Reliability ( $\rho_c$ )	VIF	Description
Internship program quality (KPM)		0.768	0.873	0.908		Valid & Reliable
KPM 1.1 – Relevance of training material	0.923				2.350	Valid
KPM 1.2 – Suitability of material with job tasks	0.742				2.475	Valid
KPM 1.3 – Relevance of competencies	0.949				3.969	Valid
Mentor support(DM)		0.780	0.860	0.914		Valid & Reliable
DM 1.1 – Clarity of mentors explanations	0.943				3.303	Valid
DM 1.2 – Ease of understanding instruction	0.857				2.632	Valid
DM 1.3 – Mentor assistances and guidance	0.847				1.834	Valid
Work readiness(KK)		0.662	0.768	0.853		Valid & Reliable
KK 1.1 – Readiness to enter the workforce	0.770				1.543	Valid
KK 1.2 – Understanding of work professionalism	0.911				1.525	Valid
KK 1.3 – Mental readiness for work	0.750				1.656	Valid
MPI 1.1 Ease of learning	0.950				3.122	Valid
MPI 1.2 Clarity of features	0.917				3.283	Valid
MPI 1.3 Ease of operation	0.872				2.557	Valid
MPI x DM	1.000				1.000	Valid
MPI x KPM	1.000				1.000	Valid

In structural model testing (inner model) analysis results revealed that internship program quality and Mentor support have a positive effect on interns work readiness. The positive path coefficients indicate that better internship program quality and more optimal mentor support lead to higher levels of perceived work readiness. Moreover, the moderation test results showed that project management tools usage strengthens the relationship between Internship program quality and work readiness, as well as between mentor support and work readiness. This indicates that the use of project management tools that are easy to learn and operate can enhance the effectiveness of the internship process in shaping participants work readiness. The findings demonstrate that the quality of the internship program plays an essential role in improving interns work readiness. Internship programs designed with relevant training materials aligned with job tasks and competencies required by the industry provide meaningful learning experiences for participants. These findings support the experiential learning approach, which emphasizes the importance of participants direct involvement in real work activities as a means to strengthen competencies and professional readiness [19].

In addition to program quality, mentor support was also proven to contribute significantly to interns work readiness. The clarity of mentor explanations, ease of understanding instructions, and assistance provided when participants face difficulties help improve their understanding of work demands and build confidence in completing tasks. These results align with previous studies stating that mentors serve not only as technical guides but also as facilitators of learning and professional development for interns [20–21]. Furthermore, this study confirms that project management tools usage acts as a moderating variable that strengthens the influence of internship program quality and mentor support on work readiness. Project management tools that are easy to learn, have clear interfaces and features, and are simple to operate assist interns in understanding workflow, task division, and job targets more systematically. This finding suggests that the appropriate utilization of digital technology can enhance the effectiveness of work based learning processes and support interns readiness to face the modern workforce [22].

These findings align with the view that digital transformation in the workplace requires individuals to possess not only technical competencies and soft skills but also the ability to effectively utilize supporting work technologies. The integration of digital tools in internship programs enables more adaptive, collaborative, and efficient learning, accelerating participants adaptation to professional work environments [23–24]. Overall, the results indicate that interns work readiness is the result of interactions among internship program quality, mentor support, and project management tools utilization. Therefore, improving the effectiveness of internship programs in Indonesia requires a comprehensive approach, not only through curriculum and mentoring system improvements but also through the optimization of supporting work technologies. This integrated approach is expected to produce internship graduates with better work readiness aligned with industry needs.

#### 4. Conclusion

This study shows that internship program quality (KPM) and mentor support (DM) have a significant effect on interns work readiness. Internship programs that are aligned with industry needs and supported by mentors who provide clear guidance and adequate assistance are able to enhance participants understanding of the world of work and professionalism. In addition, the use of project management tools (MPI) is proven to act as a moderating variable that strengthens the influence of internship program quality (KPM) and mentor support (DM) on work readiness (KK). Tools that are easy to learn and operate help participants manage tasks more effectively and improve their adaptation to the work environment.

Overall, interns work readiness is influenced by the synergy between the quality of program implementation, the role of mentors, and the utilization of supporting technologies. Therefore, these three aspects need to be considered in an integrated manner in the implementation of internship programs.

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#### Author contribution statement

**Hulwatul Adzro** contributed to the investigation, formal analysis, quantitative data analysis, and preparation of the original draft of the manuscript. **Neni Alyani** contributed to conceptualization, methodology development, manuscript review. **M Miftahul Madya** played a key role in the conceptualization, methodology development, investigation, and manuscript review and editing. All authors have read and approved the final version of the manuscript.

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