The Influence of Digital Competence and Work Ethic on Students' Human Capital Readiness with Intrinsic Motivation as a Mediator in the Era of Technological Disruption

Zakia Rahma Diana

Universitas Sarjanawiyata Tamansiswa, Yogyakarta, Indonesia
zakiarahmadiana@gmail.com

Abstract. With the rapid advancement of technology, there is a rising demand for graduates who have not only technical capabilities but also the psychological capacity to adjust to changing occupations. The current literature has mainly investigated the direct effects of teachers' digital skills or work ethic on student outcomes, and has little empirical evidence on the channels through which teachers' resources are converted into students' human capital through intrinsic motivation, especially when considering secondary education in developing countries. This study addresses this research gap by analysing the effects of work ethics and digital competence of teachers on the human capital preparation of students, using intrinsic motivation as the intervening variable, within the context of Human Capital Theory and Self-Determination Theory. Data from 214 teacher-student pairs in public and private secondary and vocational schools in Jakarta were collected and analysed using PLS-SEM. Teachers' digital skills and work ethic play important roles in improving students' human capital directly and indirectly through intrinsic motivation. This association is partly mediated by autonomous motivation, indicating that technological competence and professional ideals foster students' preparation more strongly when they stimulate autonomous motivation. The model explained 61.8% of the variation in student preparation. This extends Human Capital Theory by showing that resources alone are not adequate to generate workforce-ready graduates without intrinsic motivation, as Self-Determination Theory predicts. Practically, enhancing teachers' digital abilities and work ethic should be consistent with instructional techniques that promote students' intrinsic drive to build durable human capital in face of rapid technological change.

Keywords: Digital Competence, Human Capital Readiness, Intrinsic Motivation, PLS-SEM, Work Ethic.

1 Introduction

The rapid development of artificial intelligence, automation, and digital technologies has dramatically changed the skills needed to succeed in the twenty- first- century workplace. Educational institutions are no longer expected to create graduates with great academic achievement alone, but also persons who display adaptability, technical literacy, problem-solving ability and a propensity for lifelong learning. Therefore, Human Capital Readiness is becoming a strategic educational outcome reflecting the readiness of graduates to effectively contribute within the framework of a digital and knowledge-based economy [1], [2], [3], [4], [5]

© The Author(s) 2026
K. Chandra Kirana et al. (eds.), *Proceedings of the International Conference on Business, Economic, and Social Sustainability (ICOBES 2026)*, Advances in Economics, Business and Management Research 409,
https://doi.org/10.2991/978-94-6239-811-5_20

Although digital transformation is widespread, data consistently show that improvements in technical infrastructure do not automatically produce graduates well prepared for future work. Digital technology is part of the students' everyday lives, yet many businesses still find that graduates lack the skills to address digital challenges, critical thinking and adaptation when they enter the real job environment [1] . says the World Economic Forum. Similarly, international research indicates that highly digitalised learning environments do not necessarily lead to meaningful learning when students' intrinsic motivation and psychological involvement in technology-supported learning are low [6]. These results indicate that

technical resources alone are not enough to generate sustainable human capital without the backing of psychological mechanisms. Indonesia Emas 2045 obstacles to realising Emas 2045 Although over 89% of students use cellphones, there is an annual shortage of almost 600,000 digitally trained workers [7], [8].

Indonesian Challenges in Pursuit of Indonesia Emas 2045 Goals More than 89% of pupils use smartphones, while Indonesia faces an annual shortfall of around

600,000 digitally skilled professionals [9], [10]. The Ministry of Education statistics also show that many graduates lack discipline, accountability and work ethic in digital firms [11], [12], [13]. Even in the well-established area such as Central Jakarta that has robust digital infrastructure, technological literacy, problem-solving and learning engagement [14], [15], [16] are still lacking. Success is not the access to technology, but the transformation of possibilities into skills. Previous research has shown that teachers' digital competency and work ethic positively enhance students' learning engagement, discipline and performance.

Intrinsic motivation leads to considerable gains in achievement, self-regulation and work-readiness. But academics explore these connections in isolation all too often. Little evidence exists of whether teachers' intrinsic motivation impacts students' competences and preparation for human capital, especially in secondary/vocational schooling in low-income countries. Partial theoretical constraints are shown to becombination of Human Capital Theory (HCT) and Self-Determination Theory (SDT). HCT considers investment in education in terms of skill building, but does not take psychological processes into account. SDT promotes autonomous motivation, as well as relatedness and competence. Together, they propose that teaching competencies are external resources, and intrinsic motivation is the internal process that translates them into workforce preparation, mediating between them." This work addresses the gaps: first, by combining teachers' digital competence, work ethic and student motivation into a single model explaining human capital readiness; second, by investigating this mechanism in Indonesian secondary/vocational education, thus adding to the understanding of how external inputs are internally transformed into future labour market preparedness. Thus, the present study is designed to evaluate the direct and indirect effects of Teachers' Digital Competence and Teachers' Work Ethic on Students' Human Capital Readiness with the mediation of Students' Intrinsic Motivation. Expected results are: theoretically to contribute to the improvement of the integration of Human Capital Theory and Self-Determination Theory, and practically for educators and policymakers in designing the learning environment to produce graduates who are nimble, ambitious and ready for disruption by technology.

2 Literature Review

2.1 Grand Theories and Conceptual Foundations

Education is viewed as a strategic investment in Human Capital Theory to acquire knowledge, technical skills, and cognitive capacities and to increase work productivity. of the workforce and long-run economic growth [17], [18], [19]. Schools of secondary and vocational education have a crucial role in preparing graduates with the abilities that match the needs of constantly evolving labour markets. More and more employers are seeking beyond academic performance. They want to see evidence of skills like adaptability, critical thinking, problem-solving and technology. Therefore, good education, competent teaching,
Relevant curricula and competent school management are needed for the maximal development of human capital, promotion of workforce competitiveness and the maintenance of sustainable economic development [20], [21].

Self-Determination Theory (SDT) is in line with Human Capital Theory in that it provides an explanation for the psychological factors that assist individuals to take advantage of educational opportunities. SDT indicates that motivation is present on a continuum from amotivation to extrinsic and intrinsic motivation, the latter leading to greater sustained learning and performance [22], [23]. Satisfaction of three Basic Psychological Needs (autonomy, competence and relatedness) fosters self-directed learning, resilience and well-adaptation to changing environments. Human Capital Theory and SDT are compatible with each other to develop an integrated framework that illuminates economic benefits of education and motivational processes that transform educational resources into future-ready skills, ethical values, and sustainable human capital development. [24], [25].

2.2 Conceptualization and Dimensions of Research Variables

The Human Capital Readiness of Students (Y) is a multidimensional construct which captures the cognitive, technological and socio-behavioural fitness of graduates to succeed in a more digitised and automated labour market. It encompasses technical literacy, algorithmic reasoning, cognitive agility, complex problem solving, socio-behavioural adaptation, emotional intelligence and an active lifelong learning attitude [26], [27]. These abilities together equip graduates to effectively use digital technologies, adapt to rapid technological change, and work collaborate effectively with other coworkers and develop further new talents. So, Human Capital Readiness is not only about academic accomplishments achieved but rather the ability of the school to produce graduates that are innovative, marketable, resilient, and who achieve sustainable long-term job success [28], [29].

The independent variables in this study are Teachers' Digital Competence (X1) and Teachers' Work Ethic (X2) while the mediating variable is Teachers' Intrinsic Motivation (M). Digital Competence is the ability of instructors to integrate technology knowledge, instructional skills and ethical responsibility in the use of information. and data literacy, digital content production, virtual collaboration, and safe digital practices to support student-centered learning [30], [31]. Work Ethic is a measure of professional ethics, accountability, adaptability to technological change, and successful

time spent on providing good instruction and in continuous improvement of curriculum. Intrinsic Motivation relates to the teachers' own wish to teach with

enthusiasm, independence, commitment to professional development, and loyalty to students'

accomplishment, allowing them to embrace innovation and maintain the quality of their teaching in shifting educational contexts. These types of variables are included in the total benefit of encouraging flexible, technology-enabled and relevant learning experiences to improve Human Capital Readiness [32], [33] of pupils.

2.3 The Context of Technological Disruption in Urban Education Hubs

The Context: The current education scene is experiencing a seismic shakeup because of the rapid developments in artificial intelligence, machine learning, cloud computing and automation. Information is an unregulated institutional commodity and a publicly available commodity . These changes have changed the nature of knowledge, work and human agency . It is a permanent structural change that needs educational institutions to reevaluate their conceptual foundations and prepare students for a dynamic, technology-driven world [34], [35], [36]. Traditional educational methods relying on memorisation and routine cognitive skills are hence becoming less effective, as graduates increasingly need to develop critical thinking, creativity, adaptability and learning-to-learn skills to remain relevant in a changing world of work [37], [38].

Technological innovation has also shown socio-pedagogical gaps, particularly in urban regions like Central Jakarta. However, successful integration of technology in modern digital infrastructure is not always possible, since teachers' preparation, confidence and institutional support are often impediments [39]. Therefore, new facilities do not guarantee new learning processes. So teachers need to increase their capacity to encourage learning, critical thinking and the ethical use of knowledge. It is crucial that we address these concerns as we try to narrow the gap between access to technology and children's educational attainment and ensure that pupils develop the skills they need to flourish in an increasingly digital and connected society.

2.4 Hypotheses Development (The Mediation Pathway Model)

Improving teachers' digital professional abilities and work ethics is critical for students' intrinsic motivation and their human capital development. Effective teachers' use of digital technology leads to engaging learning settings that encourage students' autonomy, self-regulation, online literacy, problem solving abilities and active involvement. In addition, competent, disciplined, accountable, honest, and tenacious teachers may establish a positive learning environment that promotes motivation, persistence, and lifetime learning. Previous research have systematically shown that teachers' digital competency and work ethic are significant factors in increasing students' intrinsic motivation. Moreover, digital skills, work ethic and intrinsic motivation directly contribute to the training of human capital of children. This study hypothesises that Teachers' Digital Competence (X1) and Teachers' Work Ethic (X2) have a positive and significant influence on Students' Intrinsic Motivation (M) (H1-H2) Teachers' Digital Competence (X1), Teachers' Work Ethic (X2) and Students' Intrinsic Motivation (M) H3-H5) Intrinsic Motivation (M) has a favourable and significant direct effect on Students' Human Capital Readiness (Y).

Finally, it is argued that students' intrinsic drive is an important mediator for teachers' digital proficiency and work ethic to impact human capital preparation. Digital competence provides more advanced technology learning possibilities and work

ethic instills discipline and professional role models, but the long-term effect of their influence on students' employment ready depends on the extent of students' internal desire. Technological competence becomes intrinsic motivation providing ethical direction to meaningful learning engagement resilience adaptability and career preparedness. A systems perspective shows that digital competence, work ethic and intrinsic drive form an ecosystem where technological proficiency, professional values and psychological preparation reinforce each other to produce future-ready graduates. Therefore, the results of this study show that Intrinsic Motivation (M) mediates significantly the effects of Teachers' Digital Competence (X1) and Teachers' Work Ethics (X2) to Students' Human Capital. H6-H7) and Digital Competence (X1), Work Ethic (X2), and Intrinsic Motivation (M) toward Students' Human Capital Readiness (Y) (H8) is favourable and significant.

3 Methodology

The study adopted a quantitative explanatory approach to determine the association between Teachers' Digital Competence (X_1), Teachers' Work Ethic (X_2), Students' Intrinsic Motivation (M) and Students' Human Capital Readiness (Y). It evaluated the direct impacts of the teachers' competencies on the student preparation and the indirect impacts by motive. The reason we choose the Structural Equation Modelling method based on Partial Least Squares (PLS-SEM) is that it is suitable for testing many latent variables, mediation, and complex causal relationships to reflective concepts. The research was conducted at Secondary and Vocational Schools in Central Jakarta, selecting 214 matched teacher-student respondents by multistage probability sampling: schools were selected by type (public/private), then students were randomly selected per school. The match approach indicated that teachers' Digital Competence and Work Ethic have a direct impact on students' motivation and readiness. Table 1 shows the demographics of the respondents' 54 teachers (25.2%) and 160 pupils (74.8%), with females slightly outnumbering males, and alike patterns across school kinds and educational levels . Most of the teachers were experienced (42.6%) with more than 10 years and the students were similarly distributed in grades X-XII. The " The data were collected by online questionnaires over six weeks, with free participation, informed permission and anonymity assured. To prevent bias, predictor and criterion items were segregated into various parts and Harman's Single-Factor Test suggested that CMV was not a severe concern. Data analysis was conducted by PLS-SEM utilising SmartPLS or Jamovi to evaluate the measurement model by reliability, validity and the discriminant test and the structural model utilising path coefficients , R2, effect size, Q2 , fit indices and mediation using bootstrapping. Hypotheses were supported at $p < .05$ level and confidence intervals 0 excluded.

4 Results and Discussion

4.1 Assessment of the Measurement Model (Outer Model)

In line with the two-stage evaluation methodology, the psychometric properties of the reflective measurement scales were initially tested. The indicator's reliability was All outer loadings for Teachers ' Digital Competence (X1), Teachers ' Work Ethic (X2), Students ' Intrinsic Motivation (M), and Students ' Human Capital Readiness (Y) had a value above the threshold of 0.707, which was confirmed. The 4-point Likert

scale was used to avoid central tendency bias, using data from 214 respondents. Moreover, Cronbach's Alpha (α) and Composite Reliability (CR) were greater than 0.70, which significantly supported the internal consistency reliability. Finally, convergent validity was successfully proven because the Average Variance Extracted (AVE) for each latent construct was greater than the threshold of 0.50, which confirmed the good quality of the instrument.

Table 4.1 Reliability and Convergent Validity Results

Latent Construct	Item Indicators	Factor Loadings Range	Cronbach's Alpha (α)	Composite Reliability (CR)	Average Variance Extracted (AVE)
Teachers' Digital Competence (X1)	12 Items	0.741 – 0.865	0.912	0.925	0.582
Teachers' Work Ethic (X2)	9 Items	0.720 – 0.844	0.887	0.908	0.556
Students' Intrinsic Motivation (M)	9 Items	0.715 – 0.872	0.893	0.913	0.571
Students' Human Capital Readiness (Y)	12 Items	0.730 – 0.889	0.931	0.941	0.594

The HTMT results for every inter- are shown in Table 4.2. the constructions were well below the conservative ceiling criteria of .85, indicating that each latent variable in our structural model is empirically separable.

Table 4.2 Discriminant Validity via Heterotrait-Monotrait Ratio (HTMT)

Latent Construct	Teachers' Digital Competence (X1)	Teachers' Work Ethic (X2)	Students' Intrinsic Motivation (M)	Students' Human Capital Readiness (Y)
Teachers' Digital Competence (X1)	—			
Teachers' Work Ethic (X2)	0.412	—		
Students' Intrinsic Motivation (M)	0.534	0.489	—	
Students' Human Capital Readiness (Y)	0.612	0.551	0.678	—

The data in Table 4.1 and 4.2 show that the measurement model meets all the psychometric standards suggested. Loadings over the minimal criteria of 0.70 showed good reliability of the indicator. Furthermore, the values of Cronbach's Alpha and Composite Reliability were substantially above 0.70, suggesting high internal consistency coherence. All constructs have AVE values greater than 0.50, which suggests convergent validity, and HTMT scores are below than the conservative threshold of 0.85, demonstrating adequate discriminant validity. These combined results imply that the measuring model is reliable and valid to further test the structural model.

4.2 Assessment of the Structural Model (Inner Model)

The measurement model has been verified and the inner path model has been evaluated. objective to test the structural hypotheses and to assess the explanatory power. The coefficient of determination (R2) showed that Teachers' Digital Competence and Work Ethic (M; R2 = 0.415) accounted for 41.5% of the variance in Students' Intrinsic

Motivation Of In addition, the combined triplet of X1, X2 and M accounted for 61.8% of the variance in Students' Human Capital Readiness (Y; R2 = 0.618). This demonstrates that the model is a strong predictor. Table 4.3 provides empirical results for direct effects (H1-H5) and indirect effects (H8). Figure 4. Standardised route coefficients (b) and their significance levels were assessed using a non-parametric boot-process (5000 resamplings).

Table 4.3 Structural Path Coefficients and Direct Hypotheses Testing

Hyp.	Structural Path Relationships	Path Coeff. (β)	t-Statistics	p-Values	Empirical Status
H1	Teachers' Digital Competence (X1) → Students' Intrinsic Motivation (M)	0.402	6.541	< 0.001	Supported
H2	Teachers' Work Ethic (X2) → Students' Intrinsic Motivation (M)	0.324	5.112	< 0.001	Supported
H3	Teachers' Digital Competence (X1) → Students' Human Capital Readiness (Y)	0.315	4.982	< 0.001	Supported
H4	Teachers' Work Ethic (X2) → Students' Human Capital Readiness (Y)	0.218	3.654	< 0.001	Supported
H5	Students' Intrinsic Motivation (M) → Students' Human Capital Readiness (Y)	0.421	7.109	< 0.001	Supported
H8	Simultaneous X1, X2, and M → Students' Human Capital Readiness (Y)	F-stat = 112.45	< 0.001	< 0.001	

The conclusion of mediation result shows that Students' Intrinsic Motivation substantially moderates the impact of Teachers' Digital Competence (H6) and Teachers' Work Ethic (H7) on Students Human Capital Readiness (Y). The sum of total impacts is 0.484 0.315 + 0.169 for Digital Competence and 0.354 (0.218 + 0.136) for Work Ethic. Which is stresses the necessity of internalisation in converting inputs into human capital. All correlations were significant ($p < 0.001$) based on bootstrapping with 5,000 resampled, The strongest predictor was Students' Intrinsic Motivation (β=0.421), and Teachers' Digital Competence (β=0.315) and Work Ethics (β=0.218). The results indicate that teachers' skills have a direct impact on preparation, but students' motivation is the strongest predictor. internal motivation of the students, when that increases the readiness of strengthened by the teacher's digital skills and work ethic human capital as the psychological mechanism for converting resources into sustainable development.

Table 4.4. Indirect Mediation Path Results

Hyp.	Indirect Structural Pathway	Indirect Coeff. (β)	t-Stat	p-Value	95% Confidence Interval	Empirical Status
H6	X1 → Students' Intrinsic Motivation (M) → Y	0.169	4.821	< 0.001	[0.102, 0.241]	Significantly Mediated
H7	X2 → Students' Intrinsic Motivation (M) → Y	0.136	3.945	< 0.001	[0.071, 0.205]	Significantly Mediated

The mediation analysis reveals that Students' Intrinsic Motivation has a significant mediates the effect of Teachers' Digital Competence (H6) and Teachers' Work Ethic (H7) Human capital preparedness of students (Y). The overall impacts increase to 0.484 for 0.354 for Work Ethic (0.218 direct + 0.136 indirect) and Digital Competence (0.315 direct + 0.169 indirect). direct + 0.136 indirect) suggesting internalisation as a key to transform inputs into human resources. Bootstrapping with 5,000 resamples confirmed all connections were significant. significant ($p < 0.001$). Students' Intrinsic Motivation had the largest influence (β=0.421), followed by

Teachers' Digital Competence (β=0.315) and Work Ethic (β=0.218). The findings imply that teachers' skills directly improve readiness, but pupils' motivation is the strongest predictor. Improvements in teachers' digital skills and work ethic promote students' intrinsic motivation, which in turn boosts human capital preparedness and acts as the psychological mechanism for transforming resources into sustainable development.

Tabel 4.5. Overall Structural Model Evaluation

Model Evaluation Index	Value	Recommended Threshold	Interpretation
R^2 (Intrinsic Motivation)	0.415	Moderate	Moderate explanatory power
R^2 (Human Capital Readiness)	0.618	Substantial	High explanatory power
Q^2 Predictive Relevance	0,342	> 0	Predictive relevance established
SRMR	0,062	<0.08	Good model fit
NFI	0,915	>0.90	Acceptable model fit

The table exhibits fit of models and predictive power in PLS-SEM analysis, measured by important indicators: R2 for Intrinsic Motivation (0.415, moderate) and Human Capital Readiness (0.618, considerable), Q2 (above 0), SRMR (< 0.08) and NFI (> 0.90). The results indicate that the model is sufficiently specified and has enough explanatory power and predictive relevance, appropriate for hypothesis testing.

Tabel 4.6 Effect Size (f^2)

Structural Relationship	f2 Value	Recommended Threshold	Effect Size Interpretation
X1 → M	0.185	0.15 f^2 < 0.35	Medium
X2 → M	0.082	0.02 f^2 < 0.15	Small
X1 → Y	0.210	0.15 f^2 < 0.35	Medium
X2 → Y	0.045	0.02 f^2 < 0.15	Small
M → Y	0.420	f^2 > 0.35	Large

The results of testing effect size (f^2 effect size) for each structural relationship The pathway between variables in the Partial Least Squares Structural Equation Modelling The table above provides the results of the (PLS-SEM) model. The relative f2 assessment was effect or size of impact of each independent variable (exogenous/mediator) on the variations in coefficient of determination (R2) of the dependent variable (endogenous). The magnitude of the f2 value is decomposed into three primary levels according to the general criteria set by Cohen (1988): tiny small effect (small) 0.02, medium effect (medium) 0.15, and huge effect (large) when the f2 value is 0.35 or greater. with a f2 value categorised high (f2 > 0.35), the mediator variable (M) is the one contributing most to the main endogenous variable variable(Y) based on the results of the effect size analysis in the structural model This is shows that the variability of is quite important to be accounted for by the presence of M Y. In contrast, the pathways from X1 to M and X1 to Y provide f2 values in the medium category (0.15 < f2 < 0.35), which indicates a large moderate effect of X1 on M and Y both. Conversely, X2 causes a minor influence (0.02 < f2 < 0.15) on both M and Y, indicating that X2 contributes to the model while its direct impact on the variation formation of the variation of the target variable is rather minimal.

Tabel 4.7 Total Effect

Structural Path	Direct	Indirect	Total
X1 → Y	0.315	0.169	0.484
X2 → Y	0.218	0.136	0.354

The total effect analysis demonstrates that Teachers' Digital Competence has the largest total influence on Students' Human Capital Readiness (β = 0.484), followed by Work Ethic of Teachers. 354 These data suggest that instructional skills contribute both directly and indirectly by enhancing students' intrinsic motivation. All the hypothesised associations were statistically substantial, signifying a very coherent structural model. However, the theoretical The subsequent Discussion section addresses the causes for these persistent connections, and their implications for Human Capital Theory and Self-Determination Theory.

4.3 Discussion

The current study shows that teachers' digital competency, teachers' work ethic and students' intrinsic drive together contribute to students' human capital readiness. The structural model accounted for 61.8% of the variance in human capital preparedness which indicates that the suggested framework has a good explanatory power. The findings imply that in an effort to prepare future-ready graduates, not only technological competence but also psychological and professional elements function simultaneously inside the educational process. Therefore, the merger of Human Capital Theory and Self-Determination Theory provides a holistic understanding of the conversion of educational inputs into students' future employability. The considerable influence of instructors' digital competence on students' intrinsic motivation (β = 0.402) implies that technologically competent teachers create learning climates that foster curiosity, autonomy, and active participation.

Teachers become facilitators rather than being users of educational technology who build authentic and dynamic learning experiences that can meet students' psychological demands. This view is in line with Self-Determination Similar evidence was also provided by Ng [40], Tondeur [41] who emphasised that the teachers' digital competency enables more student-centred, engaging, and meaningful learning experiences. The findings add to prior studies by suggesting that digital competence, in addition to being related to technological integration, is also related to an important motivating resource. In Indonesia, where digital transformation is moving fast but digital competence gaps remain [7], improving teachers' digital abilities could be a strategic step to increase students' motivation and employment preparation. Teachers' digital competency also directly affects students' human capital preparedness (β = 0.315). This supports Human Capital Theory, which posits that investments in education cultivate productive knowledge, skills and employability. The integration of teachers into the digital world is a vital educational investment, as companies are seeking skills such as digital fluency, problem-solving and adaptability. This is supported by the studies of Muslim and Ariyanto (2025), Asa et al. (2025), and Oktoviano and Hadiningrat (2025) that emphasise the need for digital competence for graduates to be employed within the framework of Indonesia's digital economy [2], [8], [42]. The correlations of instructors' work ethic with students' intrinsic motivation (β = 0.324), and work ethic with human capital readiness (β = 0.218), imply that teachers impact students via teaching and behavioural modelling. The behaviour of teachers in their discipline, commitment, integrity and accountability provides a behavioural example that children internalise. Similarly, Suárez and Gómez (2024) [23] demonstrated that motivational features of teachers affect student motivation via supportive teaching techniques.

Students' intrinsic motivation has a great influence on human capital preparation ($\beta = 0.421$) which supports psychological readiness as the major factor of future employment preparedness. Self-determination theory suggests that motivated students are more likely to adopt self-regulated learning and to continue when faced with problems [5], [24]. This study reveals the mediating role of intrinsic motivation in the effect of teachers' digital competence and work ethic on readiness. Teachers' skills have a direct impact on students, but this impact is magnified when teachers activate students' motivation. The indirect effects increase the total effect of teachers' digital competence from 0.315 to 0.484 and of teachers' work ethic from 0.218 to 0.354, indicating motivation as the key mechanism in translating instructional resources into sustainable human capital. The model's explanatory power ($R2 = 0.618$) highlights that human capital readiness is a result of the interaction between instructional competence, professional values and motivation, not of isolated factors.

5 Conclusion

Hence, this study concludes based on empirical findings and comprehensive structural equation modelling that a synchronised alignment of teacher proficiencies and student psychological dynamics is required to foster future-ready workforce preparedness amidst technological disruption. The structural analysis indicates that Digital Teachers' Competence (X1) and Teachers' Work Ethic (X2) are significant environmental and behavioural anchors which directly enhance Students' Human Capital Readiness (Y). For instance, advanced digital competence enables teachers to create interactive, high-tech learning environments that develop critical technical fluencies. A rigorous work ethic provides a vital moral curriculum of resilience and grit that fosters non-cognitive career adaptability. Importantly, Students' Intrinsic Motivation (M) functions as an core psychological pathway that mediates the effects significantly and partially of these externally delivered teaching inputs. Raw technological access and disciplined mentoring only result in higher-order cognitive capabilities and complex problem-solving skills when they trigger learners' internal drive for autonomy and mastery. In the end, the simultaneous structural model explains a significant 61.8% of the variance in student readiness, affirming that real educational transformation can only happen at the intersection of an educator's technical execution, moral rigour, and the inner fire of the student.

References

[1] M. C. Buchan, J. Bhawra, and T. R. Katapally, "Navigating the digital world: Development of an evidence-based digital literacy program and assessment tool for youth," *Smart Learning Environments*, vol. 11, no. 1, 2024.

[2] A. Asa, J. P. Nautwima, and H. N. Johannes, "Digital Literacy for Workforce Readiness: Bridging the Skills Gap in the 21st Century," *International Journal of Innovation and Economic Development*, vol. 11, no. 3, p. 7, 2025.

[3] R. Alé-Ruiz, F. M. Abad, and M. T. D. Moral-Marcos, "Academic engagement and management of personalised active learning in higher education digital ecosystems," *Educ. Inf. Technol. (Dordr).*, vol. 29, no. 10, pp. 12289–12304, 2023.

[4] Zaharuddin, Y. Chen, and G. Yao, "Enhancing Student Engagement with AI-Driven Personalized Learning Systems," *International Transactions on Education Technology (ITEE)*, vol. 3, no. 1, pp. 1–8, 2024.
[5] T. K. F. Chiu, "A classification tool to foster self-regulated learning with generative artificial intelligence by applying self-determination theory: A case of ChatGPT," *Educational Technology Research and Development*, vol. 72, no. 4, pp. 2401–2416, 2024.
[6] R. Z. Hauzel, T. Pattnaik, R. Vara, and S. P. Mandela, "Investigating Factors Contributing to Student Disengagement and Ownership in Learning: A Case Study of Undergraduate Engineering Students," *Journal of Information Technology Education: Innovations in Practice*, vol. 23, p. 8, 2024.
[7] I. G. N. M. Jaya *et al.*, "Regional Patterns of Digital Skills Mismatch in Indonesia's Digital Economy: Insights from the Indonesia Digital Society Index," *Sustainability*, vol. 18, no. 2, p. 1077, 2026.
[8] M. Oktoviano and K. S. S. Hadiningrat, "Efforts to Strengthen Digital Talent to Improve the Quality of Human Resources Towards A Golden Indonesia 2045," *JIPOWER Journal of Intellectual Power*, vol. 2, no. 1, pp. 124–140, 2025.
[9] G. Gayatri, I. G. N. M. Jaya, and V. M. Rumata, "The Indonesian Digital Workforce Gaps in 2021–2025," *Sustainability*, vol. 15, no. 1, p. 754, 2022.
[10] I. M. J. A. Dwipatna, D. Darwin, and M. F. Ngoyo, "Shaping Indonesia's Digital Future: Relationship Between Public Education Expenditures and ICT Competence," *Indonesian Journal of Entrepreneurship and Startups*, vol. 4, no. 1, pp. 57–74, 2026.
[11] R. P. Nugroho, M. H. A. Nahri, J. M. M. Islami, T. N. Syamsiah, and Z. Z. Rifandini, "Paving Pathways for Educational Technology Talent: Connecting Fresh Graduates to Industry Opportunities in Indonesia," in *Proceeding of the International Conference on Global Education and Learning*, 2024, pp. 83–92.
[12] M. S. Romadhon, B. Purwandari, I. Eitiveni, and M. Purwaningsih, "Analysis of Factors influencing the successful use of Massive Open Online Courses (MOOCs) to prepare Digital Talent," *Journal of Educational Science and Technology (EST)*, vol. 9, no. 2, p. 128, 2023.
[13] M. Händel *et al.*, "Who is savvy about digital ethics? Differences between teacher education, law, and computer science students," *Educ. Inf. Technol. (Dordr).*, vol. 30, no. 17, pp. 25177–25196, 2025.
[14] H. S. Fatimah, S. Sriningsih, Y. Pascayanti, and F. Yusuf, "Digital Divide Solutions and Public Service Policy Implementation in Indonesia after the Covid-19 Pandemic," *Journal of Economics Finance and Management Studies*, vol. 6, no. 8, 2023.
[15] Astari and D. Yulianto, "Bridging the Digital Divide in Education: Disparities in Google Classroom Utilization and Technical Challenges among Urban and Rural Teachers," *Journal of Education Technology*, vol. 9, no. 2, pp. 258–270, 2025.
[16] I. Zulkarnain, Y. S. Sitepu, R. Sutatminingsih, and M. Rajagukguk, "Student's digital literacy competence and its implications for the learning process," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 13, no. 2, p. 997, 2024.
[17] A. O. Boakye, F. Musah, and P. F. K. Opoku, "Employability skills, employee engagement, and job performance in Ghana," *International Journal of Management & Entrepreneurship Research*, vol. 6, no. 8, pp. 2603–2625, 2024.
[18] K. Ariansyah *et al.*, "Comparing labor market performance of vocational and general school graduates in Indonesia: Insights from stable and crisis conditions," *Empirical Research in Vocational Education and Training*, vol. 16, no. 1, 2024.
[19] L. Muchimba and F. I. D. Liestiawati, "Enhancing College Access in Zimbabwe: Impact of Student Loans and Grants," *Policy & Governance Review*, vol. 8, no. 2, p. 117, 2024.
[20] R. Unerbayeva, S. Kozhirova, G. Kenzhegulova, A. Mukatay, and T. Abdykadyr, "The role of education, human capital, and quality of life in regional development: Evidence

from Kazakhstan," *Problems and Perspectives in Management*, vol. 23, no. 3, pp. 256–273, 2025.

[21] S. Ditsuwan and A. Sukkamart, "School Management Factors Affecting Student Quality: A Case Study of the Thai Triam Udom Suksa Pattanakarn School Group," *Journal of Higher Education Theory and Practice*, vol. 22, no. 12, 2022.

[22] A. I. Cristea *et al.*, "The engage taxonomy: SDT-based measurable engagement indicators for MOOCs and their evaluation," *User Model. User-adapt. Interact.*, vol. 34, no. 2, pp. 323–374, 2023.

[23] A. M. Suárez and R. L. Gómez, "Does teachers' motivation have an impact on students' scientific literacy and motivation? An empirical study in Colombia with data from PISA 2015," *Large. Scale. Assess. Educ.*, vol. 12, no. 1, 2024.

[24] D. Urhahne and L. Wijnia, "Theories of Motivation in Education: An Integrative Framework," *Educ. Psychol. Rev.*, vol. 35, no. 2, 2023.

[25] F. Şahin and Y. L. Şahin, "Drivers of technology adoption during the COVID-19 pandemic: The motivational role of psychological needs and emotions for pre-service teachers," *Social Psychology of Education*, vol. 25, pp. 567–592, 2022.

[26] N. Hegyi-Halmos, T. Tóth-Téglás, and A. O. Pongor-Juhász, "The Role of Human Resource Consultants in Digital Transformation," *Opus et Educatio*, vol. 12, no. 1, 2025.

[27] T. Attarang, "Future Human Skills: A Conceptual Framework for Developing 21st Century Competencies," *Journal of Applied Humanities Studies*, vol. 3, no. 2, pp. 33–57, 2025.

[28] A. Twinomuhwezi, N. Kamukama, and C. Tushabomwe-Kazooba, "Human Capital and Graduate Employability in Public Universities in South-Western Uganda," *Journal of Economics and Behavioral Studies*, vol. 17, pp. 49–58, 2026.

[29] D. S. Tayal, "Building Corporate-Ready Graduates: A Conceptual Framework for Bridging the Graduate-Corporate Gap in Higher Education across Disciplines," 2026.

[30] L. Scheel, G. Vladova, and A. Ullrich, "The influence of digital competences, self-organization, and independent learning abilities on students' acceptance of digital learning," *International Journal of Educational Technology in Higher Education*, vol. 19, no. 1, p. 44, 2022.

[31] F. d. L. González-Mujico, "Measuring student and educator digital competence beyond self-assessment: Developing and validating two rubric-based frameworks," *Educ. Inf. Technol. (Dordr).*, vol. 29, no. 11, pp. 13299–13324, 2023.

[32] M. L. M. Vásquez *et al.*, "Student perceptions of teaching competencies in active learning methodologies: A correlational and cluster analysis in Peruvian higher education," *Discover Education*, vol. 4, no. 1, 2025.

[33] M. H. A. Abri, A. Y. A. Amri, and A. Elhaj, "Enhancing Student Learning Experiences Through Integrated Constructivist Pedagogical Models," *European Journal of Contemporary Education and E-Learning*, vol. 2, no. 1, pp. 130–149, 2024.

[34] C. Wang, X. Chen, T. Yu, Y. Liu, and Y. Jing, "Education reform and change driven by digital technology: A bibliometric study from a global perspective," *Humanit. Soc. Sci. Commun.*, vol. 11, no. 1, 2024.

[35] J. Sanabria-Z and P. G. Olivo, "AI platform model on 4IR megatrend challenges: Complex thinking by active and transformational learning," *Interactive Technology and Smart Education*, vol. 21, no. 4, pp. 571–587, 2024.

[36] M. Fascia, "Technological Evolution and Societal Shifts," 2024.

[37] B. K. Paul and R. Khatun, "The Crucial Role of Education in Adapting to the Changing Job Market Landscape," 2025, pp. 41–54.

[38] N. S. Patel, S. Puah, and X.-F. K. Kok, "Shaping future-ready graduates with mindset shifts: Studying the impact of integrating critical and design thinking in design innovation education," *Front. Educ. (Lausanne).*, vol. 9, 2024.

[39] M. A. Aini, "Bridging the Digital Divide: Ensuring Equitable Access to Education Technology," *Assoeltan Indonesian Journal of Community Research and Engagement*, vol. 3, no. 1, pp. 11–22, 2025.
[40] D. T. K. Ng, J. K. L. Leung, J. Su, C. W. Ng, and S. K. W. Chu, "Teachers' AI digital competencies and twenty-first century skills in the post-pandemic world," *Educational Technology Research and Development*, vol. 71, no. 1, pp. 137–161, 2023.
[41] J. Tondeur *et al.*, "The HeDiCom framework: Higher Education teachers' digital competencies for the future," *Educational Technology Research and Development*, vol. 71, no. 1, pp. 33–53, 2023.
[42] R. Muslim and E. D. Ariyanto, "Digital literacy as a catalyst for future workforce: Enhancing vocational high school graduates' employability in the evolving digital economy: Evidence from Indonesia," *Literate International Journal of Social Science and Humanities*, vol. 3, no. 1, pp. 44–57, 2025.

Open Access This chapter is licensed under the terms of the Creative Commons Attribution-NonCommercial 4.0 International License (http://creativecommons.org/licenses/by-nc/4.0/), which permits any noncommercial use, sharing, adaptation, distribution and reproduction in any medium or format, as long as you give appropriate credit to the original author(s) and the source, provide a link to the Creative Commons license and indicate if changes were made.

The images or other third party material in this chapter are included in the chapter's Creative Commons license, unless indicated otherwise in a credit line to the material. If material is not included in the chapter's Creative Commons license and your intended use is not permitted by statutory regulation or exceeds the permitted use, you will need to obtain permission directly from the copyright holder.

