Journal of Education and Learning (EduLearn)
Vol. 18, No. 4, November 2024, pp. 1158~1165
ISSN: 2089-9823 DOI: 10.11591/edulearn.v18i4.21018

Evidence of positive influence: soft skills competence and organizational culture on innovative work behavior

Nur Kholifah[1], Muhammad Nurtanto[2], Gulzhaina K. Kassymova[3], Hani Subakti[4], Mustofa Abi Hamid[5]
[1]Department of Fashion Design in Applied Vocations, Faculty of Vocational, Yogyakarta State University, Yogyakarta, Indonesia
[2]Department of Mechanical Engineering, Jakarta State Polytechnic, Demak, Indonesia
[3]Department of Pedagogy and Psychology, Abai Kazakh National Pedagogical University, Almaty, Kazakhstan
[4]Department of Primary Teacher Education, Faculty of Teacher and Training Education, Widya Gama Mahakam Samarinda University, East Kalimantan, Indonesia
[5]Department of Electrical Engineering Vocational Education, Faculty of Teacher and Training Education, Sultan Ageng Tirtayasa University, Banten, Indonesia

Article Info

Article history:

Received Jun 9, 2023
Revised Mar 13, 2024
Accepted Mar 20, 2024

Keywords:

Career work motivation
Innovative work behavior
Maritim lecture
Organization culture
Soft skill competence

ABSTRACT

This study investigates the innovative work behavior (IWB) of marine lecturers, considering work motivation (WM), organizational culture (OC), and soft skill competence (SSC). Data from 145 respondents representing ten higher education polytechnics in Indonesia were analyzed using partial least squares-structural equation modeling (PLS-SEM). Respondents answered 54 Likert-scale questions, revealing that SSC significantly shapes IWB (estimated value: 0.504), primarily through problem-solving ability. However, WM showed no significant impact on IWB, possibly due to non-influential dimensions like science, technology, environment, and society. Incorporating technological developments as moderating variables could enhance this relationship. Notably, SSC and OC exhibit crucial relationships with IWB, highlighting their importance over WM. These findings shed light on the complex dynamics influencing IWB among marine lecturers, emphasizing the significance of SSC and OC in fostering innovation in the maritime education sector.

Corresponding Author:

Muhammad Nurtanto
Department of Mechanical Engineering, Jakarta State Polytechnic
Sultan Trenggono Street No.61, Katonsari, Demak Regency, 59516 Central Java, Indonesia
Email: muhammad.nurtanto@mesin.pnj.ac.id

1. INTRODUCTION

In the era of globalization and fierce economic competition, the importance of understanding innovative work behavior (IWB) becomes paramount [1]–[4]. Workers' focus on individual creativity and innovation is a valuable asset for overcoming Indonesia's challenges, such as the scarcity of skilled labor and evolving problems [5]. While the government initiates efforts to enhance human resource quality, especially in the maritime sector, the effective implementation of these policies requires serious attention. Major global changes, marked by the Industrial Revolution 4.0, are transforming Indonesia's maritime sector [6], [7], particularly in the context of Industrial Revolution 4.0 [8], [9]. The Human Resources Development Agency (HRDA) envisions the realization of professional, ethical, and reliable human resources for transportation, committing to Zero Accidents [10].

However, higher education's role in producing relevant human resources in the marine sector is limited, leading to a gap between graduate competencies and Industry 4.0 needs. The significant number of

unemployed graduates highlights the urgency for comprehensive strategies in various fields to address Industry 4.0 challenges. Analysis reveals increased lecturer workload, causing a decline in motivation [11]. Varying organizational cultures in each campus pose obstacles in improving personal quality, such as exploitation through unjustified task assignments [12].

Research on IWB in maritime lecturers, influenced by work motivation (WM), organizational culture (OC), and soft skills competencies (SSC), has gained attention. WM motivates individuals to innovate [13], [14], and an OC supporting innovation stimulates lecturers' IWB [15]. SSC, including creativity, communication, and teamwork, positively influences innovation [16]. These factors significantly impact lecturers' IWB in the maritime sector.

Despite identifying WM, OC, and SSC as significant influences, there's a lack of integrated understanding. Previous research tends to examine factors separately, neglecting the complex interactions shaping IWB in maritime lecturers. Further research is needed to explore the unique context of the maritime sector's influence on these dynamics. In an era of complexity and rapid change, effective leadership becomes increasingly urgent to address organizational challenges and adopt technology in Industrial Revolution 4.0 [17], [18]. This study investigates the relationship between WM, OC, SSC, and lecturers' IWB in Indonesia's maritime sector. Key questions include whether WM, OC, and SSC have a direct influence on IWB. This study tests hypotheses, including H_1: WM directly influences IWB, H_2: OC directly influences IWB, and H_3: SSC directly affects IWB.

2. METHOD

This study employed a quantitative research design with an ex-post-facto approach, adapted from Cohen's *et al.* [19]. The aim of this study was to assess the impact of exogenous variables, WM, OC, and SSC, on the endogenous variable, IWB. Structural equation modeling (SEM) was utilized for analysis due to its capability in examining intricate relationships between constructs and indicators [20]. The research involved 228 lecturers from ten shipping polytechnics across Indonesia. Respondents were selected through non-probability sampling, with participation being voluntary and access to the online Google form not equally provided. Sample size determination utilized the Slovin's formula with a standard error of 5%, resulting in 145 respondents. The decision to conduct the survey online was influenced by the ongoing COVID-19 pandemic. Respondents were categorized by gender, academic position, age, educational background, and work experience, as presented in Table 1, aiming to ensure diverse data and complex data interpretation.

Table 1. Background of respondens (N=145)

Attribute	Categories	N	%
Gender	Male	46	31.72
	Female	99	68.28
Academic position	Lecturers	47	32.41
	Senior Lecturers	42	28.97
	Assoc. Professors	33	22.76
	Professors	23	15.86
Age	< 25 years	1	0.69
	25-35 years	16	11.03
	36-50 years	93	64.14
	> 50 years	35	24.14
Education background	S2 (master)	138	95.17
	S3 (doctor)	7	4.83
Work experiences	< 5 years	23	15.86
	5-10 years	44	30.34
	> 10 years	78	53.79

The collected data were analyzed using confirmatory factor analysis (CFA). The purpose of CFA is to confirm or test the model based on the theory developed. Data analysis includes validity tests obtained overall above 0.70 with p.value below 0.5 in the "valid" category Table 2 and reliability obtained between 0.819 to 0.92 in the "high" category Table 3, and continued goodness of fit model testing with prerequisite tests consisting of Chi-square, Probability, goodness-of-fit index (GFI), adjusted goodness-of-fit (AGFI), comparative fit index (CFI), tucker–lewis index (TLI), standardised root mean square residual (SRMR), and Root mean square error of approximatio (RMSEA) Table 4. SEM model calculations were carried out using SmartPLS software. The advantage is that it does not require normally distributed data and a limited number of samples.

Table 2. Standardized loading factor of each latent variable

Path			Outer Loading	P-value
WM	→	Strength	0.785	***
WM	→	Initiative	0.836	***
WM	→	Intensity	0.811	***
WM	→	Perseverance	0.789	***
OC	→	Innovation and risk-taking	0.785	***
OC	→	Attention to detail	0.890	***
OC	→	Outcome orientation	0.818	***
OC	→	People orientation	0.900	***
OC	→	Team orientation	0.863	***
OC	→	Aggressiveness	0.745	***
OC	→	Stability	0.788	***
SSC	→	Communicate	0.869	***
SSC	→	Problem-solving ability	0.928	***
SSC	→	Be professional	0.903	***
IWB	→	Develop ideas	0.926	***
IWB	→	Application of creativity at work	0.864	***
IWB	→	Make a breakthrough in the application of new ideas	0.948	***

Table 3. Reliabilities instruments of the WM, OC, SSC, and IWB

Variable	α	rho_A	Composite	AVE	Decision
Work motivation	0.900	0.910	0.938	0.834	Reliable
Organizational culture	0.924	0.925	0.939	0.688	Reliable
Soft skills competence	0.884	0.893	0.928	0.811	Reliable
Innovative work behavior	0.819	0.822	0.881	0.649	Reliable

Table 4. Model fit test result

Goodness of fit indices	Result	Desired levels
Chi-square	29.601	Small
Probability	0.227	>0.50
GFI	0.916	≥0.90
AGFI	0.909	≥0.90
CFI	0.902	≥0.90
TLI	0.907	≥0.90
SRMR	0.029	<0.05
RMSEA	0.062	<0.08

Data were collected from August to October 2022 across ten provinces, namely DKI Jakarta, West Java, Central Java, DI Yogyakarta, East Java, West Kalimantan, East Kalimantan, South Sulawesi, West Sumatra, and Maluku. The questionnaires were distributed through colleagues of lecturer representatives in each province. The questionnaire consisted of four variables: WM, OC, SSC, and IWB, comprising a total of 54 items. A Likert scale of 1-5 (strongly agree to disagree strongly) was used for responses. The variables and examples of instruments are detailed as follows:

- Work motivation (WM) was adapted from Ulrich *et al.* [21], Kanfer *et al.* [22], and Aamodt [23], comprising four indicators: strength, initiative, intensity, and persistence, with three statement items each. Examples include Strength: "I was willing to assist colleagues in completing their tasks." Initiative: "I formulated effective work plans." Intensity: "I supervised cadets in real-time using an application." Persistence: "I devoted extra time for the betterment of higher education."
- Organizational culture (OC) was adapted from Robbins and Judge [24], consisting of seven indicators: innovation and risk-taking, attention to detail, result orientation, people orientation, team orientation, aggressiveness, and stability, each with three statement items. Examples include Innovation and Risk-taking: "I generate innovative ideas in the workplace." Attention to Detail: "I am expected to complete tasks accurately and meticulously." Result Orientation: "I strive for optimal results in my work." People Orientation: "I adhere to the college's established procedures." Team Orientation: "I endeavor to foster collaboration with colleagues." Aggressiveness: "I consistently meet deadlines and maintain discipline." Stability: "I prioritize the college's vision and mission over personal interests."
- Soft skills competence (SSC) was adapted from Bos-Nehles and Veenendaal [1], Nelson and Quick [18], Hendarman and Cantner [25], and Robbins and Coulter [26], including communication, problem-solving ability, and professionalism, each with three statement items. Examples include Communication: "I effectively communicate verbally with others." Problem-solving Ability: "I explore alternatives for more efficient work completion." Professionalism: "I utilize my abilities with better-targeted outcomes."

– Innovative work behavior (IWB) was adapted from Messmann *et al.* [27] and Lorenz [28], comprising three variables: developing ideas, applying creativity at work, and making breakthroughs, each with three items. Examples include Developing Ideas: "As a lecturer, I endeavor to update teaching materials in line with IMO standards." Applying Creativity in Work: "As a lecturer, I utilize communication and learning technologies." Making Breakthroughs: "As a lecturer, I collaborate with peers and task force leaders."

The collected data were analyzed using confirmatory factor analysis (CFA) to confirm the model's validity and reliability. The SEM model calculations were performed using SmartPLS software, which does not require normally distributed data and has a limited sample size [29].

3. RESULTS

Based on the SEM model in Figure 1, it was observed that the loading factor indicator values for each variable, including WM, OC, SSC, and IWB, were analyzed. The loading factor value served as a reference to assess the validity of the measurement for each variable. The results indicated that the standard loading factor values in the model for each indicator exceeded 0.70, with a p-value below 0.5 Table 2. Consequently, all indicators for each variable were deemed valid for measuring WM, OC, SSC, and IWB variables.

Meanwhile, the reliability test shows numbers with very high criteria on all instruments [30]. This shows that the instrument has a good level of consistency for collecting data on each variable. Table 3 presents the results of the alpha reliability test. The fit model test was used to measure the suitability level of the structural model utilized. The overall model fit index was presented as the base model in Table 4. As indicated, all the overall model fit indices performed well. The chi-square value obtained was relatively small compared to the critical number. The probability obtained showed high significance. GFI, AGFI, CFI, and TLI all exceeded the threshold value (≥ 0.90). Additionally, SRMR was < 0.05, and RMSEA was < 0.08.

Based on these results, it can be concluded that the fit model is considered adequate due to the obtained values falling within the "good fit" category, allowing for the analysis of the structural model [31]. Furthermore, the structural analysis model utilized is depicted in Figure 1. SEM analysis employed path analysis to ascertain the direct effect of exogenous variables on endogenous variables.

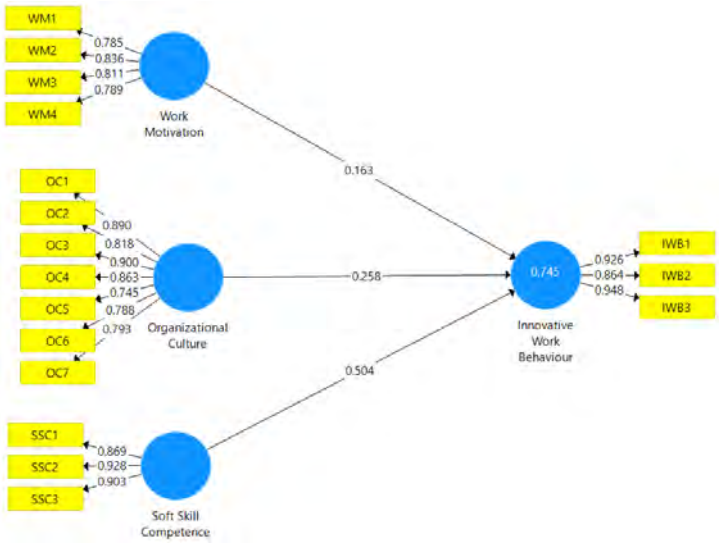

Figure 1. Structural model analysis results for WM, OC, SSC, and IWB

Hypothesis testing in this study utilized the structural equation modeling (SEM) technique, aimed at determining whether there was a direct influence between variables. The direct effect refers to the impact of exogenous variables on endogenous variables. Testing the direct effect in the research model involved examining the path coefficient values in each research hypothesis path, followed by a t-test to determine the significance of the path coefficient value or the influence value. The results of hypothesis testing are presented in Table 5. In the first hypothesis, which posited that WM had an insignificant direct effect on IWB, the obtained path coefficient value was 0.163 with a p-value of 0.109, thus failing to support H_1. This suggests that WM does not significantly affect the IWB of lecturers. Regarding the second hypothesis, which proposed that OC had a significant direct effect on IWB, the path coefficient value was 0.258, with a p-value of 0.017, supporting H_2. This indicates that OC significantly influences the IWB of lecturers. Finally, regarding the third hypothesis, which

suggested that SSC also had a significant direct influence on IWB, the path coefficient value was 0.504, with a p-value of 0.000, thus supporting H_3. This implies that SSC has a direct impact on the IWB of lecturers.

Table 5. Regression weights for the paths

Path	Estimate	t-value	p
OC→IWB	0.258	2.392	0.017
SSC→IWB	0.504	4.863	0.000
WM→IWB	0.163	1.604	0.109

4. DISCUSSION

4.1. Work motivation on innovative work behavior

Motivation has always been regarded as a crucial aspect shaping an individual's foundation in performing various tasks. The significance of encouragement in work to enhance one's performance serves as the fundamental rationale for the necessity of high motivation in task execution [32]. Elevated WM also influences a person's cognitive processes, leading to the generation of valuable innovations in their work [33]. Previous research has concurred that institutions rely on WM to accomplish their objectives [34]. Additionally, it has been affirmed that innovations aimed at enhancing work efficiency and effectiveness are strongly influenced by employee motivation [32]. However, this study presents inconsistencies with several prior studies. Specifically, this study demonstrates the absence of a significant effect of WM on IWB among lecturers.

The non-significant impact of WM on IWB among lecturers indicates several underlying factors. The evolving times, encompassing advancements in science and technology, changes in the environment, and shifts in societal norms, are among the aspects that diminish the influence of WM on IWB for lecturers [35], [36], and [37]. With the accessibility of teaching, service, and research materials facilitated by technology, even lecturers with low motivation have equal opportunities to exhibit innovative behavior at work [38], [39]. Moreover, contemporary IWB necessitates collaboration with others or other entities, diminishing the role of WM in influencing IWB among lecturers [40], [41]. This finding aligns with previous research, which also yielded non-significant results regarding the direct influence of WM on IWB among employees, necessitating the inclusion of a moderation variable [42]. Further studies have indicated that amidst technological advancements streamlining work processes, the significance of WM in affecting IWB diminishes [43], [44]. Alternatively, research has emphasized the importance of organizational leadership changes in influencing the innovative mindset of its members.

4.2. Organizational competence on innovative work behavior

Schein [45], highlighted the pivotal role of OC in shaping the mindset of its members to accomplish organizational objectives, particularly for organizational advancement [46]. OC encompasses a set of belief systems that dictate attitudes and are collectively embraced and developed by a group of individuals. It is intricately linked to the attitudes and behaviors exhibited by organizational members in support of goal attainment, thus determining the organization's progression [47]. A conducive OC fosters individual or collective thinking conducive to the sustainable development of the organization [48]. This study has empirically demonstrated that organizational culture significantly influences the cultivation of IWB among lecturers [49].

The substantial impact of OC on IWB among university lecturers is noteworthy and corroborates previous research findings, which also underscored the significant influence of OC on fostering innovative thinking [50]. This study elucidates the process of instilling an innovative mindset, commencing with attitudes or traits aligned with organizational goals and perpetuated sustainably [51]. These findings further reinforce the notion that an innovative mindset thrives when the cultivation process is sustained, epitomized by organizational culture. Several pertinent studies have concurred, identifying organizational culture as a predominant factor shaping innovative mindsets within organizations [52]. Furthermore, recognizing organizational cultures pivotal for 21st-century organizational development entails fostering a culture of digital literacy, collaborative work, and enhanced communication skills for problem-solving [43], [53]. Thus, the outcomes of this study suggest that the organizational culture prevalent among the lecturers fosters a conducive environment for harmonizing scientific and technological advancements in the 21st century, thereby influencing their IWB.

4.3. Soft skills competence on innovative work behavior

The findings of this study corroborate the significant impact of SSC on IWB among university lecturers. SSC encompasses abilities in the form of attitudes, behaviors, and personalities exhibited by individuals [54], [55]. The substantial influence of SSC on the enhancement of IWB in lecturers is underpinned by several critical factors. According to Akinbobola [56], an individual's IWB within an organization is heavily influenced by their personality and positive attitude, which align with organizational goals. This assertion is

further supported by Ibrahim *et al.* [57], who elucidate that individual performance growth and development within an organization are determined by strong attitudes or personalities that are congruent with organizational advancement [58], [59]. Furthermore, other studies assert that possessing a positive personality cultivates readiness to work, perpetuating an innovative mindset conducive to organizational development.

5. CONCLUSION

The SSC plays a pivotal role in molding the IWB of marine lecturers, concurrently influencing the variable traditionally attributed to work motivation. This shift is primarily driven by the mediating role of technology between WM and IWB. Our findings underscore that the dimension of problem-solving ability exerts the most significant influence, followed by professionalism and communication. Additionally, OC also contributes to shaping IWB, with the dimension of people orientation exhibiting the highest impact. Future research should explore the mediating role of technology between WM and IWB further. The outcomes of this study complement existing literature by highlighting the indirect impact of environmental circumstances on WM, particularly among maritime lecturers.

REFERENCES

[1] A. C. Bos-Nehles and A. A. R. Veenendaal, "Perceptions of HR practices and innovative work behavior: the moderating effect of an innovative climate," *International Journal of Human Resource Management*, vol. 30, no. 18, pp. 2661–2683, Oct. 2019, doi: 10.1080/09585192.2017.1380680.

[2] M. Farrukh, F. Meng, A. Raza, and Y. Wu, "Innovative work behaviour: the what, where, who, how and when," *Personnel Review*, vol. 52, no. 1, pp. 74–98, Jan. 2023, doi: 10.1108/PR-11-2020-0854.

[3] Z. Xu and S. Suntrayuth, "Innovative work behavior in high-tech enterprises: Chain intermediary effect of psychological safety and knowledge sharing," *Frontiers in Psychology*, vol. 13, no. 10, pp. 1–11, 2022, doi: 10.3389/fpsyg.2022.1017121.

[4] D. P. Srirahayu, D. Ekowati, and A. R. Sridadi, "Innovative work behavior in public organizations: A systematic literature review," *Heliyon*, vol. 9, no. 2, p. e13557, 2023, doi: 10.1016/j.heliyon.2023.e13557.

[5] S. Gerintya, "Indonesia's Education Index is Low, Competitiveness is Weak," *tirto.id*, 2019.

[6] V. Tūtlys and G. Spöttl, "Disruption of qualifications in manufacturing: challenges and prospects," *European Journal of Training and Development*, vol. 16, no. 06, pp. 1–13, 2021, doi: 10.1108/EJTD-07-2020-0121.

[7] L. Da Xu, E. L. Xu, and L. Li, "Industry 4.0: State of the art and future trends," *International Journal of Production Research*, vol. 56, no. 8, pp. 2941–2962, 2018, doi: 10.1080/00207543.2018.1444806.

[8] A. Kurmala, "Maritime is key to driving Indonesia's economic development: Jokowi," *Antara*, 2024.

[9] S. Sutiman, H. Sofyan, Z. Arifin, M. Nurtanto, and F. Mutohhari, "Industry and Education Practitioners' Perceptions Regarding the Implementation of Work-Based Learning through Industrial Internship (WBL-II)," *International Journal of Information and Education Technology*, vol. 12, no. 10, pp. 1090–1097, 2022, doi: 10.18178/ijiet.2022.12.10.1725.

[10] BPSDM ESDM, "Performance report of the esdm human resources development agency TA. 2022," Jakarta Selatan, 2022.

[11] V. Dombrovskis, S. Guseva, and V. Murasovs, "Motivation to Work and the Syndrome of Professional Burn-out among Teachers in Latvia," *Procedia - Social and Behavioral Sciences*, vol. 29, pp. 98–106, Jan. 2011, doi: 10.1016/J.SBSPRO.2011.11.212.

[12] X. Pan, M. Chen, Z. Hao, and W. Bi, "The effects of organizational justice on positive organizational behavior: Evidence from a large-sample survey and a situational experiment," *Frontiers in Psychology*, vol. 8, no. JAN, pp. 1–16, 2018, doi: 10.3389/fpsyg.2017.02315.

[13] R. S. Wulandari, "The Paradigm of Cadets of Motivation and Its Impact on Lecturers' Performance in Maritime Education," *Journal of Innovation in Educational and Cultural Research*, vol. 4, no. 2, pp. 280–287, 2023, doi: 10.46843/jiecr.v4i2.713.

[14] N. Kholifah, M. S. Kurdi, M. Nurtanto, F. Mutohhari, M. Fawaid, and T. S. Subramaniam, "The role of teacher self-efficacy on the instructional quality in 21st century: A study on vocational teachers, Indonesia," *International Journal of Evaluation and Research in Education (IJERE)*, vol. 12, no. 2, pp. 998–1006, Jun. 2023, doi: 10.11591/IJERE.V12I2.23949.

[15] L. Agusria, F. Fitantina, K. Kholilah, and A. Permana, "The Influence of Work Discipline, Organizational Culture and Competence on Employee Performance," *International Journal of Business, Management and Economics*, vol. 3, no. 4, pp. 371–381, 2022, doi: 10.47747/ijbme.v3i4.906.

[16] L. P. de Carvalho, T. Poleto, C. C. Ramos, F. de A. Rodrigues, V. D. H. de Carvalho, and T. C. C. Nepomuceno, "Predictors of Digital Competence of Public University Employees and the Impact on Innovative Work Behavior," *Administrative Sciences*, vol. 13, no. 5, pp. 131–156, 2023, doi: 10.3390/admsci13050131.

[17] A. N. Raymond, J. R. Hollenbeck, and P. M. Wright, *Human Resources Management Gaining A Competitive Advantage*, 9th ed. New York: McGraw Hill, 2015.

[18] J. C. Nelson, D. L., & Quick, *Organizational behaviour: Science, the real world, and you*, 7th editio. Singapore: Cengage Learning, 2012.

[19] L. Cohen, L. Manion, and K. Morrison, *Research Methods in Education*, 6th Editio. London: Routledge, 2007, doi: https://doi.org/10.4324/9780203029053.

[20] J. F. Hair, G. T. M. Hult, C. M. Ringle, M. Sarstedt, N. P. Danks, and S. Ray, *An Introduction to Structural Equation Modeling*. 2021, doi: 10.1007/978-3-030-80519-7_1.

[21] D. Ulrich, J. Younger, and W. Brockbank, "The twenty-first-century HR organization," *Human Resource Management*, vol. 47, no. 4, pp. 829–850, Dec. 2008, doi: 10.1002/hrm.20247.

[22] R. Kanfer, M. Frese, and R. E. Johnson, "Motivation related to work: A century of progress," *Journal of Applied Psychology*, vol. 102, no. 3, pp. 338–355, Feb. 2017, doi: 10.1037/apl0000133.

[23] M. G. Aamodt, *Industrial/Organizational Psychology: An Applied Approach*, 8th ed. Boston: Cengage Learning, 2016, doi: 10.4324/9781315824000-12.

[24] S. P. Robbins and T. A. Judge, *Organizational behavior*, 17th ed. Englan: Person Education, 2017.

[25] A. F. Hendarman and U. Cantner, "Soft skills, hard skills, and individual innovativeness," *Eurasian Business Review*, vol. 8, no. 2, pp. 139–169, Jun. 2018, doi: 10.1007/s40821-017-0076-6.

[26] S. P. Robbins and M. Coulter, *Management*, 14th ed. New York: Pearson Education, Inc, 2018.

[27] G. Messmann, J. Stoffers, B. Van der Heijden, and R. H. Mulder, "Joint effects of job demands and job resources on vocational teachers' innovative work behavior," *Personnel Review*, vol. 46, no. 8, pp. 1948–1961, 2017, doi: 10.1108/PR-03-2016-0053/FULL/XML.
[28] K. Lorenz, "Top 10 Soft Skills for Job Hunters," *Oregon Transition Education*. pp. 4–6, 2009.
[29] J. F. Hair, G. T. Hult, C. Ringle, and M. Sarstedt, *A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM) - Joseph F. Hair, Jr., G. Tomas M. Hult, Christian Ringle, Marko Sarstedt*. 2017.
[30] H. M. Reid, *Introduction to statistics: Fundamental concepts and procedures of data analysis*. United States: SAGE Publications, Inc, 2014.
[31] R. A. Johnson and D. W. Wichern, *Applied multivariate statistical analysis*, 6th ed. United States: Pearson Education, Inc, 2007.
[32] F. Ren, Q. Zhang, and X. Wei, "Work Autonomous and Controlled Motivation on Chinese Employees' Work Performance and Innovative Work Behaviour: The Moderating Role of Financial Stress," *Frontiers in Psychology*, vol. 12, no. 1, pp. 1–12, 2021, doi: 10.3389/fpsyg.2021.676063.
[33] C. Tausky and E. L. Edward, "Motivation in Work Organizations.," *Industrial and Labor Relations Review*, vol. 28, no. 3, pp. 479–492, 1975, doi: 10.2307/2522038.
[34] Y. Xu, D. Liu, and D. S. Tang, "Decent work and innovative work behaviour: Mediating roles of work engagement, intrinsic motivation and job self-efficacy," *Creativity and Innovation Management*, vol. 31, no. 1, pp. 49–63, 2022, doi: 10.1111/caim.12480.
[35] E. van Laar, A. J. A. M. van Deursen, J. A. G. M. van Dijk, and J. de Haan, "The Relation between 21st-Century Skills and Digital skills: A Systematic Literature Review," *Computers in Human Behavior*, vol. 72, no. 12, pp. 577–588, 2017, doi: 10.1016/j.chb.2017.03.010.
[36] M. C. M. Bravo, C. S. Chalezquer, and J. Serrano-Puche, "Meta-framework of digital literacy: Comparative analysis of 21st century skills frameworks," *Revista Latina de Comunicacion Social*, vol. 2021, no. 79, pp. 76–110, 2021, doi: 10.4185/RLCS-2021-1508.
[37] T. Mahfud, Y. Mulyani, R. Setyawati, and N. Kholifah, "The influence of teaching quality, social support, and career self-efficacy on the career adaptability skills: Evidence from a polytechnic in Indonesia," *Integration of Education*, vol. 26, no. 1, pp. 27–41, Mar. 2022, doi: 10.15507/1991-9468.106.026.202201.027-041.
[38] H. Santoso, Elidjen, S. B. Abdinagoro, and M. Arief, "The role of creative self-efficacy, transformational leadership, and digital literacy in supporting performance through innovative work behavior: Evidence from telecommunications industry," *Management Science Letters*, vol. 9, no. Spceial Issue 13, pp. 2305–2314, 2019, doi: 10.5267/j.msl.2019.7.024.
[39] N. Aboobaker and Z. K.A, "Influence of digital learning orientation and readiness for change on innovative work behaviour: reflections from the higher education sector," *Development and Learning in Organizations*, vol. 34, no. 2, pp. 25–28, 2020, doi: 10.1108/DLO-08-2019-0191.
[40] S. Colakoglu, Y. Chung, and C. Ceylan, "Collaboration-based HR systems and innovative work behaviors: The role of information exchange and HR system strength," *European Management Journal*, vol. 40, no. 4, pp. 518–531, Aug. 2022, doi: 10.1016/j.emj.2021.07.011.
[41] F. Di Vincenzo and V. Iacopino, "'Catching the new': Exploring the impact of professional networks on innovative work behavior in healthcare," *Creativity and Innovation Management*, vol. 31, no. 1, pp. 141–151, 2022, doi: 10.1111/caim.12476.
[42] F. A. Bawuro, A. Shamsuddin, E. Wahab, and H. Usman, "Mediating role of meaningful work in the relationship between intrinsic motivation and innovative work behaviour," *International Journal of Scientific and Technology Research*, vol. 8, no. 9, pp. 2076–2084, 2019.
[43] A. Pilav-Velić, M. Aerne, P. Trkman, S. I. Wong, and A. K. Abaz, "Digital or Innovative: Understanding 'digital Literacy - Practice - Innovative Work Behavior' Chain," *South East European Journal of Economics and Business*, vol. 16, no. 1, pp. 107–119, 2021, doi: 10.2478/jeb-2021-0009.
[44] T. Purnomo Hadi, B. Tola, and M. Akbar, "The Effect of Transformational Leadership and Work Motivation on Innovative Behavior," *IJHCM (International Journal of Human Capital Management)*, vol. 3, no. 2, pp. 100–108, 2019, doi: 10.21009/ijhcm.03.02.09.
[45] E. H. Schein, *Organizational Culture and Leadership*, 4th ed. San Francisco: Jossey-Bass, 2010.
[46] Y. Wang, M. Toseef, and Y. Gong, "It process alignment in business strategy: Examining the role of transactional leadership and organization culture," *Information*, vol. 12, no. 6, p. 237, May 2021, doi: 10.3390/info12060237.
[47] A. Sarwar, M. K. Imran, Z. U. Z. Anjum, and U. Zahid, "How innovative climate leads to project success: the moderating role of gender and work culture," *Innovation and Management Review*, vol. 17, no. 4, pp. 413–430, 2020, doi: 10.1108/INMR-08-2019-0096.
[48] A. B. C. Tan, D. H. Van Dun, and C. P. M. Wilderom, "Innovative work behavior in Singapore evoked by transformational leaders through innovation support and readiness," *Creativity and Innovation Management*, vol. 30, no. 4, pp. 697–712, 2021, doi: 10.1111/caim.12462.
[49] Z. Van der Wal and M. A. Demircioglu, "More ethical, more innovative? The effects of ethical culture and ethical leadership on realized innovation," *Australian Journal of Public Administration*, vol. 79, no. 3, pp. 386–404, 2020, doi: 10.1111/1467-8500.12423.
[50] M. Rizki, R. D. Parashakti, and L. Saragih, "The effect of transformational leadership and organizational culture towards employees' innovative behaviour and performance," *International Journal of Economics and Business Administration*, vol. 7, no. 1, p. Wang, Yongming Toseef, Muhammad Gong, Yingmei, 2019, doi: 10.35808/ijeba/208.
[51] A. Zeb, F. Akbar, K. Hussain, A. Safi, M. Rabnawaz, and F. Zeb, "The competing value framework model of organizational culture, innovation and performance," *Business Process Management Journal*, vol. 27, no. 2, pp. 658–683, 2021, doi: 10.1108/BPMJ-11-2019-0464.
[52] Y. Liu, W. Wang, and D. Chen, "Linking Ambidextrous Organizational Culture to Innovative Behavior: A Moderated Mediation Model of Psychological Empowerment and Transformational Leadership," *Frontiers in Psychology*, vol. 10, no. 1, pp. 1–14, 2019, doi: 10.3389/fpsyg.2019.02192.
[53] M. Nurtanto, P. Sudira, H. Sofyan, N. Kholifah, and T. Triyanto, "Professional Identity of Vocational Teachers in the 21st Century in Indonesia," *Journal of Engineering Education Transformations*, vol. 35, no. 3, pp. 30–36, 2022, doi: 10.16920/jeet/2022/v35i3/22085.
[54] L. K. Chiu, N. I. Mahat, B. Rashid, N. A. Razak, and H. Omar, "Assessing Students' Knowledge and Soft Skills Competency in the Industrial Training Programme: The Employers' Perspective," *Review of European Studies*, vol. 8, no. 1, pp. 123–135, 2016, doi: 10.5539/res.v8n1p123.
[55] M. Nurtanto, M. Fawaid, and H. Sofyan, "Problem Based Learning (PBL) in Industry 4.0: Improving Learning Quality through Character-Based Literacy Learning and Life Career Skill (LL-LCS)," in *Journal of Physics: Conference Series*, 2020, vol. 1573, no. 1, doi: 10.1088/1742-6596/1573/1/012006.
[56] O. I. Akinbobola, "Predicting Innovative Work Behavior from Soft Skills and Emotional Demands–Abilities Fit in Knowledge

Economy," *Management and Economics Research Journal*, vol. 6, no. 3, pp. 1–8, 2020, doi: 10.18639/merj.2020.9900013.
[57] R. Ibrahim, A. Boerhannoeddin, and B. Kazeem Kayode, "Organizational culture and development: Testing the structural path of factors affecting employees' work performance in an organization," *Asia Pacific Management Review*, vol. 22, no. 2, pp. 104–111, 2017, doi: 10.1016/j.apmrv.2016.10.002.
[58] P. Fernández-Arias, Á. Antón-Sancho, D. Vergara, and A. Barrientos, "Soft skills of American university teachers: Self-concept," *Sustainability (Switzerland)*, vol. 13, no. 22, pp. 1–25, 2021, doi: 10.3390/su132212397.
[59] D. N. Azizah, S. Muslim, and M. Cholik, "The correlation of industrial work experience and soft skills on work readiness of graduated of vocational high school," *International Journal for Educational and Vocational Studies*, vol. 3, no. 4, pp. 1–14, 2021, doi: 10.29103/ijevs.v3i4.3018.

BIOGRAPHIES OF AUTHORS

Nur Kholifah is a Dr., Assoc. Professor at the Department of Fashion Design, Yogyakarta State University, Yogyakarta, Indonesia. Research interest in the field of empowering vocational communities, learning methods, vocational teachers, entrepreneurship, and gamification. She can be contacted at email: nur.kholifah@uny.ac.id.

Muhammad Nurtanto is a Dr., Assist. Professor at Department of Mechanical Engineering, Jakarta State Polytecnic, Demak, Indonesia. Research interests in the fields of professional learning, Teacher Emotion, Teacher Identity Philosophy of education, STEM education, gamification, and teacher quality in vocational education. He can be contacted at email: muhammad.nurtanto@mesin.pnj.ac.id.

Gulzhaina K. Kassymova is a Ph.D. and Dr. in Ed., a senior lecturer at Abai Kazakh National Pedagogical University and Suleyman Demirel University; Head of the Department of Intellectual Properties and International Cooperation, Institute of Metallurgy and Ore Beneficiation, Satbayev University, Almaty, Kazakhstan. She can be contacted at email: g.kassymova@satbayev.university, zhaina.kassym@gmail.com.

Hani Subakti is an assistant professor in the Department of Primary Teacher Education, Widya Gama Mahakam University Samarinda, East Kalimantan, Indonesia. Research interests in education, quality of learning, management in education, and media and technology. He can be contacted at email: hanisubakti@uwgm.ac.id.

Mustofa Abi Hamid is a doctoral student at Graduate School of Technological and Vocational Education Yogyakarta State University. He is also an Assistant Professor of TVET at the Department of Electrical Engineering Vocational Education, , Sultan Ageng Tirtayasa University. He is former the secretary of Department of Electrical Engineering Vocational Education since 2021 until 2023; former head of Laboratory of Electrical Engineering Vocational Education 2019 – 2021; and former member of the faculty senate. He has written several papers in the areas of technical and vocational education and training, digital learning, e-learning, evaluation of learning, learning media. His research interests also include learning strategies, pedagogical innovations in TVET, skills and personal development, innovations in engineering and education, etc. He can be contacted at email: abi.mustofa@untirta.ac.id, mustofa@ieee.org, mustofaabi.2023@student.uny.ac.id.