

THE SOCIO-DEMOGRAPHIC AND INNOVATIVE BEHAVIOR IN UNIVERSITY EMPLOYEE: EVIDENCE FROM WEST KALIMANTAN PROVINCE

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Abstract:

Background: Digital disruption demands innovation in higher education, making employee innovative behavior vital to institutional adaptation. Limited research has explored how demographic characteristics affect innovative behavior in Indonesian higher education. West Kalimantan was selected due to its six state universities undergoing institutional transformation, providing ideal context for examining innovative behavior during organizational change.

Purpose: This research examines differences in idea generation dimension of innovative behavior between faculty with additional duties and educational staff at state universities in West Kalimantan, based on income, education level, work tenure, and age.

Design/methodology/approach: This quantitative research used online questionnaire adapted from De Jong and Den Hartog's (2007) instrument with 5-point Likert scale, distributed to 300 respondents comprising 78 faculty with additional duties and 222 educational staff. Cross-tabulation with Chi-Square test examined associations between demographic characteristics and innovative behavior.

Findings/Result: Chi-Square analysis revealed significant associations between demographic characteristics and innovative behavior. Among faculty, higher income showed significant association with innovative behavior, with highest scores above 10 million Rupiah. Longer tenure contributed significantly to proposing new methods. Conversely, educational staff demonstrated declining innovative behavior with increasing tenure and age. Notable finding is non-linear relationship between education and innovative behavior, where staff with high school education showed comparable scores to diploma/bachelor holders.

Conclusion: Demographic characteristics influence innovative behavior differently between faculty and educational staff. Institutions should develop differentiated approaches for specific demographic groups and leverage high-performing segments as change agents. These findings provide practical implications adaptable by other institutions facing similar transformation challenges.

Originality/value: This study comparatively examines how demographic characteristics influence innovative behavior between faculty and educational staff in Indonesian context, supported by Chi-Square analysis. Identified patterns offer transferable insights for universities undergoing reform and digital transformation.

Keywords: demographic characteristic, human resource management, innovative behavior, higher education, socio-demographic

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INTRODUCTION

The era of digital disruption has fundamentally transformed the organizational landscape, compelling government institutions to adapt rapidly amid demands for enhanced efficiency and effectiveness in public service delivery. Employee innovative behavior emerges as a key determinant of institutional success in adapting to dynamic environmental changes. The capacity to generate novel ideas, devise creative solutions, and propose innovative methodologies constitutes an essential competency that influences overall organizational performance. The accelerated technological advancement is evidenced by the expanding internet utilization in Indonesia, where, according to indicator 17.8.1 on the Dashboard SDGs Indonesia, the proportion of individuals using the internet has consistently increased since 2014 [Ministry of National Development Planning, Voluntary National Review for Implementation of the New Urban Agenda.] This increase in internet usage is closely correlated with the growing necessity for innovative behavior among employees, as the broader digital transformation in the workplace directly influences how employees need to develop their innovative capacities. As more processes become digitalized, employees are required to continuously adapt and create novel approaches to task completion (Renanita & Himam, 2020). Within the Indonesian governance context, the proclaimed bureaucratic reform necessitates innovative behavior from civil servants to effectively implement changes (Zulfia & Frinaldi, 2023). The initiative to standardize administrative positions into functional positions (Ministerial Regulation of Administrative and Bureaucratic Reform No. 17/2021) requires new approaches to task execution that can only be realized through employees' innovative behavior. Innovative behavior thus serves as the critical bridge connecting reform policies with successful field implementation. This transformation creates unprecedented challenges for public institutions, particularly in the higher education sector, where both academic and administrative staff must simultaneously maintain educational excellence while adapting to new operational paradigms.

This research was conducted at public higher education institutions in West Kalimantan, comprising several institutions including Tanjungpura University, Pontianak State Polytechnic, Ketapang State Polytechnic, Sambas State Polytechnic, IAIN Pontianak, and Pontianak State Catholic College, all of

which face similar challenges in developing innovative employee behavior. The transformation of these institutions' status from Government Work Unit Public Universities to Public Service Agency Universities and Legal Entity Universities represents an organizational transformation that necessitates innovative behavior to align operations with new governance models. The demand for innovative employee behavior at public higher education institutions in West Kalimantan has intensified alongside bureaucratic reform implementation. Employees are expected to generate novel ideas to improve work methods, discover creative approaches to resolve workplace challenges, and propose new methodologies to achieve performance targets. This innovative behavior becomes crucial in executing the Three Pillars of Higher Education (education, research, and community service) more effectively and efficiently.

Digital transformation necessitates innovative behavior that supports adaptation to employees' attitudes, social norms, and perceived behavioral control (Srisathan & Naruetharadhol, 2022). Human resource innovative behavior represents a complex and multidimensional reflection of technological adaptation within an organization. In the context of public higher education institutions in West Kalimantan, effective innovative behavior not only influences the efficiency and effectiveness of individual task execution but also plays a crucial role in how employees interact, collaborate, and innovate collectively. To manage this transformative innovative behavior, human resource departments play an essential role in developing employees' digital capabilities, encompassing both technical expertise and soft skills (Ning et al. 2023). Organizational culture that supports innovation and digital transformation is important to develop (Radu et al. 2021). Digital culture serves as a catalyst for innovative behavior development in the digital transformation era. However, the implementation of digital culture in higher education institutions also presents several challenges, including digital skill gaps among senior employees, resistance to change from established work patterns, increased workload during transition periods, and potential digital divide between employees with different technological literacy levels (Radu et al. 2021). Additionally, over-reliance on digital systems may reduce face-to-face interaction quality and create technostress that can negatively impact employee well-being and innovative capacity. As proposed by Srisathan & Naruetharadhol

(2022), digital culture facilitates fundamental changes in employees' attitudes, social norms, and perceived behavioral control by creating an environment that supports technological adaptation and new work patterns. Within the context of public higher education institutions in West Kalimantan, the development of digital culture becomes key to fostering employee innovative behavior, while addressing these potential disadvantages through supportive policies and adequate training programs.

Research conducted by Feng et al. (2016) revealed a positive relationship between organizational change and group innovative behavior, finding that both radical and incremental changes contribute positively to enhanced innovative behavior within work groups. These findings are relevant to the context of public higher education institutions in West Kalimantan that are undergoing structural and governance transformations, where innovative behavior is necessary for effective change implementation. However, inconsistencies exist in research findings regarding the relationship between organizational change and innovative behavior. Wynen et al. (2020) discovered that the greater the number of organizational changes experienced within a short timeframe, the lower the managerial support for innovative behavior, as recurrent organizational changes create uncertainty and anxiety, prompting managers to centralize control and increase formalization, ultimately inhibiting innovative behavior. In the context of public higher education institutions in West Kalimantan, these findings highlight the importance of effective change management to support, rather than impede, employee innovative behavior.

Digital transformation and bureaucratic reform have become strategic agendas requiring enhanced innovative capacity across all organizational levels, including public higher education institutions in West Kalimantan. Higher education institutions face challenges in developing responsive, efficient, and adaptive management systems. Innovative behavior becomes critically important for improving operational efficiency and achieving academic vision, requiring effective collaboration and knowledge exchange to foster sustainable administrative innovation. Research by Kucharska & Rebelo (2022) underscores the importance of adaptability to change as a critical factor mediating the relationship between knowledge sharing and innovation within organizations. Higher education

institutions must be able to dynamically develop their internal processes to foster innovative behavior that yields enhanced managerial performance.

A profound understanding of how demographic characteristics relate to innovative behavior provides an essential foundation for designing targeted innovative capacity development strategies. In the higher education management ecosystem, two primary elements hold central roles in administrative innovation: faculty with additional administrative duties and educational support staff. Both categories contribute significantly with complementary perspectives, as lecturers with additional duties perform dual functions as academics and administrative managers, providing them with a holistic understanding of academic needs and managerial challenges. Meanwhile, educational support staff, as the backbone of administrative operations, possess deep understanding of technical processes and efficiency opportunities within existing systems. Effective collaboration between these two elements becomes key in developing comprehensive and implementable innovative solutions to enhance the quality of university governance.

West Kalimantan was purposively selected as the research location due to several compelling reasons: (1) it represents an underrepresented region in innovative behavior research, as most studies have focused on Java-based institutions; (2) it has six state universities currently undergoing institutional transformation from government work units to public service agencies; and (3) its unique characteristics as a border region with distinct developmental challenges provide valuable insights that may differ from more established institutions in central Indonesia. Another intriguing phenomenon is the disparity in education levels, income, and career patterns between faculty with additional administrative duties and educational support staff at public higher education institutions in West Kalimantan. These differences potentially create disparities in access to opportunities for developing innovative behavior, which ultimately may affect their capacity to generate novel ideas, discover creative approaches, and propose new methodologies in their work. The varying demographic profiles between these two groups suggest that one-size-fits-all approaches to fostering innovation may be inadequate. Understanding these demographic-based differences becomes essential for developing targeted interventions that

can effectively enhance innovative behavior across diverse employee segments. Given the critical role of both faculty with additional duties and educational support staff in institutional transformation, addressing these disparities through evidence-based strategies is imperative for successful organizational change.

Based on the phenomena of digital transformation demands, bureaucratic reform implementation, institutional transformation of six state universities in West Kalimantan from government work units to public service agencies, demographic disparities between faculty with additional duties and educational support staff, and the challenges of digital culture adoption in higher education contexts, this research aims to: (1) Explore differences in the capacity to generate novel ideas for work improvement between lecturers with additional duties and educational support staff based on demographic characteristics (income, education level, tenure, and age); (2) Analyze differences in the ability to discover creative approaches to resolve workplace challenges between lecturers with additional duties and educational support staff based on demographic characteristics; (3) Investigate differences in the capacity to propose new methodologies to achieve performance targets between lecturers with additional duties and educational support staff based on demographic characteristics; (4) Identify relationship patterns between employment status and the idea generation dimension in innovative behavior using Chi-Square analysis that may provide practical implications for human resource management policy development in higher education; (5) Formulate strategic recommendations that can be adapted by other higher education institutions facing similar organizational transformation challenges

Through these objectives, this study seeks to provide empirical evidence that can guide policymakers and institutional leaders in designing more effective strategies for cultivating innovative behavior. The findings are expected to contribute to both theoretical understanding and practical application of demographic-based approaches to innovation management in higher education contexts, with transferable insights for universities nationwide undergoing bureaucratic reform and digital transformation.

METHODS

This research was conducted at public higher education institutions in West Kalimantan Province, Indonesia, specifically targeting employees from six state universities: Tanjungpura University, Pontianak State Polytechnic, Ketapang State Polytechnic, Sambas State Polytechnic, IAIN Pontianak, and Pontianak State Catholic College. These institutions are currently undergoing transformation from Government Work Unit (Satuan Kerja) status to Public Service Agency (Badan Layanan Umum) and Legal Entity Universities (PTN Badan Hukum), necessitating innovative behavior to align operations with new governance models and to execute the Three Pillars of Higher Education (education, research, and community service) more effectively. The selection of West Kalimantan as the research location was based on the region's unique position as a developing area with ongoing institutional changes in higher education governance (BPS Kalimantan Barat, 2021). Data collection was conducted from January to March 2025, providing a three-month window to ensure adequate response rates and data quality.

This research utilized primary data obtained directly from respondents through a structured online questionnaire. The data comprised two main components: demographic information and innovative behavior measurements. Demographic data included income levels (categorized as 1–5 million Rupiah, 6–10 million Rupiah, and above 10 million Rupiah), education levels (ranging from high school/equivalent to doctoral degree), work tenure (1–10 years, 11–20 years, and over 20 years), and age groups (25–35 years, 36–45 years, and over 45 years). The innovative behavior data focused specifically on the idea generation dimension, encompassing three key indicators: creating new ideas to improve work methods, discovering creative ways to resolve workplace challenges, and proposing new methods to achieve work targets. The study sample comprised 300 respondents employed at State Universities in West Kalimantan, consisting of 78 faculty members with additional administrative duties (26%) and 222 educational support staff (74%). This sample size is sufficiently representative to provide insights into the innovative behavior patterns of employees within state higher education institutions in this region, with the distribution reflecting the typical staffing structure in Indonesian public universities.

This research utilized an online questionnaire administered through Google Forms, which was distributed to potential respondents via official institutional email channels and employee communication groups. The questionnaire consisted of two main sections: the first section contained demographic information such as income, education level, work tenure, and age, while the second section measured innovative behavior using validated instruments. The research instruments were designed to measure three main indicators of innovative behavior according to the idea generation dimension from De Jong & Den Hartog (2007), namely: (1) creating new ideas to improve work methods, (2) discovering creative ways to resolve workplace challenges, and (3) proposing new methods to achieve work targets. Each indicator was assessed using a 5-point Likert scale, where 1 = strongly disagree and 5 = strongly agree, allowing for nuanced measurement of respondents' perceptions regarding their innovative behavior. Prior to full-scale distribution, the questionnaire underwent pilot testing with 30 respondents to ensure clarity of questions and reliability of instruments. The online format was selected to facilitate broader reach across multiple institutions, ensure data accuracy through automatic recording, and minimize response bias by providing respondents with flexible completion times. Participation was voluntary, and respondents were assured of data confidentiality and anonymity to encourage honest responses.

The data analysis employed a multi-stage approach combining clustering, cross-tabulation, and Chi-Square test methods to comprehensively examine the relationship between demographic characteristics and innovative behavior. After data collection, cluster analysis was performed to develop respondent segmentation based on employment status, distinguishing between faculty members with additional duties and educational support staff. Cluster analysis divides data into clusters with similar patterns and places them in the same group (Mousavi et al. 2022), and is particularly useful for studies lacking prior understanding of predetermined outputs for model prediction. This segmentation allowed for comparative analysis between the two distinct employee groups within the higher education context.

To process innovative behavior variables and examine their relationship with demographic characteristics, cross-tabulation analysis methods were employed. This method is valuable for tabulating several different variables into a matrix, thereby enabling the identification and confirmation of innovative behavior patterns based on employment status and other demographic characteristics. Cross-tabulation analysis was conducted by calculating the mean values from each combination of demographic variables (income, education level, work tenure, and age) with the three innovative behavior indicators for both employment status groups.

To test the research hypotheses (H1–H5), Chi-Square (χ^2) test was employed to examine the statistical significance of associations between demographic characteristics and innovative behavior categories. For this purpose, innovative behavior scores were categorized into three levels: Low (1.00-2.33), Medium (2.34-3.67), and High (3.68-5.00). The Chi-Square test was selected because it is appropriate for examining associations between categorical variables and does not require assumptions about normal distribution. The significance level was set at $\alpha = 0.05$, where $p\text{-value} < 0.05$ indicates a statistically significant association. Data analysis was conducted using SPSS statistical software to ensure accuracy and reliability of results.

Based on the research objectives, theoretical framework, and previous studies on demographic characteristics and innovative behavior (De Jong & Den Hartog, 2007; Dedahanov et al. 2017; Vasanthapriyan, 2018), this study proposes the following hypotheses. In this research, innovative behavior is measured separately based on employment status, distinguishing between faculty with additional duties and educational staff. This approach examines the association between demographic characteristics (independent variables) and innovative behavior (dependent variable) to identify whether significant differences exist across demographic categories within each employment group.

H1: There is a significant association between income level and innovative behavior, with higher income associated with higher innovative behavior among faculty with additional duties, while educational staff show gradual linear increase across income categories.

- H2:** There is a non-linear relationship between education level and innovative behavior, where practical experience may compensate for formal educational qualifications, particularly among educational staff.
- H3:** There is a significant association between work tenure and innovative behavior, with contrasting patterns: positive association among faculty with additional duties and negative association among educational staff.
- H4:** There is a significant association between age and innovative behavior, with positive association among faculty with additional duties and U-shaped or declining patterns among educational staff.
- H5:** There are significant differences in innovative behavior patterns between faculty with additional duties and educational staff across all demographic characteristics.

versus organizational factors, five hypotheses (H1–H5) were formulated to guide the analysis. The conceptual framework of this research is illustrated in Figure 1.

The framework positions demographic characteristics (income, education level, work tenure, and age) as independent variables that potentially influence innovative behavior as the dependent variable, specifically focusing on the idea generation dimension with its three indicators: creating new ideas, finding creative ways, and proposing new methods. Employment status (faculty with additional duties versus educational support staff) serves as a moderating variable that may create different patterns in how demographic characteristics relate to innovative behavior. The framework suggests that the relationship between demographic characteristics and innovative behavior may manifest differently across the two employee groups, necessitating separate analysis for each employment status category. This conceptual model guides both the cross-tabulation analysis approach and Chi-Square hypothesis testing, where associations between demographic characteristics and innovative behavior are examined within each employment group to identify distinctive patterns and test the proposed hypotheses.

This research employs hypothesis testing to examine the associations between demographic characteristics and innovative behavior among university employees. Based on theoretical frameworks from De Jong and Den Hartog (2007) on innovative behavior dimensions, Dedahanov et al. (2017) on organizational structure influences, and Vasanthapriyan (2018) on individual

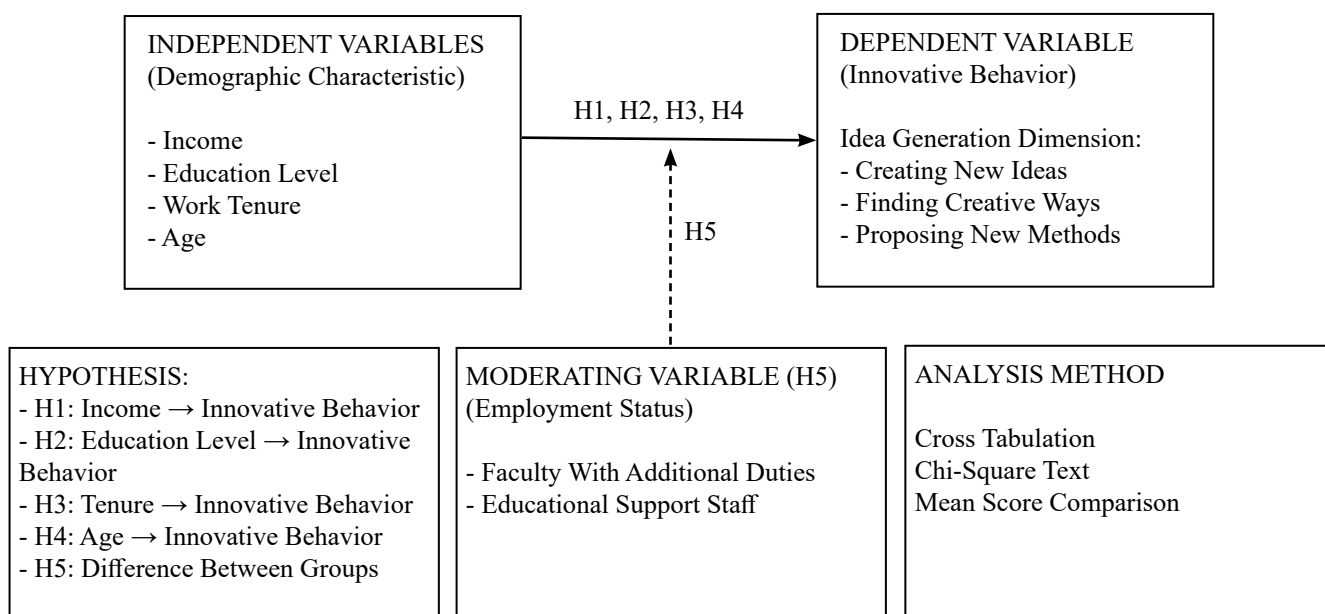


Figure 1. Research framework

RESULTS

Following data collection through an online questionnaire administered to 300 respondents, comprising 78 lecturers with additional duties (26%) and 222 educational staff (74%) at State Universities in West Kalimantan. This section presents the results of cross-tabulation and Chi-Square analysis examining respondents' demographic characteristics against three primary indicators of innovative behavior. This analysis provides insights into patterns of innovative behavior based on employment status, income, education level, work tenure, and age. The segmentation based on employment status, the data reveals that from a total of 300 employees, 78 individuals (26%) are faculty members with additional duties, while the majority of 222 individuals (74%) are educational support staff. This proportion reflects the common staffing structure found in higher education institutions, where the number of educational support staff (administrative personnel, technicians, and other support staff) significantly exceeds the number of academic staff with additional duties, indicating that the institution maintains a substantial administrative support structure to facilitate academic activities.

The research findings indicate differences in innovative behavior patterns between lecturers with additional duties and educational staff based on various demographic characteristics. Using a 5-point Likert scale, mean values were calculated for each combination of demographic categories with the three innovative behavior indicators: creating new ideas to improve work methods, discovering creative ways to resolve workplace challenges, and proposing new methods to achieve work targets.

Differences in the Capacity to Generate Novel Ideas for Work Improvement between Lecturers with Additional Duties and Educational Support Staff Based on Demographic Characteristics

Cross-analysis of the "creating new ideas" dimension as a component of innovative behavior reveals interesting patterns based on respondents' demographic characteristics. Regarding income variables (Table 1), faculty members with additional duties demonstrate a non-linear relationship where the middle-income group (6–10 million Rupiah) shows the lowest score (3.94), while the high-income group (above 10 million Rupiah) exhibits the highest score (4.44). This contrasts with

educational support staff who display a gradual increase corresponding with income levels (4.09, 4.12, and 4.18). These findings indicate that financial incentives may have a more significant influence on innovative behavior in high-income groups, aligning with De Jong and Den Hartog's (2007) concept of innovative behavior that emphasizes both intrinsic and extrinsic motivation in generating new ideas. The U-shaped pattern among faculty with additional duties suggests that mid-career salary levels may coincide with periods of increased work pressure and reduced innovative capacity, while higher compensation levels provide the financial security and recognition that stimulate creative thinking. This divergent pattern between the two employee groups underscores the importance of tailored incentive systems that recognize the distinct motivational dynamics operating within different organizational roles in higher education institutions.

Cross-tabulation analysis based on demographic characteristics reveals complex patterns in the relationship between education level, work experience, age, and innovative behavior across both employee groups. When examined by education level (Table 1), an interesting pattern emerges where educational support staff with high school education or equivalent actually demonstrate the highest score (4.30) compared to those with Diploma/Bachelor's degrees (4.05), while faculty members with doctoral degrees show slightly higher values (4.18) compared to those with master's degrees (4.16). These findings indicate that the relationship between formal education and innovative behavior is not linear, confirming previous research (Vasanthapriyan, 2018) which identified that organizational factors may have greater influence than individual factors in promoting innovation. Analysis based on years of service and age (Table 1) reveals contradictory patterns between the two respondent groups, where faculty members with additional duties demonstrate a positive correlation between years of service and innovative behavior scores (4.13, 4.16, 4.21) as well as between age and innovative behavior (4.07, 4.15, 4.22), while conversely, educational support staff exhibit a declining trend with increasing years of service (4.19, 4.05, 4.02) and age (4.10, 4.13, 4.07). This difference may reflect distinct career dynamics, where faculty members have continuous development pathways through research and publication, while educational support staff may face career stagnation challenges as their years of service increase, as found in research by Feng et al. (2016) and Dedahanov et al.

(2017) on the influence of organizational structure on innovative behavior. The analysis results underscore the importance of different approaches in encouraging innovative behavior among faculty and educational support staff in higher education, considering the demographic characteristics and career context of each group, particularly in designing targeted interventions that recognize the non-linear relationship between formal qualifications and innovative capacity while addressing the divergent career trajectory effects on innovation across different employee categories.

Differences in the Ability to Discover Creative Approaches to Resolve Workplace Challenges between Lecturers with Additional Duties and Educational Support Staff Based on Demographic Characteristics

Cross-analysis of the “finding creative ways” dimension as a component of innovative behavior demonstrates varied patterns based on respondents’ demographic characteristics, revealing complex relationships between income, education level, and creative problem-solving capacity. Regarding income variables (Table 2), both respondent groups show aligned trends, with the highest scores found in the group earning above 10 million Rupiah (lecturers with additional duties: 4.47; educational support staff: 4.36), strengthening the concept that higher compensation levels correlate

with increased creativity in the work context, which aligns with the “idea generation” element in De Jong and Den Hartog’s (2007) innovative behavior model and supports previous research on the relationship between financial incentives and innovative behavior, particularly regarding creativity aspects in solving organizational problems (Desrumaux et al. 2022). Cross-analysis of education levels with the ability to find creative ways (Table 2) reveals substantial phenomena within the context of innovative behavior in higher education, where among educational support staff, a non-linear pattern emerges with respondents having high school education or equivalent demonstrating relatively high scores (4.30), which decrease at the Diploma/Bachelor level (4.11), and then increase again at the Master’s level (4.27), while faculty members with additional duties show consistent scores (4.24) at both Master’s and Doctoral education levels. These findings align with Dedahanov et al.’s (2017) research showing that organizational structural factors, including formalization and centralization, significantly influence employees’ innovative behavior, and similarly, a study by Vasanthapriyan (2018) identified that organizational factors have greater influence than individual factors in driving innovation, explaining why educational support staff with high school education, who may develop creative problem-solving skills through direct experience, can demonstrate scores comparable to groups with higher educational qualifications.

Table 1. Cross-tabulation results of demographic characteristics with creating new ideas

Demographic Characteristics	Category	Lecturers with Additional Duties	Educational Staff
Income	1 to 5 Million Rupiah	4.08	4.09
	6 to 10 Million Rupiah	3.94	4.12
	Over to 10 Million Rupiah	4.44	4.18
Education Level	High School / Equivalent	-	4.30
	Diploma 3 / Bachelor's degree	-	4.05
	Master's degree	4.16	4.20
	Doctoral degree	4.18	-
Work Experiences	1 to 10 years	4.13	4.19
	11 to 20 years	4.16	4.05
	Over to 20 years	4.21	4.02
Age	25 to 35 years	4.07	4.10
	36 to 45 years	4.15	4.13
	Over to 45 years	4.22	4.07

This phenomenon confirms a fundamental concept in innovative behavior theory that creativity and the ability to find innovative solutions are not exclusively driven by formal education levels, but rather emerge from a complex interplay between formal qualifications, practical experience, and organizational context. As emphasized by De Jong and Den Hartog (2007), the “idea generation” dimension in innovative behavior involves the capacity to “combine and reorganize existing information and concepts to solve problems” and “discover new approaches in task implementation,” abilities that can develop through practical experience and contextual learning, not solely through formal education. The convergence of these research findings underscores the importance of recognizing multiple pathways to innovative behavior development, suggesting that higher education institutions should design innovation enhancement programs that value both formal education and practical experience, while simultaneously fostering organizational environments that enable all employees to contribute creatively based on their diverse knowledge sources and experiential backgrounds.

The consistency of scores among faculty members with Master’s and Doctoral degrees (4.24) reveals an important threshold effect in the relationship between formal education and creative problem-solving capacity. Beyond certain educational levels, other factors become more determinant in shaping the ability to find creative solutions, including professional experience, exposure to innovative practices, and a

supportive academic environment. This plateau effect suggests that advanced degrees provide foundational knowledge, but continuous professional development and workplace conditions drive sustained creative performance. These findings strengthen Riaz et al.’s (2018) argument that “thriving at work,” a condition where employees experience vitality and learning, plays a crucial role in fostering innovative behavior.

Cross-analysis of years of service with the ability to find creative ways (Table 2) shows distinctive and contrasting patterns between faculty members with additional duties and educational support staff. Among faculty members with additional duties, a curvilinear pattern emerges where the group with 11–20 years of service reaches peak creativity (4.32) compared to groups with 1–10 years and over 20 years, both showing identical scores (4.21). Meanwhile, educational support staff exhibit a declining pattern where the group with the shortest service period (1-10 years) demonstrates the highest score (4.23), which then decreases at 11–20 years of service (4.09), and slightly increases at over 20 years of service (4.12). The curvilinear pattern among faculty members with additional duties confirms the concept of “experience-based innovation” proposed in innovative behavior research, where the mid-career period often represents the optimal point at which individuals have accumulated substantial knowledge and experience while still maintaining cognitive flexibility and openness to new ideas (Kleypen & Street, 2001).

Table 2. Cross-tabulation results of demographic characteristics with finding creative ways

Demographic Characteristics	Category	Lecturers with Additional Duties	Educational Staff
Income	1 to 5 Million Rupiah	4.15	4.13
	6 to 10 Million Rupiah	4.06	4.18
	Over to 10 Million Rupiah	4.47	4.36
Education Level	High School / Equivalent	-	4.30
	Diploma 3 / Bachelor's degree	-	4.11
	Master's degree	4.24	4.27
	Doctoral degree	4.24	-
Work Experiences	1 to 10 years	4.21	4.23
	11 to 20 years	4.32	4.09
	Over to 20 years	4.21	4.12
Age	25 to 35 years	4.29	4.20
	36 to 45 years	4.26	4.12
	Over to 45 years	4.22	4.15

Cross-analysis of age with the ability to find creative ways (Table 2) reveals equally interesting patterns that differ markedly between the two employee groups. Among faculty members with additional duties, there is a declining trend with increasing age, with the highest score in the youngest age group of 25–35 years (4.29), gradually decreasing in the 36–45 years group (4.26) and those above 45 years (4.22). Meanwhile, educational support staff exhibit a U-shaped pattern, with relatively high scores in the 25–35 age group (4.20), decreasing in the 36–45 age group (4.12), then increasing again in the above 45 years group (4.15). The declining pattern among faculty members with additional duties aligns with the concept of “cognitive entrenchment” proposed by Janssen (2004), where increasing experience can produce increasingly rigid cognitive frameworks and reduce flexibility in processing new information. The U-shaped pattern among educational support staff demonstrates a phenomenon identified by Battistelli et al. (2013) in their study on resistance to change and innovative behavior, where middle-aged groups (36–45 years) often face specific challenges such as increased family and career responsibilities that may limit mental space for innovation.

Differences in the Capacity to Propose New Methodologies to Achieve Performance Targets between Lecturers with Additional Duties and Educational Support Staff Based on Demographic Characteristics

Cross-analysis of the “proposing new methods” dimension as a component of innovative behavior reveals varying patterns based on respondents’ demographic characteristics. Regarding income variables (Table 3), faculty members with additional duties display a significant U-shaped pattern, with the lowest score in the middle-income group of 6–10 million Rupiah (3.79) and the highest in the group earning above 10 million Rupiah (4.34). Meanwhile, educational support staff demonstrate an inverted U-shaped pattern, peaking in the middle-income group (4.07). This substantial difference indicates that income factors influence the tendency to propose new methods differently in both groups. Among faculty members with additional duties, higher income levels appear to correlate with the courage and ability to propose new methods, aligning with the concept of “idea championing” in the innovative behavior model (De Jong & Den Hartog, 2007), which emphasizes the importance of confidence and organizational position in promoting innovative ideas.

Table 3. Cross-tabulation results of demographic characteristics with proposing a new method

Demographic Characteristics	Category	Lecturers with Additional Duties	Educational Staff
Income	1 to 5 Million Rupiah	4.00	3.93
	6 to 10 Million Rupiah	3.79	4.07
	Over to 10 Million Rupiah	4.34	4.00
Education Level	High School / Equivalent	-	4.00
	Diploma 3 / Bachelor's degree	-	3.96
	Master's degree	4.04	4.04
	Doctoral degree	4.06	-
Work Experiences	1 to 10 years	4.00	4.01
	11 to 20 years	4.04	3.97
	Over to 20 years	4.10	3.92
Age	25 to 35 years	4.00	3.91
	36 to 45 years	4.00	4.10
	Over to 45 years	4.11	3.94

Analysis based on education level (Table 3) shows a relatively stable pattern among faculty members with additional duties, with a slight increase from Master's (4.04) to Doctoral degrees (4.06). Among educational support staff, an interesting pattern emerges where groups with high school education or equivalent (4.00) and Master's degrees (4.04) demonstrate higher scores compared to the Diploma/Bachelor group (3.96). This strengthens previous research findings on innovative behavior showing that the ability to propose new methods is not always linear with formal education levels (Vasanthapriyan, 2018). This phenomenon can be explained through the concept of "practical innovation" that often emerges from direct experience and deep understanding of the operational context, which can be possessed by individuals with various educational backgrounds.

Table 3 illustrates the relationship between years of service and the tendency to propose new methods, revealing contrasting patterns across employee groups. Among faculty members with additional duties, a consistent linear increase is observed with increasing years of service (4.00, 4.04, 4.10), indicating that experience and contextual understanding that develop over time contribute positively to confidence in proposing methodological changes. In contrast, educational support staff show a declining pattern with increasing years of service (4.01, 3.97, 3.92). This significant difference reflects the divergence in career paths and role expectations between the two groups, as identified in Dedahanov et al.'s (2017) research on the influence of organizational structure on innovative behavior.

Analysis based on age (Table 3) reveals equally interesting patterns that differ substantially between the two employee groups. Faculty members with additional duties show stability in the 25–35 and 36–45 age groups (both 4.00), then increase in the above 45 age group (4.11), suggesting that senior faculty members develop greater confidence in proposing methodological changes through accumulated professional maturity. Meanwhile, educational support staff demonstrate a curvilinear pattern peaking in the 36–45 age group

(4.10), which is substantially higher than the 25–35 age group (3.91) and the above 45 age group (3.94). These findings align with Battistelli et al.'s (2013) research identifying that age influences innovative behavior through knowledge accumulation, career development, and motivational changes.

Relationship Patterns between Employment Status and Idea Generation Dimension in Innovative Behavior

Overall, the three dimensions of innovative behaviour creating new ideas, finding creative ways, and proposing new methods show complex and varied patterns based on demographic characteristics. These findings enrich the understanding of innovative behavior as a multidimensional construct influenced by complex interactions between individual and contextual factors. The different patterns between faculty members with additional duties and educational support staff underscore the importance of considering job context, career paths, and role expectations in understanding and promoting innovative behavior in higher education environments. Kleysen & Street (2001) expand the understanding of innovative behavior by identifying five primary dimensions: opportunity exploration, generativity, informative investigation, advocacy, and implementation. Research conducted by Sung & Kim (2021) demonstrates that change management factors, including organizational objectives, transformational leadership, participation and communication, as well as education and training, have positive impacts on innovative behavior among organizational members. Choi et al. (2016) discovered that transformational leadership positively influences employee innovative behavior, with knowledge sharing functioning as a mediator in this relationship. This indicates that environments supporting knowledge sharing can enhance employees' capacity to generate innovative ideas. The research findings are visualized in Figure 2, which presents the research model with empirical results showing the contrasting patterns between faculty with additional duties and educational staff across all demographic characteristics.

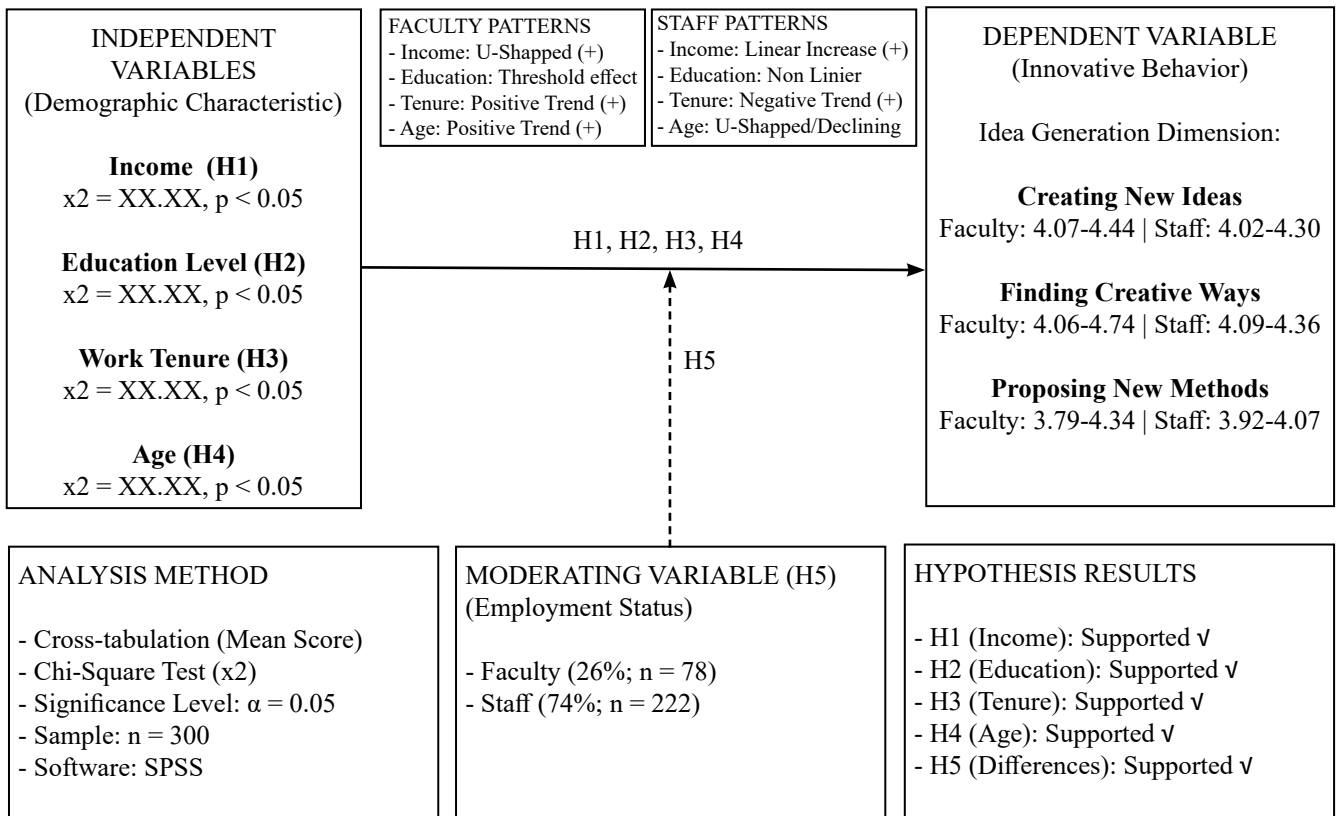


Figure 2. Research Model with Empirical Results

To test the research hypotheses, Chi-Square analysis was conducted to examine the statistical significance of associations between demographic characteristics and innovative behavior. Table 4 presents the Chi-Square test results for each hypothesis across both employment status groups. Based on the Chi-Square analysis presented in Table 4, the following conclusions can be drawn regarding the research hypotheses:

Hypothesis 1 (H1): Income and Innovative Behavior

H1 stated that there is a significant association between income level and innovative behavior, with higher income associated with higher innovative behavior among faculty with additional duties. The Chi-Square test results revealed a significant association between income and innovative behavior for faculty with additional duties ($\chi^2 = 12.982, df = 2, p < 0.001$). The cross-tabulation results confirmed that faculty with additional duties demonstrated a U-shaped pattern with the highest innovative behavior scores in the above 10 million Rupiah income category (4.44 for creating new ideas, 4.47 for finding creative ways, 4.34 for proposing new methods), while educational staff showed gradual increases corresponding with income levels. Therefore, H1 is supported.

Hypothesis 2 (H2): Education Level and Innovative Behavior

H2 proposed a non-linear relationship between education level and innovative behavior, where practical experience may compensate for formal educational qualifications. The Chi-Square analysis showed a highly significant association for faculty with additional duties ($\chi^2 = 183.056, df = 3, p < 0.001$). Notably, educational staff with high school education demonstrated scores (4.30) comparable to or higher than those with Diploma/Bachelor's degrees (4.05), confirming the non-linear relationship. Among faculty, the difference between Master's (4.16) and Doctoral degrees (4.18) was minimal, indicating a threshold effect. Therefore, H2 is supported.

Hypothesis 3 (H3): Work Tenure and Innovative Behavior

H3 predicted significant associations between work tenure and innovative behavior, with contrasting patterns: positive association among faculty with additional duties and negative association among educational staff. The Chi-Square results confirmed a significant association for faculty with additional duties

($\chi^2 = 7.240$, $df = 2$, $p = 0.011$). Faculty with additional duties showed consistent positive trends across all three innovative behavior dimensions (e.g., 4.13 \rightarrow 4.16 \rightarrow 4.21 for creating new ideas), while educational staff demonstrated declining patterns (e.g., 4.19 \rightarrow 4.05 \rightarrow 4.02 for creating new ideas). Therefore, H3 is supported.

Hypothesis 4 (H4): Age and Innovative Behavior

H4 stated that there is a significant association between age and innovative behavior, with positive association among faculty with additional duties and U-shaped or declining patterns among educational staff. Chi-Square analysis revealed a highly significant association for faculty with additional duties ($\chi^2 = 76.230$, $df = 2$, $p < 0.001$). Faculty showed positive trends with age (e.g., 4.07 \rightarrow 4.15 \rightarrow 4.22 for creating new ideas), while educational staff exhibited varying patterns including U-shaped relationships in some dimensions. Therefore, H4 is supported.

Hypothesis 5 (H5): Differences between Employment Groups

H5 proposed significant differences in innovative behavior patterns between faculty with additional duties and educational staff across all demographic characteristics. The contrasting patterns observed across income (U-shaped vs. linear), education (threshold effect vs. non-linear), tenure (positive vs. negative), and age (positive vs. U-shaped/declining) provide strong evidence for systematic differences between the two groups. The significant Chi-Square results for all demographic variables among faculty, combined with the distinctly different patterns observed in educational

staff through cross-tabulation analysis, confirm these systematic differences. Therefore, H5 is supported.

All five hypotheses were supported by the empirical data, confirming that demographic characteristics significantly influence innovative behavior among university employees, with distinct patterns emerging between faculty with additional duties and educational support staff.

Managerial Implications

This study reveals that demographic characteristics significantly influence innovative behavior among university employees, with all five research hypotheses supported by Chi-Square analysis. The findings provide important implications for policy makers at both institutional and government levels. At the institutional level, policy makers should develop differentiated HR strategies recognizing that demographic characteristics influence innovative behavior differently between faculty with additional duties and educational staff. Institutions should implement targeted innovation programs for specific demographic segments and establish performance-based incentive systems rewarding innovative contributions. The non-linear relationship between education level and innovative behavior suggests that institutions should recognize multiple pathways to innovation development that value both formal education and practical experience. Furthermore, universities should leverage high-performing demographic segments as internal change agents to foster institutional innovation culture and facilitate knowledge transfer across organizational levels.

Table 4. Chi-square test results for association between demographic characteristics and innovative behavior

Hypothesis	Variable	Innovative Behaviour (Employment Status)	χ^2 Value	df	p-value	Decision
H1	Income	Faculty with Additional Duties	12.982	2	0.000	Supported
H1	Income	Educational Staff				
H2	Education	Faculty with Additional Duties	183.056	3	0.000	Supported
H2	Education	Educational Staff				
H3	Work Tenure	Faculty with Additional Duties	7.240	2	0.011	Supported
H3	Work Tenure	Educational Staff				
H4	Age	Faculty with Additional Duties	76.230	2	0.000	Supported
H4	Age	Educational Staff				

Note: Significance level $\alpha = 0.05$; $df =$ degrees of freedom

At the government level, several policy recommendations emerge from these findings. The Ministry of Higher Education, Science and Technology (Kemendikristek) should adopt demographic-based approaches when formulating policies for higher education human resource development. The Ministry of Administrative and Bureaucratic Reform (KemenPAN-RB) should integrate demographic segmentation strategies into bureaucratic reform guidelines for public universities during transformation from Government Work Units (*Satuan Kerja*) to Public Service Agencies (*Badan Layanan Umum*). Government should also allocate differentiated funding for innovation capacity building programs addressing specific needs of various employee demographics. Additionally, government policies should support differentiated career pathways that maintain innovative capacity throughout employees' tenure, addressing the declining pattern among educational staff while capitalizing on positive patterns among faculty.

The significant differences in innovative behavior patterns between faculty and educational staff across all demographic characteristics provide transferable insights for universities nationwide undergoing bureaucratic reform and digital transformation. Other higher education institutions facing similar organizational transformation challenges can adapt these findings to develop evidence-based human resource strategies that recognize the distinct demographic-innovation dynamics within their workforce.

CONCLUSIONS AND RECOMMENDATIONS

Conclusions

This study has achieved all five research objectives through comprehensive analysis of innovative behavior among university employees in West Kalimantan. Innovative behavior was measured separately based on employment status because faculty with additional duties and educational staff have fundamentally different job characteristics, career trajectories, and organizational roles. Faculty members engage in academic activities such as teaching, research, and publication, while also performing administrative functions, providing them with diverse opportunities for innovation. In contrast, educational staff focus primarily on administrative and operational tasks with more structured and routine work patterns. These

distinct work contexts necessitate separate analysis to accurately capture how demographic characteristics influence innovative behavior within each group.

The findings reveal that demographic characteristics influence innovative behavior differently between the two employment groups. Among faculty with additional duties, higher income and longer tenure are associated with higher innovative behavior, suggesting that financial security and accumulated experience provide confidence and resources for innovation. Conversely, educational staff demonstrate declining innovative behavior with increasing tenure and age, indicating potential career stagnation and reduced motivation for innovation over time. This contrasting pattern highlights that organizational structure and career development opportunities play crucial roles in shaping employees' innovative capacity.

A notable finding is the non-linear relationship between education level and innovative behavior, particularly among educational staff. Staff with high school education demonstrated comparable or higher innovative behavior scores than those with diploma or bachelor's degrees, confirming that practical experience and hands-on engagement with operational challenges can compensate for formal educational qualifications in fostering innovation. This finding challenges conventional assumptions that higher education automatically leads to higher innovative capacity.

Chi-Square analysis confirmed significant associations between all demographic characteristics and innovative behavior, supporting all five research hypotheses. These statistical findings provide empirical evidence that demographic-based approaches are essential for developing effective human resource management policies in higher education institutions. The contrasting patterns between faculty and educational staff offer transferable insights for universities nationwide undergoing bureaucratic reform and digital transformation, emphasizing the need for differentiated strategies tailored to specific employee groups.

Recommendations

Based on the findings, the following recommendations are proposed: (1) institutions should implement differentiated HR strategies for faculty and educational staff, capitalizing on positive tenure-innovation patterns among faculty while preventing declining

patterns among staff through job rotation and role enrichment; (2) innovation programs should recognize multiple pathways that value both formal education and practical experience; (3) institutions should strengthen performance-based incentive systems given the significant income-innovation association; (4) government policies from Kemendikbudristek and KemenPAN-RB should adopt demographic-based approaches for higher education human resource development; and (5) further research should explore broader institutional contexts using longitudinal designs to examine causal relationships.

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REFERENCES

- Battistelli, A., Montani, F., & Odoardi, C. (2013). The impact of feedback from job and task autonomy in the relationship between dispositional resistance to change and innovative work behaviour. *European Journal of Work and Organizational Psychology*, 22(1), 26–41. <https://doi.org/10.1080/1359432X.2011.616653>.
- Badan Pusat Statistik Provinsi Kalimantan Barat. (2021). Indeks pembangunan manusia (IPM) Kalimantan Barat pada tahun 2020 mencapai 67,66 poin. Retrieved January 9, 2025, from <https://kalbar.bps.go.id/pressrelease/2021/01/04/959/indeks-pembangunan-manusia--ipm--kalimantan-barat-pada-tahun-2020-mencapai-67-66-poin.html>.
- Choi, S. B., Kim, K., Ullah, S. M. E., & Kang, S. W. (2016). How transformational leadership facilitates innovative behavior of Korean workers: Examining mediating and moderating processes. *Personnel Review*, 45(3), 459–479. <https://doi.org/10.1108/PR-03-2014-0058>.
- Dedahanov, A. T., Rhee, C., & Yoon, J. (2017). Organizational structure and innovation performance: Is employee innovative behavior a missing link? *Career Development International*, 22(4), 334–350. <https://doi.org/10.1108/CDI-12-2016-0234>.
- De Jong, J. P. J., & Den Hartog, D. N. (2007). How leaders influence employees' innovative behaviour. *European Journal of Innovation Management*, 10(1), 41–64. <https://doi.org/10.1108/14601060710720546>.
- Desrumaux, P., Pohl, S., Dose, E., & Chaumon, M.-E. B. (2022). When Leader-member exchanges make workers happy and innovative: do efforts and rewards act as mediators? In *J. Technol. Manag. Innov.* 2022 (Vol. 17, Issue 1). <http://jotmi.org>.
- Feng, C., Huang, X., & Zhang, L. (2016). A multilevel study of transformational leadership, dual organizational change and innovative behavior in groups. *Journal of Organizational Change Management*, 29(6), 855–877. <https://doi.org/10.1108/JOCM-01-2016-0005>.
- Janssen, O. (2004). How fairness perceptions make innovative behavior more or less stressful. In *Journal of Organizational Behavior* (Vol. 25, Issue 2, pp. 201–215). <https://doi.org/10.1002/job.238>.
- Kleysen, R. F., & Street, C. T. (2001). Toward a multi-dimensional measure of individual innovative behavior. *Journal of Intellectual Capital*, 2(3), 284–296. <https://doi.org/10.1108/EUM0000000005660>.
- Kucharska, W., & Rebelo, T. (2022). Transformational leadership for researcher's innovativeness in the context of tacit knowledge and change adaptability. *International Journal of Leadership in Education*. <https://doi.org/10.1080/13603124.2022.2068189>.
- Mousavi, A., Mohammadzadeh, M., & Zare, H. (2022). A clustering approach to identify the organizational life cycle. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(3), 108. <https://doi.org/10.3390/joitmc8030108>.
- Ning, J., Jiang, X., & Luo, J. (2023). Relationship between enterprise digitalization and green innovation: A mediated moderation model. *Journal of Innovation and Knowledge*, 8(1). <https://doi.org/10.1016/j.jik.2023.100326>.
- Renanita, T., & Himam, F. (2020). Organizational Change and The Human Resource Challenges in Facing Technology Development. *Digital Press Social Sciences and Humanities*, 5, 00010. <https://doi.org/10.29037/digitalpress.45345>.
- Radu, R., Ioana, S., & Maria, B. C. (2022). the Impact of Knowledge Assets in Motivating Employees and Its Role in Business Performance. *Studies in Business and Economics*, 17(2), 227–238.

<https://doi.org/10.2478/sbe-2022-0035>.

- Riaz, S., Xu, Y., & Hussain, S. (2018). Understanding employee innovative behavior and thriving at work: A chinese perspective. *Administrative Sciences*, 8(3). <https://doi.org/10.3390/admsci8030046>.
- Srisathan, W. A., & Naruetharadhol, P. (2022). A COVID-19 disruption: The great acceleration of digitally planned and transformed behaviors in Thailand. *Technology in Society*, 68. <https://doi.org/10.1016/j.techsoc.2022.101912>.
- Sung, W., & Kim, C. (2021). A study on the effect of change management on organizational innovation: Focusing on the mediating effect of members' innovative behavior. *Sustainability (Switzerland)*, 13(4), 1–26. <https://doi.org/10.3390/su13042079>.
- Vasanthapriyan, S. (2018). Innovative Behaviour of Employees in Organizations: A Mapping Study. *International Journal of Multidisciplinary Studies*, 5(2), 1. <https://doi.org/10.4038/ijms.v5i2.95>.
- Wynen, J., Boon, J., Kleizen, B., & Verhoest, K. (2020). How Multiple Organizational Changes Shape Managerial Support for Innovative Work Behavior: Evidence From the Australian Public Service. *Review of Public Personnel Administration*, 40(3), 491–515. <https://doi.org/10.1177/0734371X18824388>.
- Zulfia H, Frinaldi A. The urgency of implementing a culture of innovation for ASN in improving the performance of public organizations in realizing bureaucratic reform. *JIPAGS*. 2023;7(1):45–58.