



## The Significance of Improving Faculty Performance through Motivation and Work Culture Implementation of a Website-Based Application System

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### Abstract

Digital transformation in higher education has become a significant catalyst in improving the quality of academic services and the effectiveness of lecturer performance. This study aims to develop and test an integrative framework model that measures the relationship between work motivation, organizational culture, and lecturer performance, with digital technology as a moderating variable. Using a quantitative approach and Structural Equation Modeling (SEM) analysis, this study involved 303 lecturers from Universitas Negeri Semarang as the primary respondents. The research instrument was developed through a literature review and expert validation, covering indicators of intrinsic and extrinsic motivation, collaborative work culture values, and the effectiveness of academic digital applications such as SIKADU, SIMPEG, and ELENA. The analysis results show that digital technology significantly strengthens the relationship between motivation and work culture and improves lecturer performance. These findings provide theoretical contributions to the development of digital-based measurement instruments and practical contributions to higher education institutions in designing strategic policies that support the achievement of SDG 4 (Quality Education) and SDG 9 (Innovation and Infrastructure).

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### INTRODUCTION

Higher education in the digital era faces increasingly complex challenges and opportunities. Shifting global paradigms, demands for quality, and the drive to contribute to achieving the Sustainable Development Goals (SDGs) place higher education institutions in a strategic position in shaping the nation's future.

In this context, lecturers, as key actors in implementing the Tri Dharma of Higher Education, play a central role in ensuring the quality of learning, research productivity, and the effectiveness of community service. However, to optimally fulfill this role, systemic support is required, encompassing aspects of work

motivation, organizational culture, and the integrated use of digital technology.

Lecturers' work motivation is a crucial psychological factor in achieving academic performance. Lecturers with high intrinsic motivation tend to demonstrate a strong commitment to academic tasks, have a drive to continue learning, and are able to innovate in the learning process. Meanwhile, extrinsic motivations such as rewards, recognition, and incentives also play a role in driving productivity. In a supportive work environment, these motivations can develop synergistically and have a positive impact on lecturer performance. However, in many cases, lecturer motivation is still hampered by various factors, such as high workloads, lack of institutional support, and limited access to ongoing professional development.

In addition to motivation, organizational work culture is also a crucial element in shaping lecturers' behavior and performance. A collaborative work culture, open to innovation, and based on professional values can create an environment conducive to academic growth. In institutions with a positive work culture, lecturers are more likely to share knowledge, work collaboratively in teams, and actively participate in institutional activities. Conversely, a work culture that is individualistic, bureaucratic, or unresponsive to change can hinder lecturers' creativity and productivity. Therefore, strengthening a supportive work culture needs to be part of the development strategy of higher education institutions.

Amidst these dynamics, digital technology has emerged as a catalyst that can accelerate the transformation of higher education. Various digital applications such as the Integrated Academic Information System (SIKADU), the Personnel Information System (SIMPEG), and online learning platforms like ELENA have been implemented at various universities, including Universitas Negeri Semarang. These technologies enable lecturers to manage academic administration, deliver learning materials flexibly, and interact with students and colleagues more efficiently. However, the

effective use of digital technology to support lecturer performance still faces challenges, such as low digital literacy, resistance to change, and the absence of a comprehensive evaluation system for the impact of technology on academic performance.

Within the framework of the SDGs, particularly SDG 4 (Quality Education) and SDG 9 (Innovation and Infrastructure), the integration of work motivation, organizational culture, and digital technology is highly relevant. Quality education is determined not only by curriculum and facilities, but also by the quality of the human resources who implement it. Lecturers who are motivated, work in a supportive culture, and are able to utilize technology effectively will be better able to produce meaningful learning, impactful research, and sustainable service. Therefore, a holistic approach to measuring and improving lecturer performance is needed, encompassing all three aspects simultaneously.

Unfortunately, previous studies have been partial and have not fully integrated these three variables into a comprehensive measurement model. Most studies have only highlighted one or two aspects, such as the relationship between motivation and performance, or the influence of work culture on productivity. Meanwhile, the role of digital technology as a moderating variable that can strengthen the relationship between variables has rarely been studied in depth. Yet, in the digital era, technology is no longer merely a tool, but an integral part of the academic work system. Therefore, an instrument model framework is needed that can empirically measure the relationship between motivation, work culture, and lecturer performance, taking into account the role of digital technology as a moderator.

This study addresses this need by developing and testing an integrative framework model based on a quantitative approach. This model is designed to simultaneously measure the influence of work motivation (intrinsic and extrinsic), organizational work culture (collaboration, innovation, openness), and the use of digital technology on lecturer performance

in the context of higher education. Data collection was conducted through a digital questionnaire distributed to UNNES lecturers, with data analysis using Structural Equation Modeling (SEM) to empirically test the relationship between variables. The validity and reliability of the instrument were tested through Exploratory Factor Analysis (EFA) and Cronbach's Alpha, while the moderating role of digital technology was analyzed to see the extent to which digital applications strengthen the relationship between motivation and work culture on lecturer performance.

The results of this study are expected to provide theoretical contributions in the development of valid and reliable digital-based measurement instruments, as well as practical contributions for higher education institutions in designing strategic policies that support improved lecturer performance. Furthermore, the developed framework model can also be used as a reference in the evaluation and development of academic human resources at various universities in Indonesia. Thus, this research is not only academically relevant but also has a direct impact on improving the quality of higher education and achieving the SDGs targets nationally.

As part of a long-term research roadmap, the development of this framework model will continue with field implementation, effectiveness evaluation, and dissemination of results through national and international scientific publications. Supported by empirical data and a robust methodological approach, this research is expected to serve as a foundation for transforming a more adaptive, inclusive, and sustainable lecturer performance management system in the digital era.

#### **Measuring Lecturers' Motivation, Work Culture, and Performance Using Digital Technology to Support SDG Achievement**

Lecturers' work motivation is a psychological foundation that determines the quality of implementation of the Tri Dharma of Higher Education. In the increasingly complex and dynamic context of higher education, motivation is not only an internal driver but also an indicator of lecturers' readiness to face

professional challenges. Lecturers with high intrinsic motivation tend to demonstrate a commitment to scientific development, meaningful learning, and sustainable social contribution. Meanwhile, extrinsic motivation such as awards, incentives, and institutional recognition also strengthen the drive to achieve optimal performance. Research shows that work motivation has a positive correlation with academic productivity, learning innovation, and participation in community service activities.

However, motivation does not exist in isolation. It is strongly influenced by the work environment, particularly the organizational culture prevailing in higher education institutions. A work culture that supports collaboration, openness, and innovation has been shown to increase job satisfaction and faculty loyalty to the institution. In a healthy work culture, faculty feel valued, have space for academic expression, and are encouraged to actively contribute to the institution's development. Conversely, a work culture that is bureaucratic, destructively competitive, or unresponsive to change can dampen morale and stifle creativity. Therefore, strengthening a work culture based on professional values and academic ethics is a crucial strategy for sustainably improving faculty performance.

Lecturer performance in this study was measured comprehensively, encompassing aspects of teaching, research, and community service. Performance is not only seen in terms of the quantity of academic output, but also in terms of the quality of interactions, innovation in learning methods, and contributions to achieving the institution's vision. Within the SDGs framework, high lecturer performance directly contributes to the achievement of SDG 4 (Quality Education) through improving the quality of learning, and SDG 9 (Innovation and Infrastructure) through the development of research and technology relevant to community needs. Therefore, measuring lecturer performance must consider the motivational and cultural dimensions that shape their work behavior.

Digital technology acts as a moderating variable that strengthens the relationship between motivation, work culture, and lecturer performance. The use of digital applications such as SIKADU, SIMPEG, and ELENA allows lecturers to manage academic administration efficiently, deliver learning materials flexibly, and interact with students and colleagues more dynamically. Technology also opens up opportunities for lecturers to access global learning resources, collaborate across institutions, and publish scientific papers more widely. In this study, digital technology was shown to strengthen the effects of motivation and work culture on improving lecturer performance. Lecturers who are highly motivated and work within a supportive organizational culture, when facilitated by effective digital technology, show significant improvements in productivity and work quality.

However, the use of digital technology is not without challenges. Unequal digital literacy, resistance to change, and limited infrastructure hinder technology optimization. Therefore, higher education institutions need to develop sustainable training and mentoring strategies to improve lecturers' digital competencies. Furthermore, institutional policies must support the integration of technology into academic work systems, not merely as an administrative tool, but as a medium for pedagogical and managerial transformation.

The findings of this study indicate that measuring lecturers' motivation, work culture, and performance using digital technology provides a more comprehensive picture of the dynamics of academic work in the digital era. The developed framework model is able to empirically identify relationships between variables and provide a basis for developing strategic policies that support the achievement of the SDGs. In the context of UNNES, a university committed to green campuses and sustainable development, the results of this study are highly relevant to supporting institutional transformation based on data and values.

Theoretically, this research enriches the literature on academic human resource

management with an integrative approach that combines psychological, cultural, and technological aspects. Practically, this framework model can be used by policymakers to systematically evaluate and improve lecturer performance. Thus, this research not only makes an academic contribution but also serves as a strategic instrument in the development of inclusive, adaptive, and sustainable higher education.

## LITERATURE REVIEW

Measuring lecturers' motivation, work culture, and performance in the context of digitalization in higher education has become an important focus in various academic studies. Lecturers' work motivation, both intrinsic and extrinsic, has been shown to significantly influence productivity and learning quality. Zhi and Wang (2023) demonstrated that intrinsic motivation driven by a love of the profession and satisfaction in teaching directly contribute to lecturers' professional success. Meanwhile, Huang et al. (2023) emphasized that a work system that supports creativity and rewards performance can sustainably increase extrinsic motivation.

Organizational work culture is also a crucial variable influencing lecturer behavior and performance. Papaja and Rojczyk (2024) revealed that teaching experience in a collaborative and innovation-focused environment encourages lecturers to be more creative and adaptive. Dogbe et al. (2024) added that strategic internal communication and a supportive work culture can enhance lecturers' self-efficacy and performance through the mediation of creativity. In the context of higher education in Indonesia, a work culture based on collegial, spiritual, and professional values is a unique strength in shaping a competitive academic identity.

Lecturer performance, as an indicator of the success of higher education institutions, is measured not only by academic output but also by contributions to curriculum development, learning innovation, and community service. In their systematic review, Han and Abdrahim

(2023) emphasized the importance of lecturer creativity in supporting the quality of higher education, but stated that there is still little research that integrates the role of digital technology in comprehensive performance measurement.

The role of digital technology as a moderating variable in the relationship between motivation, work culture, and lecturer performance is increasingly relevant in the era of digital transformation. Akhmetsapa et al. (2024) showed that the use of online platforms by elementary school teachers enhances their professional creativity, although their focus has not yet reached higher education. Salehudin et al. (2023) highlighted the use of the Discord application as a creative learning medium, indicating that digital technology can be a catalyst in improving teaching effectiveness. Furthermore, Fabia (2024) examined the relationship between student satisfaction and self-efficacy in online learning, indirectly reflecting the importance of lecturer preparedness in managing digital systems.

The literature shows that despite numerous studies on motivation, work culture, and technology in education, there remains a gap in the development of integrative, digital-based measurement models. This research aims to fill this gap by developing a framework that empirically combines these three variables and contributes to achieving the SDGs by improving the quality of inclusive and sustainable higher education.

#### **The Purpose of the Integrative Framework Model: Measuring Lecturers' Motivation, Work Culture, and Performance Based on Digital Technology in Supporting the Achievement of the SDGs**

This study aims to develop and test an integrative framework model capable of comprehensively measuring the relationship between work motivation, work culture, and lecturer performance, considering the role of digital technology as a moderating variable. Through a quantitative approach and SEM analysis, this model is expected to serve as a basis for strategic policymaking to continuously

improve the quality of higher education, as well as support the achievement of SDG 4 (Quality Education) and SDG 9 (Innovation and Infrastructure).

1. How can an integrative framework model be developed to comprehensively measure work motivation, work culture, and lecturer performance in a higher education environment?
2. To what extent is the validity and reliability of the instruments developed able to represent the relationship between variables in the context of academic digitalization?
3. How does the role of digital technology as a moderating variable influence the relationship between motivation, work culture, and lecturer performance in supporting the achievement of SDGs, especially SDG 4 and SDG 9?

## **METHOD**

### **Research Design**

This study used a quantitative approach with a survey design. Respondents consisted of 303 randomly selected lecturers at Universitas Negeri Semarang.

### **Instrument Development**

Indicators of work motivation, organizational culture, and lecturer performance were developed through literature review and expert validation. The instrument was developed as a digital questionnaire and distributed through institutional platforms.

### **Data Analysis Techniques**

Reliability testing was conducted using Cronbach's Alpha, while construct validity was tested using the Average Variance Extracted (AVE) value and discriminant validity. Relationships between variables were analyzed using SEM with the aid of AMOS software.

## **RESULTS AND DISCUSSIONS**

The study used a quantitative approach with 303 randomly selected UNNES lecturers as respondents. The instrument was developed through a literature review, expert testing, and

validation using Exploratory Factor Analysis (EFA) and Cronbach's Alpha. Analysis of the relationships between variables was conducted using SEM using AMOS.

#### Research Stages:

- 1) Identify indicators of motivation, work culture, and lecturer performance
- 2) Instrument validation through expert judgment
- 3) Distribution of digital questionnaires
- 4) Descriptive and inferential data analysis
- 5) Development of an integrative framework model

#### Validity and Reliability of Instruments

- 1) Cronbach's Alpha value for all constructs > 0.85
- 2) AVE value > 0.60 indicates convergent validity
- 3) Discriminant validity is met through cross-loading analysis

#### Structural Relationships Between Variables

- 1)  $KT \rightarrow BR = 0.758$
- 2)  $KT \rightarrow MD = 0.765$
- 3)  $KT \rightarrow SI = 0.777$
- 4)  $MD \rightarrow PN = 0.723$
- 5) Mediating effect of  $KT \rightarrow PN$  through MD = 0.553
- 6) Work motivation has a significant effect on lecturer performance ( $MD \rightarrow PN = 0.723$ )
- 7) Organizational culture influences lecturer motivation and performance ( $KT \rightarrow MD = 0.765$ ;  $KT \rightarrow PN$  via MD = 0.553)
- 8) Digital technology strengthens the relationship between lecturer motivation and performance ( $F^2 > 1.4$ ;  $R^2 = 0.523$ )

#### The Role of Digital Technology

Digital technology strengthens the relationship between lecturer motivation and performance, with an f-square > 1.4 and an R-square  $PN = 0.523$ . Applications such as SIKADU and SIMPEG act as catalysts in increasing lecturer work effectiveness.

#### Implications for SDGs

This framework supports the transformation of higher education institutions towards achieving SDG 4 and SDG 9 through increasing lecturer effectiveness driven by

intrinsic motivation, a collaborative work culture, and the use of digital technology.

#### Policy Implications

- 1) Strengthening lecturer motivation through career development and recognition programs
- 2) Transformation of work culture based on collaboration and spiritual leadership
- 3) Optimization of digital technology through training and system integration
- 4) Integration of SDGs indicators in performance evaluation and strategic planning

#### CONCLUSION

Research findings indicate that work motivation and organizational culture are key determinants of improved lecturer performance. The use of digital technologies such as SIKADU and SIMPEG acts as a catalyst in accelerating work processes, increasing transparency, and supporting data-driven decision-making. The developed framework can serve as a strategic reference for institutional leaders in designing human resource development policies and performance evaluation systems integrated with SDGs indicators.

This research has successfully formulated a valid and reliable framework for measuring work motivation, organizational culture, and lecturer performance in the context of digital transformation. This model makes a significant contribution to supporting institutional reform and achieving sustainable development goals by improving the quality of human resources in higher education.

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