



# The Effect of Organizational Culture on Employee Engagement in Higher Education Institutions: The Mediating Role of Job Characteristics

**Fadillah Ismail**

*Faculty of Technology Management & Business, Universiti Tun Hussein Onn, Johor, Malaysia*

**Mohammed Sani Abdullahi\***

*Department of Management and Marketing, King Fahd University of Petroleum and Minerals, Dhahran, Saudi Arabia*

\*Corresponding author

**Marina Arnaut**

*Dubai Business School, University of Dubai, Emirates 49, Dubai*

**Yasmeen Bano**

*Faculty of Technology Management & Business, Universiti Tun Hussein Onn, Johor, Malaysia*

**Noor Muthmainnah Hamdul Hadi**

*Centre for Fundamental & Continuing Education, University Malaysia Terengganu, Malaysia*

**Zainab Lawal Gwadabe**

*Department of Business Administration, Yusuf Maitama Sule University Kano, Nigeria*

## Abstract

This study explores the intricate dynamics between organizational culture (OC), job characteristics (JC), and employee engagement (EE) in higher education institutions, specifically Bayero University Kano, Yusuf Maitama Sule University, and Aliko Dangote University of Science and Technology, Wudil. The research aims to investigate the influence of OC on JC and its effect on EE, and also investigate the mediating role of JC in the OC-EE relationship. The study involves 346 academic staff from the target universities. The findings revealed significant positive correlations: firstly, between OC and EE, emphasizing the crucial role of a supportive OC in enhancing EE; secondly, between OC and JC, indicating the substantial influence of organizational values on the work attributes experienced by academic staff. Additionally, a positive correlation is identified between JC and EE, underscoring the pivotal role of JC in promoting EE. Notably, the study establishes that JC act as a mediator between OC and EE in higher education institutions. This mediation underscores how OC indirectly shapes EE through JC, emphasizing the importance of job design in fostering EE. The practical implications of these findings suggest that aligning OC with JC enables educational institutions to cultivate a more engaged and motivated academic workforce. Overall, the study contributes to refining the theoretical framework of OC, workplace design, and EE in higher education, offering valuable insights for institutions seeking to optimize their EE strategies.

## Keywords

Employee Engagement, Higher Education, Institutions, Job Characteristics, Organizational Culture, Job Characteristics Model

## 1. Introduction

The synergy between organizational Culture (OC) and employee engagement (EE) within the dynamic landscape of organizational management plays a critical role in cultivating a productive and thriving workforce. OC, which encompasses the values, beliefs, and behaviours that make up the essence of an organization, serves as a guiding force that shapes its identity and modus operandi (Torres, 2022). At the same time, EE embodies the emotional commitment and dedication that employees invest in their work and the organization. This reciprocal relationship between OC and EE

lays the foundation for a supportive work environment that fosters growth and success (Redwine, 2020). OC is the fundamental infrastructure on which a company's strategies, decisions, and processes are built. It exerts a profound influence on employee behaviour, attitudes, and performance, thereby significantly impacting the company's ability to innovate, retain talent, and adapt to changing market conditions (Swazan & Youn, 2023). Conversely, EE has proven to be a catalyst for organizational success and has a direct impact on productivity, customer satisfaction, and overall performance metrics. This symbiotic relationship creates an ecosystem that fosters an environment ripe for innovation, collaboration, and success (Meng et al., 2023). Despite the wealth of research dedicated to analysing OC and EE as distinct entities, there remains a conspicuous gap in understanding the nuanced connections that link these two constructs and the potential influencing factors that determine their relationship (Bennett & Kahn-Harris, 2020). While previous studies have examined these concepts individually, they have inadvertently overlooked the intricate interactions between OC and EE, disregarding the crucial role of intervening factors such as job characteristics (JC) (Huang et al., 2021). This study sets out to fill this gap by exploring the mechanisms through which JC act as mediators and critically shape the dynamic interplay between OC and EE. While the prevailing studies have acknowledged the importance of OC and EE, they have predominantly worked in silos and neglected the holistic view that encompasses the interconnectedness of these constructs (Sarwar et al., 2020). By overlooking mediating factors such as JC, these studies have unintentionally limited the understanding of the broad dynamics that drive the relationship between OC and EE. This study aims to address this gap by drawing attention to the critical role that JC play as the fulcrum between these two influential facets within higher education institutions. This research seeks to unravel the intricate layers that make up the relationship between OC and EE by highlighting the mediating role of JC. By examining these mediating elements, such as autonomy, task variety, feedback mechanisms, and growth opportunities, the study aims to identify their impact on the relationship between OC and EE. This investigation opens up a more nuanced understanding of how OC influences EE dynamics and vice versa, providing a comprehensive perspective that has been previously overlooked in current research (Lueg et al., 2021). Understanding these complicated dynamics opens up an invaluable opportunity to grasp the deeper connections that underline the reciprocal relationship between OC and EE. It provides a way to illuminate the mechanisms by which OC exerts its influence on levels of EE, while also exploring how levels of EE reciprocally influence and shape OC (Ababneh, 2021). This comprehensive understanding is central for leaders and policymakers to make informed decisions aimed at optimising OC to increase EE, ultimately contributing to better organizational performance and fostering employee wellbeing.

This study's novelty lies in its application of the Job Characteristics Model (JCM) to investigate the relationship between OC, JC, and EE in higher education. By employing the JCM, the research uniquely examines how specific job attributes, influenced by the OC, mediate the impact on EE within academic settings. This extends the existing literature by integrating a well-established theoretical framework, the JCM, to elucidate the intricate dynamics in higher education institutions. The study's contextual specificity within three specific universities enhances its relevance, offering nuanced insights tailored to the academic work environment. The integration of the JCM not only provides theoretical support but also positions the research to contribute practical implications for optimizing EE strategies in higher education by aligning OC with JC. This dual emphasis on theory and practical application distinguishes the study, making a valuable contribution to the understanding of workplace dynamics in the academic realm. Consequently, aligning with the unique aspects of this research, the study explores the effect of OC on EE within higher education, specifically focusing on the mediating influence of JC.

## 2. Literature Review

### 2.1 Organizational Culture

The organizational Culture (OC) is the basic framework that shapes the identity of an organization and controls its processes. It consists of a mosaic of shared values, beliefs, norms, and behaviours that make up the essence of the organization (Lund, 2003). Together, these elements guide the organization's behaviour, decision-making processes, and interactions, defining its unique character and setting the tone for its functioning. The components of OC comprise three basic levels (Ravasi & Schultz, 2006). First, artefacts represent the visible manifestations of culture and include symbols, rituals, and structures that characterise the organization's identity. Second, proclaimed values represent the articulated beliefs, principles, and aspirations to which the organization subscribes. These publicly stated values align with the organization's mission and vision and shape its external appearance. Finally, the underlying assumptions are the unspoken, implicit norms, beliefs, and paradigms that underlie behaviour within the organization and often influence the way individuals interact and make decisions (Ogbonna & Harris, 2000). Several typologies and models provide a framework for understanding and evaluating OC. Edgar Schein's model, which includes artefacts, espoused values, and underlying assumptions, explores the layers of culture and emphasizes the deeper, often implicit aspects (Zheng et al., 2010). A cross-cultural lens can be used to understand the differences between the OC of different societies through Hofstede's cultural dimensions, which include power distance, uncertainty avoidance, individualism vs. collectivism, masculinity vs. femininity, and long-term vs. short-term orientation (Gallego-Álvarez & Pucheta-Martínez, 2021). The four archetypes of the Competing Values Framework—clan, adhocracy, market, and hierarchy—offer insights into the many cultural orientations that exist within businesses. These frameworks aid in the analysis of OC multi-layered structure (Choi, 2005). They provide valuable tools to assess the cultural landscape within an organization and enable a deeper

understanding of its values, norms, and behavioural patterns. Understanding and using these models enables organizations to effectively manage and shape their culture, align it with strategic goals, and create an environment that promotes the achievement of desired outcomes.

## 2.2 Employee Engagement

Employee Engagement (EE) refers to the profound emotional investment and devotion that staff members make in the organization as well as in their work. In contrast to mere job satisfaction, it embodies a deeper connection characterised by enthusiasm, dedication, and a deep sense of meaningfulness in their role (Kular et al., 2008). Key indicators of EE are not only high job satisfaction but also a resolute emotional commitment to the organization's goals, proactive engagement in tasks, and a willingness to go above and beyond basic job requirements (Markos, & Sridevi, 2010). The importance of EE impacts many facets of organizational success. Its direct impact can be seen in improved organizational performance, higher productivity, greater customer satisfaction, higher employee retention, and an overall improvement in individual and collective wellbeing (Budhwar et al., 2022). Engaged employees are catalysts for organizational excellence, as their zeal and commitment go a long way in creating a positive OC (Husted & Allen, 2010). Their active participation and tireless efforts foster an environment characterised by collaboration and high performance. Engaged employees are more likely to be characterised by teamwork, innovation, and a desire to achieve common goals. Their passion and dedication reflect on their colleagues and foster a job culture based on mutual support, shared goals, and continuous improvement. This synergistic effect ultimately leads to greater efficiency, better problem solving, and an improved ability to adapt to changing circumstances (Lengnick-Hall & Beck, 2016). Organizations benefit immensely from fostering EE, as it becomes a lynchpin in creating a work environment where individuals thrive, innovation flourishes, and collective goals are achieved with vigour (Abiwu, 2021). Prioritising and fostering EE is becoming a cornerstone strategy for companies seeking sustainable growth and fostering a workplace culture where engagement, dedication and shared purpose drive success.

## 2.3 Job Characteristics

The job characteristics (JC) model that Oldham and Hackman (1976) proposed serves as a basic theoretical framework within workplace design theories. It emphasizes five key JC that support meaningful work and contribute significantly to employee motivation and satisfaction (Parker & Ohly, 2008). These characteristics—skill variety, task identity, task meaning, autonomy, and feedback play a crucial role in the employee's perception of their role and therefore influence their engagement and performance. Skill diversity represents the variety and range of skills that a particular job requires. Jobs that require a variety of skills and competences tend to offer higher levels of engagement as they provide employees with varied tasks and challenges, prevent monotony, and encourage continuous learning and skill development (Penuel et al., 2007). Task identity measures the extent to which a job is associated with the completion of identifiable and meaningful work. Tasks that allow employees to see the tangible results and impact of their efforts tend to increase their sense of purpose and commitment. Task meaning refers to the perceived impact of an activity on others or the organization as a whole (Venkatesh et al., 2010). When employees recognise the meaningful contribution that their tasks make to larger organizational or societal goals, their motivation and engagement increase significantly. Autonomy, on the other hand, measures the degree of independence and discretion granted to employees in the performance of their work. By granting autonomy, employees are empowered to take responsibility for their tasks, which in turn increases motivation and job satisfaction. Lastly, feedback describes the degree to which workers are given honest, open evaluations regarding their performance (Zhou, 2003). A solid feedback mechanism not only helps to assess one's own performance but also serves as a tool for learning and improvement, thus contributing to greater engagement and motivation. Together, these five features form a framework that helps organizations design workplaces that promote meaningful work experiences, increase employee motivation, and enhance overall job satisfaction (Parker & Ohly, 2008). By leveraging these characteristics, organizations can create work tasks that align with employees' intrinsic motivators, creating a work environment that leads to higher engagement, better performance, and greater satisfaction (Gu et al., 2022).

## 2.4 Previous Studies and Hypothesis Development

### 2.4.1 Organizational Culture and Employee Engagement

Previous research has investigated the connection between organizational culture (OC) and employee engagement (EE), and found a robust association between OC and heightened levels of EE (Abduraimi et al., 2023). Studies have shown that alignment between organizational values and employee values, clear communication of expectations, and a supportive and inclusive environment promote higher levels of EE (Ali, et al., 2022). Numerous studies emphasize the profound effect of OC on the development of EE (Panjaitan et al., 2023; Abdullahi et al., 2021; Hasan et al., 2020; Fidyah et al., 2020). A positive and aligned OC has been consistently associated with higher EE, showing a strong correlation between these two factors (Bui, & Le, 2023). Researchers emphasize that a supportive, inclusive, and values-driven OC fosters a sense of belonging and engagement among employees, leading to higher engagement (Akingbola et al., 2023). Studies show that EE increases when they perceive alignment between their personal values and the values espoused by the organization (Jain, et al., 2023). Furthermore, research emphasizes the role of effective leadership in shaping and reinforcing a positive OC, which in turn significantly influences EE (Rožman et al., 2023). Conversely, a mismatch between organizational values, poor communication, or a toxic work environment can affect EE (Ramadhan, 2023).

These findings highlight the central role that OC plays in shaping employees' attitudes, behaviours, and emotional engagement with their work and the organization. Based on the above findings, a hypothesis was formulated in this study:

**H1: There is a significant effect of OC on EE**

**2.4.2 Organizational Culture and Job Characteristics**

Research exploring the connection between organizational culture (OC) and job characteristics (JC) unveils a significant interplay between these essential components in organizational dynamics. Studies consistently emphasize the influential role of OC in shaping and influencing JC (Gu et al., 2022). OC, which encompasses shared values, beliefs, and behavioural norms, has a significant impact on the design and configuration of work tasks (Mutonyi et al., 2022). Research highlights that a positive and supportive culture favours work characteristics that align with its core values. For example, a supportive and innovative culture tends to promote work characteristics such as autonomy, feedback mechanisms, and task variety, thus fostering a work environment that is conducive to employee creativity and engagement (Farid et al., 2023). Studies show that OC has a significant effect on work characteristics and plays a crucial role in how roles and tasks are structured within an organization (Srimulyani & Hermanto, 2022). Researches emphasize that a strong OC is often associated with specific JC such as autonomy, task variety, and feedback mechanisms. A positive culture tends to foster an environment that provides employees with more autonomy in decision-making, diverse task assignments, and effective feedback channels (Naveed et al., 2022). In addition, a culture that emphasizes innovation and collaboration often encourage work assignments with a greater variety of skills and task identities, which contributes to enriching work characteristics (Winkelhaus et al., 2022). Conversely, an OC that lacks clarity, suppresses creativity, or promotes rigidity can have a negative impact on work characteristics. Research shows that a mismatch between organizational values and work design can lead to lower motivation, job dissatisfaction, and overall performance. Based on the above findings, a hypothesis was put forward in this study:

**H2: There is significant and positive effect of OC on JC**

**2.4.3 Job Characteristics and Employee Engagement**

The studies investigating the relationship between job characteristics (JC) and employee engagement (EE) highlight the profound impact that workplace design has on employees' emotional engagement and commitment to their work. Studies repeatedly emphasize that certain JC significantly influence the levels of EE in organizations (Johari et al., 2022). Research shows that JC such as autonomy, task identity, skill variety, task significance, and feedback play a crucial role in promoting higher levels of EE (Winkelhaus et al., 2022). A workplace that offers freedom of choice, opportunities to develop skills, a clear understanding of the importance of the task, and regular feedback mechanisms tends to increase employees' enthusiasm, engagement, and commitment to their tasks (Laaser & Bolton, 2022). Conversely, work tasks that lack meaningfulness, autonomy, or opportunities for skill development can lead to lower engagement. Studies suggest that EE decreases when they perceive their tasks as mundane, repetitive, or meaningless, which affects their motivation and overall performance (Hartnell et al., 2023). Based on the above findings, this study hypothesised the following:

**H3: There is significant effect of JC on EE**

**2.4.4 Job Characteristics as a Mediator**

Several studies have examined the central role of job characteristics (JC) as mediators in the relationship between OC and EE. These studies shed light on how certain JC act as crucial mediators that influence the translation of OC into EE within an organization (Ma, et al., 2022). The focus is on the finding that JC play an important role in bridging the gap between the overarching OC and the individual experiences of employees (Raut et al., 2022). These characteristics, such as autonomy, task identity, skill variety, and feedback mechanisms, act as channels through which the cultural attributes of an organization are embodied and experienced by employees in their daily work (Junça-Silva & Menino, 2022). Research highlights that employees experience a greater sense of alignment and resonance when work tasks align with the values, norms, and behavioural expectations of the OC (O'Callaghan, 2023). JC that reflect the prevailing cultural ethos, such as granting autonomy in line with an innovation-focused culture or offering tasks that align with the organization's mission, tend to increase employee emotional engagement and retention (Purwanto & Indradewa, 2023). Based on the above evidence, this study hypothesised that:

**H4: Job Characteristics mediate the effect of OC on EE**

**2.5 Conceptual Model and Supporting Theory**

The conceptual model in this study addresses the intricate interplay between OC, JC, and EE. It illustrates how these elements interact in the organizational context and illustrates the ways in which OC influences EE through JC. The model illustrates OC as an overarching construct that encompasses the shared values, beliefs, and behavioural norms within the organization. It shows how these cultural attributes permeate and shape JC and depicts the mediating role of JC in translating the broader OC into tangible experiences for employees. JC such as autonomy, variety of skills, task identity, task meaning, and feedback are key elements in this framework, providing the link between OC and EE. In addition, EE is the outcome variable in this model that reflects the emotional commitment, enthusiasm, and dedication of employees to their work. It indicates how workers experiences and perceptions of the characteristics of their work, which are influenced by the prevailing OC, are reflected in their engagement.

A well-known theory in organizational behavior, the Job Characteristics Model (JCM) was put forth by Hackman and Oldham in 1976. It focuses on how certain JC affect employee inspiration, happiness, and efficiency (Hackman & Oldham, 1976, 1980). Five fundamental features are identified by the model: autonomy, feedback, task relevance, task identity, skill variety, and autonomy. Jobs with these qualities are more likely to result in higher levels of intrinsic drive and engagement, according to the JCM (Hackman & Oldham, 1976). A theoretical foundation for comprehending how JC mediates the relationship between OC and EE in higher education is provided by the JCM within the setting of the study. It implies that the particular characteristics of jobs in an academic setting, as shaped by the OC, are critical in influencing the degree of engagement that academic staff members experience (Taylor, 2015; Hackman, 1980; Hackman & Oldham, 1980). As a result, Figure 1 provides a schematic illustration of the study's model.

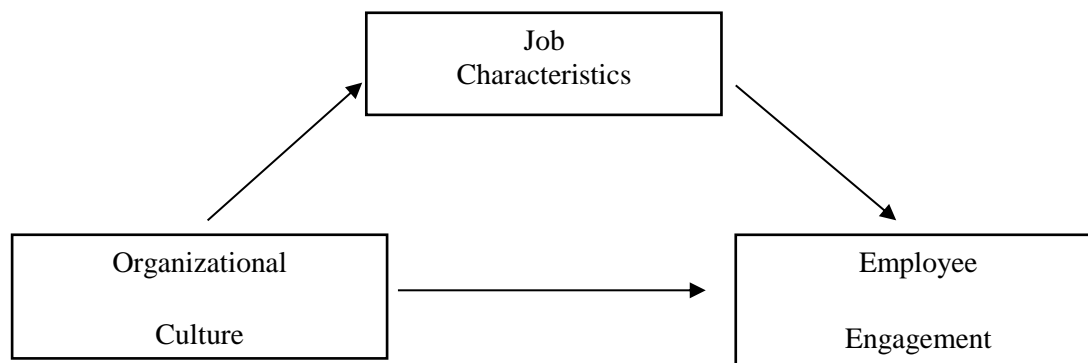


Fig. 1 Research Model

### 3. Methodology

The goal of the study is to quantify and analyze the correlations between OC, JC, and EE using a quantitative research design. The breadth and nature of these ties among academic staff members can be examined through systematic data collection and statistical analysis made possible by this approach. The target population comprises academic staff from Bayero University Kano, Yusuf Maitama Sule University and Aliko Dangote University of Science and Technology, Wudil. This population represents the core faculty and educators whose experiences and perceptions are essential in understanding the impact of OC on staff engagement in universities. The study aims to capture a sample of 400 academic staff from the target universities. This sample size was determined to ensure adequate representation of different faculties, departments and academic ranks to ensure a diverse and comprehensive understanding of the research variables. The primary method of data collection is to distribute structured questionnaires to academic staff. These questionnaires contain standardized scales and items to measure OC, JC and staff engagement. The use of questionnaires enables efficient data collection and standardized responses. The measurement tools include validated scales adapted to the context of higher education. These instruments include established scales for assessing OC, JC and EE that are tailored to the academic environment. A stratified random sample was used to ensure that different departments, academic ranks and faculties within universities were represented. This technique helps to obtain a diverse sample that reflects the overall composition of academic staff. The collected data was analysed using partial least squares structural equation modelling (PLS-SEM). PLS-SEM enables the investigation of complex relationships between multiple variables and provides robustness in the analysis of latent constructs such as OC, JC and EE. Ethical considerations were emphasized throughout the research process. Measures were taken to obtain informed consent from participants and to ensure confidentiality, anonymity and voluntary participation. The study complies with ethical guidelines and institutional review board requirements to protect the rights of participants and the confidentiality of data.

### 4. Results and Analysis

A response rate of 86.5% was achieved by retrieving 346 of the 400 questionnaires that were issued. This response rate indicates a high level of participation and engagement among the respondents in the study. The study's respondents' demographic profile is displayed in Table 1. Male respondents made up 72% (249 academic staff) of the total sample, while female respondents made up 28% (97 academic staff). The majority of respondents were married, accounting for 83.8% (290 academic staff) of the sample. Single academic staff accounted for 11.6% (40 academic staff), and 4.6% (16 academic staff) reported another marital status. The breakdown by age group showed that academic staff aged 31 to 40 were the largest group at 46% (159 academic staff). Those aged under 30 made up 20.2% (70 academic staff), those aged 41 to 50 26% (90 academic staff), and those aged 51 and over 7.8% (27 academic staff). Participants with 11 to 20 years of professional experience formed the largest segment, with 44.2% (153 academic staff). Those with less than 10 years' experience accounted for 30.3% (105 academic staff), while 15.9% (55 academic staff) had 21 to 30 years' experience and 9.6% (33 academic staff) had over 30 years' experience. The majority of respondents had a PhD; 68.2% (236 academic staff) of the sample. Those with a Master's degree accounted for 23.1% (80 academic staff), and academic staff with a Bachelor's degree accounted for 8.7% (30 academic staff).

Table 1 Demographic Profile

Characteristics	Frequency	Percentage (%)
<b>Gender:</b>		
Male	249	72
Female	97	28
<b>Total</b>	<b>346</b>	<b>100</b>
<b>Marital Status:</b>		
Single	40	11.6
Married	290	83.8
Others	16	4.6
<b>Total</b>	<b>346</b>	<b>100</b>
<b>Age:</b>		
< 30years	70	20.2
31 – 40years	159	46
41 – 50years	90	26
51 & Above	27	7.8
<b>Total</b>	<b>346</b>	<b>100</b>
<b>Working Experience:</b>		
< 10years	105	30.3
11 – 20years	153	44.2
21 – 30years	55	15.9
31years & Above	33	9.6
<b>Total</b>	<b>346</b>	<b>100</b>
<b>Academic Qualification</b>		
PhD	236	68.2
Master Degree	80	23.1
Bachelor Degree	30	8.7
<b>Total</b>	<b>346</b>	<b>100</b>

Table 2 shows the measurement model with factor loadings, reliability coefficients and associated statistical indicators for each construct of the study. The factor loadings for EE range from 0.776 to 0.884, with five indicators (EE1 to EE5). Cronbach's alpha = 0.884, composite reliability ( $\rho_a$ ) = 0.888, composite reliability ( $\rho_c$ ) = 0.916. The average variance extracted (AVE) is 0.686. The variance inflation factor (VIF) values range from 1.131 to 2.998. The factor loadings for JC range from 0.719 to 0.885, with six indicators (JC1 to JC6). Cronbach's alpha is 0.885, the composite reliability ( $\rho_a$ ) is 0.894, and the composite reliability ( $\rho_c$ ) is 0.912. The average variance extracted (AVE) is 0.634. The variance inflation factor (VIF) values range from 1.406 to 2.818. The factor loadings of OC range from 0.717 to 0.903, with eight indicators (OC1 to OC8). Cronbach's alpha is 0.903; the composite reliability ( $\rho_a$ ) is 0.905; and the composite reliability ( $\rho_c$ ) is 0.922. The average variance extracted (AVE) is 0.597. The variance inflation factor (VIF) values range from 1.231 to 2.956. The values of the factor loadings indicate the strength of the relationship between the observed variables (indicators) and their respective constructs. Higher factor loadings (closer to 1) mean stronger relationships. The values for Cronbach's alpha and composite reliability assess the internal consistency and reliability of the constructs. Values closer to 1 indicate higher reliability. The average variance extracted (AVE) indicates how large the variance captured by the construct is in relation to the measurement error. Higher values (ideally above 0.5) indicate good convergent validity. The variance inflation factor (VIF) measures multicollinearity. Values above 5 may indicate multicollinearity problems, while lower values are preferable. The constructs have strong factor loadings and acceptable reliability measures, indicating the reliability and validity of the measurement model used in the study. However, items with high VIF scores should be carefully scrutinised to assess possible multicollinearity problems.

Table 2 Measurement Model

Constructs	Factor Loadings	Cronbach's Alpha	Composite Reliability ( $\rho_a$ )	Composite Reliability ( $\rho_c$ )	Average Variance Extracted (AVE)	VIF
<b>Employees Engagement</b>		<b>0.884</b>	<b>0.888</b>	<b>0.916</b>	<b>0.686</b>	
EE1	0.778					1.802
EE2	0.884					1.131
EE3	0.878					2.998
EE4	0.818					2.201
EE5	0.776					1.897
<b>Job Characteristics</b>		<b>0.885</b>	<b>0.894</b>	<b>0.912</b>	<b>0.634</b>	
JC1	0.761					1.923
JC2	0.792					1.955
JC3	0.815					2.438
JC4	0.858					2.818
JC5	0.824					2.613
JC6	0.719					1.406

Organizational Culture		0.903	0.905	0.922	0.597	
OC1	0.742					2.254
OC2	0.815					2.93
OC3	0.744					2.956
OC4	0.717					2.399
OC5	0.789					1.231
OC6	0.782					1.472
OC7	0.818					1.802
OC8	0.768					2.821

The Fornell-Larcker criterion and the heterotrait-monotrait (HTMT) ratios are shown in Table 3. These ratios show how well the study's constructs can be distinguished from each other. The values on the diagonal represent the square root of the average variance extracted (AVE) for each construct. These values should be greater than the correlations between the constructs to show discriminant validity. These ratios assess the differences and similarities between the constructs. HTMT ratios of less than 0.85 generally indicate acceptable discriminant validity (Guenther et al., 2023). The diagonal values (square roots of AVE) are higher than the correlations between the constructs, indicating good discriminant validity between the constructs. In addition, the HTMT ratios are below the recommended threshold of 0.85, which further supports the evidence for discriminant validity between the constructs in the measurement model.

**Table 3** Discriminant Validity

Constructs	Fornel-Larcker Criterion			Heterotrait-Monotrait (HTMT) Ratios		
	EE	JC	OC	EE	JC	OC
EE	<b>0.828</b>			-		
JC	0.718	<b>0.796</b>		0.762		
OC	0.678	0.667	<b>0.773</b>	0.668	0.740	-

*Note:* HTMT =Heterotrait-monotrait ratio of correlations; EE =Employee engagement; JC =Job characteristics; OC =Organizational culture

In this study, Harman's one-factor test was used to identify CMV. This method removes one factor from each construct and assesses whether the remaining factors account for more than 50% of the variance. However, the data from Table 4 show that CMV explains less than the 50% criterion, namely 24.56% of the variance.

**Table 4** Common Method Bias

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	14.809	51.064	51.064	14.809	51.064	51.064	7.124	24.564	24.564

Table 5 contains the results of the path analysis, including the path coefficients (beta), standard deviations (STDEV), T-statistics, P-values and the decisions made on the basis of these results. The results show that there is a statistically significant and positive relationship between OC and EE in higher education. For every one unit increase in OC, EE increases by 0.553 units. Furthermore, the result showed that there is a statistically significant and positive relationship between OC and JC in higher education. A one-unit increase in OC is associated with a 0.767-unit increase in JC. Similarly, there is a statistically significant and positive relationship between JC and EE in higher education. A one-unit increase in JC leads to a 0.293-unit increase in EE.

**Table 5** Path Analysis Results

Path Analysis	Beta	STDEV	T-statistics	P-values	Decision
OC -> EE	0.553	0.031	17.997	0.000	Supported
OC -> JC	0.767	0.02	38.994	0.000	Supported
JC -> EE	0.293	0.031	9.315	0.000	Supported

*Note:* EE =Employee engagement; JC =Job characteristics; OC =Organizational culture

To investigate the mediating relationship, this study has followed the protocols proposed by Preacher and Hayes (2004, 2008). Using the bootstrapping method, the indirect effect was analysed to assess the mediating relationship. In addition, according to Preacher and Hayes (2008), the 95% bootstrap confidence interval (CI: LL-UL) of the indirect effect was checked to ensure that it did not include "0" between the variables. Table 8 presents the results of the mediation hypothesis. There was a significant indirect effect (OC -> JC -> EE) with a  $\beta$ -value of 0.225 and a t-value of 8.956, which means that the result is significant at the p-level of 0.01. The researcher confirmed mediation as the 95% boot CI (LL = 0.215, UL = 0.354) for the indirect effect of 0.225 did not include zero, providing robust support for mediating influence. These results support the assertion that JC act as mediators between OC and EE in higher education institutions.

**Table 6** Indirect Method of Mediation Analysis

Path Analysis	Beta	STDEV	T-statistics	P-values	Decision
OC -> JC -> EE	0.225	0.025	8.956	0.000	Supported

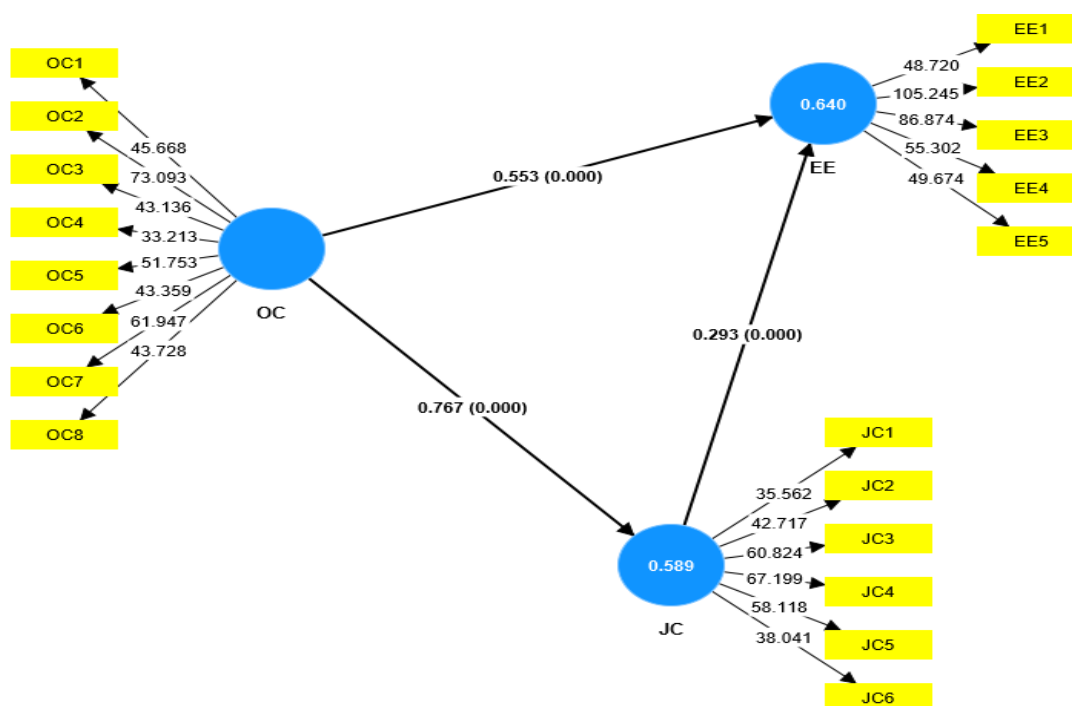
*Note:* EE =Employee engagement; JC =Job characteristics; OC =Organizational culture.

Table 7 provides an overview of the predictive relevance, the effect size and the coefficient of determination for the constructs in the model. For EE, the  $R^2$  value is 0.640, which means that the model explains about 64% of the variance in EE. This value means that the model explains the variability of EE well using the predictor variables.  $Q^2$  is 0.433 and stands for the predictive relevance of the model. A  $Q^2$  value of 0.433 indicates that the model has good predictive accuracy and replicability.  $F^2$  is 1.433 and reflects the effect size, which indicates the strength of the relationship between the predictor variables and EE. A value above 1.0 indicates a moderate effect size, i.e., a reasonably strong influence of the predictor variables on EE. For JC,  $R^2$  is 0.589, indicating that the model explains approximately 59% of the variance in JC. This value shows that the model is able to explain the variability of the JC based on the predictor variables.  $Q^2$  is 0.357, which indicates the predictive relevance of the model for the JC. A  $Q^2$  value of 0.357 indicates quite good predictive accuracy and replicability.  $F^2$  is 0.349 and represents the effect size, which indicates the strength of the relationship between the predictor variables and the JC. A value around 0.349 indicates a moderate effect size, which suggests a moderate influence of the predictor variables on the JC.

**Table 7** Co-efficient of Determination, Predictive Relevance, and Effect Size

Constructs	$R^2$	$Q^2$	$F^2$
EE	0.640	0.433	1.433
JC	0.589	0.357	0.349

Note: EE =Employee engagement; JC =Job characteristics;  $R^2$  =Co-efficient of determination;  $Q^2$  =Predictive relevance;  $F^2$  =Effect size.



**Fig. 2** Graphical Result

### 5. Discussion

The results of the study revealed a significant and positive relationship between organizational culture (OC) and employee engagement (EE) in higher education institutions, particularly at Bayero University Kano, Yusuf Maitama Sule University and Aliko Dangote University of Science and Technology, Wudil. This crucial relationship suggests that the values, beliefs and behavioural patterns embedded in the organizational structure significantly influence the level of EE in the focused institutions. The positive relationship observed suggests that a supportive and positively oriented OC contributes significantly to higher levels of EE among academic staff. When an institution fosters a culture that aligns with employees' values and aspirations, it tends to encourage their emotional engagement, dedication and enthusiasm for their roles and the institution's goals (Urrutia Pereira et al., 2022; Abdullahi et al., 2021). This realisation is invaluable for educational institutions looking to increase EE. By fostering a supportive, inclusive and inspiring OC that resonates with employees, these institutions can potentially increase EE (Abdullahi et al. (2021). The outcome of the study which state that OC has a positive relationship with EE is aligns with the research of Bhatt et al. (2024), Urrutia Pereira et al. (2022), Ababneh et al. (2021), Abdullahi et al. (2021), Fidyah et al. (2020), Nurcholis & Budi (2020), and Soni, (2019). Therefore, Recognising and leveraging this link between OC and EE can be instrumental in fostering a more motivated, engaged and productive academic workforce in the higher education landscape (Bhatt et al., 2024; Abdullahi et al., 2021). The findings revealed a significant and positive correlation between OC and JC, this finding underscores the influential link between the prevailing organizational ethos and the types of JC experienced by academic staff of the focused institutions. A positive relationship between OC and JC means that the cultural environment at these universities significantly influences the nature and characteristics of the work tasks experienced by academic staff. When the OC is consistent with the values and norms that promote meaningful work, autonomy, task identity and significance, it tends to



have a positive influence on the JC perceived by staff (Kittel et al. (2021). The outcome of the study is guided and supported by the study of Gu, et al. (2022), Priyono et al. (2021), Kittel et al. (2021), and Naseer et al. (2020). Furthermore, the finding implies that fostering an OC that supports and cultivates desirable work characteristics can potentially improve academic staff's experiences and perceptions of their role (Gu, et al., 2022). It highlights the importance of creating an organizational environment that not only reflects positive cultural values but also translates these values into tangible work attributes, ultimately contributing to a more fulfilling and engaging work experience within higher education institutions (Priyono et al., 2021; Naseer et al., 2020).

The results showed a significant and positive relationship between JC and EE, this significant relationship emphasizes the influence of JC on academic staff engagement in these academic settings. The positive relationship between JC and EE suggests that the nature of the job role, which includes aspects such as autonomy, skill variety, task identity, meaningfulness and feedback, significantly influences the level of academic staff engagement (Wan et al., 2018). When staff find their roles meaningful and challenging, and are provided with opportunities for development and self-direction, this has a positive impact on their emotional engagement, enthusiasm and commitment to their work and the institution (Krishnan, et al., 2018). The outcome of the study is in line with the study of Adiarani (2019), Krishnan et al. (2018), and Wan et al. (2018). Therefore, the finding emphasizes the importance of designing work tasks that match employees' skills, offer autonomy and provide a sense of purpose, as these elements are key to fostering higher levels of EE in higher education. Furthermore, the study highlights the need for institutions to consider and optimise JC in order to improve EE and ultimately promote a more motivated and engaged academic workforce (Abdullahi et al., 2021; Adiarani, 2019). The findings confirmed the role of JC as a mediator between OC and EE, this relationship suggests that the influence of OC on EE is partly channelled through its impact on the design of the JC of academic staff in the focused universities. The outcome of the study is guided and supported by the study of Han et al. (2021), Nasution et al. (2019), and Sabella et al. (2016). Therefore, the results suggest that OC does not have a direct impact on EE but is significantly influenced by the characteristics of the job. If the OC promotes aspects such as meaningful work, autonomy and task significance, it has a positive effect on the JC perceived by employees (Nasution et al., 2019). These JC in turn contribute to the level of engagement of academic staff (Adiarani, 2019). This mediating role illustrates how the cultural values and norms of an institution affect EE by influencing the nature and quality of work tasks perceived by individuals (Han et al., 2021). Understanding JC as mediators illustrates the nuanced relationship between OC and EE and demonstrates that an organization's efforts to increase EE may be more effective if they focus on optimising JC that align with the values and aspirations of the OC (Nasution et al., 2019; Sabella et al., 2016).

## 6. Implication of the Study

The results make an important contribution to established theories by confirming and enriching the relationships postulated in the literature on organizational behaviour and management. The study's confirmation of a positive relationship between OC and EE is consistent with basic theories that emphasize the influence of culture on employee attitudes and behaviour. Also, finding JC as mediators between OC and EE is helpful because it gives real-world evidence for the role that JC is supposed to play in different theoretical models. This underpins and extends JC Theory and highlights the pathway through which organizational values influence EE via JC. The study refines existing theoretical frameworks by illuminating the intricacies of the relationships between OC, JC and EE in the context of higher education institutions. It refines the understanding of how organizational values influence job attributes and, thus, EE. This empirical validation helps to refine and underpin the theoretical foundations relating to OC, job design and EE, increasing their applicability and relevance in the education sector. Based on the findings of the study, educational institutions can strategically use OC to design JC that promote higher levels of EE. Institutions should focus on cultivating a positive, values-driven culture that aligns with employee expectations and promotes autonomy, diverse skills and meaningful work experiences. Leadership should actively communicate these cultural values and embed them into work tasks and practises to positively influence EE. To promote EE, universities should implement strategies that align with the identified mediating role of JC. This may include providing opportunities for professional development, autonomy in decision-making, and job identity and recognition programmes. Institutions should invest in job redesign initiatives to align job roles with the cultural values of the organization and increase academic staff engagement.

## 7. Conclusion

The investigation of the relationship between OC, JC and EE in higher education institutions revealed significant and positive correlations. The study confirmed a robust relationship between OC and EE and emphasized the influence of a supportive OC on increasing EE. In addition, a similarly significant relationship was found between OC and JC, highlighting how OC influences the types of work characteristics experienced by academic staff. In addition, the study found a significant positive correlation between JC and EE, indicating the central role of JC in fostering EE. Importantly, the findings support the role of JC as a mediator between OC and EE and highlight the pathway through which OC influences EE. This study contributes to the understanding of the complicated dynamics in higher education. It underpins the critical role of OC in shaping JC and EE. The confirmation of JC as mediators provides a nuanced perspective on how organizational values influence EE indirectly through JC. These findings offer valuable knowledge for institutions seeking to develop strategies to promote EE in academia. One limitation is the focus on a specific geographical area and

type of institution, which may limit the generalisability of the findings. In addition, the use of self-reporting could lead to response bias and subjectivity. Future studies could broaden the scope by including a more diverse sample from different educational institutions and geographical locations to improve the generalizability of the results. In addition, the inclusion of qualitative methods could offer deeper insights into the subjective experiences of employees. Investigating the impact of specific organizational interventions on improving JC and subsequent EE could be a promising avenue for future research.

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