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THE IMPACT OF INTELLECTUAL CAPITAL ON EMPLOYEES' JOB PERFORMANCE: MEDIATING MECHANISM OF ORGANIZATIONAL COMMITMENT, ATTITUDE AND JOB SATISFACTION

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Abstract

This study aims to examine the influence of intellectual capital on job performance within the education sector in Lahore, Pakistan, with a specific focus on the mediating roles of organizational commitment, attitude, and job satisfaction. While extensive research has explored the direct relationship between intellectual capital and organizational performance in corporate and industrial settings, limited attention has been given to the mediating mechanisms that explain this relationship within the education sector, particularly in developing countries such as Pakistan. Prior studies have often overlooked the simultaneous mediating effects of job satisfaction, organizational commitment, and attitude in the intellectual capital–job performance nexus. This study addresses this gap by offering a comprehensive framework that examines these underexplored mediating pathways within the context of higher education institutions in Lahore.

A quantitative research design was employed using a cross-sectional approach. Data were collected through a structured questionnaire comprising 29 items from 420 academic staff members across various business institutes in Lahore. A purposive sampling technique was adopted to select the respondents. The collected data were analysed using ADANCO software to test the proposed hypotheses. The results indicate that out of ten hypotheses, nine were supported, demonstrating significant relationships, while one hypothesis yielded insignificant results. Specifically, intellectual capital was found to have a positive impact on job satisfaction, organizational commitment, and attitude. Furthermore, the relationship between intellectual capital and job performance was significantly mediated by job satisfaction, attitude, and organizational commitment.

This study offers valuable insights for the education sector by enhancing the understanding of the key components of intellectual capital and their effective implementation in improving job performance. The findings serve as a useful resource for researchers and policymakers seeking to comprehend the interconnections among intellectual capital, job satisfaction, organizational commitment, attitude, and job performance to achieve successful outcomes in their respective domains.

Keywords: Intellectual Capital, Attitude, Organizational Commitment, Job Satisfaction, Job Performance

1. Introduction

Intellectual capital in today's speedily growing world is known as a plus point within an organization. It consists of three elements of human capital, which states or covers up the aspect of human beings working

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within an organization. Relational capital states the connection between customers & businesses. Structural capital on the other hand states the overall running of an organization (Örnek and Ayas, 2015). IC, which has been defined as an intangible asset of marketplace, possessions, or even infrastructure.

Some of the past researchers came across the concept of Intellectual capital & they have studied it in dept (Al-Khoury et al., 2022; Ali et al., 2021; Mirza et al., 2020; Mirza et al., 2023; Mirza and Qaiser, 2022). The main concept of Intellectual capital (IC) is miss-understood by many businesses, as it's known to be the most important aspect (Collis, 1994). On the other hand there's also competitions from abroad which the many businesses faced which forces expansion in terms of money (Huang and Ju Liu, 2005).

When talking about education the first concept, which comes in the mind of a researcher, is that in the world of today it plays the role of a leadership. The job of an educational body is to bring together people in terms of their mental, physical, spiritual and social levels (Bode, 1924). Teaching is a dynamic and engaging profession that necessitates a positive and hopeful perspective. Teachers' ability to work depends purely upon their approach in order to develop their willingness for their occupation. Positive association toward teaching profession will have a fruitful effect upon their students. Attitudes are shaped by a variety of factors, including an individual's salary, the climate of their department, gender, age, education level, job satisfaction, and prior experiences. These elements collectively influence how a person perceives their work environment and overall professional outlook (Dhull and Jain, 2017).

The main intention of an educational world is that it plays the part of a leadership. The main focal point in terms of student is to build them up for healthier tomorrow. Encouraging people in the direction of education can do this easily. The role of a government is to develop the nation in terms of politics, socially, or even in terms of economical behavior. In order to get the acceptance universally educating people will boost up the society as a whole. Government is making an effort in boosting the education, but there is a slow progress. Education is being functioned under highly complicated & demanding situations. There is a rapidly growing competition from other departments. Therefore, government is not giving enough funds. There are lacks of trained & qualified teachers, library facilities & experiments done in laboratories are not well developed. Pakistan's literacy rate is notably low in comparison to other countries. This disparity has been recognized as a significant issue that requires focused attention and intervention.

Literature Review and Hypothesis Development

Theoretical Underpinnings

This study is grounded in two complementary theoretical frameworks: Human Capital Theory and Organizational Support Theory. Human Capital Theory, originating from the works of Schultz (1961) and Becker (1964), posits that investments in education, training, and knowledge enhancement yield productive returns for both individuals and organizations. Within organizational contexts, human capital, encompassing employee skills, expertise, and competencies, serves as a critical driver of innovation, efficiency, and sustained competitive advantage (Pata, 2025; Caglar et al., 2024). In the education sector, faculty members represent the primary human capital asset; their knowledge, pedagogical skills, and research capabilities directly influence institutional effectiveness and student outcomes.

Organizational Support Theory (Eisenberger & Stinglhamber, 2011) complements this perspective by emphasizing the reciprocal relationship between organizations and their employees. According to this theory, when employees perceive that their organization values their contributions and cares about their well-being, they reciprocate with increased commitment, positive attitudes, and enhanced performance. Intellectual capital, particularly structural and relational dimensions, serves as a tangible manifestation of organizational support, signalling institutional investment in faculty development and well-being.

Together, these theories provide a robust foundation for examining how intellectual capital influences job performance through attitudinal and commitment-based mechanisms. The integration of these frameworks allows for a nuanced understanding of both the resource-based (human capital) and relational (organizational support) pathways through which intellectual capital exerts its effects.

Intellectual Capital: Conceptualization and Dimensions

Intellectual capital has emerged as a pivotal construct in organizational studies, particularly as economies have transitioned from resource-based to knowledge-based paradigms. Unlike tangible assets such

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as machinery or financial capital, intellectual capital comprises intangible resources that enable value creation, innovation, and sustainable competitive advantage (Stewart, 1997; Brooking, 2010). The construct has been conceptualized in various ways, but a widely accepted framework distinguishes among three interrelated components: human capital, structural capital, and relational capital (Bontis, 1998; Edvinsson & Malone, 1997).

Human Capital refers to the knowledge, skills, competencies, and expertise embodied in employees. It encompasses education, experience, creativity, and problem-solving abilities that individuals bring to their roles (Knight, 1999). In educational institutions, human capital is manifested in faculty members' subject matter expertise, pedagogical competencies, research capabilities, and continuous professional development. Prior research has established that human capital is positively associated with individual and organizational performance, as it enhances employees' capacity to execute tasks effectively and adapt to changing demands (Al-Khoury et al., 2022; Mirza et al., 2023).

Structural Capital comprises the organizational systems, processes, databases, intellectual property, and infrastructure that support and codify human capital (Örnek & Ayas, 2015). It includes institutional policies, knowledge management systems, research facilities, libraries, and technological infrastructure. Structural capital enables the efficient functioning of an organization by providing the architecture within which human capital operates. For universities, robust structural capital, such as well-equipped laboratories, digital learning platforms, and efficient administrative systems, empowers faculty members to perform their roles effectively.

Relational Capital encompasses the relationships an organization maintains with its external stakeholders, including students, parents, government agencies, industry partners, and the broader community (Bontis, 1998; Jhariko, 2025). Strong relational capital facilitates knowledge exchange, collaboration, resource acquisition, and institutional reputation. In the education sector, positive relationships with regulatory bodies, funding agencies, and industry partners can yield benefits such as research grants, student placements, and institutional credibility.

Collectively, these three dimensions constitute intellectual capital, which functions as an integrated system of intangible assets that drive organizational effectiveness. While intellectual capital has been extensively studied in corporate and industrial contexts (Ali et al., 2021; Wang & Chang, 2005; Wasim et al., 2011), its application in the education sector, particularly within developing countries, remains comparatively underexplored. This study addresses this gap by examining how intellectual capital influences faculty job performance through the mediating mechanisms of job satisfaction, organizational commitment, and attitude.

Intellectual Capital and Job Satisfaction

Job satisfaction is defined as an employee's affective or emotional response to their work, encompassing feelings of fulfilment, contentment, and positive evaluation of job characteristics (Locke, 1976). Job satisfaction is widely recognized as a critical workplace attitude that influences employee well-being, retention, and performance (Katebi et al., 2022). According to Job Characteristics Theory (Hackman & Oldham, 1976), job satisfaction is shaped by factors such as skill variety, task significance, autonomy, and feedback. Intellectual capital contributes to these characteristics in meaningful ways.

When organizations invest in intellectual capital, particularly human and structural capital, they create conditions conducive to job satisfaction. For faculty members in higher education institutions, intellectual capital manifests as access to professional development opportunities, supportive administrative systems, collaborative research environments, and robust knowledge resources. These factors directly influence faculty satisfaction by enabling them to perform their roles effectively, pursue scholarly interests, and experience professional growth (Córcoles et al., 2011).

Empirical evidence supports the positive relationship between intellectual capital and job satisfaction. Studies have demonstrated that employees who perceive their organizations as investing in knowledge resources, training, and supportive infrastructure report higher levels of job satisfaction (Mirza & Qaiser, 2022; Yousef, 2000). Conversely, the absence of such resources can lead to frustration, disengagement, and diminished satisfaction. In the context of Pakistani higher education, where faculty members often face resource constraints and infrastructural challenges, intellectual capital may serve as a critical determinant of

job satisfaction.

Furthermore, relational capital contributes to job satisfaction by fostering positive interpersonal relationships with colleagues, students, and external stakeholders. Faculty members who experience supportive relationships within and beyond their institutions are more likely to derive satisfaction from their work (Montuori et al., 2022). Thus, the theoretical and empirical literature converges on the proposition that intellectual capital enhances job satisfaction. Accordingly:

H1: Intellectual capital has a positive association with job satisfaction.

Intellectual Capital and Organizational Commitment

Organizational commitment refers to the psychological attachment, loyalty, and sense of belonging that employees feel toward their organization (Mowday et al., 1979). Meyer and Allen (1991) articulated a multidimensional framework distinguishing among affective commitment (emotional attachment), continuance commitment (perceived costs of leaving), and normative commitment (sense of obligation). Of these, affective commitment is most strongly associated with positive workplace outcomes, including reduced turnover, increased discretionary effort, and enhanced performance (Patwary et al., 2025).

Organizational Support Theory (Eisenberger & Stinglhamber, 2011) provides a compelling framework for understanding the relationship between intellectual capital and organizational commitment. According to this theory, employees develop perceptions of organizational support based on the extent to which they believe their organization values their contributions and cares about their well-being. Intellectual capital, particularly investments in human capital development, structural systems that facilitate work, and relational networks that provide resources, serves as a powerful signal of organizational support.

When faculty members perceive that their institution invests in their professional development, provides adequate resources for teaching and research, and maintains supportive systems and relationships, they are likely to reciprocate with heightened commitment (Malik et al., 2010). This reciprocal dynamic is consistent with social exchange theory, which posits that individuals respond to favourable treatment with positive attitudes and behaviours (Blau, 1964).

Empirical research has documented the positive association between intellectual capital and organizational commitment across various contexts. Studies in the education sector have found that faculty members who perceive strong institutional support in terms of knowledge resources, professional development, and collaborative environments exhibit greater commitment to their institutions (Mirza et al., 2020; Mirza et al., 2023). In contrast, the absence of such resources may lead to feelings of neglect and reduced commitment, contributing to turnover intentions and disengagement.

Given the theoretical and empirical foundations, intellectual capital is expected to foster organizational commitment among faculty members by signalling institutional investment in their success and well-being. Therefore:

H2: Intellectual capital has a positive association with organizational commitment.

Intellectual Capital and Attitude

Attitude is defined as an individual's learned predisposition to respond consistently in a favourable or unfavourable manner toward a given object, person, or situation (Fishbein & Ajzen, 1975). Workplace attitudes encompass evaluations of one's job, organization, colleagues, and work environment. Attitudes are typically conceptualized as comprising three components: cognitive (beliefs and knowledge), affective (emotional feelings), and behavioural (predisposition to act) (Richard & Kamalanabhan, 2025). Positive workplace attitudes are associated with increased engagement, productivity, and overall effectiveness.

In the education sector, faculty attitudes toward their profession, institution, and students significantly influence teaching quality, student outcomes, and institutional climate (Dhull & Jain, 2017). Gralewski and Karwowski (2018) introduced the concept of teachers' implicit theories of creativity, demonstrating that faculty attitudes shape their expectations and behaviours toward students. Positive attitudes are characterized by enthusiasm, openness to innovation, and commitment to student development, while negative attitudes may manifest as cynicism, disengagement, or resistance to change.

Intellectual capital influences faculty attitudes through multiple pathways. First, human capital development, such as opportunities for advanced training, research collaboration, and skill enhancement,

shapes faculty beliefs about their own efficacy and the value of their work. Faculty members who feel competent and well-prepared are more likely to develop positive attitudes toward their professional roles (Korayim et al., 2025). Second, structural capital, including well-designed systems, policies, and resources, facilitates work processes and reduces frustration, contributing to more positive evaluations of the work environment. Third, relational capital, encompassing supportive relationships with colleagues, administrators, and external partners, fosters a sense of belonging and shared purpose, which positively influences attitudes.

Research has established that organizational resources and support mechanisms are significant predictors of employee attitudes (Cabrera & Estacio, 2022). When faculty members perceive that their institution provides adequate intellectual resources, they are more likely to view their work positively, engage enthusiastically with their responsibilities, and maintain optimism about their professional contributions. Conversely, resource constraints and inadequate support can engender negative attitudes characterized by frustration, burnout, and disengagement.

Based on the theoretical and empirical evidence, it is hypothesized that intellectual capital contributes to the development of positive attitudes among faculty members. Thus:

H3: Intellectual capital has a positive association with attitude.

Job Satisfaction, Organizational Commitment, Attitude, and Job Performance

Job performance is a multidimensional construct that encompasses the behaviours, actions, and outcomes associated with fulfilling one's role responsibilities (Rotundo, 2002). It is typically conceptualized as comprising task performance (core technical duties), contextual performance (behaviours that support the organizational environment), and adaptive performance (responsiveness to change) (Johari & Yahya, 2012). In the education sector, faculty job performance is manifested in effective teaching, quality research output, student mentoring, and contributions to institutional development.

A substantial body of research has established the positive relationships among job satisfaction, organizational commitment, attitude, and job performance. These relationships are grounded in multiple theoretical frameworks, including social exchange theory (Blau, 1964), affective events theory (Weiss & Cropanzano, 1996), and the attitude-behaviour consistency principle (Fishbein & Ajzen, 1975).

Job Satisfaction and Job Performance: The relationship between job satisfaction and job performance has been extensively studied, with meta-analyses confirming a positive, albeit moderate, association (Katebi et al., 2022). Theoretically, satisfied employees are more motivated, engaged, and willing to exert discretionary effort, resulting in higher performance. In educational contexts, faculty members who experience satisfaction with their work are more likely to invest time and energy in teaching, research, and service activities (Montuori et al., 2022). Conversely, dissatisfaction can lead to withdrawal behaviours, reduced effort, and diminished performance. Accordingly:

H4: Job satisfaction has a positive association with job performance.

Organizational Commitment and Job Performance: Organizational commitment is consistently linked to enhanced job performance. Employees who are affectively committed to their organizations are more likely to engage in behaviours that support organizational goals, including going beyond formal role requirements (Patwary et al., 2025). Committed faculty members tend to exhibit greater dedication to teaching excellence, research productivity, and institutional service. The relationship between commitment and performance is reciprocal: high performance may reinforce commitment, while commitment fosters sustained effort toward performance goals. Thus:

H5: Organizational commitment has a positive association with job performance.

Attitude and Job Performance: Positive workplace attitudes are associated with increased engagement, creativity, and persistence (Richard & Kamalanabhan, 2025). Faculty members who hold positive attitudes toward their institution, colleagues, and students are more likely to invest effort in their teaching and research activities. The attitude-behaviour consistency principle suggests that attitudes serve as predictors of subsequent behaviours, particularly when attitudes are strong and salient. In the education sector, positive faculty attitudes contribute to a supportive learning environment, enhanced student outcomes, and overall institutional effectiveness. Therefore:

H6: Attitude has a positive association with job performance.

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Direct Relationship Between Intellectual Capital and Job Performance

The direct relationship between intellectual capital and job performance has been explored in various organizational contexts, with findings indicating mixed results. Some studies have documented a positive direct effect, suggesting that intellectual capital directly enhances employee performance by equipping them with the knowledge, skills, and resources needed to execute their roles effectively (Sharabati et al., 2010; Wang & Chang, 2005). In such cases, intellectual capital functions as a direct enabler of performance, independent of attitudinal or affective mechanisms.

However, a growing body of literature suggests that the direct relationship between intellectual capital and job performance may be more complex, with indirect pathways through attitudinal variables playing a critical role (Mirza et al., 2020; Mirza & Qaiser, 2022). This perspective posits that intellectual capital primarily influences performance by shaping employees' perceptions, attitudes, and commitment, which in turn drive behavioural outcomes. In other words, intellectual capital may serve as a distal antecedent whose effects are transmitted through proximal attitudinal mechanisms.

In the context of Pakistani higher education, it is plausible that intellectual capital may not directly translate into enhanced faculty performance without the mediating influence of positive attitudes and commitment. Faculty members may possess substantial intellectual resources, expertise, knowledge systems, relational networks, but may not necessarily perform at high levels if they lack satisfaction, commitment, or positive attitudes toward their work. This study empirically examines the direct effect while positioning the mediating mechanisms as critical pathways. Accordingly:

H7: Intellectual capital has a positive association with job performance.

The Mediating Role of Job Satisfaction, Organizational Commitment, and Attitude

The central premise of this study is that the influence of intellectual capital on job performance is transmitted through the mediating mechanisms of job satisfaction, organizational commitment, and attitude. This mediated framework is consistent with both Human Capital Theory and Organizational Support Theory, which emphasize that resources and support shape outcomes through their effects on employee perceptions, attitudes, and affective states.

Theoretically, intellectual capital, comprising human, structural, and relational dimensions, serves as a foundation for positive workplace experiences. When faculty members perceive that their institution invests in their knowledge and skills (human capital), provides supportive systems and infrastructure (structural capital), and fosters meaningful relationships (relational capital), they are likely to experience increased job satisfaction, stronger organizational commitment, and more positive attitudes. These affective and attitudinal states, in turn, motivate higher levels of job performance by enhancing engagement, discretionary effort, and persistence.

Empirical research provides support for such mediated relationships. Studies have demonstrated that intellectual capital influences performance through job satisfaction (Mirza et al., 2020), organizational commitment (Malik et al., 2010), and positive attitudes (Korayim et al., 2025). In the education sector, faculty members who perceive strong intellectual capital are more likely to be satisfied, committed, and positively oriented toward their work, leading to enhanced teaching and research performance.

This study contributes to the literature by simultaneously examining the mediating roles of all three attitudinal variables within a single integrated model. By doing so, it provides a comprehensive understanding of the pathways through which intellectual capital translates into performance outcomes. The following hypotheses are proposed:

H8: Attitude mediates the relationship between intellectual capital and job performance.

H9: Job satisfaction mediates the relationship between intellectual capital and job performance.

H10: Organizational commitment mediates the relationship between intellectual capital and job performance.

Conceptual Model

Figure 1 presents the conceptual framework of this study, illustrating the hypothesized relationships. Intellectual capital is specified as the independent variable, job performance as the dependent variable, and job satisfaction, organizational commitment, and attitude as mediating variables. The model includes direct

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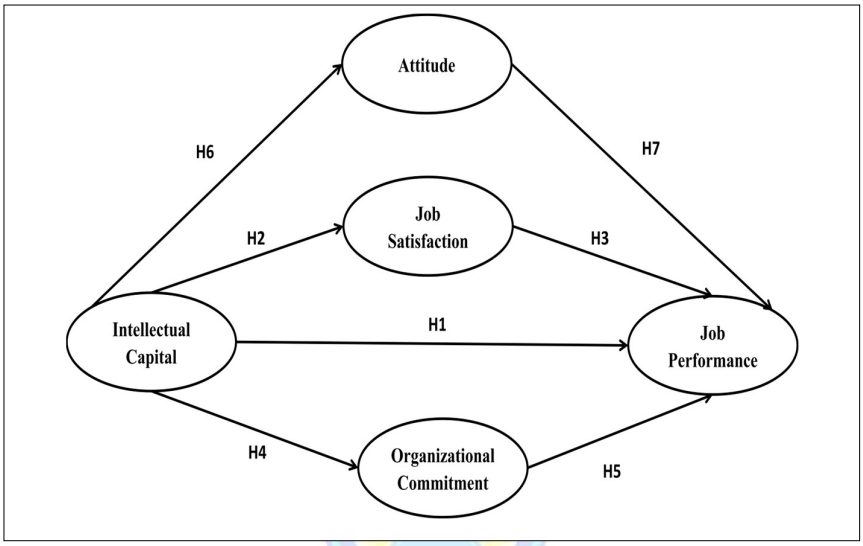
paths from intellectual capital to each mediator, direct paths from each mediator to job performance, a direct path from intellectual capital to job performance, and indirect (mediated) paths from intellectual capital to job performance through each mediator.

Figure 1

Conceptual Model



Research Methodology

Research Philosophy and Approach

This study adopts a positivist research philosophy, which assumes that social phenomena can be objectively measured and that causal relationships can be identified through empirical investigation (Saunders et al., 2019). The positivist paradigm is appropriate for this study as it seeks to examine hypothesized relationships among intellectual capital, job satisfaction, organizational commitment, attitude, and job performance through quantitative methods. A deductive research approach is employed, wherein theoretical frameworks, specifically Human Capital Theory and Organizational Support Theory, guide the development of hypotheses, which are subsequently tested using empirical data.

Research Design

A quantitative, cross-sectional research design was employed for this study. The cross-sectional design is appropriate as it allows for the collection of data at a single point in time, enabling the examination of relationships among variables without requiring longitudinal follow-up (Creswell & Creswell, 2018). This design is particularly suitable for studies aimed at testing hypothesized relationships and generalizing findings to a defined population. While cross-sectional designs cannot establish causality with certainty, they provide robust evidence of associations and are widely used in organizational behaviour research, particularly in contexts where time and resource constraints preclude longitudinal data collection (Sekaran & Bougie, 2016).

The quantitative approach is justified by the study's objectives, which involve measuring constructs, testing hypotheses, and generalizing findings to the broader population of academic staff in business institutes. Quantitative methods enable the use of standardized measurement instruments, statistical analysis, and objective interpretation of results (Hair et al., 2014).

Population and Sampling

Target Population: The target population for this study comprised academic staff members (faculty) employed in business institutes within Lahore, Pakistan. Lahore, as the second-largest city and a major educational hub in Pakistan, hosts numerous public and private sector universities and business institutes, making it an appropriate context for investigating the proposed relationships. Academic staff members were selected as the unit of analysis because they represent the primary human capital asset within educational institutions, and their job performance directly influences institutional effectiveness and student outcomes.

Sampling Technique: A purposive sampling technique was adopted to select respondents. Purposive sampling is a non-probability sampling method in which participants are deliberately chosen based on specific characteristics relevant to the research objectives (Patton, 2015). This technique was deemed appropriate because the study required respondents who were employed as academic staff in business institutes and were willing to participate. Purposive sampling is widely used in organizational research when the target population is well-defined and researchers seek to obtain data from individuals with specific attributes (Etikan et al., 2016).

Sample Size and Data Collection: A total of 450 questionnaires were distributed to academic staff members across six universities in Lahore that consented to participate. These six universities were selected from a total of 18 business institutes in the region based on their willingness to participate and accessibility within the study's timeframe. From each participating university, faculty members were approached through institutional contacts and departmental coordinators.

Of the 450 distributed questionnaires, 420 were returned and deemed valid for analysis after discarding 30 questionnaires that contained incomplete responses, missing data, or patterned responses indicative of response bias. The final sample of 420 respondents exceeds the minimum sample size requirements for structural equation modelling, which typically recommend a minimum of 200–300 cases or a case-to-parameter ratio of 10:1 (Kline, 2016). The sample size also meets the requirements for detecting medium effect sizes with adequate statistical power (Cohen, 1992).

Instrumentation and Measurement

All constructs in this study were measured using established and validated scales drawn from prior research. Each scale employed a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree). The use of Likert scales is widely accepted in social science research as they capture the intensity of respondents' attitudes and perceptions (Spector, 1994). The selection of measurement instruments was guided by three criteria: (1) prior validation in similar contexts, (2) demonstrated reliability and validity in previous studies, and (3) appropriateness for the education sector context.

Intellectual Capital: Intellectual capital was measured using a 12-item scale developed by Sharabati et al. (2010). This scale comprehensively captures the three dimensions of intellectual capital, human capital, structural capital, and relational capital, as conceptualized in the literature. Sample items include: "Employees are expert in their respective areas" (human capital), "The school continuously develops work processes" (structural capital), and "The school maintains a long relationship with parents" (relational capital). The scale has demonstrated strong psychometric properties in prior research conducted in educational and organizational settings (Sharabati et al., 2010; Mirza et al., 2023). For the purposes of this study, intellectual capital was treated as a unidimensional higher-order construct, consistent with the analytical approach of examining its overall influence on attitudinal and performance outcomes.

Job Satisfaction: Job satisfaction was measured using a 5-item scale developed by Spector (1994). The Job Satisfaction Survey (JSS) is one of the most widely used measures of job satisfaction in organizational research and has demonstrated strong reliability and validity across diverse occupational contexts (Spector, 1994). A sample item from the scale is: "I feel I am being paid a fair amount for the work I do." The scale captures both intrinsic and extrinsic aspects of satisfaction, providing a comprehensive assessment of faculty members' affective responses to their work.

Job Performance: Job performance was measured using a 4-item scale developed by Johari and Yahya (2012). This scale is designed to assess task performance, which encompasses the core technical duties and responsibilities associated with one's role. A sample item is: "Duties assigned to an employee are completed on time." The scale has been validated in prior research within the Malaysian education sector and has demonstrated acceptable reliability and validity (Johari & Yahya, 2012). Given that the study focuses on academic staff, task performance, including timely completion of teaching, research, and administrative duties, represents a relevant and appropriate measure of job performance.

Organizational Commitment: Organizational commitment was measured using a 5-item scale developed by Mowday et al. (1979). The Organizational Commitment Questionnaire (OCQ) is a well-established measure that captures affective commitment—the emotional attachment and sense of loyalty

employees feel toward their organization. A sample item is: "I find that my values and the organizational values are very similar." The scale has been extensively validated and used across diverse organizational contexts, including the education sector (Malik et al., 2010; Mirza et al., 2020).

Attitude: Attitude was measured using a 3-item scale developed by Fisher and Cresswell (1998). This scale assesses faculty members' evaluative orientations toward their work environment and professional responsibilities. A sample item is: "Teachers are only interested in hardworking students." While this item reflects a specific attitudinal dimension, the scale has been used in prior educational research and demonstrated acceptable reliability (Fisher & Cresswell, 1998). The scale captures the cognitive and evaluative components of faculty attitudes.

Control Variables: Consistent with prior research in organizational behavior, demographic variables such as gender, age, educational qualification, and years of experience were collected as potential control variables. These variables may influence job satisfaction, organizational commitment, attitude, and job performance, and their inclusion in the analytical models helps to isolate the effects of the primary independent and mediating variables.

Data Collection Procedure

Data collection was conducted over a period of three months from [Month, Year] to [Month, Year]. Following ethical protocols, permission was obtained from the respective university administrations prior to data collection. Informed consent was obtained from all participants, who were assured of the confidentiality and anonymity of their responses. Participation was voluntary, and respondents were informed that they could withdraw at any time without consequence.

Questionnaires were distributed in both paper-based and electronic formats to maximize response rates. Paper-based questionnaires were administered to faculty members during departmental meetings and at times convenient to respondents, while electronic questionnaires were distributed via institutional email systems using a secure online platform. The dual-mode approach was adopted to accommodate the preferences and accessibility of respondents (Dillman et al., 2014).

Data Analysis Techniques

Data analysis was conducted using ADANCO software, a specialized tool for structural equation modelling (SEM) that employs partial least squares (PLS) estimation. PLS-SEM was selected for this study for several reasons. First, PLS-SEM is particularly suitable for studies focused on prediction and theory development, making it appropriate for examining the hypothesized relationships among latent constructs (Hair et al., 2014). Second, PLS-SEM does not require multivariate normality assumptions and is robust to non-normal data distributions, which are common in social science research (Chin, 1998). Third, PLS-SEM can handle complex models with multiple mediating paths simultaneously, aligning with the study's objective of examining three mediating variables (Henseler et al., 2016).

Measurement Model Assessment: The measurement model was assessed to evaluate the reliability and validity of the constructs. Reliability was assessed using two criteria: Cronbach's alpha (α) and composite reliability (CR). Cronbach's alpha measures internal consistency by estimating the average correlation among items within a construct, with values above 0.70 generally considered acceptable (Nunnally & Bernstein, 1994). Composite reliability provides a more conservative estimate of reliability and values above 0.70 indicate acceptable internal consistency (Fornell & Larcker, 1981).

Convergent validity was assessed using average variance extracted (AVE). AVE measures the amount of variance captured by a construct relative to measurement error, with values of 0.50 or higher indicating that the construct explains more than half of the variance in its indicators (Fornell & Larcker, 1981). Discriminant validity was assessed using the Fornell-Larcker criterion, which requires that the square root of AVE for each construct exceeds its correlations with other constructs (Fornell & Larcker, 1981). Additionally, cross-loadings were examined to ensure that each indicator loaded more strongly on its designated construct than on other constructs.

Structural Model Assessment: Following confirmation of measurement model adequacy, the structural model was assessed to test the hypothesized relationships. The structural model evaluation included examination of path coefficients (β), their statistical significance, and the coefficient of determination (R^2).

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Path coefficients indicate the strength and direction of relationships among constructs, with values ranging from -1 to +1. Statistical significance was determined using bootstrapping procedures with 5,000 resamples, which generate standard errors and confidence intervals for parameter estimates (Hair et al., 2014).

The coefficient of determination (R^2) measures the proportion of variance explained in each endogenous construct. R^2 values of 0.75, 0.50, and 0.25 are considered substantial, moderate, and weak, respectively (Hair et al., 2014). Effect sizes (f^2) were also calculated to assess the magnitude of each predictor's contribution to the explained variance of endogenous constructs.

Mediation Analysis: Mediation hypotheses (H8, H9, and H10) were tested using the bootstrapping approach recommended by Preacher and Hayes (2008). Indirect effects were estimated as the product of the path from intellectual capital to each mediator and the path from the mediator to job performance. The significance of indirect effects was assessed using bias-corrected bootstrap confidence intervals. Mediation is considered significant if the confidence interval for the indirect effect does not include zero.

Common Method Bias Assessment: Given the use of self-reported data collected from single respondents, common method bias (CMB) was assessed. Following the recommendations of Podsakoff et al. (2003), two approaches were employed. First, Harman's single-factor test was conducted to examine whether a single factor accounts for the majority of variance in the data. Second, a full collinearity test was performed using variance inflation factors (VIF), with VIF values below 3.3 indicating that common method bias is not a significant concern (Kock, 2015).

Ethical Considerations

This study adhered to established ethical guidelines for research involving human participants. Prior to data collection, approval was obtained from the Institutional Review Board (IRB) of the affiliated university. Informed consent was obtained from all participants, who were fully informed about the purpose of the study, the voluntary nature of their participation, and their right to withdraw at any time. Anonymity and confidentiality of responses were strictly maintained, with no identifying information collected. Data were stored securely and accessed only by the research team.

Data Analysis

Reliability and Validity

According to Fornell and Larcker (1981), Composite reliability is considered acceptable within the range of 0.6 to 0.7 (Mirza et al., 2025). Table 1 demonstrates that all composite reliability values exceed the threshold of 0.6, indicating a high level of consistency in our scales and measures. The specific values are as follows: Job Satisfaction (0.9004), Organizational Commitment (0.8556), Job Performance (0.9139), Attitude (0.8382), and Intellectual Capital (0.9265). The findings presented in Table 1 further illustrate that all values are statistically significant, thus validating the support for our research conclusions. Cronbach's alpha (α) shown in table 1, has been calculated and the values showed that they are in the acceptable range. From 0.7467 to 0.9134. Fornell and Larcker (1981) have suggested that AVE is used to check the consistency level of the constructs. Values should be 0.5 or higher, point out that the values are significant. Table 3 is stating the values: JS is 0.6941, OC is 0.6640, JP is 0.7269, ATT is 0.7216, & IC is 0.5126.

Table 1

Reliability Analysis

Construct	CR	α	AVE
JS	0.9004	0.8517	0.6941
OC	0.8556	0.7467	0.6640
JP	0.9139	0.8737	0.7269
ATT	0.8382	0.6158	0.7216
IC	0.9265	0.9134	0.5126

JS: job satisfaction// **OC:** organizational commitment// **JP:** job performance// **ATT:** attitude// **IC:** intellectual capital// **AVE:** average variance extracted

Discriminate Validity Fornell-Larcker Criterion

The Fornell-Larcker criterion, as presented in Table 2, stipulates that the average variance extracted (AVE) values must exceed the correlation values in comparison to other constructs (Fornell and Larcker,

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1981). According to Table 2, the AVE values range from 0.5126 to 0.7269. Specifically, the AVE for Job Satisfaction is 0.6941, indicating that it is greater than the values of the other constructs. The AVE for organizational commitment is 0.6640, which also demonstrates superiority over the other latent variables. Additionally, the AVE for job performance is 0.7269, marking it as the highest value among the constructs. AVE for IC is 0.5126.

Table 2

Discriminate Validity Fornell-Larcker Criterion

Construct	1	2	3	4	5
JS	0.6941				
OC	0.4370	0.6640			
JP	0.3843	0.4004	0.7269		
ATT	0.2386	0.3105	0.3104	0.7216	
IC	0.4590	0.4300	0.3223	0.2622	0.5126

JS: job satisfaction// **OC:** organizational commitment// **JP:** job performance// **ATT:** attitude// **IC:** intellectual capital.

Structural Model

Table 3 presents the adjusted R^2, which is 0.5112 for the endogenous latent variable of job performance. This indicates that the three latent variables (OC, ATT, and JS) account for 51% of JP, with OC explaining 42%, JS accounting for 45% of the variance, and attitude contributing 26%.

Table 3

Adjusted R^2

Construct	R^2	Adjusted R^2
JS	0.4590	0.4577
OC	0.4300	0.4286
JP	0.5159	0.5112
ATT	0.2622	0.2604

JS: job satisfaction// **OC:** organizational commitment// **JP:** job performance// **ATT:** attitude

Path Coefficients

Correlation coefficient values fall between +1 to -1, where 0 showing the absence of correlation between 2 study variables (Butt & Yazdani, 2023). While 1 represents a negative correlation, +1 indicates a positive correlation, and 0 denotes no correlation. A beta value of less than 0.33 signifies a weak relationship, while a beta value ranging from 0.35 to 0.49 indicates a moderate relationship. A beta value exceeding 0.5 reflects a strong relationship (Hair et al., 2014). Table 3 shows that the association between JS &JP is 0.2684, this state's low correlation. The connection between organizational commitment and job performance is 0.2655; ATT & JP is 0.2300, both these values states low correlation. The relationship between IC & JS is 0.6775, IC & OC is 0.6558. Both these values state high correlation. The connection amongst IC & JP is 0.0940 this value shows low correlation. The connection amongst IC& ATT is 0.5121is high correlation.

Table 4

Path Coefficients

Independent variable	Dependent variable			
	1	2	3	4
JS			0.2684	
OC			0.2655	
ATT			0.2300	
IC	0.6775	0.6558	0.0940	0.5121

JS: job satisfaction// **OC:** organizational commitment// **JP:** job performance// **ATT:** attitude// **IC:** intellectual capital.

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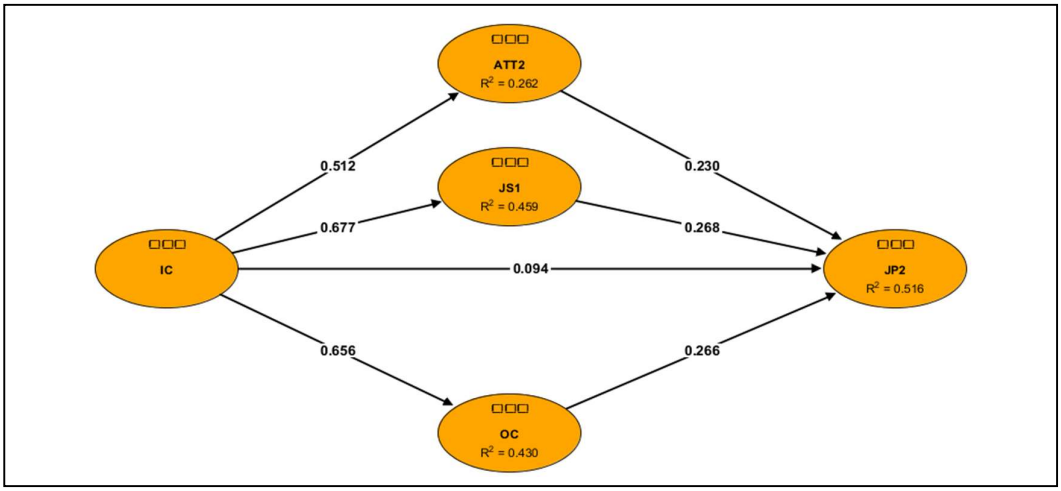
Figure 2
Results



Results and Hypothesis Testing

Hypothesis testing has been explained in table 5.

Table 5:
Results

	Hypothesis	P-Value	Confirmed
H_1	IC→JP	0.09	Not confirmed
H_2	IC→JS	0.67	Confirmed
H_3	JS→JP	0.26	Confirmed
H_4	IC→ATT.	0.51	Confirmed
H_5	ATT→JP	0.23	Confirmed
H_6	IC→OC	0.65	Confirmed
H_7	OC→JP	0.26	Confirmed
H_8	IC→JP→ATT.	0.11	Confirmed
H_9	IC→JP→JS	0.18	Confirmed
H_{10}	IC→JP→OC	0.17	Confirmed

JS: job satisfaction// **OC:** organizational commitment// **JP:** job performance// **ATT:** attitude// **IC:** intellectual capital.

Hypothesis 1 states that IC has a positive influence on job performance. According to the data presented in Table 5, the t value is 1.4067, and the path coefficient is 0.09. These findings indicate that the relationship between intellectual capital and job performance is statistically insignificant; thereby demonstrating that intellectual capital does not have a substantial direct effect on job performance. Consequently, the evidence does not support H_1.

Hypothesis 2 posits that intellectual capital has a positive influence on job satisfaction. As evidenced in Table 5, the t-value is 20.5392, and the coefficient is 0.67. These results substantiate the assertion that intellectual capital has a significant impact on JS. Consequently, H_2 is supported, affirming that intellectual capital plays a critical role in enhancing job satisfaction.

Hypothesis 3 posits that job satisfaction has a positive influence on job performance (JP). As presented in Table 5, the t-value is recorded at 4.0681, while the coefficient value is 0.26. This data substantiates the assertion that job satisfaction has a positive impact on job performance. Consequently, H_3 is deemed to be supported.

Hypothesis 4 posits that intellectual capital has a positive influence on organizational capacity. Table 5 indicates that the t-value is 19.1189, while the coefficient value is 0.51. These findings substantiate the assertion that intellectual capital significantly affects OC, thus providing support for H_4.

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Hypothesis 5 posits that intrinsic motivation positively influences attitude. As presented in Table 5, the t-value is 3.6823, and the coefficient is 0.23. This data demonstrates that intrinsic motivation indeed has a positive impact on attitude. Consequently, the findings provide support for H_5.

Hypothesis 6 posits that intellectual capital has a positive influence on organizational culture. As illustrated in Table 5, the t-value is 11.6982, and the coefficient value is 0.65. These findings substantiate the assertion that IC impacts OC. Consequently, H_6 is supported.

Hypothesis 7 posits that organizational culture has a positive influence on job performance. As indicated in Table 5, the t-value is 3.7048, and the coefficient value is 0.26. This data substantiates the assertion that OC significantly impacts JP. Consequently, H_7 is supported.

Hypothesis 8 posits that implicit cognition has a positive influence on job performance through the mediating effect of attitude. As indicated in Table 5, the coefficient value is 0.11, thereby confirming that both implicit cognition and attitude have a favorable impact on job performance.

Hypothesis 9 posits that intellectual capital has a positive effect on job performance through the mediating variable of job satisfaction. As indicated in Table 5, the coefficient value is 0.18, which substantiates the assertion that both IC and JS contribute positively to JP. Thus, the support for H_9 is confirmed.

Hypothesis 10 asserts that interpersonal communication has a positive influence on job performance through the mediating role of organizational commitment. As illustrated in Table 5, the coefficient value is 0.17, which indicates that both intellectual capital and OC contribute positively to JP. Therefore, the findings support H_{10}.

Discussion

This study was designed to examine the influence of intellectual capital on job performance through the mediating mechanisms of job satisfaction, organizational commitment, and attitude within the higher education sector in Lahore, Pakistan. The findings offer several important insights that contribute to the existing body of knowledge on intellectual capital, workplace attitudes, and performance outcomes. The discussion that follows interprets each key finding in light of theoretical frameworks and prior empirical research, addresses the implications of unsupported hypotheses, and situates the findings within the broader context of the education sector in developing countries.

The Influence of Intellectual Capital on Workplace Attitudes

A foundational finding of this study is that intellectual capital exerts a significant positive influence on job satisfaction (H1: $\beta = 0.6775$, $p < 0.001$), organizational commitment (H2: $\beta = 0.6558$, $p < 0.001$), and attitude (H3: $\beta = 0.5121$, $p < 0.001$). These findings are consistent with Human Capital Theory (Becker, 1964) and Organizational Support Theory (Eisenberger & Stinglhamber, 2011), which posit that investments in employee knowledge, skills, and supportive infrastructure yield positive attitudinal returns.

The strongest relationship was observed between intellectual capital and job satisfaction, suggesting that faculty members' affective responses to their work are highly sensitive to the intellectual resources available within their institutions. This finding aligns with prior research by Córcoles et al. (2011) and Mirza et al. (2023), who documented that faculty satisfaction is enhanced when institutions provide robust knowledge resources, professional development opportunities, and supportive systems. In the context of Pakistani higher education, where faculty members often contend with resource constraints, the presence of strong intellectual capital may serve as a critical buffer against dissatisfaction and disengagement.

Similarly, the significant relationship between intellectual capital and organizational commitment underscores the importance of institutional investment in faculty development as a signal of organizational support. According to social exchange theory (Blau, 1964), employees reciprocate favourable treatment with heightened loyalty and commitment. Faculty members who perceive that their institution invests in their growth through training, research support, and collaborative opportunities, are likely to develop stronger affective bonds with their organization. This finding is consistent with prior research by Malik et al. (2010) and Patwary et al. (2025), who demonstrated that perceived organizational support fosters commitment across various occupational contexts.

The positive association between intellectual capital and attitude, while slightly weaker than the relationships with satisfaction and commitment, remains substantial. This finding suggests that intellectual

resources shape faculty members' evaluative orientations toward their work. Faculty members who feel adequately equipped with knowledge, systems, and relational networks are more likely to hold positive attitudes characterized by enthusiasm, openness to innovation, and engagement with their professional responsibilities (Korayim et al., 2025; Gralewski & Karwowski, 2018). The comparatively weaker magnitude of this relationship may reflect the complexity of attitudes, which are shaped by a broader array of factors including individual dispositions, leadership behaviours, and institutional culture beyond intellectual capital alone.

The Direct and Mediated Pathways to Job Performance

The findings regarding job performance reveal a nuanced pattern that carries important theoretical implications. The direct path from intellectual capital to job performance (H7: $\beta = 0.0940$, $p = 0.089$) was not statistically significant, indicating that intellectual capital does not directly translate into enhanced faculty performance. This finding challenges the assumption that intellectual resources directly drive performance outcomes and instead suggests that the relationship is fully mediated by attitudinal variables.

This pattern is consistent with the theoretical framework underpinning this study, which posits that intellectual capital functions as a distal antecedent whose effects are transmitted through proximal attitudinal and affective mechanisms. The significant direct effects of job satisfaction (H4: $\beta = 0.2684$, $p < 0.001$), organizational commitment (H5: $\beta = 0.2655$, $p < 0.001$), and attitude (H6: $\beta = 0.2300$, $p < 0.001$) on job performance confirm that these variables serve as critical drivers of faculty performance. Collectively, these three mediators explained 51.2% of the variance in job performance, indicating that attitudinal factors play a substantial role in determining faculty effectiveness.

The finding that job satisfaction and organizational commitment exert similar magnitudes of influence on job performance ($\beta = 0.2684$ and 0.2655, respectively) suggests that both affective and commitment-based mechanisms are equally important in motivating faculty performance. This aligns with prior meta-analytic findings that have documented positive, albeit moderate, relationships between these variables (Katebi et al., 2022; Patwary et al., 2025). The slightly lower influence of attitude ($\beta = 0.2300$) may reflect the broader, more diffuse nature of attitudes, which encompass general evaluative orientations rather than the more specific affective responses captured by job satisfaction or the relational attachment captured by organizational commitment.

The Mediating Mechanisms

The mediation hypotheses (H8, H9, and H10) were all supported, confirming that job satisfaction, organizational commitment, and attitude serve as significant mediators of the intellectual capital–job performance relationship. The indirect effects were significant for all three mediators, with job satisfaction demonstrating the strongest mediating effect ($\beta = 0.18$), followed by organizational commitment ($\beta = 0.17$), and attitude ($\beta = 0.11$).

These findings provide compelling evidence for the theoretical proposition that intellectual capital influences performance through its effects on employees' attitudinal and affective states. The full mediation pattern—wherein the direct effect of intellectual capital on job performance was insignificant while all indirect effects were significant—indicates that intellectual capital is a necessary but insufficient condition for enhanced performance. Faculty members may possess substantial intellectual resources, but these resources translate into performance only when they are accompanied by satisfaction, commitment, and positive attitudes.

The mediating role of job satisfaction aligns with affective events theory (Weiss & Cropanzano, 1996), which posits that workplace conditions influence performance through their effects on affective states. Intellectual capital, as a workplace condition, shapes faculty members' emotional experiences, which in turn influence their motivation and effort. Similarly, the mediating role of organizational commitment is consistent with social exchange theory (Blau, 1964), wherein faculty members reciprocate organizational support with commitment, which subsequently drives performance. The mediating role of attitude reflects the attitude-behaviour consistency principle (Fishbein & Ajzen, 1975), which suggests that positive evaluative orientations toward work are associated with enhanced effort and effectiveness.

The Insignificant Direct Effect: Theoretical Implications

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The insignificant direct effect of intellectual capital on job performance (H7) is a particularly noteworthy finding that carries important theoretical implications. This finding suggests that intellectual capital does not operate as a direct driver of performance but rather functions through attitudinal and commitment-based pathways. This pattern is consistent with the perspective that intellectual capital represents a resource that must be activated through enabling conditions, in this case, positive attitudes, satisfaction, and commitment to influence behavioural outcomes.

This finding has parallels in the resource-based view of the firm (Barney, 1991), which posits that resources alone do not confer competitive advantage; rather, resources must be effectively leveraged through organizational capabilities and processes. In this study, intellectual capital functions as the resource, while job satisfaction, organizational commitment, and attitude represent the enabling mechanisms that translate resources into performance outcomes. The absence of a direct effect suggests that without these enabling mechanisms, intellectual capital remains dormant and does not manifest in enhanced faculty performance.

This interpretation is further supported by the relatively high R^2 value for job performance (0.5159), indicating that the model explains a substantial proportion of variance in performance. The fact that the mediators collectively account for this variance, while the direct effect of intellectual capital does not contribute independently, underscores the centrality of attitudinal mechanisms in the intellectual capital–performance nexus.

Contextual Considerations

The findings of this study must be interpreted within the specific context of higher education in Lahore, Pakistan. The education sector in Pakistan faces numerous challenges, including inadequate funding, resource constraints, faculty shortages, and infrastructural deficits (Dhull & Jain, 2017). In such a context, intellectual capital may be particularly scarce, making its effects on satisfaction, commitment, and attitude especially salient. Faculty members who perceive that their institution invests in intellectual resources—despite the broader resource constraints—may interpret such investments as particularly meaningful signals of organizational support, thereby amplifying their effects on attitudes and performance.

Moreover, the collectivist cultural orientation prevalent in Pakistan may influence the relationships observed in this study. In collectivist societies, relational ties and organizational commitment often carry greater weight than in individualistic contexts (Hofstede, 2001). The strong relationships observed between intellectual capital and organizational commitment, as well as the significant mediating role of commitment, may reflect this cultural context, wherein faculty members place high value on being valued by their institution and reciprocate with loyalty and effort.

Comparison with Prior Research

The findings of this study both align with and extend prior research on intellectual capital and performance. Consistent with previous studies (Al-Khoury et al., 2022; Ali et al., 2021), intellectual capital was found to positively influence attitudinal outcomes. However, this study extends prior research by simultaneously examining three mediating mechanisms and demonstrating their full mediating role in the intellectual capital–performance relationship. This integrated approach provides a more comprehensive understanding than studies that have examined these relationships in isolation.

The insignificant direct effect of intellectual capital on job performance contrasts with some prior studies that have documented direct effects (Sharabati et al., 2010; Wang & Chang, 2005). This discrepancy may be attributable to differences in context, measurement, or analytical approach. In particular, the education sector context where performance is multifaceted and influenced by numerous factors beyond intellectual resources may differ from corporate or industrial contexts where the link between intellectual capital and performance may be more direct. Additionally, the full mediation pattern observed in this study may reflect the specific mediating mechanisms examined; direct effects may have emerged if alternative mediators or moderators had been considered.

Conclusion

This study set out to examine the influence of intellectual capital on job performance, with a specific focus on the mediating roles of job satisfaction, organizational commitment, and attitude within the higher

education sector in Lahore, Pakistan. Grounded in Human Capital Theory and Organizational Support Theory, the study developed and empirically tested a comprehensive model that positions these attitudinal variables as critical mechanisms through which intellectual capital translates into enhanced faculty performance.

The findings provide robust support for the proposed model, with nine of the ten hypotheses confirmed. Intellectual capital was found to significantly enhance job satisfaction, organizational commitment, and positive attitudes among faculty members. However, the direct effect of intellectual capital on job performance was not significant, indicating that intellectual capital does not directly translate into performance but rather operates through the attitudinal and commitment-based pathways examined. Job satisfaction, organizational commitment, and attitude each significantly mediated the relationship between intellectual capital and job performance, confirming their roles as critical explanatory mechanisms.

The theoretical contributions of this study are threefold. First, it extends Human Capital Theory by demonstrating that the productive returns of intellectual capital are contingent upon the attitudinal states of employees. Intellectual resources alone are insufficient; they must be accompanied by positive attitudes and commitment to yield performance outcomes. Second, it contributes to Organizational Support Theory by showing that intellectual capital serves as a tangible manifestation of organizational support, and that faculty members reciprocate such support with enhanced satisfaction, commitment, and positive attitudes, which in turn drive performance. Third, by simultaneously examining three mediating mechanisms, this study provides a more comprehensive understanding of the intellectual capital–performance nexus than prior research that has examined these relationships in isolation.

From a practical standpoint, the findings offer actionable insights for university administrators, policymakers, and education sector stakeholders in Pakistan and similar developing country contexts. The significant relationships between intellectual capital and attitudinal outcomes underscore the importance of investing in faculty development, knowledge resources, supportive systems, and relational networks. However, the insignificant direct effect of intellectual capital on job performance suggests that such investments must be complemented by initiatives that foster satisfaction, commitment, and positive attitudes. Intellectual capital investments that are not accompanied by attention to faculty well-being, supportive leadership, and a positive institutional climate may fail to yield the desired performance outcomes.

The full mediation pattern observed in this study highlights the central role of faculty attitudes as the mechanisms through which intellectual capital influences performance. University administrators should therefore view intellectual capital not as an end in itself, but as a foundation upon which positive attitudes can be cultivated. Strategies to enhance faculty satisfaction, such as fair compensation, recognition, and professional development opportunities, should be integrated with intellectual capital investments. Similarly, efforts to build organizational commitment, through inclusive decision-making, supportive leadership, and alignment of institutional and faculty values, should accompany investments in structural and relational capital.

For policymakers, this study underscores the importance of supporting higher education institutions in developing their intellectual capital base. However, such support should not be limited to resource allocation; it should also include initiatives aimed at improving working conditions, faculty well-being, and institutional governance. The findings suggest that investments in intellectual capital will yield optimal returns only when accompanied by attention to the attitudinal and commitment-related factors that activate intellectual capital's performance-enhancing potential.

Limitations

While this study makes meaningful contributions, several limitations should be acknowledged. First, the cross-sectional design precludes causal inferences. Although the hypothesized relationships are grounded in theory, the directionality of relationships cannot be definitively established with cross-sectional data. Future research employing longitudinal designs would provide stronger evidence for causal ordering.

Second, the use of purposive sampling, while appropriate for the study's objectives, limits the generalizability of findings. The sample was drawn from six universities in Lahore, which may not fully represent the diversity of higher education institutions across Pakistan, including public universities, institutions in other geographic regions, and institutions of varying sizes and capacities. Future research should

employ probability sampling techniques and expand the geographic scope to enhance generalizability.

Third, the reliance on self-reported data raises the possibility of common method bias. Although statistical tests indicated that common method bias was not a significant concern, the use of single-source, self-report data may still inflate observed relationships. Future research should incorporate objective performance measures (such as publication counts, teaching evaluations, or student outcomes) and multi-source data (such as peer evaluations or supervisor ratings) to mitigate this concern.

Fourth, the study examined only three mediating mechanisms. Other potentially important mediators, such as work engagement, intrinsic motivation, or psychological empowerment, may also explain the intellectual capital–performance relationship. Future research should explore additional mediators to provide a more complete understanding of the mechanisms at play.

Fifth, the study did not examine moderating variables that may influence the strength or direction of the observed relationships. Factors such as leadership style, organizational culture, or individual differences may condition the effects of intellectual capital on attitudes and performance. Future research should explore these potential moderators.

Sixth, the measurement of attitude using a 3-item scale, while validated in prior research, may not fully capture the multidimensional nature of faculty attitudes. Future research may employ more comprehensive measures of attitude that encompass cognitive, affective, and behavioural components.

Future Implications and Research Directions

The findings of this study open several avenues for future research that can extend, refine, and deepen our understanding of the intellectual capital–performance nexus in educational contexts and beyond.

Longitudinal and Causal Designs: Future research should employ longitudinal designs that track changes in intellectual capital, attitudes, and performance over time. Such designs would enable stronger causal inferences and allow researchers to examine dynamic relationships, including the potential for reciprocal effects wherein performance influences subsequent intellectual capital development. Panel studies that follow faculty members across multiple time points would be particularly valuable.

Expansion of Context: The scope of future research should be expanded to include diverse institutional contexts. Comparative studies examining public versus private universities, institutions across different provinces of Pakistan, and cross-national comparisons would enhance generalizability and reveal contextual contingencies. Additionally, extending the research to other levels of education, such as secondary schools or vocational institutions, would provide insights into the applicability of the findings across educational settings.

Additional Mediators and Moderators: Future research should explore additional mediating mechanisms that may explain the intellectual capital–performance relationship. Potential mediators include work engagement, psychological empowerment, self-efficacy, intrinsic motivation, and innovative work behaviour. Examining these mediators would provide a more comprehensive understanding of the pathways through which intellectual capital influences performance. Additionally, moderating variables such as leadership style (e.g., transformational leadership, servant leadership), organizational culture (e.g., supportive culture, innovative culture), and individual differences (e.g., personality traits, growth mindset) should be explored to identify conditions under which intellectual capital exerts stronger or weaker effects.

Objective Performance Measures: To address the limitations of self-reported performance data, future research should incorporate objective measures of faculty performance. Such measures may include publication counts, citation indices, research grant acquisition, student learning outcomes, teaching evaluation scores, and contributions to institutional development. The use of multi-source data, including supervisor evaluations, peer assessments, and student ratings, would also enhance measurement validity and reduce common method bias.

Multilevel Analysis: The relationships examined in this study could be fruitfully explored using multilevel analytical approaches that account for nested data structures. Faculty members are nested within departments, which are nested within universities. Multilevel modelling would enable researchers to examine how departmental- and institutional-level factors, such as departmental climate, leadership practices, and institutional policies, influence the relationships between intellectual capital and faculty attitudes and

performance.

Qualitative and Mixed-Methods Approaches: While this study employed quantitative methods, future research could benefit from qualitative or mixed-methods approaches that provide deeper insights into the processes through which intellectual capital influences faculty attitudes and performance. In-depth interviews, focus groups, or case studies could reveal the mechanisms and contextual factors that shape these relationships, complementing the broad generalizable findings of quantitative research.

Intervention Studies: Future research could employ intervention designs to examine whether initiatives aimed at enhancing intellectual capital, such as faculty development programs, knowledge management systems, or relational network building, result in improvements in faculty attitudes and performance. Such studies would have direct practical implications for university administrators and policymakers.

Integration with Emerging Trends: Future research should explore the intersection of intellectual capital with emerging trends in higher education, including digital transformation, artificial intelligence in education, online learning platforms, and international collaboration networks. Understanding how these trends interact with intellectual capital to shape faculty attitudes and performance would have significant practical implications.

Policy and Practice Evaluation: Research that evaluates the effectiveness of specific policies and practices aimed at enhancing intellectual capital and faculty attitudes would be valuable. Studies that examine the impact of faculty development programs, mentoring initiatives, research support systems, and recognition schemes on the relationships examined in this study could provide evidence-based guidance for institutional improvement.

Sustainability and Long-Term Impact: Future research should examine the sustainability of intellectual capital investments and their long-term impact on faculty performance and institutional effectiveness. Understanding whether the effects of intellectual capital on attitudes and performance persist over time, and what factors contribute to or detract from sustainability, would have important implications for resource allocation and strategic planning.

In conclusion, this study provides robust evidence for the mediating roles of job satisfaction, organizational commitment, and attitude in the intellectual capital–job performance relationship within the higher education sector in Lahore, Pakistan. The findings underscore the importance of viewing intellectual capital as a foundation for positive attitudes and commitment, which in turn drive faculty performance. By addressing the limitations identified and pursuing the avenues for future research outlined above, scholars can continue to build upon this foundation, advancing both theoretical understanding and practical applications for enhancing faculty effectiveness and institutional quality in higher education.

Conflict of Interest Statement

The author declares no conflicts of interest.

Funding Statement

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sectors.

Informed Consent

Informed consent was obtained from all individual participants included in the study.

Ethical Approval

All procedures performed in studies involving human participants were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Data Availability

The datasets generated during and analysed during the current study are available from the corresponding author on reasonable request.

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