The Impact of Training on Human Productivity: Evidence from Public and Private Universities in Sindh

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Abstract

This study investigates the role of training in enhancing human productivity within public and private universities in Sindh, Pakistan. Grounded in Human Capital and Motivation Theories, the research employs a quantitative approach using structured questionnaires administered to 200 academic and administrative staff from ten selected universities. The study explores the relationship between training and various productivity indicators, including job performance, satisfaction, motivation, and skill development.

Descriptive and inferential statistical techniques, including t-tests, correlation, and regression analysis, were used to assess sectoral differences and training effectiveness. Findings reveal that while private universities perceive stronger short-term performance gains from training, public universities demonstrate greater confidence in long-term productivity outcomes. A strong positive correlation (r = 0.910) was found between performance and skill development, and regression results indicated that performance and efficiency significantly predict personal growth traits.

Despite sectoral contrasts, both university types acknowledged the critical role of training in fostering professional competencies and institutional efficiency. The results support the theoretical premise that structured and relevant training initiatives contribute substantially to human development in higher education. The study concludes with targeted recommendations for improving training design, delivery, and evaluation, emphasizing the need for policy alignment with institutional goals and employee needs.

***Keywords**: Training effectiveness, Human productivity, Higher education, Public vs. private universities, Skill development*

Introduction

Background and Context of Training in Higher Education

In today's rapidly evolving knowledge economy, higher education institutions (HEIs) are pivotal in fostering national development and global competitiveness. The effectiveness of these institutions is intrinsically linked to the productivity of their human resources—namely, academic and administrative staff—whose competencies are significantly enhanced through continuous training and development programs.

Training in the realm of human capital development is recognized as a crucial driver of employee performance and institutional success. Olaniyan and Ojo (2008) define training as the systematic development of knowledge, skills, and attitudes required by employees to perform adequately in their roles. In the context of HEIs, such training is essential not only for individual growth but also for the collective advancement of educational standards and institutional effectiveness.

In Pakistan, particularly within the Sindh province, the quality of higher education has been a growing concern. Many universities face challenges related to limited access to structured training programs that align with contemporary educational needs and technological advancements. This deficiency adversely affects teaching methodologies, research quality, and overall institutional governance. Recent studies have underscored the positive impact of staff training on university productivity, emphasizing the role of job satisfaction as a mediating factor. For instance, a study conducted in ISO 9001-certified universities in Pakistan found that staff training significantly influences both job satisfaction and university productivity, highlighting the importance of aligning training programs with quality management standards (Khan et al., 2023).

Importance of Human Productivity in Universities

Human productivity in universities encompasses the efficiency and effectiveness with which academic and administrative personnel contribute to institutional goals, including teaching quality, research output, innovation, and service delivery. Enhancing human productivity is essential for institutional sustainability, accreditation, and reputation in the competitive landscape of global academia.

Recent research has demonstrated a direct correlation between training programs and improved employee performance in educational institutions. A study focusing on the educational sector in Larkana, Sindh, revealed that training and development initiatives significantly enhance employee performance across various departments, including teaching and administration (Hakro & Mahoto, 2023). Similarly, research on the National Database and Registration Authority (NADRA) in Sindh province indicated that training positively impacts employee performance,

productivity, and retention (Ahmed et al., 2023). These findings underscore the critical role of training in fostering a competent and motivated workforce within universities.

Moreover, the integration of digital Human Resource Management (HRM) practices has been shown to further enhance academic performance. The adoption of digital HRM systems facilitates access to vital resources, enabling academic staff to effectively address both academic and administrative challenges, thereby contributing to overall institutional productivity (Imran et al., 2024).

Statement of the Problem

Despite the recognized importance of training, many public and private universities in Sindh continue to grapple with systemic weaknesses in their training mechanisms. Training initiatives, where present, are often fragmented, sporadic, or misaligned with institutional objectives. Faculty members frequently report a lack of professional development opportunities, while administrative staff are seldom included in skill-building programs.

This results in a significant productivity gap, manifesting in suboptimal classroom engagement, low research output, administrative inefficiencies, and inadequate service delivery. Furthermore, the absence of effective Training Need Assessment (TNA) mechanisms leads to programs that fail to address actual performance gaps. While some private universities have made strides in employee development, the public sector often lags due to limited funding, bureaucratic hurdles, and a lack of institutional vision for human resource development. This disparity necessitates an empirical evaluation of how training affects human productivity in both sectors and what lessons can be drawn to create a balanced and effective training ecosystem.

Objectives of the Study

The primary objective of this study is to assess the impact of training on human productivity in higher education institutions in Sindh, with a comparative analysis of public and private universities. The study aims to:

1. Examine the relationship between training and human productivity among university employees.
2. Evaluate the extent to which training contributes to institutional strengthening.
3. Identify key factors that enhance or hinder the productivity of trained versus untrained personnel.
4. Explore differences in training practices and outcomes between public and private universities.
5. Recommend strategies for improving training systems and their alignment with institutional goals.

These objectives are aligned with the broader research goals articulated in the PhD thesis, which seeks to optimize human productivity through effective training interventions in higher education.

Significance of Comparing Public and Private Universities

A comparative approach is essential to understand the nuanced differences in how public and private universities approach training. Public sector institutions, constrained by limited resources and rigid bureaucratic structures, often lack the agility to implement effective training programs. In contrast, private universities are typically more responsive to market demands and tend to invest more in staff development, albeit often limited to revenue-generating faculties.

This comparative analysis will not only highlight best practices but also identify systemic gaps that hinder productivity. It will enable policymakers and university administrators to design context-specific training programs that are inclusive, sustainable, and aligned with national educational priorities. The study also supports the vision of Pakistan's Vision 2025, which emphasizes investing in human capital and improving productivity across all sectors.

By analyzing how training impacts productivity across different institutional models, the study seeks to inform a more balanced and equitable higher education development strategy in Sindh.

Literature Review

Theoretical Foundations: Human Capital Theory and Motivation Theory

Human Capital Theory

Human Capital Theory emphasizes that education and training are investments that enhance the productive capacities of individuals, leading to economic returns for both the individual and the institution (Becker, 1993). In the context of higher education institutions (HEIs), this theory suggests that when universities invest in their human resources—teachers, researchers, and administrators—through structured training programs, they enhance overall institutional performance.

The theory also aligns with current organizational thinking, where employees are considered assets whose value increases with experience and learning (Schultz, 1961). In higher education, this means institutions that invest in the continual professional development of staff are more likely to experience growth in teaching quality, research output, and administrative efficiency.

Motivation Theory

Motivation Theory explains the internal and external forces that stimulate people to take actions that lead to goal achievement. Self-Determination Theory (SDT), developed by Deci and Ryan (1985), identifies intrinsic and extrinsic motivation as key drivers of performance. Intrinsic motivation relates to personal satisfaction and interest in the work itself, while extrinsic motivation involves rewards like salary increases, recognition, or promotions.

In universities, staff motivation significantly influences productivity. A motivated lecturer is more likely to adopt innovative teaching techniques, engage in research, and contribute to institutional development. Hanaysha and Hussain (2018) found that intrinsic motivation was a strong predictor of research productivity in public universities in Malaysia. Similarly, a recent study in Pakistan emphasized that work environment and leadership support positively influenced faculty motivation and productivity (Imran et al., 2024).

Definitions and Dimensions of Training

Training in organizational contexts refers to the systematic development of knowledge, skills, and attitudes to improve individual performance and productivity (Olaniyan & Ojo, 2008). In higher education, training is not only about skill enhancement but also about aligning individual competencies with institutional goals.

Several dimensions of training relevant to academia include:

- **Pedagogical Training**: Enhancing teaching practices and classroom engagement.
- **Research Training**: Improving skills in research methodology, academic writing, and publication.
- **Technology Training**: Familiarization with learning management systems (LMS), smart classrooms, and digital libraries.
- **Administrative and Leadership Training**: Skill-building in university governance, decision-making, and HR practices.
- **Soft Skills Training**: Development of communication, teamwork, and emotional intelligence.

As highlighted by Ahmed et al. (2023), targeted training interventions across these dimensions have shown a measurable impact on employee effectiveness in Pakistani HEIs.

Training and Its Link to Productivity in Academia

The link between training and productivity has been widely established across sectors, including academia. In HEIs, productivity can be measured through outputs such as research publications, course delivery quality, student engagement, and administrative efficiency.

Iqbal et al. (2024) found that training positively impacts job satisfaction, which in turn enhances university productivity. Their study on ISO 9001-certified universities in Pakistan highlighted that training programs must be systematically planned, adequately funded, and continuously evaluated to produce tangible outcomes.

Another study by Ichdan (2024) found that in the Indonesian university context, training combined with supportive work environments significantly increased staff motivation and

productivity. Similarly, in Sindh province, Hakro and Mahoto (2023) demonstrated that structured professional development led to higher faculty retention and student satisfaction.

These findings reaffirm that training is not just a complementary HR function but a strategic necessity in academic institutions seeking competitive advantage and excellence.

2.4 Global and Local Perspectives on Training in Higher Education

Globally, professional development is considered a cornerstone of higher education reform. As Altbach (2016) argued, globalization has intensified the need for HEIs to maintain standards that meet international expectations, particularly in teaching innovation and research competitiveness. This shift requires ongoing investment in staff capacity-building.

In the United Kingdom, for instance, the Teaching Excellence Framework (TEF) incentivizes universities to continuously train staff to improve learning outcomes (Department for Education, 2022). In the U.S., tenure-track professors are expected to engage in regular pedagogical and research development programs.

Locally, the Higher Education Commission (HEC) of Pakistan has implemented the National Academy of Higher Education (NAHE) program to improve teaching standards. Despite these initiatives, implementation challenges persist.

Ahmed et al. (2023) found that many institutions in Sindh lack a culture of continuous learning and rely heavily on ad hoc training sessions, often limited to compliance purposes rather than performance improvement. Similarly, Khan et al. (2023) noted discrepancies in training access and outcomes between public and private universities, with the private sector generally investing more in capacity-building.

2.5 Gap in the Existing Literature Related to Pakistani Universities

While there is growing research on training in higher education globally, studies in the Pakistani context remain limited and fragmented. Existing literature often emphasizes broad themes like "employee satisfaction" or "faculty development" without exploring the nuanced relationship between training and institutional productivity.

For example, Nasar et al. (2010) suggested that proactive training policies improved organizational image but lacked detailed performance metrics or productivity indicators. Moreover, most studies do not distinguish between training practices in public and private universities—a critical oversight given the resource disparities and administrative structures in these sectors.

This research, therefore, aims to fill this gap by providing a comparative, empirical analysis of how training impacts human productivity in both public and private universities in Sindh. It also explores the mediating role of factors such as institutional support, motivation, and work environment—elements often ignored in earlier studies.

Research Methodology

Research Design

This study adopts a quantitative research design, which is effective for systematically measuring relationships between variables through numerical data and statistical analysis (Creswell & Creswell, 2018). A cross-sectional approach was used to compare public and private university employees at a specific point in time. Although the core design is quantitative, the inclusion of a few open-ended questions adds a light mixed-method flavor, allowing some qualitative insights to complement the data (Teddlie & Tashakkori, 2009).

Population and Sample

Target Population

The population consisted of academic and administrative staff from selected public and private sector universities in Sindh. These two categories were chosen to reflect the diversity of roles nd responsibilities within higher education institutions (Khan et al., 2023).

University Selection

From a pool of HEC-recognized institutions, 10 universities were selected (5 public and 5 private) using purposive criteria including operational training departments, diversity of programs, and accessibility. Similar sampling strategies have been effectively used in recent training impact studies in Pakistan (Ahmed et al., 2023).

Sampling Technique and Size

Using stratified random sampling, the study ensured representation across both academic and administrative divisions in each university. From each institution, 20 respondents were selected, totaling 200 participants (100 from public and 100 from private universities). This sampling method helps reduce bias and enhances generalizability (Etikan & Bala, 2017).

Data Collection Tools

A structured questionnaire was developed after reviewing validated tools used in similar training-related studies (Iqbal et al., 2024). The questionnaire comprised:

- Demographic section
- Likert-scale items measuring perceptions of training effectiveness
- Items on productivity outcomes (e.g., job performance, satisfaction)
- A few open-ended questions for qualitative insights

The tool was pilot-tested with 20 respondents to assess reliability, yielding a Cronbach's Alpha of 0.87—indicating high internal consistency (Gliem & Gliem, 2003).

Research Variables

Independent Variable

- ***Training Programs***: Measured in terms of frequency, relevance, delivery method (online/offline), evaluation, and perceived usefulness (Olaniyan & Ojo, 2008).

Dependent Variables (Human Productivity Indicators)

Adapted from existing models of productivity measurement in academia (Hanaysha & Hussain, 2018; Imran et al., 2024), the dependent variables include:

- **Performance & Efficiency**
- **Job Satisfaction & Motivation**

Data Analysis Techniques

The responses were analyzed using SPSS Version 25, applying the following techniques:

- **Descriptive Statistics** (mean, frequency, SD) to summarize demographic trends and general perceptions.
- **Pearson's Correlation Coefficient (r)** to examine relationships between training variables and productivity indicators (Khan et al., 2023).
- **Independent Samples t-tests** to compare public vs. private sector responses.
- **Regression Analysis** to assess how training influences productivity dimensions.
- **Reliability Testing** (Cronbach's Alpha) to ensure internal consistency of the instrument.
- **Cross-tabulation and Chi-Square Tests** to analyze group differences and categorical relationships (Pallant, 2020).

Ethical Considerations

All participants were informed of the study's purpose and participated voluntarily. Data was collected anonymously, and confidentiality was maintained. Ethical approval was granted by the research review committee of the lead institution, in line with standard ethical guidelines (Bryman, 2016).

Data Analysis

This section presents the analysis of data collected through structured questionnaires administered to 200 respondents across selected public and private universities in Sindh. The objective was to empirically assess how training affects human productivity, measured via performance, job satisfaction, motivation, and institutional commitment.

The analysis was conducted using **SPSS (Version 25)**, employing descriptive statistics, t-tests, Pearson correlations, and regression analysis.

Descriptive Statistics

Table 1

Gender Distribution by Sector

Sector	Male (n/%)	Female (n/%)	Total (n/%)
Public	100 (50%)	100 (50%)	200 (100%)
Private	99 (49.5%)	101 (50.5%)	200 (100%)
Total	199 (49.75%)	201 (50.25%)	400 (100%)

Interpretation: Gender representation is balanced across both sectors, which enhances the reliability of gender-related productivity analysis.

Impact of Training on Productivity Dimensions

Table 2

Perceptions of Performance and Efficiency

Sector	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Public	74 (37%)	112 (56%)	12 (6%)	2 (1%)	0 (0%)
Private	104 (52%)	80 (40%)	14 (7%)	0 (0%)	2 (1%)

Interpretation: Table 2 offers a powerful validation of the positive perception of training on employee performance and efficiency in both public and private universities. The more intense agreement in private institutions suggests more effective training implementation, reinforcing the call for public sector reform in aligning training programs with institutional and individual productivity goals.

Table 3

Job Satisfaction and Motivation

Sector	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Public	68 (34%)	102 (51%)	26 (13%)	4 (2%)	0 (0%)
Private	58 (29%)	98 (49%)	34 (17%)	8 (4%)	2 (1%)

Interpretation: A study found that 85% of public university respondents acknowledged that training programs positively impact their job satisfaction and motivation. Private universities, on the other hand, scored higher, likely due to contextual job-related benefits. The study suggests that private institutions may lack the psychosocial frameworks necessary to fully translate training into motivational outcomes. The higher neutral and disagreement rates in private institutions might reflect greater work pressure, unrealistic expectations, limited long-term incentives, or weaker psychological safety. The study also highlights the importance of training in fostering internal employee states like satisfaction and motivation, which are crucial indicators of productivity in educational institutions. The study suggests that private institutions may need to invest in non-material motivators like recognition, growth pathways, and positive leadership engagement to translate training into sustainable motivation.

Inferential Statistics

Table 4
Independent Samples t-Tests

Comparison Metric	t-value	p-value	Interpretation
Performance & Efficiency (Public vs Private)	-1.94	0.053	Not statistically significant; private rated slightly higher
Long-Term Productivity	2.03	0.043	Statistically significant; public sector more positive
Skill and Trait Development	-1.66	0.098	Not significant; similar perceptions across sectors

The study reveals that private universities slightly rate training higher in terms of immediate performance and operational efficiency, suggesting that private institutions offer more structured training programs. Public sector staff view training as having a more meaningful long-term impact on institutional and personal productivity, possibly due to greater institutional stability, longer tenures, and a perception that even modest training efforts accumulate positively over time. Both sectors report similar perceptions regarding the role of training in enhancing soft skills, attitudes, and behavioral traits. Training programs across public and private universities appear comparable in terms of developing personal and interpersonal competencies, such as communication,

leadership potential, professional attitude, and technological adaptation. The study highlights a distinct sectoral divide in how training outcomes are experienced and internalized. The private sector reaps immediate performance returns on training investments, whereas the public sector perceives training as a cumulative, long-term asset.

Table 5

Pearson's Correlation Coefficients

Variables Compared	r	Significance (p-value)	Interpretation
Performance & Efficiency ↔ Skill Development	0.910	$p < 0.001$	Very strong positive correlation
Long-term Productivity ↔ Skill Development	0.862	$p < 0.001$	Strong positive correlation
Performance ↔ Long-term Productivity	0.829	$p < 0.001$	Strong internal consistency

The study reveals a strong positive correlation between training and performance, skill development, and long-term productivity in higher education institutions. Employees who perceive training as enhancing their performance and efficiency associate it with personal skill and behavioral development, such as communication, adaptability, digital fluency, and leadership competencies. Training programs that focus on performance optimization tend to develop individual traits, making them more comprehensive and impactful. Long-term productivity is also linked to skill development, suggesting that those who believe training yields sustained institutional value also associate it with improvements in their capabilities. The study supports the hypothesis that effective training positively influences both individual employee traits and broader productivity indicators in universities. The findings support the Human Capital Theory and Motivation Theory, suggesting that investment in training enhances both immediate performance and long-term professional growth and institutional advancement.

Regression Analysis

A regression was conducted to assess the predictive value of training on Skill and Trait Development.

Model Summary

- **$R^2 = 0.88$**
- **Dependent Variable:** Skill & Trait Development
- **Predictors:** Performance & Efficiency, Long-Term Productivity

The R^2 value of 0.88 means that 88% of the variance in Skill and Trait Development can be explained by the two predictors: Performance & Efficiency and Long-Term Productivity. This is an exceptionally high explanatory power, indicating that the regression model provides a very good fit to the observed data.

Training's perceived impact on performance and long-term productivity is a strong predictor of personal development, including communication, emotional intelligence, leadership, digital fluency, and other soft skills essential in higher education roles.

Table 6
Coefficients Table

Predictor	B	Sig. (p)	Interpretation
Performance & Efficiency	0.60	<0.001	Strongest predictor of skill development
Long-Term Productivity	0.26	<0.001	Significant predictor but lesser than performance

The study reveals that training significantly impacts both institutional and individual productivity, with performance and efficiency being the strongest drivers of perceived skill and trait development. A one-unit increase in perceived performance and efficiency leads to a 0.60 unit increase in perceived skill and trait development. Long-term productivity is also a significant predictor, with a one-unit increase in the belief that training improves long-term productivity resulting in a 0.26 unit increase in skill and trait development. This suggests that employees value immediate, tangible improvements when evaluating personal skill growth. The study supports the Human Capital Theory and Motivation Theory, emphasizing the importance of designing training programs that yield both immediate and lasting outcomes to support comprehensive human development in higher education.

Cross-tabulation on Training Perception

Table 7
Perceived Training Impact on Traits

Response Category	Public Sector	Private Sector
Strongly Agree	74 (37%)	100 (50%)
Agree	88 (44%)	70 (35%)
Neutral	38 (19%)	24 (12%)
Disagree	0 (0%)	4 (2%)
Strongly Disagree	0 (0%)	2 (1%)

A study found that training positively impacts behavioral traits, soft skills, and professional conduct in the public sector, with 81% of respondents agreeing. However, a significant percentage of respondents remained neutral, suggesting a moderate endorsement. The private sector also showed a higher level of agreement, with 50% strongly agreeing, indicating a more polarized experience. The study's findings support the Human Capital Theory, which suggests training is an investment in human potential. The study suggests that public universities could benefit from improving the structure, targeting, and evaluation of training to increase perceptions. Recommendations include standardizing post-training assessment, assessing institution-specific needs, and incorporating soft skills modules. Private sector staff show stronger affirmation of training's impact on personal traits, while public sector responses are more moderate, suggesting potential for improvement in engagement or perceived value.

Conclusion of Analysis

The quantitative analysis confirms that training significantly impacts human productivity across both public and private universities in Sindh. While private institutions show higher perceptions in performance-related outcomes, public institutions reflect stronger optimism about long-term impacts. Correlation and regression analyses demonstrate the powerful role of training in fostering motivation, efficiency, and individual development—supporting all four research objectives.

These findings establish a strong statistical foundation for developing strategic, evidence-based training policies across higher education institutions.

Discussion and Conclusion

Discussion

This study aimed to evaluate the relationship between training and human productivity in higher education institutions across Sindh, focusing on a comparative analysis between public and private universities. Drawing on Human Capital Theory (Becker, 1993) and Motivation Theory (Deci & Ryan, 1985), the study revealed important insights regarding the effectiveness, impact, and perception of training programs in academia.

Training’s Impact on Performance and Productivity

One of the key findings, as illustrated in Table 2, was the overwhelmingly positive perception of training’s impact on employee performance and operational efficiency, with stronger agreement among private sector staff. This supports the assertion of Olaniyan and Ojo (2008) that training improves knowledge, skill sets, and attitudes—core elements for productive performance. The private sector’s more structured approach to training delivery, timely evaluation, and alignment with performance indicators may explain the stronger endorsement in this domain.

However, the public sector exhibited higher confidence in the long-term productivity outcomes of training, as confirmed by statistically significant results ($p = 0.043$) from independent sample t-tests (Table 4). This aligns with the notion that institutional tenure and career stability, more common in the public sector, facilitate a broader temporal perspective on developmental investments. Such findings are consistent with Khan et al. (2023), who noted that public institutions, despite structural limitations, value training as a long-term strategic tool for institutional growth.

Skill Development as a Mediating Factor

Pearson's correlation coefficients revealed strong positive relationships between training, performance, and skill development ($r = 0.910$). These associations underscore the argument that training not only impacts immediate job outcomes but also contributes to deeper personal and professional transformation, including leadership, adaptability, and emotional intelligence (Hanaysha & Hussain, 2018). Furthermore, regression analysis (Table 6) demonstrated that performance and efficiency ($B = 0.60$) is the strongest predictor of skill and trait development. This reinforces the Human Capital Theory perspective—employees who perceive performance improvements from training are more likely to also acknowledge gains in competencies and soft skills.

Interestingly, while both sectors acknowledged training's contribution to skills, the intensity of affirmation was higher in private universities (Table 7). A total of 50% of private-sector respondents strongly agreed with the statement compared to 37% in the public sector. These findings suggest a more immediate, observable outcome orientation in private institutions, whereas public sector responses reflect moderate satisfaction tempered by the institutional culture and pace of change.

Job Satisfaction and Motivation

As shown in Table 3, a significant portion of respondents agreed that training positively impacts job satisfaction and motivation. However, the private sector displayed more variation, with higher neutral and disagreement responses (22%) compared to the public sector (15%). This supports the Motivation Theory claim that training must align with intrinsic motivators and perceived relevance to be effective (Deci & Ryan, 1985). In this context, public sector employees, benefiting from job stability and structured promotion channels, may view training as a complementary factor to career progression, whereas private sector staff may require additional non-material incentives such as recognition, growth paths, or leadership inclusion (Imran et al., 2024).

Institutional Culture and Sectoral Differences

The study clearly illustrates the importance of institutional culture in shaping how training is received, implemented, and evaluated. The private sector's flexible administrative structures and market responsiveness allow for more innovative and needs-based training approaches.

Conversely, the public sector's bureaucratic rigidity, while slower to adapt, fosters long-term employee commitment and sustained institutional memory. These cultural differences not only explain the variance in perception and implementation but also point to the need for sector-specific training strategies.

These findings resonate with Hakro and Mahoto (2023), who emphasized the role of organizational context in the effectiveness of training programs in educational institutions. Moreover, the findings validate Khan et al. (2023), who stressed the mediating role of job satisfaction in converting training into productivity outcomes.

Conclusion

This study has demonstrated that training significantly enhances human productivity in both public and private universities in Sindh, albeit in different ways and with varying intensities. It confirms that training:

- Improves performance and efficiency;
- Enhances job satisfaction and motivation;
- Facilitates long-term institutional productivity;
- Fosters skill and trait development among academic and administrative staff.

Key Findings

1. Training programs are positively associated with productivity dimensions, especially in improving day-to-day performance and fostering motivation.
2. Private universities excel in immediate training effectiveness, likely due to structured delivery and performance alignment.
3. Public universities reflect stronger belief in the long-term value of training, attributed to job stability and institutional loyalty.
4. Skill development is a critical mediating factor between training and productivity—training perceived as enhancing performance also boosts individual competencies.

   These conclusions substantiate the theoretical propositions of Human Capital Theory, which views training as an investment yielding individual and institutional returns, and Motivation Theory, which posits that training enhances intrinsic satisfaction and engagement.

Recommendations

- Recommendations for Enhancing Training Impact in Sindh's Higher Education Institutions

- Institutionalize Training as a Strategic Priority: Treat training as a core component of institutional strategy and embed training plans in annual development programs. Establish or strengthen HRD units responsible for training program planning and evaluation.
- Develop Sector-Specific Training Frameworks: Design customized training models for each sector, focusing on change management, resource optimization, policy implementation, and leadership.
- Strengthen Training Need Assessments (TNA): Conduct regular TNAs to align training content with real performance gaps. Differentiate TNAs for academic vs. administrative staff.
- Enhance Soft Skills and Behavioral Training: Introduce mandatory modules in communication, emotional intelligence, time management, and conflict resolution. Link soft skill training to career development tracks.
- Focus on Digital Competency and Technological Adaptation: Prioritize digital literacy and learning management system (LMS) training to support blended learning models
- Monitor, Evaluate, and Certify Training Outcomes: Implement post-training evaluations to assess knowledge acquisition, skill application, and long-term performance impact
- Encourage Peer Learning and In-House Capacity Building: Promote internal talent and establish communities of practice or peer mentoring groups.
- Align Training with Motivation and Reward Systems: Link training outcomes with recognition programs, leadership opportunities, salary increments or performance bonuses.
- Ensure Inclusivity and Equal Access to Training: Guarantee equal access to training opportunities for both academic and non-academic staff.
- Foster Long-Term Engagement Through Career-Path-Based Training: Shift from one-off workshops to career-stage-based training pipelines.

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