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Leadership Experiences of Managing Technological Change in Teaching, Assessment, and Administrative Systems in Pakistan

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ABSTRACT

Academic institutions are experiencing rapid technological transformation to the educational systems teaching, assessment, and administrative systems, that puts new pressures on educational leadership. This paper discusses leadership experiences in managing change in technology in Pakistani schools and colleges, with implications on how institutional leaders perceive, execute, and react to the digital transformation programs. The research problem tackles the fact that little has been known about leadership sense-making and decision-making in the change caused by technology in education. The main purpose of the study was to focus on the experiences, struggles and methods which leaders have implemented in their process of transitioning associated with digital teaching devices, assessment systems and administrative technology. The qualitative research design was applied, and semi-structured interviews with principals, administrators, and academic leaders of both public and private institutions were used. The researchers made the assumption that organizational culture, availability of resources and accountability pressure determine the manner in which leaders respond to changing technology, and provided a set of boundary conditions based on infrastructure, capacity of staff and policy requirements. The results suggest that the technological change is seen within the leaders as a force of modernization as well as a cause of professional tension, increasing workloads, and resistance management. The results are consistent with global research on educational change leadership and provide domestic details of Pakistan. The research proves that adaptive leadership, relational negotiation, and institutional lasting support are the elements that lead to successful management of technological change.

Keywords: *Educational leadership; Technological change; Digital transformation; Teaching and assessment; Change management; Pakistan schools*

INTRODUCTION

The modern day educational systems are being characterized by technological change which is transforming patterns of teaching and learning, evaluation procedures, and management. Alongside their traditional roles, educational leaders are being demanded to handle digital platforms and learning management systems, online assessment tools, as well as data-driven administrative systems (Selwyn, 2016). The studies on school change indicate that leadership is an important factor in influencing the way in which technologies are embraced, opposed, or adjusted in institutions (Fullan, 2016). Schools and colleges in Pakistan work on

uneven technological infrastructures and policy-led modernization projects and this puts more pressure on the leaders to balance between the contextually bound innovation and the contextually driven innovation. Such circumstances make educational leaders the key players in technological change mediation in various institutional arenas.

The pre-eminent belief in the education reform dialogue is that technological change will bring about better teaching, assessment and management results provided that the leaders facilitate adherence to implementation. This however, is being refuted at an alarming rate as research indicates that the change process is complex and non-linear and the resistance, uncertainty, and escalation of workload in both leaders and staff (Dexter, 2011). Although the topic of technology leadership has been covered in international studies, little empirical research has been carried out to investigate the lived experiences of leaders in managing technological change in the simultaneous context of teaching, assessment, and administrative systems. In Pakistan, the current studies have been based more on access and digital tools as compared to leadership sense-making when changes are taking place. The presence of this gap poses the following research question: What is the experience of the educational leaders in Pakistan in terms of their handling and managing technological change in teaching, assessing and administration systems?

This research is intended to uncover the leadership experience of technological change management in Pakistani schools and colleges. As a qualitative research, the study explores the meaning of technological initiatives by the leaders, their reaction to the resistance, and the path towards digital system penetration in the instructional and administrative spheres. The results indicate the existence of tension between innovation and institutional capability, issues of staff preparedness, and emotional and relationship aspects of change leadership. This study can be useful in the field of educational leadership and technology by placing the views of the leaders at the center of discussion and shed light on the human processes of the digital transformation in the Global South. The article has gone further to review relevant literature, discusses the methodology, results, discussion, and a conclusion.

LITERATURE REVIEW

The technological change in education has been viewed as a more of an organizational and leadership challenge rather than a highly technical process. The studies indicate that leaders are key influencers in the development of digital technologies introduction, perception, and maintenance in teaching, assessment, and administrative systems. This literature review addresses the academic attention dedicated to the topics of educational change leadership, integration of technologies, leadership sense-making, change resistance, and emotional aspects of digital transformation. The review question is as follows: How do educational leaders feel and cope with technological change in various institutional areas? The synthesis of international literature and the works of Pakistan and other similar Global South situations make this review see common themes, contradictions, and gaps that authorize a qualitative investigation the leadership experiences of technological change.

Educational Change Leadership and Technology

According to the leadership theories, the effectiveness of educational change becomes possible as a result of how leaders can sift through complexity, uncertainty, and organizational culture (Fullan, 2016; Hallinger, 2011). Studies done on technology leadership point out that the leaders will not only have a speedy impact on adoption decisions but also staff attitudes, staff learning and coherence in the institution (Dexter, 2011). The researches imply that the adaptive leadership style is needed to co-ordinate the vision, resources, and practice in the field of instruction and administration in case the change entails technology (Leithwood et

al., 2020). Nevertheless, researchers note that relational and emotional work of change leadership in technology-driven reforms is underestimated.

Design of Technology use in teaching and assessment

The studies on technology integration in instruction and learning show that these changes show an uneven distribution based on the areas of leadership support, teacher beliefs, and liquidity of the institution (Ertmer and Ottenbreit-Leftwich, 2010). Online systems of assessments, learning management systems, and online evaluation tools transform the pedagogical practice and accountability systems (Selwyn, 2016). The leaders must deal with the tension between innovation, the validity of the assessment, and staff preparedness. Research shows that the implementation of technology in teaching and testing usually adds coordination and monitoring tasks to leaders (Howard et al., 2018).

Governance and Administrative Systems and Digital Governance

The administrative technology that has revolutionized the management of institutions includes student information systems, digital attendance tools and data analytics tools (Williamson, 2017). The studies indicate that these systems transform the governance practice by raising the data visibility and accountability (Ball, 2012). The educational leaders are placed as the arbiers of digital data. Nevertheless, researchers observe that managerial tasks may be increased and barriers between instructional leadership and bureaucratic compliance blurred because of administrative digitalization (Selwyn, 2019).

Leadership Sense-making and Change Resistance

Sense-making theory also states that leaders do not mechanically introduce a change into a process but they manually make sense of it (Weick, 1995). Studies have indicated that the drawback of technology is usually a sign of uncertainty, concern of workload, and professional values discontinuity instead of an objection to technical change (Datnow and Park, 2018). The reaction of leaders to resistance, be it in dialogue, negotiation, or enforcement, is very important to the course of technological change. Resistance management is a relational process that involves the building of trust and communication (studies highlight the necessity of trust building and communication).

Emotional Labor and Law Increasing Workloads

Technological change is identified to have come with heightened emotional work and workload of educational leaders (Hargreaves, 2001). Due to research, it was revealed that the leaders who have to handle a digital transformation are stressed by the need to be constantly adjusted, supporting staff, and the need to act responsibly (Kelchtermans, 2009). Affective aspects of leadership are especially relevant in times of swift technological transformation with leaders having to balance between institutional and staff welfare.

Global South and Pakistani Situations

Studies in Global South make it clear that technological change exists in the conditions of infrastructural inequality, fluidity of policies, and deficit of professional development (Miles and Singal, 2010; Selwyn and Jandric, 2020). Pakistan has conducted the majority of studies that are progressively on access to technology and digital literacy with minimal concern on leadership experiences in the technology integration process (Farooq et al., 2020). Educational leaders are most of the time pressured to modernize institutions despite the limitation of resources and resistance. There is little empirical studies exploring the

experience and pathways of technological change to the leaders of Pakistan in the context of teaching, assessment, and administration.

Synthesis and Research Gap

In the reviewed literature, seven interrelated themes can be identified, including: (a) leadership as a key driver of technological change, (b) issues of integration in teaching and assessment, (c) administrative governance renounced to digitalization, (d) leadership sense-making, (e) resistance and negotiation, (f) running of emotional work upon the heightened workload, and (g) a scarcity of qualitative studies in Global South scenarios. Although the dynamics are reported in international scholarship, a significant recess of qualitative research examining the leadership experiences of technological change management in various institutional systems within the nation of Pakistan has been observed. This gap is filled by the current research, which focuses on the lived experiences and interpretive practices of leaders.

RESEARCH METHODOLOGY

Methodological Approach

This paper was looking into the case of school leaders and a process of technological change in teaching, assessment, and administrative systems in Pakistani schools and colleges. The study was carried out based on the issue that technological reforms are often based without adequate focus on the lived experiences of leaders, sense making and leadership issues during the change processes. The approach to the study was qualitative interpretive research given the emphasis on interpretation, experience, and organizational meaning. The study used primary data and had a descriptive and exploratory research design that allowed conducting extensive analysis of the leadership practices in the context of digital transformation. A qualitative method was chosen because of its ability to provide the image of multifaceted leadership processes, emotional work, and situational factors that cannot be described with the help of quantitative techniques (Creswell & Poth, 2018).

Data Collection Methods

The samples were gathered both in the pubic and privately-run schools and colleges in Punjab, Sindh, and Khyber Pakhtunkhaw among a variety of various sizes and forms of institutions. The sample size was that of the [approximately 25-40] education leaders including principals, vice principals, department heads and administrators with responsibilities regarding technology decision-making. The leaders recruited using purposive sampling were leaders having firsthand experience in leading technological initiative in teaching, assessment, or administration. The collected data was collected in the form of semi-structured interviews, with a particular high emphasis on the leadership experiences, resistance management, and integration of digital systems and workload and emotional issues related to the process of technological change. Informed consent was taken, confidentiality ensured and ethical approval was taken.

Data Analysis Methods

All the interview data were tape-recorded, transcribed word-to-word and analyzed with the help of a thematic analysis. The analysis was done according to the 6-phase paradigm suggested by Braun and Clarke (2006), familiarization, initial coding, theme development, review, and refinement. Coding was done based on leadership sense making, resistance management, system integration, emotional labor, and institutional constraints. The comparative analysis was made to be important in the school and college settings to determine common and differing experiences in leadership. Data were organized in qualitative data analysis

software (e.g., NVivo) in order to systematize them. Transparency and analytical rigor were in favor of reflexive memo writing.

The qualitative interpretive method was suitable in investigating technology change leadership experiences as processes that are socially and emotionally situated. Semi-structured interviews helped leaders to clarify issues, policies and relational processes that tend to be inexpressible in policy discourses. The inclusion of various participants with a different institutional background on the part of participants increased credibility and transferability of findings. The restrictions are that we have been using self-reported information and observe no observations or documents, which could have contributed to a deeper insight on adopted leadership practices. These constraints were overcome using the probing, the cross-contextual comparison, and the reflexive analysis. In spite of these limitations, the methodology would offer a sound guideline on perspectives of the leadership experiences of coping with technological change in Pakistan.

RESULTS

In this section, I am going to give the findings of semi-structured interviews with educational heads in state and non-state schools and colleges in Pakistan. The findings concentrate on the leadership experiences in managing technological change in the teaching, assessment, and administration of the systems. There are key themes in which findings are presented respectively, which are recurring across participants and institutional settings.

Technological change in the teaching practices

According to the leaders, the implementation of digital technologies in the teaching sphere needed long-term coordination, tracking, and the assistance of staff members. The respondents reported their roles in enhancing the implementation of learning management systems, online instruction, and digital content platforms. The reports by the leaders indicated different degrees of teacher preparedness, as some teachers responded swiftly, and others needed a lot of instructions. It was found that there was a resistance to the use of digital teaching tools especially among the staff who have minimal previous experience in using technology.

Digital Assessment systems Management

The respondents indicated that leaders had an immense participation in the introduction of digital assessment systems such as online assessments, software to assign grades, and even the reporting systems with data. Leaders recalled issues of assessment validity, technical reliability, and employee trust in online systems of evaluation. Other participants stated that they used both traditional and electronic assessment systems simultaneously during periods of transitioning to the new system to preserve institutional credibility and trust of the stakeholders.

Administrative technologies are integrated into the system to enable ease of use, rapid decision making and execution, along with efficient resource allocation.<|human|>4.3 Inclusion of Administrative Technologies into the system Administrative technologies are incorporated into the system to facilitate ease of use, quick decision making and execution, as well as prompt resource allocation.

Leaders stated that they dealt with introducing administration technologies; student information systems, digital attendance systems, and financial management programs. The participants indicated that administrative digitalization is a growing amount of data exposure and reporting requirements. Leaders

indicated that they used a lot of time to align the administrative systems with teaching and assessment technologies to achieve coherence and compliance with regulation requirements in institutions.

Staff Adaptation and Resistance

Resistance to technological change was indicated by the participants to be experienced by the teaching personnel and administrative personnel. The resistance was reported as a result of more workload, accountability fear, and competence issues. Some of the strategies that leaders cited to help in the adaptation were informal mentoring, phased implementation and professional development. There was a difference in the level of resistance amongst the institutions and staff groups.

Leaders Implications on Emotions and Work load

The leaders mentioned the feeling of workload and emotional pressure related to the need to implement numerous changes in technology at the same time. Respondents mentioned late working hours, frustration troubleshooting, and the need to prove successful implementation. Emotional demands consisted in staff anxiety, complaints, and innovation and institutional stability.

Limitations in the Data Observed

One should take into account the limits on the results. The information was based on the self-report of leaders, which might not possibly be a comprehensive measure of enacted leadership practices. Implementation processes can not be verified because of the lack of document analysis and observation. Also, qualitative sample does not allow generalization outside of comparable institutional settings. Such limitations are admitted without explanation and they will be discussed more in the Discussion section.

DISCUSSION

Summary of Major Findings

The research focused on the experiences of educational leaders dealing with technological change in the domain of teaching, assessment, and administration of Pakistani schools and colleges. According to the findings, leaders were the centre of action in coordination of technology adoption, resistance management, and coordination of integration of various digital systems. The respondents indicated a higher workload, emotional stress, and and protracted negotiation with employees when they were in transition. There was technological change experienced as a process that was continuous, multifaceted because it was not an event of implementation.

Interpretation of Findings

The results imply that the technological change imposes a great relationship, and emotional burden on educational leaders. Leaders had to strike a balance between innovation objectives and personnel preparedness, organization steadiness, as well as responsibility compulsions. The concept of technology resistance was not only presented as resistance, but it was also the reaction to the augmented work hours, ambiguity, and fear of responsibility. The necessity to combine teaching technologies, assessment, and administrative technologies made the leadership complexity even more, and it had to be coordinated and provided with sense-making regularly.

Relation to Existing Literature

These results are consistent with the body of literature on educational change that focuses on leadership as key to ploughing through multifaceted reforms (Fullan, 2016; Hallinger, 2011). Technology leadership studies also indicate that leaders play a crucial role when it comes to enhancing the engagement of staff and resistance management (Dexter, 2011; Ertmer and Ottenbreit-Leftwich, 2010). The described emotional labor and heightened workload are indicative of the wider research on the emotive aspects of educational leadership in the change (Hargreaves, 2001; Kelchtermans, 2009). This work has put into the Global South contexts of digital transformation by focusing on Pakistan when there is a limitation of resources (Selwyn and Jandrić, 2020).

Limitations of the Study

Various shortcomings are to be noted. The research was based on the self assessment of the leaders and therefore might not capture enacted leadership practices completely. Triangulation is hampered by the lack of staff perspectives and the analysis of institutional documents. Also, the participants were used by various institutions, which limits the possibility of generalization by the qualitative sample. These constraints indicate the possibilities of future research on multi-perspective and mixed-method investigations.

Implications in Theory and Practice

Theoretically, the paper has added to the scholarship on leadership and educational technology because it introduces technological change as an emotionally, relationally intensive leadership process. In practice, the results point to the need to support the change of technology through institutional support structures, professional development, and realistic timelines. Educational leaders face workload and emotional implications of a digital reform that policymakers and governing bodies need to be aware of.

Alternative Explanations

Other factors that can explain the challenges in leadership are the systemic issues in general like policy overload, staffing shortage and examination pressures and not necessarily the change of technology. There can also be differences in the experiences of leaders due to differences in institutional culture, experience in leadership and availability of resources. These aspects indicate tht the existing elements in an organization interact with the change of technology.

Revisiting the Research Question

Going back to the research question; how do educational leaders in Pakistan experience and manage technological change in teaching, assessment, and administrative systems? it can be seen that educational leaders continuously negotiate with, sense-make about, and labor emotionally. Technological change implies a need of the adaptive leadership which goes beyond the technical implementation and includes the relational and cultural work.

CONCLUSION

This paper reviewed the daily lives of educational leaders as they dealt with changes in technology in the teaching, assessment, and administration systems in Pakistani schools and colleges, which fulfill a severe gap in leadership and educational technology studies. To restate the main thesis, the results indicate that technological change does not solely take the form of a technical one, but it is a complicated issue of

leadership in which a sense-making process is central, resistance management mechanism plays a crucial role, and emotional labor is also essential. The leaders had to synchronize various digital systems, balance the institutional expectations, staff preparedness, and control requirement.

They found that the process of technological change was found to be continuous, work-intensive, and relationally challenging by the leaders in the study. Organizational issues of staff resistance, implementing digital systems, and institutional stability have become the primary focus of leadership. The research findings add to the educational leadership literature through its predictive nature of the human and emotional aspects of digital transformation especially when resources are limited. The study also revisits the introduction thus confirming that technological change through effective leadership capacity is meaningful and sustainable.

The wider relevance of the study is that it has influence on the leadership development and policy in Pakistan. The works of the leaders should be taken into consideration in educational changes, the leaders should be offered long-term support of the professionals, and the technological activity has to be adjusted to the power of the institutions. The opinion and viewpoints of the staff, longitudinal designs, and policy analysis should be incorporated in future studies to gain more insight into how technological change alters the leadership practice at times.

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