

School Principals as Change Facilitators for ICT integration: Teachers' Perspectives

Nazir Ahmed Jomezai^{1*}, Fozia Ahmed Baloch², Gulab Khan Khilji³

¹Education Department, Government of Balochistan, Pakistan.

²Balochistan University of Information Technology, Engineering and Management Sciences (BUIITEMS), Quetta, Pakistan.

³Bureau of Curriculum, Education Department, Government of Balochistan, Pakistan.

*nazeer_khan53@yahoo.com

ABSTRACT

School principals, as change facilitators, have been highly effective in influencing the implementation of educational innovations such as ICT integration. This mixed-method research study investigated the change facilitation styles (CFS), including responders, managers, and initiators used by secondary school principals towards implementing ICT integration. The researchers collected data from 276 secondary school teachers by using change facilitation styles questionnaire (CFSQ). In the qualitative part the researchers interviewed twelve teachers to know their perceptions about their principals' change facilitation styles regarding the integration of ICT in teaching and learning. The findings inform that majority of the principals was with responder as a change facilitator style. Teachers' perceived initiators being more supportive of ICT integration as compared to responders and managers.

Keywords

Change facilitator styles, Principal, ICT integration, Secondary schools, Teachers' perceptions

Introduction

The role of the principal as change agents (Fullan, 2007), and change facilitators (Hall & Hord, 2011), in implementing innovation has been an established phenomenon (Hallinger, 2003; Leithwood & Jantzi, 2006). The research on integrating ICT as an educational reform or innovation places a strong emphasis on the role of principals (Al-Harthi, 2016; Ismail, Jomezai & Baloch, 2020; Jomezai, Ismail & Ahmed, 2016; Niekerk & Blignaut 2014; Ottestad, 2013; Petersen, 2014; Schrum & Levin, 2016; Sheninger, 2014; Yuen, Law & Wong, 2003). Due to the complexity of ICT integration and the recurrent developments in its form and use over time (Mishra & Koehler, 2006), the role of principals becomes even more critical. They subsequently, as Jomezai et al. (2020) states, need to use a variety of leadership styles rather than using one style fit all to tackle the complexity of ICT integration.

Teachers are the primary implementers, as Fullan (2007) states that "Educational change [ICT integration] depends on what teachers do and think" (p.129). Thus, the degree to which ICT integration is successfully implemented can be determined by how teachers view it (Fullan, 2007; Hall & Hord, 2011). Research looking into

successful prospect of ICT integration takes into account teachers' concerns (Hao & Lee, 2017; Jomezai, Ismail & Baloch, 2018; Pepe, 2016). However, teachers' concerns and perspectives are rooted in the influence of their working environment, either being supportive, or otherwise (Rosenberg & Koehler, 2015). The role of principals remains phenomenal in creating supportive environment for teachers (Jomezai, Ismail & Baloch, 2020). According to a recent review (Ismail et al., 2020), school-level support is critical in influencing teachers' use of ICT in teaching and learning. For the schools to effectively implement ICT integration, there is a higher emphasis on the relationship between schools' leadership and teachers' response to ICT integration (Park & Jeong, 2013; Baglibel et al. 2015). Principals' role in influencing teachers' perspectives about ICT integration remains essential. This study aimed to explore the role of principals' change facilitator styles and ICT integration from teachers' perspectives.

Purpose of the study

The study aimed to explore principals' change facilitator styles and understand its role in ICT integration from the teachers' perspective. The purpose was guided by the available research

related to principals' positive intentions towards ICT integration in schools in Pakistan (Jogezai et al., 2016, 2020). More importantly, ICT integration about teachers' everyday working environment triggered the purpose of seeing how the principals performed in this regard. ICT integration as a continuous process (Mishra & Koehler, 2006) needs school level support (Ismail et al., 2020) that the principals remain capable of (Al-Harthi, 2016; Schrum & Levin, 2016; Sheninger, 2014). Most importantly, their role from the teachers' perspective was pivotal. Towards achieving the purpose of the study, the following research questions were formulated:

- 1. What change facilitator styles are used by secondary school principals?
 - 2. How do the teachers perceive the role of principals' change facilitator styles regarding ICT integration in teaching and learning?
- How do the teachers perceive the role of principals' change facilitator styles regarding ICT integration in teaching and learning?

Literature Review

Hall, Wallace and Dossett came up with the concerns-based adoption model (CBAM) in 1973. They, considering school principals as change agents (Hall, Rutherford & Griffin, 1982), highlighted their influence on teachers' concerns in bringing about change. Hall and George (1999) introduced three principals' change facilitation styles including: responder, manager, and initiator. They perceive styles integral to principals' personality and the motive to form behavior (Hall & Hord, 1987). According to Hall & Hord (1987), teachers and others who are targets of interventions make their interpretation. CBAM does not state that there is one best style but informs about the initiator as more effective in successfully implementing a program. Hall and Hord (1987) acknowledge that one can successfully implement innovation using any styles. Table 1 describes each of the three change facilitation styles.

Table 1. Change facilitator styles (CFS)

CFS	Description
Initiator	Initiator is perceived to have clearly articulated vision of their school with a firm belief regarding schools to be effective towards achieving desired purpose. They have high expectations from their teachers and student and remain connected with their people for the purpose of conveying prospects and monitoring development. They are open to making changes as and when necessary. They remain oriented to students' learning along with allowing suggestions and making decisions.
Responder	Responder is concerned about his/her relationship with the people and their perceptions. The interest of their school community remains at front of their communication with them. They incline to delaying decisions with a careful response to the inputs. They rely on teachers without considering their need of supervision and allow them making decisions. Smooth running of the school remains their ultimate concern and lack long terms goals and objectives. Their decision is hard to change Once they make decisions, no one can easily change them.
Manager	Maintaining a balance between teachers and the central office. They more rely on the central office/higher authorities concerning the implementation of a change imitative. Manager's priority is to keep the school well organized and make it run smoothly. They are skilled and efficient at devising effective operating systems, procedures, and routines. Their teachers are well informed and know how to access materials. The manager Principal usually delays implementation when change is proposed. Before implementing change, they prefer to learn more about it and the related expectations and what it would mean for the school. One

CFS	Description
	consequence of a delay is that everyone is ready and prepared when the school implements a change. They protect their teachers from having too many changes simultaneously. Manager principals tend to arrive early in the morning and stay until late in the afternoon. They strive to attend all workshops and school activities, and most likely, they come back to their school offices on the weekend.

Research (e.g., Hallinger, 2003; Leithwood & Jantzi, 2006) is cognizant of the leadership role in change implementation by creating conditions (Shirley, 2017) that support everyone in playing their part. Consequently, the principals’ role of change agents (Fullan, 1996) or change facilitators (Hall & George, 1999) can define educational reform’s successful implementation. Research investigating principals’ role in change implementation or whole school improvement have reported their CFS very much significant. Studies have found principals’ CFS highly influential on students’ academic performance (George Hall & Stiegelbauer, 2013; Stewart, 2012), teachers’ attitude (Baglibel et al., 2014; Sarafidou & Nikolaidis, 2009), and teachers’ resistance towards change (Park & Jeong, 2013), and improving school climate (Sennun, 2002). Studies suggest a compelling correlation between teachers’ attitudes towards change and the change facilitator styles of school leaders.

Literature (e.g., Baglibel et al., 2014; Park & Jeong, 2013; Sarafidou & Nikolaidis, 2009; Sennun, 2002) informs about differences in school leaders’ preferences for choosing a particular or a mix of different Change Facilitator Styles. They either preferred responders (Baglibel et al., (2014) or manager (Jeong; 2013; Sarafidou & Nikolaidis, 2009) as their dominant change facilitator style. Principals leadership change facilitator styles have been found useful regarding school level change implementation (Baglibel et al., 2014; Hall & Hord, 2011), students’ academic performance (Hall et al., 2013), and teachers’ resistance to change (Park & Jeon, 2013). Majority of the studies have found the initiator as more effective amongst the three change facilitator styles.

All the previous studies exhibit a close association between principals’ CFS and change implementation. However, the studies opted for the quantitative method while failing to grasp the

complexities of how principals execute innovation in each of the CFS. Furthermore, most of the data about principals’ CFS is self-generated. Research (e.g., Jomezai et al. 2020; Park & Jeong, 2013; Baglibel et al. 2015) does not inform about the role of each of the change facilitator styles they perform to support the implementation of ICT integration through creating enabling conditions which, according to Shirley (2017), remains fundamental in the effectiveness of their leadership role. Thus, this study employed a mixed-method design to investigate principals’ role concerning their Change Facilitator Styles, from teachers’ perspectives, as they are the ultimate implementors of ICT integration as an educational innovation (Fullan, 2007).

Methodology

The research took place between September 2017 and March 2018. The study aimed at identifying the Change Facilitator Styles of secondary school principals from the teachers’ perspectives. Guided by the purpose (Creswell, 2009), the study used a mixed-method research approach (Neuman, 2014). Identification of principals’ styles (responder, manager, and initiator), as a preliminary step, was possible through quantitative while teachers’ perceptions about each of the principals’ styles via the qualitative method of inquiry (Creswell, 2009; Lichtman, 2006; Sarantakos, 2005). As Johnson and Christensen (2004) state, the qualitative research aspect helped investigate and understand the meanings being ascribed by teachers to their principals’ change facilitator styles. The qualitative data were collected by asking broad and general questions (Creswell, 2009).

Sampling

Sampling, as a means to data collection, is determined by the representativeness of the participants. The probability sampling technique (Neuman, 2014) was, therefore, presumed as an appropriate technique. Before proceeding with the systematic random sampling, it was imperative to calculate the sample size. Krejcie and Morgan (1970) sample size table was used in this regard. The table provided the sample size by maintaining a 95% confidence interval. The table suggested 297 as a representative sample size of 1305 population of the secondary school teachers. The researchers used systematic random sampling to select 297 from the target population of 1305 secondary school teachers with 4.4 as a sampling interval, starting with the fourth participant in the sample frame. The respondents' selection for the qualitative part was made through purposive sampling (Neuman, 2014) with recruiting 12 teachers. Four participants from each style (responder, manager, and initiator) were selected based on assigning the highest scores to their principals for each of their three change facilitation styles. The purpose of choosing teachers from each CFS school was to understand each CFS (responder, manager, and initiator) in ICT integration from teachers' perspectives.

Data collection

In this mixed-method study, quantitative data were collected using Hall and George's (1999) Change Facilitator Style Questionnaire, and interviews were conducted to collect qualitative data. The CFSQ used in this study comprised of 30 questions on six scales with each of five constructs. These dimensions included the scales of social/Informal, formal/meaningful, trust in others/administrative efficiency, and day-to-day/vision and planning. All six scales, each with five aggregate items, form three possible CFS, such as initiator, manager, and responder. The five questions per scale are marked with a "common thread of meaning" (Hall & George, 1999) and a numerical value from 1 (never or not true) to 6 (always or very true).

Semi-structured interviews were used to produce in-depth data (Gay & Airasian, 2009) regarding teachers' perceptions of their principals' change facilitator styles towards ICT integration.

According to Patton (2002), interviews as a data collection approach allowed researchers to enter participants' opinions, attitudes, and belief systems. Among its advantages, as Gay and Airasian (2009) point out, interviews produced in-depth data that were not possible with a questionnaire and permitted follow-up to incomplete or unclear answers by questioning. Data was collected using semi-structured interviews to get valid and in-depth responses in its flexibility and control during the discussion. Such flexible nature of semi-structured interviews provided room for the researchers to follow up on the participants' leads for the questions involved (Williamson, 2002, p. 243).

Data Analysis

Principals' Change Facilitator styles were identified via teachers' responses to each item on a scale totalled to obtain six scores on a raw scale. These values were entered into a classification function formula (CLF). CLF is a mathematical formula within the CFS framework, which produces a single value for each respondent. The classification formula is based on a discriminate analysis in which each of CFS forms in the norm group is assigned a tentative classification based on a least-squares fit to a theoretical pattern of scores on the six scales (Hall & George, 1999). The expectation is that the initiator ratings would have low scores on scales 1, 3, and 5, and high scores on scales 2, 4, and 6. Responder ratings would be high on scale 1, 3, and 5, and low on 2, 4, and 6. Manager ratings would remain average on all six scales. Classification function was used to classify each of 276 (out of 297 returned questionnaires) CFS rating. The raw canonical coefficients of this discriminant function were multiplied by 100 and rounded to integers, resulting in the following classification procedure. In this formula, CLF is the classification function value, and S1 through S6 are the CFS raw scale scores: $CLF = (-10 \times S1 + 8 \times S2 - 13 \times S3 + 8 \times S4 - 20 \times S5 + 9 \times S6) / 100$. Values of CLF above 1.50 indicate initiator ratings, CLF values below -1.50 responder ratings, and all others (-1.50 through +1.50) as manager ratings.

Inter correlation of the six scales on the change facilitator style (CFS) remained highly significant. Each scale of the questionnaire expects a significant level of the coefficient on internal

reliability for the study. Condon and Clifford (2012) and Liu, Ritzhaupt, and Cavanaugh (2012) inform a higher validity and reliability of CFSQ. Similarly, significant reliability of CFSQ was found with the Cronbach's Alpha in the range of .85 to .97.

Inductive analysis (Neuman, 2014) was used to allow research findings to emerge from the frequent, dominant, or significant themes inherent in raw data. Inductive data analysis involved data preparation, data coding, and categorization. The preparation phase started with selecting the unit of analysis (Cavanagh, 1997). The analysis unit was perceived as either a word or a theme (Polit & Beck 2004). In this study, categories were considered a unit of analysis, which led to theme formation, followed by data coding. Coding involved segmenting sentences into categories with similar meaning (Creswell, 2009) and labelling those categories with a particular term. As a final phase of qualitative analysis, researchers used selective coding (Neuman, 2014) to investigate underlying factors associated with principals' each change facilitator style.

Although qualitative data presentation usually includes narrative style or qualitative narrative (Creswell, 2009), the process involved events, theme clarification, and respondents quoting. However, the data presentation has been made comprehensive and concise following Creswell (2013) and Thomas (2006).

Results

Principals' change facilitator styles

The analysis revealed responders as a dominant change facilitator style of the secondary school principals (Table 2). A proportion of 75.7% of the teachers (n=209) rated their principals as responders and 16.7% (n=46) as managers. In the views of 7.6% of teachers (n=21), the change facilitator style of their principals was of an initiator.

Table 2. Principals' change facilitator styles

CFS	Frequency	Percent
Responder	209	75.7%
Manager	46	16.7%
Initiator	21	7.6%

Table 3 shows the detailed profiles of the change facilitators. Each change facilitator style

(responder, manager, and initiator) is identified on their six scales (scale 1-6). These scales include social/informal, formal/meaningful, trust in others, admin efficiency, day to day, and planning and vision. These six scales form three dimensions of the change facilitator styles. Dimension one is a concern for people and consists of social/informal and formal/meaningful scales. Dimension two is organizational efficiency and includes day to day and admin efficiency scales, while dimension three or the strategic sense dimension encompasses day to day and vision and planning.

Table 3: Scale wise (S-1-S6) mean scores

CFS	Concern for people S-1 Social/ Informal	S-2 Formal/ Meaningful	Organizational S-3 Trust in others	Admin S-4 Day to day	Planning S-5 Vision
Responder	23.51	6.34	23.35	24.12	4.97
Manager	12.76	13.26	12.28	6.73	5.62
Initiator	5.64	24.05	6.33	25.19	22.95

As per CFS interpretation of six scales (Hall et al., 1999), responders show high mean scores on scale one (social/informal) (M=23.51), scale three (trust in others) (M=23.35), and scale five (day to day) (M=24.12). While their mean scores remain low, on scale two (formal/meaningful) (M=6.34), scale four (Admin efficiency) (M=6.73), and scale six (planning and vision) (M=4.97). All these scores indicate and confirm these principals as responders. Initiator, in contrast, exhibits high scores on scale two (M=24.05), four (M=25.19), and six (M=22.95); while depicts low scores on scale one (M=5.64), three (M=6.33), and five (M=5.62). These scores confirm principals with the initiator profile of change facilitator. Manager principals, on the other hand, remain with an average score across all the six scales.

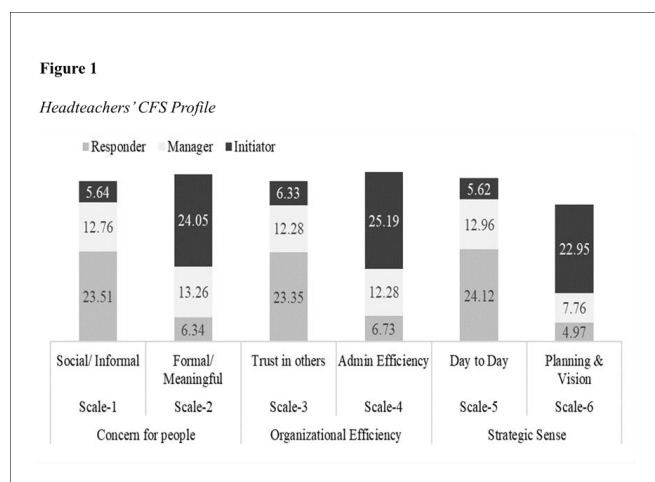


Figure 1. Headteachers' CFS profile

Teachers' perceptions about change facilitator styles of their principals and ICT integration

The data analysis revealed principals' change facilitator styles being associated with specific

themes, including teacher's workload, task completion learning opportunities, and access to ICT resources. This section presents the qualitative results at length.

Teachers' engagement in additional tasks

Respondents from the responder and manager schools informed that their principals had made them preoccupied with increasing their workload by assigning multiple tasks. These included teaching several subjects to different classes, additional classes, and duties other than teaching and learning. Teaching multiple subjects in a day increased teachers' work as they had to check students' homework in the same subject. Likewise, developing exam papers for all subjects and its checking as tasks other than teaching. In addition to engaging teachers in additional classes, the manager principals also assigned tasks like exam duties, checking students' cleanliness every morning, managing school morning assembly, and communicating with the parents.

The manger principals had also engaged teachers in school management-related work such as managing school inventory and compile quotations for purchasing learning resources. Their engagement in activities other than teaching

and learning, according to the teachers, had left no room for ICT integration.

The ultimate purpose of the increased workload for responder and manager change facilitator principals was to cover courses or syllabus in time as it was perceived to be their topmost priority with having no compromise upon. However, responders and manger principals even scolded the teachers when they could not progress alongside the syllabus timeframe.

The initiators had encouraged teachers to use ICT tools to reduce and manage their day to day activities and tasks. Teachers, for example, shared that keeping a record of their classroom activities or lesson plans was so much easy through using computers as they could save their data and its retrieval whenever required. Similarly, devising lesson plans and developing other teaching and learning material had become more comfortable and less time-consuming. The teachers had interpreted initiators with encouraging ICT use, which has contributed to their workload reduction and management.

Learning opportunities for ICT integration

Teachers from manager and responder schools believed that they had not been provided with an opportunity that helped them learn about ICT integration. They did not attend any training program related to ICT integration for years. The principals discouraged teachers from participating in any training because their absence would make the school suffer. The availability of fewer opportunities was quite visible through teachers' responses as they informed that ICT integration was an additional subject rather than an instructional tool towards facilitating teaching and learning.

The responder and manager principal, according to the teachers, also possessed less ICT integration knowledge, and that is why, as stated by the teachers, they were unable to involve themselves in sharing about ICT integration or encouraging teachers in this regard. The initiator principals, however, had initial knowledge of ICT integration or keenly interested to learn in this regard, as stated by the teachers. They were also involved in providing learning opportunities to the teachers by engaging ICT teachers to organize sessions on using specific ICT tools to teach a subject.

The initiator principals were found concerned about enabling teachers to learn from one another. In this regard, a teacher shared that though skilled ICT human resources were scarce, they still had some qualified teachers who could very well integrate ICT into teaching and learning. So, they had to encourage them to interact with their colleagues and share their knowledge with them. Initiator principals were also involved in learning from their colleague teachers.

Access to ICT resources

Providing no or restricted access to ICT resources was also one of the responders' and managers' principals' critical features. Teachers shared that they had not been allowed to sit in or study in the computer lab or use them. Teachers informed that there were ICT tools available in the computer lab, but they could not know what existed in their lab. They were not aware of the quantity or either functionality or dysfunctionality of those resources.

Teachers also shared that the available computers were password-protected, and only the ICT teacher knew the password. The principals also feared that those resources might get broken if accessed and used by teachers. A teacher in this regard stated, "It is almost impossible for us to use ICT tools. Even if I have to get a print, I do it from outside. No one, but only the ICT teacher has permission to access the ICT lab."

Because of principals' fear of ICT tools being damaged, according to the teachers, their access to ICT resources was made prohibited. Resources as inaccessible had resulted in their lack of necessary information regarding ICT tools and interest in its use.

Teachers from the manager CFS profile schools also stated that using ICT tools was associated with strict compliance, including the requirement of approval from the principals, fixed days for accessing ICT resources, and paying fine and repairing resources by teachers in case any damage to resources occurred. They did not allow teachers to use ICT tools or even sit in an ICT lab other than the allocated days. The teachers also believed that their principals would mostly not consider their requisition of using ICT tools. In this regard, a teacher shared that despite a written request, the

principal did not consider it that seriously. Moreover, such denial from the principal had discouraged teachers from integrating ICT into their lessons.

A teacher stated, "In this case, I prefer to avoid using ICT tools for my personal use or teaching purposes."

In contrast to responder and manager, initiator principals were perceived to be highly supportive about providing access to ICT resources. These principals had always encouraged teachers to use the available ICT resources for their own and student learning. The access to ICT resources was solely at teachers' disposal. A teacher in this regard stated, "Our madam [the principal] is very supportive. She never stops us from using those ICT related tools for teaching and learning. She has told our ICT staff to help us in any situation". The initiator principals also made the ICT staff responsible and ICT teacher a focal point whenever teachers needed any ICT tools to be used. They also shared that the support from ICT staff about using or issuing any ICT tool was always available. The initiator principals were found so much supportive about making ICT resources in the access of teachers. They encouraged teachers to visit the lab and use those resources. These principals had also made efforts to maintain the resources functional and earned support from the authorities to avail more ICT resources.

ICT use in teaching and learning

The responders and manager principals had not been supportive of ICT use in teaching and learning. Compared to the responder, the manager principals were found using ICT as part of their management practices. These included using ICT in developing exam papers, teachers' payrolls, and issuing notices and circulars. The teachers perceived such use very much useful, but at the same time, they were of the view of using it in their teaching and learning practices too. In this regard, a teacher stated, "Though the principal uses ICT for his management practices, he needs to extend the same to the teaching and learning as the learning of teachers and students is the ultimate purpose of the school."

The initiator principal was strongly emphasizing teachers' innovative use of ICT rather than the old or conventional approaches to learning about

computers only. They were found with realizing teachers about how the current use of ICT in teaching and learning be further enhanced. Teachers in this regard, for example, shared that their principal wanted to look at ICT integrating beyond its alignment with the topics and see how they could help students think about a topic from a broader perspective. Principals, despite being very interested in extending the use of ICT integration but at the same time, said to have limited ideas in this regard. They believed having teachers encouraged to come with newer ideas and hence remained optimistic about having positive results. Despite optimistic about the innovative use of ICT, both the teachers and principals were still thought to be in the initial stage of ICT integration. According to the respondents, they still worked hard towards making the use of ICT more innovative and helpful for student learning.

Discussions

The data regarding secondary school principals' change facilitator styles informed that majority of the principals performed with responder change facilitator styles. The findings of this study are similar to the study of Baglibel et al. (2014), who found 48% of principals with responder change facilitator styles. They also found initiators with a proportion of only 6%. Contrary to this study, they found manger CFS of principal with a comparatively higher proportion (46%). Similarly, an earlier study (Sennun, 2002) found principals with the manager as their dominant styles. Accordingly, Park and Jeong (2013) found 47% of the principals with the manager, 43% with the responder, and 10% with initiator change-facilitation styles. Sarafidou and Nikolaidis (2009) found that 50% of teachers considered their principals as managers, 33% as responders, and 17% as initiators. Previous studies, identical to this one, found the initiator in less proportion than the manager and responder. The majority of the earlier studies (Sennun, 2002; Part & Jeong, 2013; Sarafidou & Nikoliadis, 2009), in contrast, reported the manager as a dominant change facilitator style of school principals. The findings are in comparison with this study in this regard. Only one study (Baglibel et al., 2014) supports this study's results by identifying the responder as a prominent CFS of school principals.

The qualitative data results clearly explain that responders and manager principals are more task-oriented and avoid ICT integration as they perceive it to divert teachers from the completion of their duties. These principals had less or no information about ICT integration and considered it an additional activity. These findings support Baglibel et al. (2014), who also found that responder principals regarded change as a burden and could not develop any plans regarding implementation and did not encourage teachers in this regard. The results also show that ICT integration was not their priority, and therefore, the responder and manager principals did not provide access to ICT resources despite the resources despite its availability at their schools. The manager principals also engaged teachers in developing school inventory or maintaining students' and teachers' attendance records. As a result, the teachers were always under immense stress and strain because they had to perform many tasks at a time. In such a scenario, they could not think about ICT integration without the support of the principals. However, in contrast, the initiator principal had enabled teachers to manage their workload by encouraging them to use ICT resources.

The manager and responder principals had the fear that the teachers may damage ICT tools and hence discouraged teachers' access to ICT resources. Fullan's (2007) realization of the viability and access to infrastructure and support as imperative to initiate an educational change remains crucial for ICT integration. However, teachers in this study seemed to be far from beginning the ICT integration as they did not have access to ICT tools. Hence, it seems unrealistic if responder and manager principals with such perceptions could enable teachers in ICT integration. This study confirms what Park and Jeong (3013) argue that responder principals could not encourage teachers to implement a change. Manager principals had some inclination towards ICT use, but the same was only part of their school management activities such as record keeping, teachers' pay role development, and circulars printing. Nevertheless, it was encouraging, but they needed to extend their use in teaching and learning. Compliance to set rules regarding the access and use of ICT resources remained the ultimate feature of manager principals. The previous studies (e.g.,

Hall et al. 2013; Baglibel et al., 2014) also found manager principals focusing on strict compliance of school set rules. The findings of this study are similar to Hall et al. (2013), who informed that principals with manager change facilitator style had controlled school schedules, procedures, resource allocations, and budgets. They also add that those principals' control was to make the same support and working conditions available for teaches. However, this study does not endorse the dimension of having equal access, but rather the study finds principals to ensure the protection of ICT resources and guarantee that teachers can complete their assigned tasks instead of engaging with ICT use in teaching and learning.

Initiator principals, in contrast to responder and manager, were very clear about the use of ICT in teaching and learning. They had clear intentions towards teachers' knowledge about ICT integration to better use it in their instructions. They had put proper support in place that could help teachers in the process of ICT integration. These findings are in line with Hall et al. 2013 and Stewart (2012), who found initiator principals helping teachers in problem identification and resource allocation.

Learning from one another through developing a collaborative learning environment was one of the critical aspects of initiator principals' change facilitator style. They had involved themselves in such learning practices. As Stewart (2012) also argues, their involvement was based on their understanding and knowledge about ICT integration. A collaborative learning environment was perceived as a key aspect of initiator principals about enhancing teachers' skills and knowledge of ICT integration in teaching and learning. These findings are in line with Pepe (2016), who found collaboration amongst teachers being so fundamental towards integrating the iPad in classroom instructions in US schools.

In contrast to Pepe (2016), in this study, such a collaborative culture of learning was extended beyond school walls through developing close networking with the neighbouring schools and other organizations. The features of collaboration within and beyond school were considered pivotal for teachers' ongoing and continuous learning. It represents initiator principals' awareness of the importance of continuing support towards teachers and has made teaching and learning integral to

ICT integration. Since teachers had on the job and ongoing support, they had more encourage to opt for innovative use of ICT integration in teaching and learning.

Implications

It was quite evident in this study that ICT integration was not thoroughly planned. For example, ICT resources were provided to the schools but with very low or even no capacity-building programs offered to the teachers. If schools are to be made capable of ICT integration parallel to providing ICT resources, other integral aspects such as capacity building need higher consideration. Teachers overburdened with additional tasks need schools' valuable attention. Asking teachers for teaching the subjects they had neither specialized nor had any command over has serious implications for teaching and learning.

One of the critical aspects that need to be considered at the policy level is the association of principals' fear of damaging ICT resources. Though the safety of resources becomes their responsibility, damages to those resources could not be disregarded. There is a need for developing proper guidelines to minimize principals' fear, so they can make ICT resources accessible to the teachers. Schools must ensure teachers' access to ICT resources as an essential aspect of ICT integration.

This study identified principals' CFS by using teachers as a study sample. It would be viable if future research also includes principals or school principals. It would also add principals' perspective about what drives them to behave in certain ways or perform with different change facilitator styles.

Conclusion

The study concludes that most of the principals in Pakistan were with the responder change facilitator style of leadership. Regarding the role of three change facilitator styles, described from respondents' perspective, responders and managers principals were not supportive of ICT integration because they were not aware of the process and purpose of ICT use in teaching and learning. It was explicit that principals, with the initiator change facilitator style, were far mor

supportive towards ICT integration since they had realized the importance of ICT use in teaching and learning. It is viable that principals understand ICT Integration to support its implementation as an educational reform in schools in Pakistan.

Acknowledgement

This research received no specific grant from any funding agency in the public, commercial, or not-for-profit sector. The authors also declared no potential conflicts of interest concerning the research, authorship, and/or publication of this article.

References

- [1] Al-Harthi, A. S. A. (2016). Technological self-efficacy among school leaders in Oman: Preliminary study. *Journal of Further and Higher Education*, 41(6), 760-772.
- [2] Baglibel, M., Samancioglu, M., Ozmantar, Z. K., & Hall, G. E. (2014). The relationship between school principals' perceived change facilitator styles and teachers' attitudes towards change. *International Studies in Educational Administration (Commonwealth Council for Educational Administration & Management*, 42(3), 55-67.
- [3] Cavanagh, S. (1997). Content analysis: concepts, methods, and applications. *Nurse Res*, 4(3), 5-16.
- [4] Condon, C., & Clifford, M. (2012). Measuring principal performance: How rigorous are commonly used principal performance assessment instruments? A quality school leadership issue brief. Retrieved March 10, 2017, from <https://files.eric.ed.gov/fulltext/ED509964.pdf>
- [5] Creswell, J. (2013). *Qualitative inquiry and research design: Choosing among five approaches* (3rd ed.). Washington, DC: Sage Publications.
- [6] Creswell, J. (2009). *Research design: Qualitative, quantitative, and mixed methods approach* (3rd ed.). London, England: Sage Publications.
- [7] Fiedler, F. (1967). *A theory of leadership effectiveness*. New York: McGraw-Hill.
- [8] Fullan, M. (1996). Professional culture and educational change. *School Psychology Review*, 25(4), 496-500.
- [9] Fullan, M. (2007). *The new meaning of educational change*. New York: Teachers College Press.
- [10] Gay, L. R., & Airasian, M. (2009). *Educational research: Competencies for analysis and applications*, (9th ed.). New Jersey: Merrill/Prentice Hall.
- [11] George, A. A., Hall, G. E., & Stiegelbauer, S. M. (2013). Measuring implementation in schools: The stages of concern questionnaire. Austin, TX: Southwest Educational Development Laboratory. Retrieved, April 12, 2017, from <http://www.sedl.org/cbam/socqmanual201410.pdf>
- [12] Hall, G. E., Wallace, R. C., & Dossett, W. A. (1973). A developmental conceptualization of the adoption process within educational institutions. Austin, TX: University of Texas.
- [13] Hall, G. E., Rutherford, W. L., Hord, S. M., & Huling, L. L. (1984). Effects of three principal styles on school improvement. *Educational Leadership* 41(5), 22-29.
- [14] Hall, G. E., & Hord, S. M. (1987). *Change in schools: Facilitating the process*. New York: State University of New York Press.
- [15] Hall, G.E., Rutherford, W.L., & Griffin, T.H. (1982). Three change facilitator styles: some indicators and proposed framework, paper presented at the annual meeting of the American Educational Research Association, New York.
- [16] Hall, G. E., Negroni, I. A., & George, A. A. (2013). Examining relationships between urban principal change facilitator style and student learning. *International Journal of Leadership and Change*, 1(1), 36-46.

- [17] Hall, G.E., & Hord, S.M. (2011). *Implementing change: Patterns, principles, and pothole.* (3rd ed.). Boston: Pearson.
- [18] Hall, G. E., & George, A. A. (1999). The impact of principal change facilitator style on school and classroom culture. In H. J. Freiberg (Ed.). *School Climate: Measuring, improving, and sustaining healthy learning environments*, (pp.182-202). Philadelphia: Palmer Press.
- [19] Hallinger, P. (2003). Leading educational change: reflections on the practice of instructional and transformational leadership. *Cambridge Journal of Education*, 33(3), 329-352.
- [20] Hao, Y., & Lee, K.S. (2017). Inquiry of pre-service teachers' concern about integrating Web 2.0 into instruction. *European Journal of Teacher Education*, 40(2), 191-209.
- [21] Ismail, S. A. M. M., Jomezai, N. A., & Baloch, F. A. (2020). Hindering and enabling factors towards ICT integration in schools: A developing country perspective. *Elementary Education Online*, 19(3), 1537-1547.
- [22] Jomezai, N.A. Ismail, S. A. M. M., & Baloch, F. A. (2020). Headteachers' change facilitator styles and teachers' concerns about ICT integration. *Management in Education*, (preprint).
- [23] Jomezai, N. A., Ismail, S. A. M. M., & Baloch, F. A. (2018). Secondary school teachers' concerns about ICT integration: Perspectives from a developing part of the globe. *Eurasia Journal of Mathematics, Science and Technology Education*, 14(12), 1-12.
- [24] Jomezai, N. A., Ismail, S. A. M. M., & Ahmed, F. (2016). ICT integration & the role of school leadership: perceptions of headteachers of secondary schools in Quetta Pakistan. *International Journal of Innovation and Scientific Research*, 27(1), 155-163.
- [25] Johnson, R. B., & Christensen, L. B. (2004). *Educational Research: Quantitative, Qualitative, and Mixed Approaches.* Boston, MA: Allyn and Bacon.
- [26] Krejcie, R.V., & Morgan, D.W. (1970). Determining Sample Size for Research Activities. *Educational and Psychological Measurement*, 30, 607-610
- [27] Leithwood, K., & Jantzi, D. (2006). Transformational school leadership for large-scale reform: effects on students, teachers, and their classroom practices. *School Effectiveness and School Improvement*, 17(2), 201-227.
- [28] Lichtman, M. (2006). *Qualitative research in education: A user's guide.* Thousand Oaks: Sage Publications.
- [29] Liu, F., Ritzhaupt, A., & Cavanaugh, C. (2013). Leaders of school technology innovation: A confirmatory factor analysis of the change facilitator style questionnaire (CFSQ). *Journal of Educational Administration*, 51(5), 576-593.
- [30] Mishra, P., & Koehler, M. J. (2006). Technological pedagogical content knowledge: A framework for integrating technology in teacher knowledge. *Teachers College Record*, 8(6), 1017-1054.
- [31] Neuman, W. L. (2014). *Social research methods: Qualitative and quantitative approaches.* London: Pearson Education Limited.
- [32] Niekerk, M. V., & Blignaut, S. (2014). A framework for information and communication technology integration in schools through teacher professional development. *Africa Education Review*, 11(2), 236-253.
- [33] Ottestad, G. (2013). School leadership for ICT and teachers' use of digital tools. *Nordic Journal of Digital Literacy*, 8(2), 107-125.
- [34] Park, J. H., & Jeong, D. W. (2013). School reforms, principal leadership, and teacher resistance: Evidence from Korea. *Asia Pacific Journal of Education*, 33(1), 34-52.

- [35] Patton, M. (2002). *Qualitative research and evaluation methods* (3rd ed.). Thousand Oaks: Sage Publications.
- [36] Pepe, T. M. (2016). *Teacher perceptions and attitudes of classroom technology integration related to iPad* (Ph.D. Thesis), Walden University, USA.
- [37] Petersen, A. (2014). Teachers' Perceptions of Principals' ICT Leadership. *Contemporary Educational Technology*, 5(4), 302-315.
- [38] Polit, D. F., & Beck, C. T. (2004). *Nursing Research: Principles and Methods* (3rd ed.). Philadelphia: Lippincott Williams & Wilkins.
- [39] Rosenberg, J. M., & Koehler, M. J. (2015). Context and technological pedagogical content knowledge (TPACK): A systematic review. *Journal of Research on Technology in Education*, 47(3), 186-210.
- [40] Sarafidou, J. O., & Nikolaidis, D. I. (2009). School leadership and teachers' attitudes towards school change: The case of high schools in Greece. *International Journal of Learning*, 16(8), 431-440.
- [41] Sarantakos, S. (2005). *Social research* (3rd ed.). New York: Palgrave Macmillan.
- [42] Schrum, L., & Levin, B. B. (2016). Educational technologies and twenty-first-century leadership for learning. *International Journal of Leadership in Education*, 19(1), 17-39.
- [43] Sheninger, E. (2014). *Digital leadership: Changing paradigms for changing times*. Thousand Oaks: Corwin Press.
- [44] Sennun, S (2002). *The relationship between change facilitator styles of secondary school principals and school climate as perceived by teachers in the Church of Christ schools in Thailand*. PhD Thesis, Illinois State University.
- [45] Shirley, D. (2017). *The new imperatives of educational change: achievement with integrity*. New York: Routledge.
- [46] Stewart, S. K. (2012). *Principal change facilitator style and student achievement: A study of schools in the middle*, (Ph.D. Theses), University of Nevada, Loss Vegas, USA.
- [47] Thomas, D. R. (2006), "A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation*, 27(2), 237-246.
- [48] Williamson, K. (2002). *Research methods for students, and professionals: Information management and systems*, (2nd ed.). NSW: Centre for Information Studies.
- [49] Yuen, H. K, Law, N. W., & Wong, K. C. (2003). ICT implementation and school leadership. Case studies of ICT integration in teaching and learning. *Journal of Educational Administration*, 41(2), 158-170.