

The influence of soft skills, technical skills, and innovation on the learnability of educators and their overall performance

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Keywords

Soft skills, technical skills, innovation, educators

Abstract

This study analyses the effects of hard and soft skills on teachers' innovative capabilities and performance. A random sample of 300 teachers from the Higher Education Institutes of the NCR has been taken, out of which 211 valid replies for the study has been considered. Hard and soft skills positively and considerably affect teachers' innovation capabilities, both directly and indirectly. Furthermore, teachers' innovative abilities improved their performance significantly. The study advocates using organizational learning and hard and soft skills to improve teachers' innovation and performance. This methodology encourages adaptability and innovation to prepare instructors for Education.

Introduction

Educational issues arise from Industrial Revolution drastic developments. This era requires highly qualified, flexible, adaptable, and responsive human resources to rapid and unanticipated changes. HEI's must be adaptable to adapt to economic, social, political, and technical changes in the education sector. HEI's must create a pleasant, innovative environment to succeed in this competitive global market. Teachers and their workplaces must collaborate to improve creativity and performance. Innovation and adaptability are essential for communities to compete in knowledge-driven economies. Thus, strategically improving teachers' knowledge and abilities is essential for educational institutions' long-term growth and innovation.

To remain competitive and flexible, HEI's must empower and involve teachers as significant contributors to school achievement. HEI's must become true organizational learning environments where instructors drive change and progress. HEI's in fast-changing environments need organizational learning to empower instructors. Such learning environments allow the institutes to develop flexible human resources that educate pupils for the global talent competition. Organizational learning is essential to modern education because HEI's develop the workforce and improve society.

Intellectual capital—teachers' and HEI's knowledge and expertise—is a transformative asset that determines educational institutions' economic and strategic significance in Industrial Revolution. This paradigm change in education emphasizes teacher knowledge and abilities over buildings, land, and infrastructure. These intangible resources are productive and sustainable, defining education's future. Education development increasingly relies on intellectual capital to foster innovation, adaptation, and global competitiveness.

This study examines how teachers' hard and soft skills affect their innovative capabilities, highlighting the importance of organizational learning. Innovative teaching approaches are built on teachers' hard skills—technical proficiency and subject-specific knowledge—and soft skills—communication, adaptability, and teamwork.

The study shows how organizational learning mediates how HEI's can help instructors innovate. Understanding this dynamic is crucial in India's fast changing educational landscape, where HEI's must adapt to a knowledge-driven economy. This research is important for educational policymakers and school administrators because it shows how teacher development—both hard and soft skills—can boost innovation.

An organizational culture of learning can boost these talents and create a cycle of continual development and growth in HEI's. Educational institutions may become global competitors by educating their professors and students with the skills they need to succeed in the modern world. This study emphasizes intellectual capital as a strategic driver for future-ready education, supporting Industrial Revolution 7.0 goals.

Literature review

Several scholars have noted that hard skills are easily documented and structured. This knowledge is easily stated (Haamann & Basten, 2018) and often incorporated in HEIs as institutional knowledge (Afsar, Masood & Umrani, 2019). Hard skills can be created, documented, and transmitted across educational activities and units (Lombardi, 2019). A good school culture helps teachers learn hard skills. Hard Skills might be generalized or specific. Rainsbury et al. (2002) define hard skills as technical competencies needed for workplace duties. Tsotsotso et al. (2017) and Fan, Wei & Zhang (2017) found that IQ affects certain cognitive functions. Project management hard skills include methods, procedures, tools, and approaches.

Hard Skills are visible in conduct and performance. Assessments or evaluations measure technical or practical tasks. These talents include calculating, analyzing, designing, modeling, and critical thinking. Hard talents also require science, technology, and technological expertise. Teachers need lesson planning, classroom management, group discussions, learning spaces, and writing skills (Muqowim, 2012). Widoyoko (2009) divides hard talents into academic and vocational. Academic talents include defining, calculating, explaining, analyzing, forecasting, comparing, and drawing conclusions from data and facts. These skills are straightforward to measure and crucial for teaching and learning.

Knowledge is divided into hard and soft skills (Polanyi, 1966). Soft skills are personal knowledge that is hard to formalize or share. Soft skill transmission usually needs personal interaction (Lee, 2019). These talents come from deeds, experiences, beliefs, idealism, and emotions (Boske & Osanloo, 2015; Kawamura, 2016; Hartley, 2018).

Soft skills are personal knowledge gained through diverse and unpredictable experiences and circumstances. Soft talents are harder to describe than hard skills (Mohajan, 2016; Prasarnphanich et al., 2016; Addis, 2016; Cairo Battistutti, 2017; Zang, 2015; Spraggon & Bodolica, 2017). The SECI model (Socialization, Externalization, Combination, and Internalization) helps develop and use soft skills.

Teachers' soft skills are needed to promote knowledge-sharing, continual learning, and innovation in Education 4.0. Management and use of tacit knowledge can make HEIs more innovative and competitive. HEIs can foster collaboration and innovation by embedding and sharing teachers' tacit knowledge (Ma et al., 2018; Ferreira., 2018; Borges., 2019; Ferraris., 2018; Guo., 2018; Tsai & Hsu., 2019; Swierczek., 2019; Cantwell & Zaman., 2018). In a continuously changing environment, HEIs may lead educational excellence by managing soft skills.

Knowledge is divided into hard and soft skills (Polanyi, 1966). Soft talents are internal to people's cognitive frameworks and difficult to externalize or document. Due to their tacit nature, soft skills are difficult to develop and impart without direct personal connection. An individual's behaviors, experiences, values, emotions, and idealism shape these skills (Boske & Osanloo, 2015; Kawamura, 2016; Hartley, 2018).

An institution's crisis resilience depends on organisational learning (Starbuck, 2017). It supports important qualities including desire, discipline, decision-making, and alignment, which increase an organization's ability to adapt and grow in difficult situations. Organizational learning is a key performance indicator of an institution's success. It methodically builds knowledge resources to support growth and assure educational institution continuity (Qi & Chau, 2018).

The ability to obtain, manage, and use knowledge distinguishes schools. Strong organizational learning frameworks help HEIs turn individual knowledge into collective expertise, giving them a competitive edge. Organizational learning builds knowledge that helps educational institutions implement strategic projects. This keeps HEIs flexible and ready for changing educational needs. HEIs

can stimulate innovation, cooperation, and continuous improvement to achieve sustainable development and excellence by integrating organizational learning into their operations.

In the Industrial Era 4.0, teacher innovation skills give HEIs a competitive edge (Malik, 2019; Muscio & Ciffolili, 2019; Durana et al., 2019; Lund & Karlsen, 2019; Haseeb, 2019; Jakhar, 2018; Hamada, 2019). These abilities are essential to competitive strategies (Culot, et al., 2019) and Industry 4.0 (Stachova, 2019). In addition, they are an essential part of 21st-century management practices (Gunasekaran et al., 2019) and offer several commercial benefits, improving organizational resilience and adaptation.

Innovation is one of the most important internal resources for educational institutions to perform well. It helps HEIs excel and stay ahead in a changing world. Innovation is crucial to education by enhancing quality and solving current issues (Klaeijnsen et al., 2017). HEIs can equip teachers to adapt to current educational paradigms by encouraging innovation, keeping their institutions relevant and future-ready.

The impact of hard and soft skills on teachers' innovation

Industry 4.0 is marked by increased competition and sustainability concerns. Teacher innovation drives business sustainability and improves organizational effectiveness. Organizational knowledge culture—tacit knowledge and hard skills—affects performance. Leadership, employee involvement climate, knowledge sharing, knowledge search, collaborative culture, and knowledge processes have all been studied to affect teacher innovation abilities (Samsir, 2018; Schuckert et al., 2018; Villaluz & Hechanova, 2019).

This study examines how hard and soft skills affect teachers' innovation competences in schools, particularly in light of Industrial Revolution 4.0. Hard and soft skills improve teachers' innovative ability (Ganguly et al., 2019; Aulawi, 2018; Rumanti, 2018, 2019; Torres & Liang, 2016; Li, 2019). Various investigations have indicated that soft skills positively and significantly affect teacher innovation (Perez-Luno et al., 2018). These findings focus on corporate organizations, but other studies imply that formal and informal learning environments can greatly impact teachers' innovation capacities in education (Lecat et al., 2018). Given these findings, the following possibilities are proposed:

H1: Hard skills have an effect on teachers' innovation capability.

H2: Soft skills have an effect on teachers' innovation capability.

Impact of Organizational Learning on Teacher Innovation

Knowledge production affects teacher innovation and organizational success, therefore organizational learning is vital. A valuable learning culture is sustained when based on school innovation. Teachers' interactions help them transfer, exchange, and integrate existing and new knowledge, which boosts school intelligence and learning culture. An enthusiastic and engaged workplace helps instructors develop innovative skills (Bani-Melhem et al., 2018). Based on these literature findings, the following hypothesis is recommended for further study:

H3: Organizational learning has a direct effect on teachers' innovation capability.

Impact of Teachers' Innovation Capability on Performance

To overcome local and global competition, organizations must improve their flexibility, reactivity, efficiency, and creativity (Asbari et al., 2019; Purwanto, 2020). This is due to rising demand for innovative products, services, and improved internal procedures and behaviors for all employees. Prior research has shown that tackling these difficulties requires a shift from efficiency to innovation. More research is needed on how to coordinate people to boost organizational creativity and performance (Sopa et al., 2020). Furthermore, Asbari et al. (2020) believe that internal processes must develop performance-enhancing innovations. Prameswari et al. (2020) believe that employee innovation indirectly affects organizational value through market and financial positioning. Sopa et al. (2020) underline that innovation improves teachers' performance and show that HEIs that prioritize teacher innovation are

more productive and competitive in the global education market. These observations suggest the following hypothesis:

H4: Teachers' innovation capability has a direct effect on teachers' performance.

Effect of the HEI's Learning:

Honeycutt (2000) describes knowledge management as managing intellectual capital. This concept came from the realization that intellectual or knowledge-based assets, not physical ones, are what make an organization competitive today and in the future. Organizational learning is used to apply knowledge management techniques and processes to create value and competitive advantage. Hard skills, soft skills, and organizational creativity are linked by organizational learning. Knowledge and skills are inputs, organizational learning is the main process, and organizational innovation is the main result.

Hypotheses for future study are based on the literature:

H5: HEI's learning mediates hard skills and teacher innovation.

H6: HEI's learning mediates soft skills and teacher innovation.

Metrics of Variability

This research was quantitative. Educational institutions distributed questionnaires to all teachers to collect data. Six items from Hendarman & Cantner (2017) assessed hard skills. A four-item Hendarman & Cantner (2017)-adapted tool measured soft skills. An adapted five-item measure from Jiménez-Jiménez and Sanz-Valle (2011) assessed organisational learning. Innovation capability was tested using a five-item scale from Lee & Choi (2003), and performance was assessed using a four-item instrument from Grace et al. (2016). Semi-open questions about respondents' identities were used, while closed-ended questions used a Likert scale with five response options: strongly agree (SS) with 5, agree (S) with 4, somewhat agree (KS) with 3, disagree (TS) with 2, and strongly disagree (STS) with 1. Smart-PLS version 4.0 was used to process data using Partial Least Squares (PLS).

Sample

Data were collected using simple random sampling from a population of 300 teachers across five private senior high HEI's in Delhi/NCR. Of the distributed questionnaires, 211 valid responses were returned, representing 70.05% of the sample.

Results and discussion

Validity and Reliability

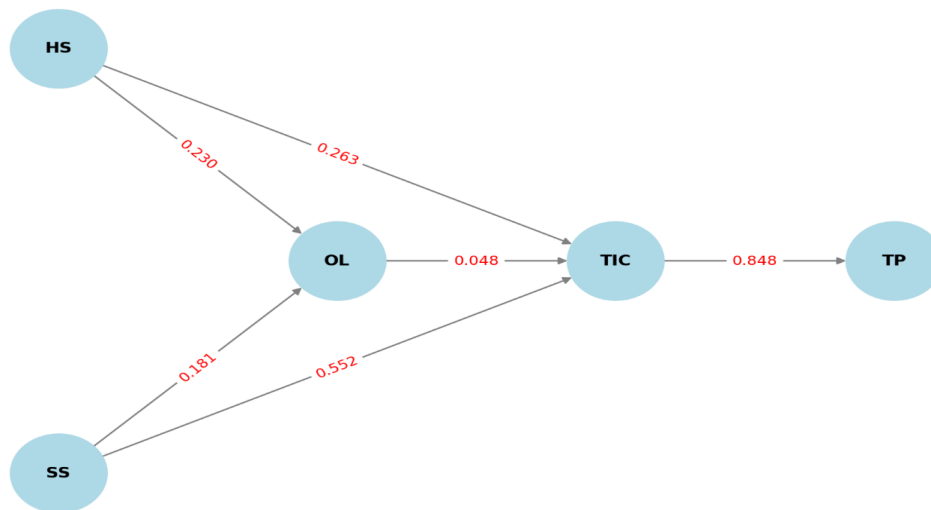
Testing models analyse convergent validity, discriminant validity, and composite reliability. To evaluate the study hypothesis, all PLS model indicators must meet convergent, discriminant, and reliability requirements. These factors can be assessed using PLS results. Convergent validity is assessed by evaluating indicator loading factors. Most scholarly sources say latent constructs are legitimate when factor loading is 0.5 or higher (Chin, 1998; Hair et al., 2010; Ghozali, 2014). This study sets the Average Variance Extracted (AVE) for each construct at a value greater than 0.5, the minimum acceptable loading factor (Ghozali, 2014).

Table 1. Items, Loadings, Cronbach's Alpha, CR, and AVE

Variables	Items	Loading	Cronbach's Alpha	CR	AVE
Hard Skills (HS)	HS1	0.700	0.867	0.960	0.691
	HS2	0.725			
	HS3	0.814			
	HS4	0.841			
	HS5	0.712			
	HS6	0.722			
Soft Skills (SS)	SS1	0.879	0.906	0.963	0.748
	SS2	0.872			

	SS3	8.874			
	SS4	0.901			
Organizational Learning (OL)	OL1	0.901	0.936	0.807	0.869
	OL2	0.955			
	OL3	0.945			
	OL4	0.909			
	OL5	0.910			
Teacher's Innovation Capability (TIC)	TIC1	0.912	0.935	0.946	0.824
	TIC2	0.897			
	TIC3	0.921			
	TIC4	0.920			
	TIC5	0.824			
Teacher's Performance (TP)	TP1	0.834	9.938	0.959	0.875
	TP2	0.899			
	TP3	0.971			
	TP4	0.909			

Structural Equation Model (SEM) Path Diagram with Path Coefficients



The discriminant validity test assures that each thought of a latent variable is unique from others. A model has excellent discriminant validity when the squared AVE (Average Variance Extracted) value of each exogenous construct (diagonal value) is greater than its correlations with other constructs (values below the diagonal), according to Ghozali (2014). The squared AVE value from the discriminant validity test is evaluated using the Fornell-Larcker Criterion, below.

Table2. Discriminant Validity Table

Variable	HS	SS	OL	TIC	TP
HS	0.831	0.650	0.550	0.500	0.450
SS	0.650	0.865	0.600	0.580	0.520
OL	0.550	0.600	0.932	0.570	0.510
TIC	0.500	0.580	0.570	0.908	0.700
TP	0.450	0.520	0.510	0.700	0.935

The model passes the discriminant validity test in Table 2. According to the Fornell-Larcker criterion, all constructs have square root AVE values greater than their correlation values with other latent constructs.

Construct Reliability Test

Construct reliability is assessed using Cronbach's Alpha, Composite Reliability (CR), and Average Variance Extracted (AVE).

Construct	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
Hard Skills (HS)	0.867	0.960	0.691
Soft Skills (SS)	0.906	0.963	0.748
Organizational Learning (OL)	0.936	0.807	0.869
Teachers' Innovation Capability (TIC)	0.935	0.946	0.824
Teachers' Performance (TP)	0.938	0.959	0.875

Cronbach's alpha and composite reliability measure construct dependability. Both measures should exceed 0.7, according to Ghazali (2014). Table 1 shows that all constructions have composite reliability and Cronbach's alpha values over 0.7. Thus, all constructs meet dependability requirements.

Hypothesis Testing

Partial Least Squares (PLS) uses the hypothesis test, or inner model test, to assess the significance of direct and indirect effects and the degree of exogenous variables' influence on endogenous variables. The model's structural integrity and variable relationships are examined in this test. The direct effect test examines how tacit knowledge and hard skills sharing improve organisational learning and teacher innovation. This analysis uses the partial least squares (PLS) technique with SmartPLS 4.0 to apply the t-statistic. This comprises a rigorous statistical method to assure findings correctness and reliability. R Square values, which show how much variance the independent variables explain, and significance test values, which corroborate the hypothesised correlations, are important findings of the bootstrapping approach. The table below gives more interpretation and analysis of these results.

Table 3 R-square Value

	R-Square	Adjusted R-Square
OL	0.724	0.720
TIC	0.737	0.727
TP	0.723	0.713

Table 4. Hypothesis Testing

Hypothesis	Relationship	Beta	SE	T-statistics	P-value	Status
H1	HS→TIC	0.263	0.079	2.979	0.027	Accepted
H2	SS→TIC	0.552	0.067	7.213	0.000	Accepted
H3	OL→TIC	0.197	0.081	2.387	0.025	Accepted
H4	TIC→TP	0.848	0.019	26.899	0.000	Accepted
H5	HS→OL→TIC	0.230	0.027	3.659	0.000	Accepted
H6	SS→OL→TIC	0.181	0.048	3.421	0.022	Accepted

- Hard skills (HS) and soft skills (SS) explain 72.7% of the variance in organizational learning (OL) with an R Square value of 0.727.
- This indicates that hard and soft skills predominantly influence OL, while other factors account for the remaining 27.3%.
- The R Square value for teachers' innovation capability (TIC) is 0.773, meaning that hard skills, soft skills, and organizational learning together explain 77.3% of the variance in TIC.
- The remaining 22.7% of the variance in TIC is attributed to factors not examined in this study.
- Teachers' innovation competence (TIC) accounts for 72.3% of the variance in their performance, as indicated by the R Square value of 0.723.

- Other external factors outside this research explain the remaining 27.7% of the variance in teacher performance.
- Table 4 provides a detailed analysis of the research variables, including T-statistics and P-values, to assess their significance.
- This table validates the hypothesized relationships between the studied variables, demonstrating their strength and relevance in the research.

Discussion

The research highlights that the sharing of hard skills significantly enhances teachers' innovative potential, both directly and through the mediating role of organizational learning. This suggests that educators who possess well-developed hard skills are more capable of implementing innovative practices within schools. Similar findings have been reported in commercial organizations by Perez-Luno et al. (2018), Terhorst et al. (2018), Boadu et al. (2018), and Che et al. (2019). Furthermore, soft skills were found to have a positive impact on teachers' creative abilities, both directly and through organizational learning. This underscores the importance of developing soft skills among teachers to foster creativity and innovation. The mediating effect of organizational learning between soft skills and innovation further reinforces the need to cultivate a learning-centric environment within schools.

This study also establishes that both hard and soft skills contribute to enhanced organizational learning. The findings indicate that a school's ability to foster a culture of learning is significantly influenced by the competencies of its educators. Qi and Chau (2018) found similar results in corporate organizations, highlighting the universal importance of skill development in promoting organizational learning.

Additionally, the study confirms that teachers who are capable of generating new ideas and innovations are among the most valuable resources in the digital age (Xu et al., 2018). Teaching and education play a crucial role in knowledge creation, dissemination, and intellectual property management (Al-Kurdi et al., 2018). A deficiency in teachers with strong hard and soft skills may impede innovation, competitiveness, growth, and adaptability in schools. Consequently, fostering the development of these skills among teachers is crucial for shaping the future of national education. Educators with advanced competencies and an innovative mindset will serve as valuable assets, contributing to societal progress and modernization.

Interestingly, while previous studies (Ibrahim et al., 2017; Albandea & Giret, 2018; Viviers, 2016; Escrig-Tena, 2018) suggest that soft skills have a stronger impact on innovation than hard skills, this study finds that hard skills significantly influence teachers' creativity. This discrepancy may be attributed to the demographic characteristics of the respondents, who are primarily located in major urban districts such as Noida, Ghaziabad, Gurugram, Greater Noida, Panipat, and Faridabad, where hard skills are highly valued.

Furthermore, the study reveals that organizational learning not only enhances teachers' creativity but also mediates the relationship between both hard and soft skills and innovation. Moreover, the results confirm that teachers' innovative capabilities positively influence their performance, aligning with the findings of Martinez-Costa (2018).

Finally, the study underscores the importance of schools leveraging past experiences while integrating teachers' hard and soft skills to enhance organizational learning. In the context of Education, fostering knowledge creation and sharing can significantly strengthen organizational learning. Higher Education Institutions (HEIs) must embrace these efforts to adapt to the rapidly evolving educational landscape and ensure sustained innovation in teaching and learning practices.

Implication:

- Hard skills sharing boosts teachers' innovation directly and through organizational learning.
- Improved hard skills enable teachers to innovate effectively in classrooms.

- Similar findings were observed in commercial organizations (Perez-Luno, Terhorst, Boadu, and Che).
- Soft skills enhance teachers' creativity and organizational learning.
- Soft skills play a crucial role in fostering instructors' creativity.
- Organizational learning highlights the importance of nurturing teachers' soft skills and creativity in schools.
 - Hard and soft skills contribute to organizational learning.
 - These skills help teachers organize classroom learning efficiently.
 - Studies by Qi and Chau (2018) in company organizations reported comparable outcomes.
 - Innovative instructors are among the most scarce and valuable resources in the digital age (Xu et al., 2018).
- Teaching and learning facilitate knowledge development and reuse, including intellectual property (Al-Kurdi et al., 2018).
 - A shortage of teachers with hard and soft skills may hinder school innovation, competitiveness, growth, and adaptability.
 - Training in hard and soft skills for teachers will impact national education.
 - Advanced and creative teachers will contribute to societal progress and modernization.
 - Previous research suggests that soft skills impact innovation more than hard skills (Ibrahim et al., 2017; Albanea & Giret, 2018; Viviers, 2016; Escrig-Tena, 2018).
 - This study, however, indicates that hard skills significantly influence instructors' originality.
 - The discrepancy may be due to the research respondents being located in Noida, Ghaziabad, Gurugram, Greater Noida, Panipat, and Faridabad, where hard skills are highly valued.
 - Organizational learning enhances teachers' creativity and serves as a mediator between hard and soft skills and teacher creativity.
 - Innovative educators demonstrate better performance (Martinez-Costa, 2018).
 - Schools should integrate instructors' hard and soft skills with past experiences.
 - Developing and sharing knowledge can foster organizational learning in Education 4.0.
 - Higher Education Institutions (HEIs) must adopt such initiatives to adapt to the evolving educational landscape.

Conclusion & Limitations

HEIs must give teachers autonomy and knowledge exchange to make soft skills a predictor of creativity. This creates an organisational learning environment that boosts teacher competency and engagement. Knowledge management in HEIs works best when teachers perform well (Manaf et al., 2017). Researchers study knowledge, an important resource at HEIs. Hard and soft talents boost school achievement. Organisational learning creates school knowledge from individual knowledge. This study found that organisational learning helps teachers create knowledge. Teachers must prepare kids for a knowledge-based society.

This research is limited. First, it studies how hard and soft skills affect teachers' innovation directly and indirectly through organisational learning variables. The author advises further research and analysis to see if other factors affect instructors' inventiveness. Second, the research was done in schools, thus its findings may not apply to other industries. Therefore, for more substantial insights, this topic should be researched in various industries.

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