Measuring Intellectual Capital in Schools in the Developing Country of Pakistan

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Abstract

This study used a quantitative, empirical, survey-research design and collected self-report data from faculty ($n = 408$) in secondary-level schools ($n = 34$) in Pakistan to test the reliability and construct validity of a proposed three-factor model of intellectual capital (IC). Results of the exploratory and confirmatory factor analyses showed the three-factor model was reliable to quantify the construct of IC in Pakistan secondary-level schools. Factors included social relations, teacher experience and education, and teacher training and skills. Structural capital was tested indirectly. Statistically significant differences existed between school types for the IC mean scores, revealing an influence of structural capital on IC. Gender was included as a control variable in the analyses demonstrating no significant influence on the dependent variable, IC. School administrators and policy makers can use the results of this study to inform decision making and to support self-developing processes in schools in the effort to reduce the divide in educational outcomes between developed and developing countries.

1. Introduction

This paper was submitted in response to a call in the literature for new methods and models to measure intellectual capital (IC) in schools, especially in developing countries. (Tai & Chen, 2009). IC relates to the activities of the individuals in an organization that build the capacity to adapt and create beyond the individual's capacities. IC results in new intangible assets of the organization that remain even when individuals leave the group. Teacher quality, considered the primary influence on school effectiveness, includes the element of IC. Teachers, as experts in their domain, can share tacit skills among the group thereby increasing the overall skills of the organization. IC is also explored for its contribution in developing relational capital in society (Secundo et al., 2018, p. 158-159). IC is both an input and an output in schools since students, exiting in one school level, bring their knowledge to the next level, and eventually to society at large (Borneman & Wiedenhofer, 2014, pp. 462-466).

Importantly, the variables contributing to the development of IC have been tested and shown malleable to administrator influence (Simkin, Charner, & Suss, 2010, pp. 9-10). In environments where government funding for public schools is limited, raising leaders' skills in knowledge management is a viable option for creating self-developing processes in schools leading to IC. In the efforts to improve school performance in developing countries, researchers recommend remodeling the structures of primary through tertiary educational institutes. The goal is to promote societal and economic advantages that could accrue through development of the teachers leading to IC (Cricelli, Greco, Grimaldi, & Llanes Dueñas, 2018, p. 72; Weber, 2011).

1.1 Research Purpose

This study was a response to the identified need for "an appropriate scale with inter-subjective and auditable measures that support comparability and benchmarking" (Bornemann & Wiedenhofer, 2014, p. 467) and expanded the scope of IC studies to secondary education in the developing country of Pakistan. The analyses tested the reliability and construct validity of a newly-developed scale for measuring IC in the context of public schools. The theoretical lens used to organize the concepts of the literature review and guide the design of the study was resource-based view theory. A resource-based view focuses on ways to develop the resources of an organization as opposed to a mechanistic view that focuses on outcomes of productivity, such as school scores. This study sought to contribute new insights and a context-relevant measurement tool for the intangible asset, IC, in public secondary-level schools in Pakistan. Administrators can use the parsimonious model of the empirically tested survey to provide reliable data on teachers' perceptions of factors in their schools. Validated instruments are needed to collect reliable data, a critical element used to inform policy makers and school leaders decision-making as they seek to improve educational outcomes for all. School data on IC factors may contribute a means to help reduce the large inequities in students' learning between developing countries and their developed counterparts. Ultimately, researchers seek to contribute to the processes that bring increasing benefits to society at large (Bisogno, Dumay,

Manes Rossi, & Tartaglia Polcini, 2018, p. 10; Khalique, Bontis, Abdul Nassir bin Shaari, Hassan Md. & Isa, 2015).

1.2 Research Proposal and Questions

This was the first study of its nature performed in the context of Pakistani secondary-level education and drew its sample from public schools (*n* = 34). Though other studies on IC in Pakistan have been performed, they were in the context of small and medium-sized, private-sector enterprises (SME) showing positive relationships between leaders' behaviors and IC development (Khalique et al., 2015; Makki, 2008). This study tested a parsimonious model that proposed IC was comprised of three factors including human capital (with sub factors), social capital, and structural capital. Figure 1 provides the model proposed. The overarching propositions of this study used to guide the analyses of the IC scale were:

Q1. What is the factor structure of the IC measurement scale developed for testing in this study?

Q2. Are the reliability indices of the IC scale, tested in this study, within predetermined acceptable indices?

The researchers thought to include questions regarding the elements of structural capital, consistent with the theory, on the survey instrument. However, in the context of public schools in Pakistan, researchers recognized that items related to this construct are of a sensitive nature. Therefore, the analyses tested the relationship between SC and IC indirectly by comparing changes in IC mean between the various school types. Researchers hypothesized that a significant difference in mean scores would be a reflection of differences in structural elements between the school types and the influence it has on the development of IC. For example, the Federal government schools lack the structural element of a discipline reward system, e.g. systems for acknowledging good performance and penalties for bad performance. Resultantly, administrators find it difficult to terminate the service of schoolteachers inducted on a regular basis. Contrarily, in the Pakistani Army and Fizaia schools termination of teacher services is under the purview of the management. Therefore, administrators in these two school systems are more able to promote consistent efforts to bring improvements in the teaching faculty. The overarching research question for testing the influence of SC on IC was:

Q3. Is there a difference in IC mean scores between Federal government schools and Pakistani Army and Fizaia schools?

1.3 Research Model

Data was collected using a self-developed, Likert-style, measurement tool, which operationalized constructs of human capital (HC) and social capital drawn from the literature. This study also tested the variable of structural capital (SC) as a factor of IC. Research revealed a multiplicative effect between SC when it supports HC that results in improved IC (F-Jardón & Martos, 2009; Kamukama, Ahiauzu, & Ntayi, 2010, p. 565). Figure 1 provides the model proposed for testing. The outcome variable, IC, is proposed to consist of three factors. Human capital was operationalized on the scale using sub factors of teachers' education, experience,

training, skills and abilities). Social capital was operationalized as a unidimensional construct for this proposed model. Structural capital was the third factor of IC proposed in the model tested indirectly and not operationalized on the survey instrument. The proposed factors are defined in Section *1.5 Definitions*.
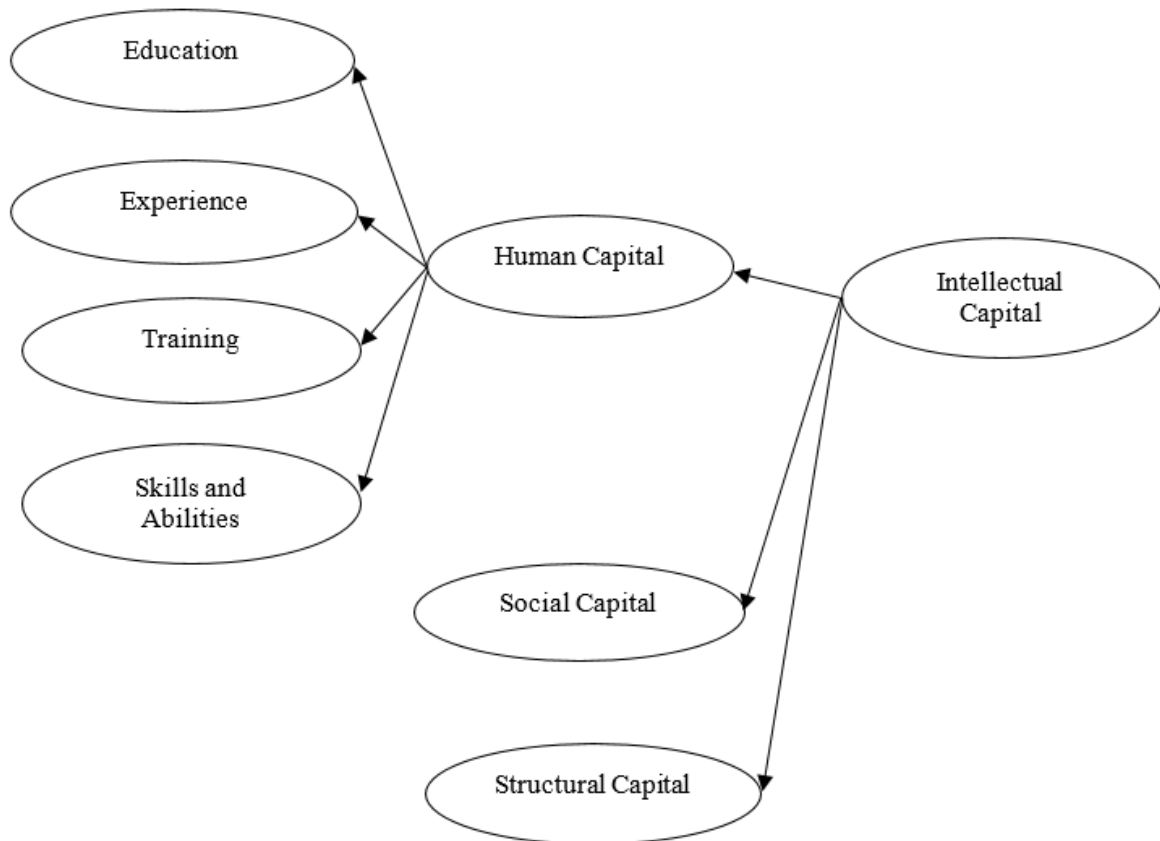

Figure 1. Model of operationalized factors of IC proposed for testing using a contextualized scale, self-developed for use in public schools in the developing country of Pakistan

1.4 Hypotheses

The quantitative analyses of this study tested the following hypotheses for indirectly assessing the effect of SC on IC:

Hypothesis$_0$ – There is no difference in IC mean scores between Federal government, Pakistani Army, and Fizaia schools.

Alternative Hypothesis$_A$ – There is a difference in IC mean scores between Federal government, Pakistani Army, and Fizaia schools.

1.5 Definitions

Ecosystem view theory recognizes the interplay between a school's purposes and the larger community and society as well as the influence of education on a country's socio-economic

growth (Secundo, Lombardi, & Dumay, 2018, p. 2).

Human capital (HC) is described as the core asset of an organization. According to the literature HC includes individual educators' and employees' training, education, and experience (Grano, 2013, p. xii).

Intellectual capital is described as "the knowledge, applied experience…processes and technology, customer relationships and professional skills, which are valuable assets to an organization" (Emerald Publishing, 2018, para. 3).

Knowledge economies (KE) describes the "new, interrelated forces at work" encompassing information and communication technologies (ICT), education, and innovation that some consider can no longer be ignored by organizations in strategic planning (Weber, 2011, p. 2590).

Knowledge Economy Index (KEI) includes four pillars; "economic incentive and institutional regime (EIR), innovation and technology adoption, education and training, [and] information and communication technologies (ICT) infrastructure that promote the efficient use of new and existing knowledge" (Knoema, 2018, para. 1).

Resource-based view (RBV) is an organizational theory that seeks to manage and improve the resources of an organization rather than putting the focus on the product side. This approach brings a shift in perspective that provides increased opportunity for developing HC. The results would bring about benefits for the organization overall (Wernerfelt, 1984, p. 172).

Social capital exists in the relations, or value, derived from positive connections between people such as trust, spirit, and interdependence (Balkundi & Kilduff, 2005; Kannan & Aulbur, 2004).

Social relations is described here as the teachers' ability to form positive relationships and demonstrate cooperative behaviors supporting the organization.

Structural capital is described as "all the non-human storehouses of knowledge including databases, organizational charts, process manuals, strategies, routines and policies" (Khalique, Abdul, Shaari, Abu, & Isa, 2011, p. 344).

Teachers' technical skills is described as the special skills that support and enhance the professional background and experience the teachers bring to the job and acquired on the job.

Teachers' training, education, and experience can be described as part of the human capital factor of IC. These constructs be compared to "spiritual capital" constructs of the integrated model, including qualities of the employees "knowledge, competence, skill, capability, and innovation" that disappears from the organization "when the employees go home at night" (Khalique *et al.*, 2011, p. 344).

2. Literature Review

2.1 Intangible Assets and Knowledge Economies

Wide-reaching advances in the means of communication and technologies during the 21st

Century are crossing local and national boundaries and contributing to the development of new global economies based upon knowledge resources, called intangible assets (Bisogno *et al*., 2018). Intangible assets contribute to knowledge creation and to the development of IC in organizations. Both intangible assets and IC are fundamental for achieving an organization's mission and vision. Policy makers are calling for integrated reporting measures of intangible assets in schools and journal editors are asking researchers to explore and develop recommendations for school processes promoting IC and for measurement models to develop transparency that builds relational capital with the community (Leitner, 2004; Secundo et al., 2018, p. 157). Schools in developing countries often lack capacity in their physical facilities. School leaders may lack the knowledge and training to develop IC in their organizations (Khan, A., 2013; Khan, H., 2004). Leaders in today's organizations need reliable measures for decision making in day-to-day actions because "the way knowledge is managed in an organization affects the creation, building, and maximization of its [intellectual capital (IC)]" (Seleim & Khalil, 2011, p. 592). Therefore, IC is considered an "innovative management technology" that needs further exploration to provide a better view of its impact on value creation in schools.

Knowledge economies (KE) refer to the "new, interrelated forces at work" encompassing information and communication technologies (ICT), education, and innovation that some consider can no longer be ignored by organizations in strategic planning (Weber, 2011, p. 2590). The World Bank developed an aggregate measure of a regions' preparedness to compete in the KE, called the Knowledge Economy Index (KEI), that includes four pillars; "economic incentive and institutional regime (EIR), innovation and technology adoption, education and training, [and] information and communication technologies (ICT) infrastructure that promote the efficient use of new and existing knowledge" (Knoema, 2018, para. 1). The World Bank rated Pakistan's 2012 knowledge economy index (KEI) as 1.44 out of a possible 10.00) (Knoema, 2018).

The primacy of literacy and human capital in a KE highlights the importance of education in developing countries. Various sectors, in developing countries, seek to transition from primarily agricultural-based and product-based economies into a growing KE. Historically, village societies in developing countries center on a communal life, have economies based in agriculture and livestock husbandry, and live in relative isolation resulting in significant cultural differences between groups. A transcendent sanctity imbues their institutions of marriage, religion, and local government and binds the people together beyond their individual self-interest (Strunck, 1987, pp. 20-21). Oral traditions are strong and often view innovation as heretical. An increasing emphasis on literacy in the new KE challenges these oral traditions in local villages and may be viewed with distrust, contributing to the education system's difficulty in overcoming illiteracy in these contexts (Weber, 2011, p. 2592). Some critics express concerns that a KE exists as rhetoric, created by global capitalists seeking to maximize profits by putting pressure to expand markets into developing countries (p. 2590). Knowledge economy frameworks must be culturally sensitive and recognize context-relevant understandings and local sense making, because knowledge transfer requires a reciprocal exchange between individuals that is dependent upon the culture, type of relationships, and

interpersonal skills of all involved (p. 2593).

2.2 Factors of Intellectual Capital

The literature includes a variety of IC definitions as the development of the concept advanced over time. Early models of IC included three major intangible components including human capital (HC) (employee knowledge and abilities), structural capital (SC) (data bases, social values, organizational structures, etc.), and customer, or relational, capital (RC) (relationships with stakeholders) (Baker, 2008, Tai & Chen, 2009; Wall, 2005). More recent models integrate a variety of contributions from the literature including human capital, customer capital, structural capital, social capital, technological capital, and spiritual capital (Khalique et al., 2015, p. 226). Bornemann and Wiedenhofer's (2014) research noted a lack of common language used in educational organizations to identify drivers of IC. They grouped their findings under three major constructs including human, structural, and relational capital (pp. 458- 459).

2.2.1 Human Capital (HC)

Human capital (HC) is the core asset of an organization and includes individual educators' and employees' training, education, and experience (Grano, 2013, p. xii). Research literature reports human and social capital have an interactive relationship that is a predictor of student achievement (Daly, 2011 in Grano, 2013, p. 30). Therefore, it is most important for educational leaders to have skills in employee development and for promoting their willingness to participate in personal and professional development (Baker, 2008; Doong, 2011).

2.2.2 Social Capital

Social capital exists in the relations, or value, derived from positive connections between people such as trust, spirit, and interdependence (Balkundi & Kilduff, 2005; Kannan & Aulbur, 2004). Some IC literature use the terms social, relational and consumer capital interchangeably. Khalique et al.'s (2011 and 2015) integrated model described a similar construct of customer capital as the informal behaviors and relationships between the leader, fellow teachers, community, parents, and students. The concept of relational capital (RC) differs from social capital in that RC often refers to external relationships between organizations, or between an organization and its stakeholders. While social capital refers to internal relationships and networks within the organization (Still, Huhtamäki, & Russell, 2013). In combination, the three concepts are one variable called social/relational capital referring to collaboration and coordination by both internal and external members of an organisation, who share their ideas and build positive networks that contribute value to the organization and to one another.

2.2.3 Structural Capital (SC)

Structural capital (SC) provides the environment suitable to developing an organization's human capital leading to IC (Liu, 2010). SC is described as "all the non-human storehouses of knowledge including databases, organizational charts, process manuals, strategies, routines and policies" (Khalique et al., 2011, p. 344). SC also appears in the form of data, shared technology, inventions, publications, culture, structure, strategy, system, and organizational

procedures. Structural capital is the repository of knowledge that is accessible through various sources that allow for knowledge sharing and knowledge creation between the members (Chang & Birkett, 2004). An organization's structure (SC) affects the development of IC due to its role as the supportive element for human capital (Chen, 2009). For example, research revealed a multiplicative effect between SC, when it supports HC, and results in improved enterprise performance. However, research did not report an interactive effect found between structural capital and social capital (F-Jardón & Martos, 2009; Kamukama *et al*., 2010, p. 565). SC varies from one organization to another and is, therefore, context dependent and an important boundary element of IC.

2.3 Educational Context of IC

In the current educational context, organizations are concentrating on three assets, tangible (physical), financial (funds), and intangible assets (including such aspects as IC) to develop improvements in school organizations (Wall, 2005). This compared favorably with Bornemann and Wiedenhofer's (2014) "minimum common denominator in educational institution processes," which included knowledge transfer, administrative agendas, and facilities management (p. 460). They suggested viewing **"**an education system as a multi-layered construct of various institutions that provide education." They seek to identify connections between levels in the system that can be coordinated to bring increases in IC "to meet the requirements of a knowledge society" (p. 453).

A variety of conceptual frameworks are used to understand the development of IC, including resource-based view (RBV) theory and ecosystem view theory, among others (Liu, 2010). RBV organizational theory seeks to manage and improve the resources of an organization rather than putting the focus on the product side bringing a shift in perspective that provides increased opportunity for developing HC to bring about benefits for the organization overall (Wernerfelt, 1984, p. 172). An ecosystem view recognizes the interplay between a school's purposes and the larger community and society as well as the influence of education on a country's socio-economic growth (Secundo et al., 2018, p. 2).

2.4 Education in Pakistan

As a developing country, the educational system in Pakistan is fronting many challenges. Reports from the latest *Pakistan Social and Living Standards Measurement (PSLM) Survey* (2015) indicated an overall 60% literacy rate as compared to 58% in 2014 (Pakistan Bureau of Statistics, 2017). However, disaggregating by gender subgroups, the literacy rate during 2015 for males was 70% and for females 49%. Pakistan is steadfast to stimulate education by increasing its literacy rate, focusing on building teachers' capacity and providing facilities improvements at all educational institutes (*Government of Pakistan Ministry of Finance*, 2015-2016; Memon, 2007). The Ministry of Federal Education and Professional Training provided an amount of Rs.2.21 billion, in FY 2016, for on-going and new projects in the Public Sector Development program. The Learning Innovation Division (LID) is the hub for the in-service continuous professional development quality improvement of academia and their administration of HEIs Teaching Faculty and Management.

The Government of Pakistan is strong-minded to increase funds to the education sector in order to attain the target of 4.0 % of GDP by the year 2018. The public expenditure on education as a percentage of GDP in Pakistan was valued at 2.2% in FY 2015 as compared to 2.1% of GDP in FY 2014. However, in the absence of increased funding, research in the area of IC could provide insights into cost-effective ways for school leaders to promote self-developing processes to advance performance in schools. Some barriers to school improvement in Pakistan may include instability in implementation of policies (Kamal, 2006 in Kamboh & Parveen, 2015, p. 5); lack of management skills in the monitoring and supervising of teaching practices; and a low level of funding spent in relation to overall GDP.

3. Research Methods

3.1 Design of the Study

This study used a quantitative survey approach for data collection, exploratory factor analysis, and confirmatory factor analysis to test the factor structure and reliability of the IC instrument and facilitate generalizations to the whole population (Creswell, 2013). The researchers controlled for influence of the demographic variable, gender, on the dependent variable in the analyses.

3.2 Characteristics of the Sample

This study collected data from 34 secondary schools in Pakistan using a close-ended Likert-style questionnaire. The sample of secondary school teachers surveyed in this study was taken from the total population in government schools in the province of Pakistan (N= 1,260). Researchers distributed the survey instrument to a sum of 465 teachers (respondents). The complete and reliable number of questionnaires returned by respondents was 408 (response rate was 90%, which is excellent according to Babbie (1990). The confidence level was 95% and a margin error of less than 4% (Krejcie & Morgan, 1970).

Of the 408 respondents, who took part in this study, 177 (43.4%) were male and 231 (56.6%) teachers were female. In terms of age, 29.7% of the sample were between 25 to 30 years old, 23.8% were in the age range 31 to 35; 16.9% were between 56 and 40; and the remaining 29.7 % were more than 40 years of age. Thirteen (3.2%) teachers were certified teachers; 202 (49.5%) teachers possessed a bachelor degree in education; 130 teachers (31.9%) had earned a Master's degree; and 63 (15.4%) of the teachers possessed other professional qualifications such as M. Phil., Diploma, etc. Appendix A shows the distribution of the schools where data was collected.

3.3 Survey Instruments

The context-specific measurement scale tested in this study uses a bottom-up approach, because it is delivered by the school leaders to faculty for self-development, through recursive processes, intended to avoid down-stream consequences on administrators and teachers from standardized assessments driven by top-down approaches (Martin-Sardesai & Guthrie, 2018, p. 53; Oliver, 2013, p. 146). The close-ended questionnaire developed to collect the data, consisted of two parts; Part A: Demographic data and Part B: intellectual capital (IC)

measurement. A self-developed 23-item Likert-type instrument collected teacher self-reports to measure IC. The survey included two main constructs; human capital and social capital. Items 48 – 51 were rated by participants on a scale ranging from 1 (Very low) to 5 (Very High). While items, 39 – 61 included scale ranges from 1 (Strongly disagree) to 5 (Strongly Agree). Appendix B displays the details of the variables included for study along with their dimensions. Appendix C provides the demographic and survey items.

3.4 Analytical Approach

Before performing exploratory statistical procedures, the researchers examined the data to evaluate the assumptions of normality, multi-collinearity, and for missing data. The data were found to meet the criteria for normality. Means and standard deviations for each variable were calculated and explored for outliers. Researchers sought to avoid negative influences that might limit the usefulness of the data and negatively influence valid conclusions that generalize to the population from which the data was drawn. Tests for symmetry (skewness) and flatness (kurtosis) for each survey item and demographic data fell within acceptable limits of ±2 (Field, 2000 and 2009; Netemeyer, Boles, McKee & McMurrian, 2003).

This study used EFA and CFA to test the model proposed. For model fitness, researchers recommend three types of fitness: Absolute fit, increment fit and parsimonious fit. Each of these three fitness tests have their own indices (Hair, Black, Babin, & Anderson, 2009). Researchers took one index from each test to verify the proposed model. Besides appropriateness of fit and construct convergent, discriminant validity is also important. Discriminant validity was ascertained by checking the value of AVE, CR, factor loading and Cronbach alpha. Table 1 portrays the predetermined acceptable value for each.

Table 1. Goodness of fit indices

Fitness indices	Acceptable value
GFI	>0.90
CFI	>0.90
RMSEA	<0.08
Ratio of Chi-square/ *df*	<5
AVE	≥0.50
CR	≥0.60
Factor Loading	≥0.50
Cronbach alpha	≥0.70

Source:(Hair et al., 2009)

4. Results and Discussion

4.1 Validity of the Scale Tested

Based upon empirical testing of the factor structure, a unidimensional conceptualization of the IC construct, with three sub factors, was suggested. The percent of variance across sub factors was explained by the overall IC factor. Convergent validity was demonstrated by items loading on each factor greater than .30 and discriminant validity was evidenced by loadings on each sub factor ranging from .316 to .810 and correlations differing by > .20 from all other items loading on the other sub factors of the exploratory factor analysis pattern matrix (Stevens, 2009).

4.2 Exploratory Factor Analysis

The most interpretable factor pattern for the construct of IC yielded a three-factor solution using maximum likelihood factoring extraction method and Varimax rotation. Factors were allowed to freely load and were extracted based upon eigenvalues greater than one. Each of the three factors consisted of at least three items and exhibited factor loadings in the range $.30 < x < .80$. Eight of the original 23 items written to assess IC were removed due to their cross loading with other items of the IC scale. Cross loadings were evaluated using Stevens' (2009) recommendation, which suggests that item loadings should differ by at least .20 to be interpreted as not cross-loaded with other factors. Table 2 provides the statistics for the IC scale ($n = 408$) individual item factor loadings, significance, percentage of variance, eigenvalues, means, and standard deviations for items the fifteen items retained and used for the confirmatory factor analysis.

Table 2. Individual items factor loadings, percentage of variance and eigenvalues for the items on the intellectual capital scale

Item	Intellectual Capital				
	Social Relations (SR)	Teacher Technical Skills (TTS)	Teacher Experience and Education (TEE)	*M*	*SD*
59. Mutual trust among the teachers has led to co-operation in various activities.	**.722**	.100	.225	4.07	.810
60. Decent behaviour of our teachers with principal, students and parents reflects their good social relations in our school.	**.695**	.187	.178	4.28	.875
58. Best social relations among the teachers have developed a best social structure in our school.	**.688**	.091	.295	4.11	.793

61. Best practice of social relations among our principal, Teachers and Students is a step towards societal change.	**.684**	.177	.256	4.21	.815
56. There is an observation of positive relations among principal and teachers in our school.	**.642**	.317	.072	4.08	.916
57. Best social relations among the teachers act as a role model to develop the same social relations among students in our school.	**.635**	.099	.250	4.04	.842
55. There is best practice of social relations among the teachers in our school.	**.631**	.182	.152	4.20	.780
50. Inclination towards technical training, like ICT trainings	.157	**.859**	.182	3.29	1.26
51. Inclination towards the provision of resources like ICT, Multimedia etc.	.248	**.803**	.172	3.50	1.13
49. Time spent on in-service trainings	.157	**.733**	.313	3.40	1.18
48. Investment in in-service trainings	.227	**.697**	.288	4.21	.848
47. Continuous professional development of teachers is an integral part of our school.	.289	.211	**.810**	4.20	.806
46. Continuous professional development contributes to the performance of our school.	.276	.264	**.671**	4.06	.953
41. Our school encourages teachers to enhance their academic and professional qualification.	.269	.237	**.505**	4.26	.926
39. Well-qualified teachers are one of the reasons of remarkable output of the school.	.140	.142	**.316**	4.07	.810
Percent of Variance	40.83	10.03	4.79		
Eigenvalue	6.53	1.61	.77		
Cronbach alpha	.89	.90	.76		

4.3 Discussion of Factors

Exploratory analyses, using SPSS 23.0 (IBM, 2013) were conduct using the data collected from the teachers' self-reports on the IC scale. The most interpretable factor pattern yielded a three-factor solution using maximum likelihood analysis with a Varimax rotation. The full-scale internal consistency reliability of the IC scale was .897. The construct, IC, operationalized on the survey tested, was comprised of three factors. Social relations (SR) is

described here as the teachers' ability to form positive relationships and demonstrate cooperative behaviors supporting the organization. Teachers' technical skills (TTS) are the special skills that support and enhance the professional background and experience the teachers bring to the job and that are acquired on the job. Teachers' training, education, and experience (TEE) describes the human capital (HC) and spiritual capital constructs of the integrated model, as the quality of the employees "knowledge, competence, skill, capability, and innovation" that disappears from the organization "when the employees go home at night" (Khalique et al., 2011, p. 344).

School leaders, using behaviors and skills in knowledge management (KM), can leverage the distinct factors of IC in developing the knowledge capital in Pakistani schools including the formal structures and processes related to supporting the positive and constructive informal structures of social relationships.

4.3.1 Social Relations (SR)

The SR factor captured items 55 through 61 from the category social capital. These items described behaviors of the employees in the informal structure of the organization for developing; social relations among teachers and students; the best social structure; co-operation; decent behaviors that reflect good social relations in the school and between principal, teachers and students; and as a step toward societal change. The SR factor included items querying both internal and external relations referencing parent, stakeholders, and a school's contribution to societal improvement. Therefore, the name, social relations, was considered to reflect the common theme in the items loading on this factor.   Loadings for the SR factor ranged from .635 to .722, captured 40.83% of the variance and showed a Cronbach's alpha of .89.

4.3.2 Teacher Technical Skills (TTS)

The TTS factor captured items 48 through 51 from the operationalized categories of education (2 each) training and skills and abilities (2 each). This factor described special skills teachers develop from in-service and technical trainings that enhance their classroom competencies in support of their professional teaching practices. The name for this factor highlighted the difference between professional knowledge and technical skills. The item loadings for this sub construct ranged from .697 to .859, captured approximately 10.03% of the variance with a Cronbach's alpha of .90.

4.3.3 Teacher Experience and Education (TEE)

Factor TEE captured items 39, 41, 46 and 47 from the survey categories operationalized as education (2 each) and training (2 each). Upon review of the wording of the items, the common element found was teachers' qualifications and experience. For example, items included the following wording, well-qualified, academic and professional qualifications; teaching experience, and professional development. The name given for this factor reflects the professional abilities the teachers' bring with them to the job or develop through professional development. The TEE item loadings ranged from .316 to .810 and captured 4.79% of the variance. Reliability of the subscale was Cronbach's Alpha of .76.

4.4 Proposed IC Model Goodness of Fit

After ascertaining the reliability of each construct, researchers checked the goodness of fit of IC separately and then put them in a model. For counting model fitness, the individual variable and its sub dimensions and overall model are found fit with its critical/ threshold values given by Meyers, Gamst, and Guarino (2006). Figure 2 provides the CFA model results for the three factors of IC proposed from the results of the EFA. The reason the coefficients are over 1.00 is that they are the unstandardized coefficients. This is explained as follows (one-way anyone), "Unstandardized coefficients are 'raw' coefficients produced by SEM analysis when the analysis is performed on original, unstandardized variables. Unlike standardized coefficients, which are normalized unit-less coefficients, an unstandardized coefficient has the units of the actual scale (Stephanie, 2019, para. 1).
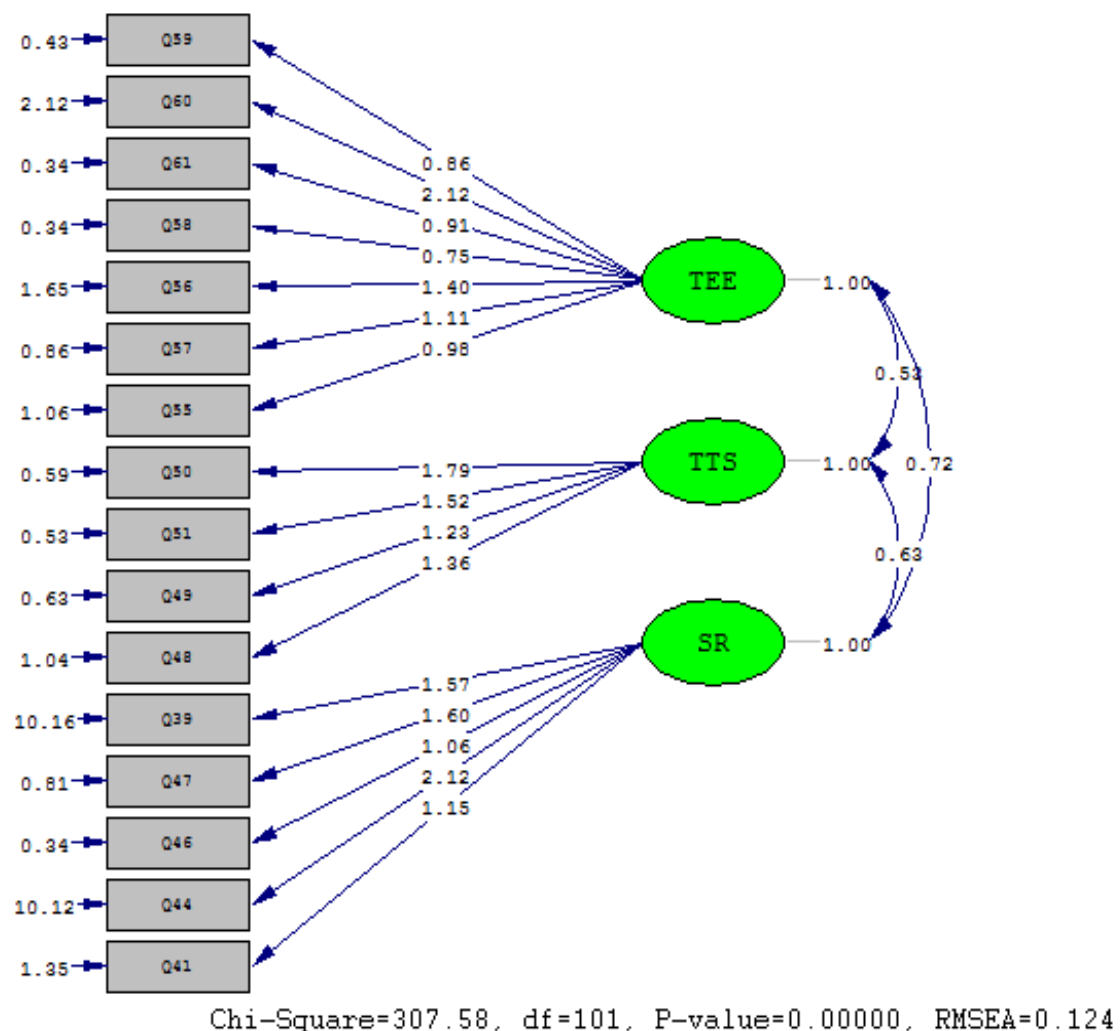

Figure 2. Confirmatory factor analysis

4.5 Correlation of the Sub Factors Identified in the Analyses

A correlation analysis was performed to test the relationship between the three sub factors identified from the EFA and CFA analyses. Because the scale used was Likert-style and the measurement is considered ordinal, not continuous, the correlation will be analyzed using the non-parametric Kendall's tau. Results show significant relationships between all variables and the dependent variable IC. Statistically significant relationships and moderate effects are shown between SR and TTS, and SR and TEE. A significant relationship and moderate effect also exists between TTS and TEE. Table 3 provides the Kendal correlations, *p* values, and number of items included in the analysis for the sub factors SR, TTS, and TEE and dependent variable IC.

Table 3. Kendall's tau correlation analysis showing correlation, *p* values, and number of items used in the analysis for intellectual capital (IC), social relations (SR), teacher technical skills (TTS), and teachers' education and experience (TEE).

		Intellectual Capital	Social Relations	Teacher Technical Skills	Teacher Experience and Education
Intellectual Capital	Correlation Coefficient	1.000			
	Sig. (2-tailed)	.			
	N	408			
Social Relations	Correlation Coefficient	**.683**[**]	1.000		
	Sig. (2-tailed)	.000	.		
	N	408	408		
Teacher Technical Skills	Correlation Coefficient	**.666**[**]	**.363**[**]	1.000	
	Sig. (2-tailed)	.000	.000	.	
	N	408	408	408	
Teacher Experience and Education	Correlation Coefficient	**.636**[**]	**.465**[**]	**.416**[**]	1.000
	Sig. (2-tailed)	.000	.000	.000	.
	N	408	408	408	408

**Correlation is significant at the 0.01 level (2-tailed).

4.6 Regression of IC

Because the correlations showed statistically significant and moderate relationships for each

variable with the dependent variable, a regression on the dependent variable, IC, was performed entering the sub factors teacher education and experience (TEE) (β = .34; p< .001), teacher technical skills (TTS) (β = .34; p< .001), and social/relational capital (SR) (β = 58; p< .001) individually into the analysis.

4.8 Structural Capital

Figure 3 provides the model resulting from the EFA and CFA reported in the previous sections with ß values included. Structural capital was tested separately using ANOVA analysis and reported in section. The four sub factors of IC shown in Figure 3 are a reliable model empirically tested in this study. Figure 3 differs from the proposed theoretical model, shown in Figure 1 section - *1.3 Proposed Model,* because the item loadings from the EFA suggested three factors with different items grouped than those on the original survey scale. The new sub factor names reflected the constructs and wording included in the items that loaded together from the exploratory factor analysis. The resulting model includes sub factors social relations (SR), teacher technical skills TTS), teacher education and experience (TEE), and structural capital.
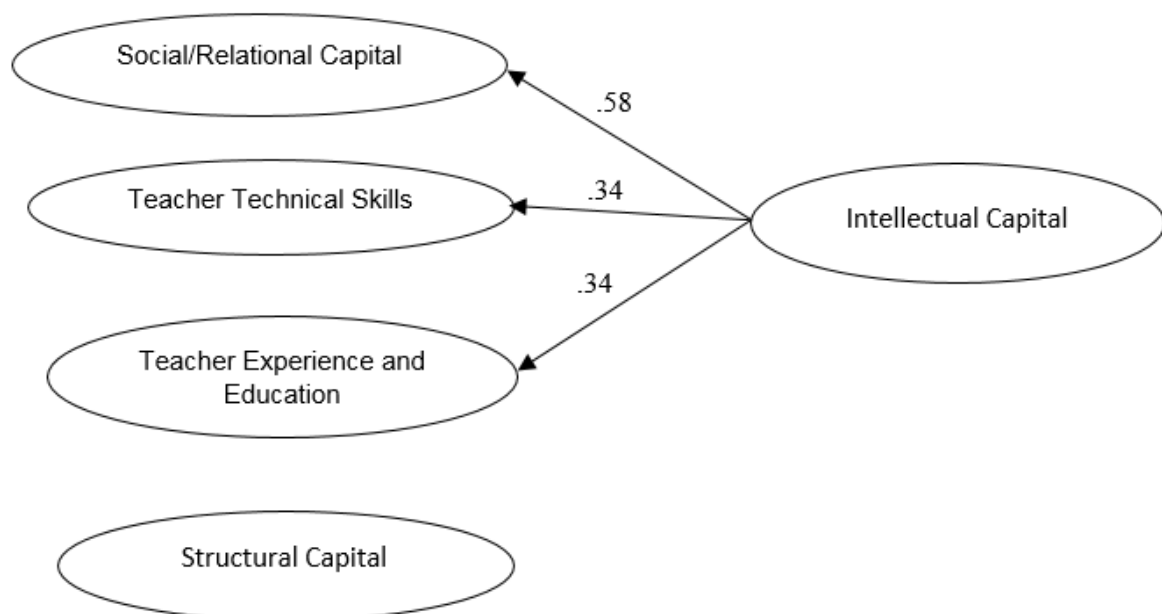

Figure 3. Model of sub factors regressed on IC

Note: Structural capital, considered a factor of IC, was tested indirectly as the change in IC mean between school types, with differing systems for teacher accountability and improvement.

4.7 Multicollinearity Test of Sub Factors

Statistical analyses were performed to determine if there were concerns with multicollinearity

between the sub factors identified in the model. A review of the *Tolerance* and *VIF* values showed *Tolerance* values >1 and *VIF* values <10 for SR, TTS, and TEE (Tolerance = .64, .68, and .61; *VIF* = 1.507, 1.473, and 1.639, respectively). A review of the collinearity diagnostics revealed all variance proportions < .90 for all pairs of variables, supporting the conclusion that no issues with multi-collinearity exist between the sub factors.   Table 4 shows the Eigenvalues, condition index, and variance proportions for each sub factor identified in the EFA (Hair, Black, Babin, & Anderson, 2013).

Table 4. Collinearity statistics including Eigenvalues, condition index, and variance proportions for the social relations, teacher technical skills and teachers' experience and education

			Variance Proportions			
Dimension	Eigenvalue	Condition Index	(Constant)	Social Relations	Teacher Technical Skills	Teacher Experience and Education
Social Relations	.054	8.516	.06	.02	.83	.01
Teacher Technical Skills	.011	19.107	.03	.81	.00	.57
Teacher Experience and Education	.011	19.165	.91	.17	.16	.42

Note. Dependent Variable: Intellectual Capital

4.8 Structural Capital

A second null hypothesis was proposed to test the difference in IC mean values between schools and the type of school.

Hypothsis$_0$= There is no difference between Federal Government and Pakistani Army and Fizaia schools intellectual capital means scores considered moderated by their differences in social capital.

Though structural capital is one of the elements contributing to the construct of IC, the authors did not operationalize this construct on the survey due to the researchers considering questions to be of a sensitive nature in the context of Pakistan schools in the study. Therefore, researchers tested the construct indirectly by proposing a difference in IC mean score between the different school organizations under study.

4.8.1 Kruskal-Wallis Test

A non-parametric Kruskal-Wallis test was conducted to determine if there were significant differences in IC between school types (Pakistan Army, Federal Government, and Fizaia). The traditional one-way ANOVA was not conducted because the assumptions for parametric analysis were not met. Before the analysis was conducted, the assumptions of random sampling, scale of measurement, equality of variance, and normality had been assessed.   The assumption of random sampling was met as the researcher randomly and independently sampled the data. The assumption of scale of measurement was not met, as the dependent variable, IC, was measured on a Likert-scale (i.e., considered ordinal). The assumption of normality was met because skewness and kurtosis values for IC were between ±2 (-.450 and -.144, respectively). The results of the K-S test was significant for IC (Asymptotic $p < .001$), though the variable's histogram showed a single peak. The assumption of equality of variance for school types was met since the Levene's test was not significant ($p = .772$). Because all the assumptions were not met, the parametric version of the one-way ANOVA was not retained.

4.8.2 Statistical Findings

A non-parametric Kruskal-Wallis test was conducted to determine if there was a significant difference between IC measures for the different school types (Pakistan Army, Federal Government, and Fizaia), in place of the traditional one-way ANOVA, because the sample did not meet the assumptions for parametric analyses. The pairwise comparisons were adjusted for multiple tests using a Bonferroni correction. The Bonferroni is a powerful Type I correction, adjusting for multiple comparisons. The Bonferroni is also the default in SPSS pairwise tests. The results of Kruskal-Wallis showed there were significant differences for IC between the three school types ($\chi^2(2) = 57.710$, $p < .001$, $\varepsilon^2 = .504$), suggesting a large affect and that a meaningful difference exists. (Note: Effect size statistic for the Kruskal-Wallis test is epsilon-squared, which is the chi-squared statistic (or H), divided by (N-1). A rule of thumb for interpreting ε^2 is that it is essentially the same as adjusted r^2 in regression analysis and Cohen has set out indices for interpretation, $r = .1$ = small; $r = .3$ = medium; $r = .5$ = large).

Federal Government schools (*Mean Rank* =165.57) showed a significant difference between Fizaia schools (*Mean Rank* = 229.18, Adjusted $p <.001$, $\varepsilon^2 = .16$) showing a large effect and suggesting a meaningful difference exists; and Pakistan Army schools (*Mean Rank* = 264.98, $p <.001$, $\varepsilon^2 = .24$) showing a large effect and suggesting a meaningful difference exists. No statistically significant difference in IC (Adjusted $p = .135$) was shown between Fizaia schools (*Mean Rank* = 229.18) and Pakistan Army schools (*Mean Rank* = 264.98).

4.8.3 Conclusion

The results of the KW test revealed the Federal Government schools had statistically significant differences, and lower, IC measures (*Median* = 3.82) than both the Fizaia (Median =4.26, $p < .001$) and Pakistan Army schools (Median = 4.29, $p < .001$).   However, no meaningful differences existed between the Fizaia and Pakistan Army schools. Therefore, the null hypothesis was rejected in favour of the alternative hypothesis; *H_A: There is a difference in IC measures by school types.*

Federal Government schools are different and lower than all other types. Tables 5 shows the IC means, standard deviations, and *p*-values respectively for the pairs of schools. Table 6 shows the pairwise comparisons of the categorical variable school type.

Table 5. Means and standard deviations for IC of the three schools tested in the study.

School	Mean	SD	*N*
Pakistani Army	4.27**	.502	115
Fizaia	4.10**	.573	70
Federal Government	3.79**	.592	223

Note. **$p<.001$

Table 6. Pairwise comparison of IC measure by school type

Sample 1-Sample 2	Test Statistic	Standard Error	Standard Test Statistic	Significance	Adjusted Significance.[a]
Federal Government-Fizaia	-63.614	16.144	-3.940	.000	.000
Federal Government-Pakistan Army	99.413	13.528	7.349	.000	.000
Fizaia-Pakistan Army	35.800	17.863	2.004	.045	.135

Note. Each row tests the null hypothesis that the Sample 1 and Sample 2 distributions are the same. Asymptotic significances (2-sided tests) are displayed. The significance level is .05.

a. Significance values have been adjusted by the Bonferroni correction for multiple tests.

4.9 Construct Validity

The Knowledge Economy Index (KEI) developed by the World Bank as "an aggregate index representing a country's or regions' overall preparedness to compete in the Knowledge Economy (KE) was used as a reference point to test the construct validity of the IC instrument developed for this study (Knoema, 2018, para. 1).

Structural capital in this study was conceptualized as the environment of an institution that makes it suitable to develop an organization's human capital leading to IC (Liu, 2010). SC has been described as "all the non-human storehouses of knowledge including databases, organizational charts, process manuals, strategies, routines and policies" (Khalique et al., 2011, p. 344). This compared favorably with the first WB pillar of KE, "economic incentive and institutional regime (EIR)" (Knoema, 2018, para. 1). The construct of SC was tested in this study as the differing institutional processes for managing teacher accountability and improvement. Nonparametric K-W testing revealed an empirical link between schools with low structural capital and lower IC.

Next, the WB pillar of "innovation and technology adoption" can be compared to the TTS factor described in this study, as special skills teachers develop from in-service and technical trainings, areas not directly related to their professional area though supportive such as technologies and information processing. For example, a history teacher may develop additional skills in technology, through in-service trainings, to enhance professional delivery of curriculum in the classroom or to fill a need in the school. This factor also compared favorably with the technological capital (TC) aspect of Khalique et al.'s (2011, 2015) integrated model.

The third WB pillar of "education and training," can be compared with the TEE factor identified in this study. The factor of TEE describes the human capital (HC) and spiritual capital (SC) constructs of the integrated model, as the quality of the employees "knowledge, competence, skill, capability, and innovation" that disappears from the organization "when the employees go home at night" (Khalique et al., 2011, p 344). The factor TEE operationalized qualifications of teachers as contributors to organizational output, encouragement to advance knowledge, and experience in the profession through continuous professional development to build the capacity of the school. According to Peleg (2012) quality in education comes through quality teachers. Teacher quality was the measure of IC possessed and has a main role in explaining school effectiveness.

Finally, the fourth factor empirically tested in this study was SR, capturing behaviors of employees in the *informal* structure of the organization for developing positive communication and sharing information. This compared favorably with the fourth pillar of the WB "information and communication technologies (ICT) infrastructure." A review of the literature on IC also revealed SR was comparable to the relational capital (RC) factor tested by Seleim and Khalil (2011).

Taken together the factors, empirically tested in this study, were found reliable for capturing constructs that reveal elements of the development of IC in schools and have construct validity by favorable comparison with the a review of relevant literature on IC, including the WB four pillars described to promote the efficient use of new and existing knowledge (Knoema, 2018, para. 1).

4.10 Control Variable Gender

The results of this study also showed that gender (control variable) had no significant effect on

the measurement of the level of IC. The result may be surprising, suggesting that there is no gender discrimination found in these schools. Both sexes have equal opportunity to resources and training. These results are not in line with the other research results that Pakistani society has a gender segregated society (Halai, 2011; Qureshi, 2012). These results may be context specific and diverge within school settings from the general societal context.

5. Conclusion

This study sought to answer the call in the literature for the development of integrated reporting measures of intangible assets in schools and to develop a measurement tools that reliably captures variables of school processes promoting the development of IC in schools. The overarching research questions answered were:

Q 1: What is the factor structure of the IC measurement scale developed for testing in this study?

The results of the analysis revealed the items operationalizing these constructs grouped as three distinct groups. Three items from SC were dropped, but SC remained as a valid factor, renamed Social Relations (SR) to emphasize the relational aspect of the items remaining. A unique contribution from this study was the two distinct types of Human Capital (operationalized as knowledge) identified by the EFA of the teachers' self-reports, TTS and TEE. Two items from Training (TRG) and both items from Skills and Abilities (SAA) grouped together. A review of the items revealed they were related to skills that teachers gained that supported teaching indirectly such as technology, and classroom management. This type of knowledge was named Teacher Technical Skills (TTS). The third factor was a grouping of items from Education (EDU) and Training (TRG). These items operationalized teachers' professional development of classroom teaching knowledge and therefore named Teacher Education and Experience (TEE). The new way of conceptualizing teachers' experience gives insights for administrators for leveraging development of IC in their schools. Distinct

Q 2: Are the reliability indices of the IC scale tested in this study within predetermined acceptable indices?

The factor structure for the dependent variable tested in this study, IC, differed from the literature and showed reliable from the empirical analyses. The full-scale internal consistency reliability of the IC scale was a Cronbach's $\alpha = .897$. Each sub factor SR, TTS, and TEE also showed a strong reliability (Cronbach's $\alpha = .89, .90$ & $.76$, respectively) considered useful for capturing data and drawing valid conclusions about the teachers' perception of their school's IC in public secondary-level schools in Pakistan. This is important for schools since a school's primary purpose is the development and transfer of knowledge. Principals can use the data provided by the teachers on this scale as a beginning to the process of self-improvement in secondary schools in Pakistan. Sharing research-based relevant information on IC in schools with stakeholders can increase transparency. "[S]takeholders [are] interested in an organization's ability to create value over time, including employees, customers, suppliers, business partners, local communities, legislators, regulators and policy-makers" (IIRC, 2013, p. 7). The empirically validated instrument used in this study can provide reliable teacher

self-report measures of perceptions of the IC in their schools.

Q 3: Is there a difference in IC mean scores between Federal government, Pakistani Army, and Fizaia schools?

A non-parametric KW test revealed a significant difference in IC measures by school type that is consistent with the theoretical expectations described in this study. Schools with structures that are able to promote consistent efforts to bring improvements in the teaching faculty and hold teachers accountable, using means such as termination of teacher services, showed statistically significant differences from government schools, where terminating teachers is not within the purview of the administration. Therefore, structural capital is a key factor for understanding the development of IC in schools.

5.1 Implications

Administrators' development programs can embed training that teaches methods for improving the items shown in the scale tested in this study. Teachers can reflect on research-based data from self-report feedback using the IC scale and collaborate on next steps for designing professional development and school systems that promote IC in their schools. Using the tool developed in this study recursively, and distributing the results to stakeholders to join the conversation, could lead to local solutions for contextually based issues of knowledge management, shown to improve school outcomes. This scale measures IC in schools while respecting local traditions, recognizing that existing community structures have strong knowledge sharing and collective efficacy, though not embedded in external economies (Weber, 2011).

5.2 Suggestions for Future Research

Further research can seek to operationalize the items related to values, culture, and faith as factors embedded in the constructs of IC. Employees and stakeholders' memories develop mental models and social norms for behaviors that drive the relational factors supporting development of IC in schools. These factors vary between local groups in developing countries (Weber, 2011). A study to check the impact of IC on the career growth and development of teachers over time is warranted (Popescu & Deaconu, 2013). Additional studies could seek to connect educational institutes' abilities to distribute the value of IC to societal improvements such as innovations, technologies, and well-being of students' post-graduation (Cricelli *et al.*, 2018, p. 72). There is a need to identify additional antecedents of IC. Researchers are encouraged to develop parsimonious models to understand the role of knowledge management in the creation of I in schools. A unifying theory that incorporates the various theories found in the research literature on the topic of organizational improvement would facilitate practical implications of the constructs used across studies on the topic of IC (Seleim & Khalil, 2011).

5.3 Limitations

This study was limited to a single developing country, Pakistan, and to a single sector, education, and to a single level, secondary public schools. These results may be context specific and diverge within school settings from the general societal context. Response biases,

such as social desirability and acquiescence, can contribute to slightly higher results on self-report surveys. This study draws data from a limited range of schools in Pakistan. Educational situations may vary by regions and different results may be found from empirical studies using data from different areas in Pakistan.

Conflicts of Interest

None

Funding

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Appendix A

Distribution of sample schools according to Federal Board of Intermediate and Secondary Education (FBISE), Islamabad, Pakistan

School #	School's parent organization	Category	Total school population	Sample surveyed in the study
1	Federal Government	Government	34	21
2	Pakistan Army	Semi-Government	23	08
3	Private	Private	08	-----
4	Fizaia (Air Force)	Semi-Government	05	05
5	Frontier Constabulary	Semi-Government	03	-----
6	Fauji Foundation	Semi-Government	01	-----
	Total		74	34

Appendix B

Table 2**.** Table of items used for measuring dimensions and sub dimensions of variables tested

Variable	Dimensions	Items distribution	Total items (23)
Intellectual capital (IC) [Endogenous variable]	a) Human capital (HC)	39-51 (13 items) 39-42 (4 items)	
	• Education (EDU)		
	• Experience (EXP)	43-45 (3 items)	
	• Training (TRG)	46-49 (4 items)	
	• Skills & abilities(SAA)	50-51 (2 items)	
		52-61 (10 items)	
	b) Social capital (SC)		

Appendix C

Newly Developed Survey of Variables Tested

I am conducting a survey to find out how different aspects of principal's leadership develop intellectual capital of the secondary school teachers. You are invited to respond to the following items by keeping in view your school situation. Your response will be kept strictly confidential.

Respondent's code_____

Designation   _____

Address of school_____

School Type   (Please tick (√) the relevant category).

Public ☐ Private ☐ Semi-government ☐

**Instruction:** _Please_ **tick** _in the corresponding box to the scale provided on the right of each statement that most closely matches your assessment of your principal's skill level for each item._

The following survey will take approximately 30 minutes to complete.

Part-A

Teacher's Demography:

1) Sex: Male ☐ Female ☐

2) Age (Years):

25-30 ☐ 31-35 ☐ 36-40 ☐ More than 40 ☐

3) Professional Qualification:

C.T. ☐ B.Ed. ☐ M.Ed. ☐ Others ☐

4) Working Experience:

Less than 1 Year ☐ 1-5 years ☐ 6-10 years ☐

11-15 years ☐ 16-20 years ☐ More than 20 years ☐

5) Academic Qualification:

Undergraduate ☐ Graduate ☐

Masters ☐ Others ☐

Part –B

**Instruction:** _Please_ **tick** _in the corresponding box to the scale provided on the right of each statement that most closely matches your assessment of your principal's skill level for each item._

Assessment of Principal Leadership Skills.

Principal rating

ITEM No	The Principal:	this Skill at all	but Not Effective	somewhat	Effectively	Very Effectively
1	Leads staff in establishing a school vision.					
2	Leads staff in establishing a set of goals to implement Vision					
3	Actively encourages staff input and participation to prioritize goals					
4	Works toward whole staff consensus on important school wide issues and goals					
5	Uses problem-solving skills to help staff to reach consensus.					
6	Expects high performance from all staff.					
7	Encourages and supports staff to self-evaluate progress in implementing school-wide goals.					
8	Provides professional development activities to support school wide goals.					
9	Anticipates predictable problems and effectively responds to them					
10	Makes sure that school agrees with district, province, and federal regulations					
11	Promotes staff unity and co-operation					
12	Provides staff with materials, resources, and proper planning to achieve school-wide goals					
13	Establishes school-wide behavioural management plan					
14	Provides resources to implement school-wide behavioural management plan					
15	Supports and recognizes staff who helps in implementing behavioural management Plan					
16	Supports and recognizes student who display improved behavioural/social skills					
17	Regularly informs students, staff ,parents, and community about procedures and progress toward meeting behavioural management goals					
18	Ensures all staff know, understand, and follow agreed upon school-wide behavioural management standards, systems and practices					
	Teachers in this school:	Not True	Somewhat True	Quite True	True	Very True

19	are committed to complete the given task in given time.					
20	are found to help each other when there is a sharp notice issued by principal for any assigned task.					
21	feel no boredom when they find extra work to be done.					
22	feel a sense of co-operation among themselves.					
23	are trained such that they take part in extracurricular and co-curricular activities actively.					
24	always co-operate in conducting various functions at different occasions.					
25	have enough skills to prepare students for various activities.					
26	are facilitated by principal for organizing various educational and social activities.					
27	always abide by rules and regulations set by administration.					
28	express their views on improving teaching learning process.					
29	consider themselves as part of the solution not the problem					
30	consider that Principal acts as a role model for teacher and student development.					
31	resolve their problems amicably among themselves					
32	show sense of respect for each other when they discuss issues regarding job performance.					
33	solve students' problems in meetings so the students never find any conflict among teachers					
34	try to solve the problems of his/her colleagues.					
35	never loose heart, when they are not awarded on their achievements					
36	feel that the principal publically acknowledges the commendable efforts of the teachers in organizing various activities					
37	feel that the principal develops the sportsmanship spirit in them to achieve various academic and non-academic goals					
38	act like a team together with the principal to achieve curricular, co-curricular and extra-curricular goals					
		Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
39	Well qualified teachers are one of the reasons of remarkable output of the school.					

40	Academically and professionally trained teachers are appointed in our school.					
41	Our school encourages teachers to enhance their academic and professional qualification.					
42	Our school staffs are well mannered.					
43	Our school teachers possess rich work related experience.					
44	Teaching experience has a positive impact on school performance.					
45	Our teachers have rich experience in organizing co-curricular activities.					
46	Continuous professional development contributes to the performance of our school.					
47	Continuous professional development of teachers is an integral part of our school.					

	Please indicate your school's level in the following elements:	Very Low	Low	Somewhat	High	Very High
48	Investment in in-service trainings					
49	Time spent on in-service trainings					
50	Inclination towards technical training, like ICT trainings					
51	Inclination towards the provision of resources like ICT, Multimedia etc.					

		Strongly Disagree	Disagree	Somewhat Agree	Agree	Strongly Agree
52	Teachers develop and discuss new ideas to improve teaching process and students outcome.					
53	Teachers are always interested to learn and acquire new skills which enhance their professionalism.					
54	Teachers are energetic and enthusiastic while performing their organizational tasks.					
55	There is best practice of social relations among the teachers in our school.					
56	There is an observation of positive relations among principal and teachers in our school.					
57	Best social relations among the teachers act as a role model to develop the same social relations among students in our school.					
58	Best social relations among the teachers have developed a best social structure in our school.					
59	Mutual trust among the teachers has led to co-operation in various					

	activities.					
60	Decent behaviour of our teachers with principal, students and parents reflects their good social relations in our school.					
61	Best practice of social relations among our principal, Teachers and Students is a step towards societal change.					

Thank you for taking time to complete this questionnaire. Your opinion are very important. Please return the completed questionnaire to the designated person in your school.

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