

The Impact of Human Capital on Organizational Innovative Capability in a Private Commercial Bank of Pakistan

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Abstract

Organizational collective knowledge plays an important role in innovation and also provides a competitive advantage. Human Capital (HC) is the sum total of intelligence found in individual human beings and consists of individual's learning and education, experience and expertise, and personal creativity and innovation. Many researchers believe that only knowledgeable and innovative organizations are going to survive in future in the knowledge based economy. The present study is focused on a Pakistani private commercial bank and is aimed to study the impact of its HC on its Innovative Capability (IC). In this survey based research, four hypotheses were empirically tested. The survey instrument comprised of a 25-item Human Capital Construct, and 27-item Innovative Capability Construct. Using a systematic random sampling design of probability sampling technique, 170 participants from a Pakistani private commercial bank completed this survey. Multivariate data analysis techniques like exploratory factor analysis, multiple regression, and simple regression were used to analyze the data. All four hypotheses for the present study were supported. Findings from the present study reveals that (a) Human Capital (HC) is influenced by bank officers skills/competence, bank officers transformational leadership role, bank officers knowledge, bank officers ability, and bank officers personal mastery; (b) Innovative Capability (IC) of the bank was found influenced by support for innovation available to bank officers, bank officers innovative behavior, and tolerance for difference available to bank officers; (c) bank officers leadership role, bank officers personal mastery, and bank officers ability were significant and positively related to bank's Innovative Capability, whereas, bank officers knowledge was less significantly related to bank's Innovative Capability for the present research; and finally (d) bank's collective Human Capital was found to have positive relationship with bank's Innovative Capability. The research limitations of the present study regarding generalization, along with recommendations for future academic research are included as well.

Key words: *knowledge, Human Capital, Innovative Capability*

Paper Type: *Research Paper (Empirical)*

Discipline Track Area: *Knowledge Management*

1. Introduction

The workman's world is experiencing many changes on the way the work is being performed in the knowledge-based economy. There is a strong need for modern day organizations to become the storehouses of knowledge and innovation. This modern day economy which is based on knowledge and information has given us with new concepts of globalization and latest working designs for the firms (Seleim, Ashour, & Bontis, 2004). Due to these developments an enormous pressure on management research is being felt and demands investigation through latest means.

Penrose has looked at the firms as a depository of knowledge and skills and stressed their need in explaining the development and growth of firms (Penrose & Pitelis, 2009). As the competition among companies for their market shares increases, this makes them realize that innovation is the one on the basis of which they can compete and grow. Innovation means the use of current knowledge to generate new knowledge (P Drucker, 1998; Todd, Bessant, & Pavitt, 2009). The researchers have developed an overall consensus that the organizational knowledge has an important role to play especially in innovation (Davenport & Prusak, 2000; P Drucker, 2007; Nonaka & Takeuchi, 1995).

During last decade, Intellectual Capital (IC) has been considered an important indicator for the continuous growth and performance of a firm (Bierly & Chakrabarti, 1999; Bontis, 1993). In fact people have started saying that for the success of business these intellectual assets are carrying more importance than the conventional means of production (Choo & Bontis, 2002; P Drucker, 1998; Edvinsson & Malone, 1997; Stewart, 2003; Sveiby, Linard, & Dvorsky, 2002). Three main components of IC are: human capital, structural capital, and relational capital (Bontis, 2001; Petty & Guthrie, 2000; Sveiby, et al., 2002).

Human capital (HC) stands for the knowledge, abilities, and skills people hold so as to fetch financial worth to firms (Youndt, Subramaniam, & Snell, 2004). HC is basically meant for worker's understanding of facts, skillfulness and capability (Grossman, 2000). HC holds together the wide-

ranging human resource deliberations of the industry work force along with the more explicit needs of personnel competence in the form of knowledge, skills, abilities, personal mastery, and transformational leadership potential of managers and the people they manage (McGregor, Tweed, & Pech, 2004). A strategy of deploying human capital of high innovative capability to drive higher value for the organizations has become an important focus of attention. Organizations seek to optimize their resources at their disposal not only to achieve business goals but most importantly for a long term survival and sustainability. To accomplish this task, organizations will need to ensure that their existing employees have the required set of innovative capabilities in the form of knowledge, skills, and abilities to work effectively in a rapidly changing and complex environment. In order to compete and survive especially in the service industry, it is very necessary for an organization to attain human capital that is firm-specific, innovative and most dynamic.

This particular study focuses only on Human Capital, which is considered one of the most important components and constructs of Intellectual Capital, and will study its impact on firms' Innovative Capability. It focuses on a bank which is from one of Pakistan's three leading banks and has witnessed growth during the last 10 to 15 years. In Pakistan, as elsewhere, Human Capital has been recognized as a main source of organizations' innovativeness. However up till now a very little attention has been provided for HC's empirical investigation in South Asian region particularly in Pakistan financial sector. This research study empirically examines bank's key Human Capital elements and key factors necessary for bank's Innovative Capability. As most researches have examined the impact of Human Capital on Innovative capability using the Intellectual Capital framework instead of discussing and using Human Capital's own, thus the construct of core Human Capital presented by this study would serve as an initial point for further studies on organizing and managing the key and core capital at the organizational level. This research may further add to the literature a variety of concepts, organized into an integrative framework of the innovative capability, in the banking industry in the developing country like Pakistan.

Intellectual Capital (IC) is considered as the most important factor in terms of a firm's growth and performance and Human Capital (HC) is one of the main components of IC. In this research paper second Section describes the literature review of this study. Its first two parts are about Human Capital theory and Organizational Innovation. Third part explains the relationship between these two aforementioned concepts along with the proposed research model for this study. Fourth and final parts reveal the research hypotheses identified for the present study. Third section is about research methodology which offers a complete layout to empirically test the suggested model for this study, whereas fourth section deals with data analysis and results. Finally fifth section presents the results, discussion and includes research interpretations, research implications, research conclusions, research limitations, and recommendation for future research.

2. Literature Review

2.1. Human Capital Theory

Researchers have defined the Human Capital (HC) as the possession and utilization of knowledge, skills and abilities by organizations' individuals (Becker, 1993; Schultz, 1961). According to Dzinkowski, HC assumes as work forces' knowledge, learning, professional achievements and credentials, job-related expertise, job evaluation, attitude assessment, advancements, belligerence, and the capability to react and transform (Dzinkowski, 2000). Individuals carrying advance level of knowledge and talent will become responsible in producing innovative thoughts and practices that can be employed in tools and procedures, ultimately resulting in improving the relations among workforce, supervisors and customers. Sveiby presumes, HC includes the capability to perform in a broad diversity of situations so that both financial and intellectual assets are produced (Sveiby, et al., 2002). Stewart, (2003) highlighted that the most important function of HC is advancements in the form of innovative products and services or the development of the production processes. Edvinsson and Malone (2004) who combined the definitions of both Sveiby and Stewart provided the definition of HC as blend of knowledge, proficiency, innovativeness, and talent of the organizations' workforce.

Modern day labor market demands high level of competencies by the knowledge workers. Lau et al. (2001) state job competency constitutes necessary awareness, abilities, and special characteristics required to perform the job. In the new knowledge based economy individuals are selected for a multiple qualities working together rather than for a single skill or ability. Only distinguished knowledge of specialized nature of workers is required. It must be industry specific as well. Workers should be able to build relations with others and should possess the capability to carry out job on several projects at a single time. The individuals personal characteristics needed demand confidence, flexibility and the potential to be resilient and flexible (McGregor, et al., 2004).

Personal mastery is the parameter of individual's learning and development. It is the skill of organizing your intellect and knowledge. Individuals having elevated levels of personal mastery are expected to expand their proficiencies and skills on continuous basis. Because of their pursuit for persistent learning arrives the will of organizational innovation (García-Morales, Llorens-Montes, & Verdú-Jover, 2006). The manager's view of personal mastery is essential as his own personal development will enable him to direct others on their professional road and will help them in their organizational development acting as a mentor (Senge, 2006).

Supporting a transformational leadership style that encourages the members of organization is essential to promote knowledge and innovation. It facilitates the persons in charge to present himself candidly to education and innovation. This thing helps in motivating them and overcome the inner disbelief and external complexities that stops learning and innovation from being executed in the organization (Bell, 2005; García Morales, Lloréns Montes, & Verdú Jover, 2008; Vera & Crossan, 2004).

Following the above literature the researcher has been able to first define and then conceptualize the Human Capital (HC) in the form of a model and is presented below:

“Human Capital (HC) is the sum total of intelligence found in individual human beings and comprises of individual’s knowledge, skills, abilities, personal mastery, and its transformational leadership capabilities”.

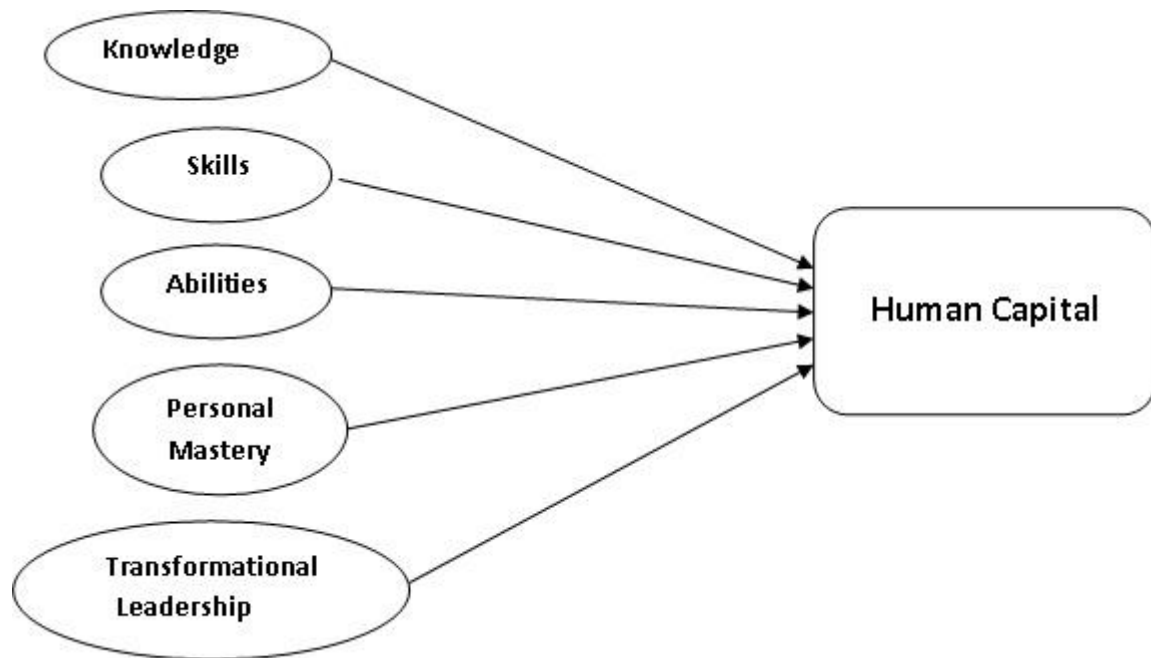


Figure 1: Conceptual Model for Human Capital

2.2. Organizational Innovation

Innovation has gained a lot of significance not only as a source of development and growth but for sustained performance among increased rivalry and environmental uncertainty (Kaufmann, 2004). Innovation is basically about spotting and utilizing available openings to generate new products, services or job practices (Van de Ven, 1986). Only knowledgeable organizations attain these goals as only they are able to get notice and exploit these opportunities due to their diversities of knowledge across whole organizations (Hargadon, 2002). Therefore, it is believed that the continuing search for achieving latest and unique knowledge results in assisting the process which is critical and necessarily required for the accomplishment of innovation (Nonaka & Toyama, 2003).

Adoption of an idea or a conduct relating to a product, service, tool, structure, strategy or plan by organizations which is new to them is considered as innovation (Daft, 1978; Damanpour & Evan, 1984). Researchers studying innovation have undoubtedly accepted that it is a multi phase procedure in which creation of idea is just one phase upon which several social issues intrude (Scott & Bruce, 1994). Hence according to this viewpoint, innovation process starts with problem identification and the creation of ideas, thoughts or solution whether new or adopted.

In the subsequent phase of the innovation process, the person involved in the process seeks support in favor of an idea and explicitly tries to build a consensus for this. Finally, in the last phase of developing this process of innovation, the innovative person reaches towards the completion of the idea as a result of delivering "a product or a service first of its kind or an innovative design ... which can be contacted or realized and may further be disseminated, bulk-produced, converted to constructive use, or even institutionalized" (Moss Kanter, 1988). Therefore innovation has been observed here like a multiphase practice involving distinctive actions and special personal behaviors essential at every phase. As innovation in fact is recognized as unorthodox actions and activities compared to discrete, chronological stages, persons involved in innovation process may likely be found themselves engaged in various arrangements of these attitudes and behaviors required at any single time (Schroeder, Van de Ven, Scudder, & Polley, 1989).

As the base for innovation is ideas, and it is individuals who "develop, carry, react to, and modify ideas" (Tsai, 2001), therefore the search of what stimulates or facilitates person's innovative behavior carries significance (or seems critical). Tsai (2001) pointed out that among several problems related to managing innovation, one of the main problems is how to manage the attention of individuals. Dealing with how to manage the attention is challenging as individuals slowly acclimatize to their environments in such a way that their need recognition declines plus their action threshold arrive at a point where only crisis can provoke action. Several researchers have argued that climate can guide and direct both attention and activities toward innovation (Amabile, Barsade, Mueller, & Staw, 2005). Following James, Hater, Gent, and Bruni, climate is defined as individual mental perceptions about

the organizational settings "expressed in terms that reflect psychologically meaningful interpretations of the situation" (James, Hater, Gent, & Bruni, 1978).

After going through the literature about organizational Innovative Capability (IC), the researcher has been able to first define and then conceptualize Innovative Capability (IC) in the form of a model and is presented below:

"Innovative Capability (IC) of an organization is actually its ability of creating new and unique products, services, or job practices. This ability of organization depends on individual's innovative behavior and the climate for innovation under which that individual operates".

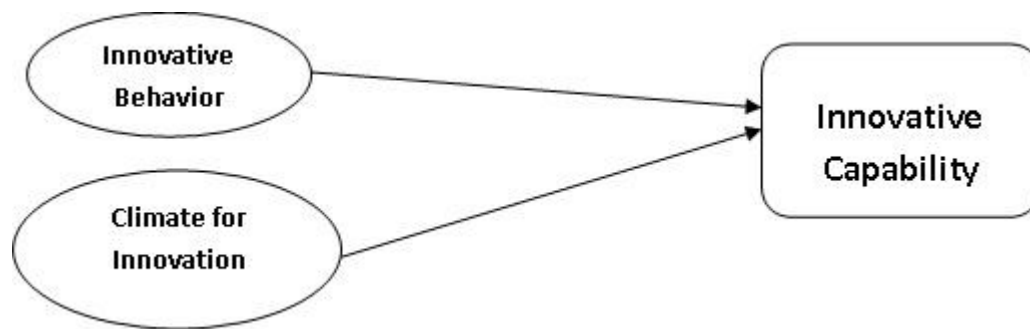


Figure 2: Conceptual Model for Innovative Capability

2.3. Human Capital and Innovative Capability

The fundamental characteristics for human capital are inventiveness, acumen, personal mastery, and skillfulness, along with proficiency in their responsibilities and tasks. Human Capital also stands for personnel who constitute the key resource intended for new knowledge and innovative ideas in an organization (Snell & Dean Jr, 1992). With these working individuals, firms can acquire the widest variety of skills and the maximum likelihood in attaining new competences. Moreover, these competent individuals are highly expected to raise questions and alter the existing norms (Anderson & Tushman, 2001).

Personal mastery – the exceptional art of organizing your intellect along with the need to comprehend and gain knowledge related to different kinds of skill for individual's own sake – admits that organizations evolve and progress only because of learned and innovative individuals. For an organization to become innovative it is essential for organization to re-allocate its resources,

capabilities and available tangible or intangible assets; this is like a qualitative re-mix of expertise existing in human and physical assets. Hence, greater innovative focus demands individuals possessing a larger imaginative capability plus an advanced level of personal mastery. Individuals with top level personal mastery possess the capability to detect the difference between existing facts and what they actually intends to achieve. They try to convert this creative friction to an innovative impetus that permits actuality to be taken nearer to this intended vision (Senge, 2006).

In this era of knowledge economy which is based on information and knowledge, transformational leadership is the one that serves the purpose of promoting organization innovation and learning. Supportive top management always let the organizational individuals to experiment and exchange new ideas and knowledge so that they may become skilled and innovative (Senge, Roberts, Ross, Smith, & Kleiner, 1994). Primarily it is the supportive leadership who holds the key responsibility in establishing such an environment within the organization that supports the abilities/practices required to carry out innovation in organization (Bell, 2005). After understanding the components required for innovative behavior in organizations it has been found that leader traits and leadership approach are critical to influencing the individual creative capability. Over the years researchers have developed a consensus on this that a transformational mode of leadership suits more for organization innovation as compared to any other leadership approaches. leaders who encourage and support set up the settings perfectly suited for organization innovation by forming groups of creative individuals, encouraging shared faith, risk initiating, and shared ambition with the members of organization and reducing inner costs of communication (Dess & Picken, 2000).

The human capital of key workers would influence an organization's abilities to produce fresh knowledge. The intensity and exclusivity of knowledge presently possessed by an individual may act both ways, either assist or restrict the degree to which latest information can be captivated, realized and incorporated (Zahra & George, 2002). Thus, an organization with an elevated degree of human capital would ultimately head to an enhanced capacity of human resources to ascertain and assimilate innovative knowledge toward which they are exposed. It is suggested the overlapping of both prior and fresh knowledge give confidence to workers to attach and relate both kinds of knowledge, and

guide these employees to create latest knowledge. In order to recognize, learn and expand new knowledge, it is essential for the employees to have more existing knowledge and skills. They would then have a greater capability of transforming or reinforcing the currently held knowledge into fresh knowledge (Zahra & George, 2002). The knowledge, abilities and skills necessarily required for innovation rest with and are exercised by individuals. Therefore, in this research study it is expected that human capital improves the process of transformation or strengthens the existing knowledge and thus effects an innovative capabilities of organization (Hill & Rothaermel, 2003).

2.4. Research Model for the Study

After reviewing the literature regarding the two main constructs for this study, i.e., Human Capital (HC) and Innovative Capability (IC) of organization, and expressing them in the form of two separate conceptual models, following research model is proposed in order to observe the influence of HC on bank's IC:

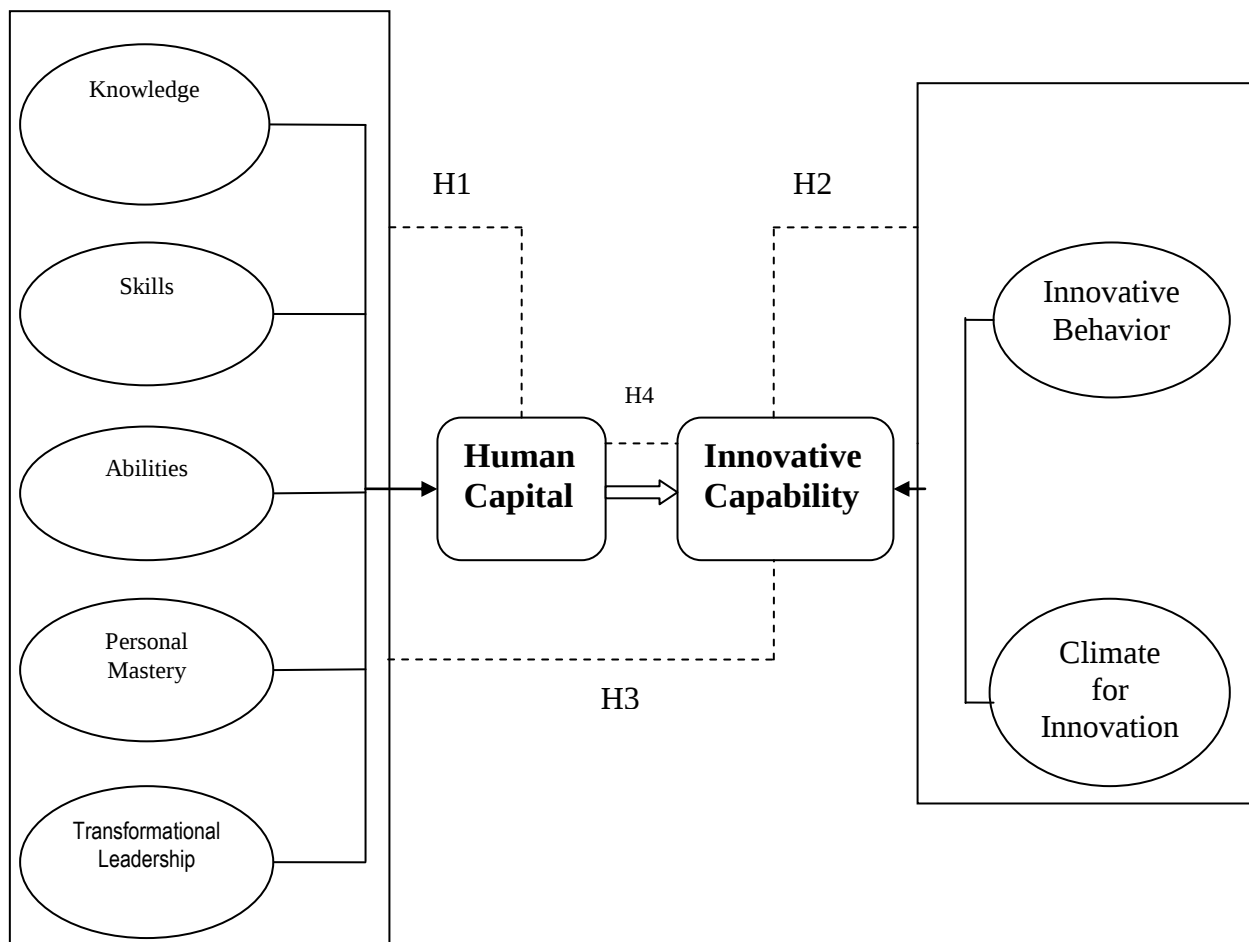


Figure 3: Proposed Model for the Study

2.5. Research Hypothesis

Following research hypotheses have been proposed which will be empirically tested through above model in the section to come.

Hypothesis 1: Human Capital (HC) is influenced by the extent of knowledge, skills, abilities, personal mastery and transformational leadership of the knowledge worker within an organization in context of a Pakistani commercial bank.

Hypothesis 2: Innovative Capability (IC) of organization is influenced by the extent of the innovative behavior of the knowledge worker and by the climate for innovation which the knowledge worker perceives within an organization in context of a Pakistani commercial bank.

Hypothesis 3: Innovative Capability (IC) is influenced by the extent of knowledge, skills, abilities, personal mastery and transformational leadership of the knowledge worker within an organization in context of a Pakistani commercial bank.

Hypothesis 4: Innovative Capability (IC) of organization is influenced by the extent of collective Human Capital (HC) which the organization possesses.

3. Research Methodology

3.1. Target and Surveyed Population

The target population for the present study comprised of all the bank employees (knowledge workers) working at the managerial posts in the branches of MCB currently in Lahore City. According to a figure taken from its official website, it was found that the total number of MCB branches in Lahore city as 49. The total employees working at managerial posts in these branches were roughly 245. The surveyed population comprises of managers working at two levels of this bank. Level-1 included managers having service experience of 1-9 years and Level-2 included only those managers whose service experience was 10 or more years. Moreover, a systematic random sampling of probability

sampling technique was used for the present study. Information from the official website of MCB revealed that the total number of branches in Lahore city as 49. Following the guide lines from systematic random sampling of probability sampling technique, the researcher sorted these 49 branches according to their sizes (criteria of size being number of key knowledge workers). After sorting it was decided to choose every second branch for the collection of data from the sorted list.

In modern day research it has been become a common norm to use findings of sample to make the generalization for the entire population. For this specific reason, a formula for determining sample size was used, which guided to use size of 150, for the present research. Primary data collection for this study was made with the help of an instrument based on questionnaire specially designed to study the impact of human capital on organizational innovative capability. 200 copies of the questionnaire based instrument was sent to regional headquarter of bank, based in Lahore, from where it was further sent to different branches located in Lahore.

For this particular study the researcher has used the instrument based on extensive literature review as well as the previously established instrument. For the measurement of the first main construct of this study which is Human Capital (HC) of the bank, help was be taken from the established constructs of Judy, David, and Richard (2004) (McGregor, et al., 2004), with some adjustments made to this survey given the unique context. In order to measure the second main construct of this research study, which is Innovative Capability (IC) of the bank, an existing instrument from Richard L. Daft Text named “Organizational Theory and Design” was used (Daft, 2009). Another help in this regard was taken from previously established instrument of Susanne and Reginald (1994) (Scott & Bruce, 1994) for measuring the Innovative Capability of the bank. Again given the unique context of this research study, some modifications were made in this previously established instrument.

Two hundred questionnaires were sent to bank managers working at two different levels in their respective MCB branches located in Lahore. Help in this regard was taken from the MCB regional headquarter Lahore. Level-1 included managers having work experience between 1-9 years, whereas level-2 included managers having work experience of more than 9 years. Designation wise these managers were categorized as officer grade 1, officer grade 2, and officer grade 3. Out of 200

intended respondents, 170 responded, thus providing 85% response rate. Table-1 describes the demographic profile of the respondents for this study.

Table-1: Demographic profile of the Respondents

See in Appendix A-1

4. Research Results

Data collected through questionnaire were coded using SPSS 16.0. For complete data analysis of this study, help was taken from multivariate data analysis techniques. In the first stage of this research, the use of exploratory factor analysis enabled to know the exact dimensions of the two main constructs of this research, namely, Human Capital (HC) and Innovative Capability (IC) of the bank. Then, in the second stage, the use of multiple and simple regression helped in finding the effects of HC and its dimensions on IC. In order to identify the underlying pattern of relationship between one of the main construct Human Capital (HC) of this study and its sub constructs (knowledge, skills, abilities, personal mastery, and transformational leadership) in context of Pakistani commercial bank, exploratory factor analysis was used. The use of factor analysis for establishing this underlying structure of relationship enabled to empirically test the first of the hypotheses.

As unrotated matrix for component factor analysis did not provide a desired factor solution, so to extract this desired solution, varimax rotation was performed. In the process of achieving this objective, a few assumptions were needed to be tested and found met as well. For instance, the value of KMO 0.76 was greater than the required threshold level of 0.70, and Bartlett's Test of Sphericity was significant (i.e. .000 is less 0.05) (Leech, et al., 2005). Another assumption was ratio of observations to variables which in this case was a 7:1 ratio of observations to variables, fell within acceptable limits and provided an adequate basis for the calculation of the correlations between variables (Black, et al., 2008; F., 2008), and last but not the least the assumption of determinant located under the correlation matrix was non zero.

Six factors were retained based on the criteria of eigenvalue (latent root). Scree plot also predicted 6 factors. First through six factors were explaining variance as 17.3%, 14.2%, 12.7%, 11.1%, 11%, and 9.4% respectively. These six factors became responsible to explain approximately 76% of the total variance. Items only loaded high on each of the six factors have been highlighted. Items with loading above 0.40 to a factor were considered significant. The first of such factors, named as “bank officers skills/competence driven”, by the researcher comprised of six items. The item loadings for this factor ranged from .505 to .803. This factor-1 became responsible in explaining 17.3% of the total 76% of the variance being explained by all these factors. The second of such factors, named as “bank officers leadership role driven”, by the researcher consisted of four items. The item loadings for this factor ranged from .756 to .845. This factor-2 accounted for 14.2% variance being explained. The third of such factors, named as “bank officers knowledge driven”, by the researcher comprised of four items. The item loadings for this factor ranged from .531 to .877. This factor-3 became responsible in explaining 12.7% of the variance being explained. The fourth of such factors, named as “bank officers ability driven”, by the researcher consisted of three items. The item loadings for this factor ranged from .522 to .716. This factor-4 accounted for 11.1% variance being explained. The fifth of such factors, named as “bank officers personal mastery driven”, by the researcher comprised of three items. The item loadings for this factor ranged from .699 to .888. This factor-5 became responsible in explaining 11% of the variance being explained by all these factors. The sixth of such factors contained only two items. The item loadings for this factor ranged from .535 to .865. This factor-6 accounted for 9.4% variance being explained. However this factor was dropped due to the fact that these two items of factor-6 were not conveying any meaningful interpretation relevant to Human Capital (HC) scale.

This factor analysis solution of Human Capital (HC) Measurement Construct for the present study presented quite a meaningful pattern in the form of five kinds of Human Capital (HC) components (indicators). These were: bank officers’ competence related, bank officers’ transformational leadership role related, bank officers’ knowledge related, bank officers’ ability related, and bank officers’ personal mastery related. Table-2 presents the information of factor analysis solution

performed through varimax rotation. The item loadings against each factor (factor-1 through factor-6) are from higher to lower.

Table-2: Human Capital (HC) Scales Factor Solution through Varimax Rotation

See in Appendix A-2

Table-3 carries the information about internal consistency reliability of each factor of Human Capital (HC) construct in the form of Cronbach's alphas.

Table-3: Internal Consistency Reliability for Human Capital (HC) Construct

See in Appendix A-3

In order to assess whether the items grouped for each of the five factors of Human Capital (HC) construct for the present study reliable and carrying good internal consistencies, values of Cronbach's alpha were determined. The Cronbach's alpha values above .70 considered to be a good indicator of internal consistency reliability (Leech, et al., 2005). As indicated in Table-3, the overall Cronbach's alpha value for Human Capital (HC) Construct was .899, whereas Cronbach's alpha value for Bank officers' competence driven factor was .844, for bank managements' leadership role driven factor was .874, for bank officers' knowledge driven factor was .831, for bank officers' ability driven factor was .695, and for bank officers' personal mastery driven factor was .831. It was observed that not only the overall HC construct but every factor acquired an acceptable level of Cronbach's alpha value, showing that the 20-item Human Capital (HC) construct was reliable. Following the above five-factor solution through factor analysis of Human Capital constructs for the present study, quite significant evidence was obtained in support of hypothesis 1 for this study. That is, Human Capital (HC) was found influenced by the knowledge workers' competence (mainly skills), knowledge workers' transformational leadership, knowledge workers' knowledge, knowledge workers' ability, and knowledge workers' personal mastery.

Similarly factor analysis was also used for identifying the pattern of relationship between second main construct of Innovative Capability (IC) of bank and its sub constructs (individual innovative behavior and climate for innovation), in context of Pakistani commercial bank, thus, enabling to test empirically the second of the hypotheses of this research study. Varimax rotation was carried out to get the desired factor solution. Value of KMO was 0.866 well above 0.70, and Bartlett's Test of Sphericity indicating its significance (i.e. .000 was less 0.05), and ratio of observations to variables was a 7:1 fell within acceptable limits and provided an adequate basis for the calculation of the correlations between variables (Black, et al., 2008; F., 2008). Thus for the present study all the required assumptions of factor analysis for the innovative capability measurement scale were successfully tested and met. Three factors were retained based on the criteria of eigenvalue (latent root). Scree plot also predicted 3 factors. Total variance explained by these three factors was 72.6%. Items only loaded high on each of the three factors have been highlighted. Items with loading above 0.40 to a factor were considered significant. Factor-1 consisted of six items. The item loadings ranged from .728 to .889. This factor was interpreted as “support for innovation available to bank officers driven” by the researcher. This factor became responsible in explaining 29.1% of the variance. Factor-2 comprised of five items. The item loadings ranged from .722 to .850. This factor was interpreted as “bank officers’ innovative behavior driven” by the researcher. This factor accounted for 23.3% variance being explained. Factor-3 consisted of six items. The item loadings ranged from .673 to .771. This factor was interpreted as “tolerance for difference available for bank officers driven” by the researcher. This factor became responsible in explaining 20.1% of the variance.

Thus Innovative Capability (IC) Measurement Construct for the present study, when analyzed through factor analysis, offered a fairly significant pattern in the form of three types of Innovative Capability (IC) components (indicators). These were: support available to bank officers for innovation related, bank officers’ innovative behavior related, and tolerance for difference available to bank officers related. Table-4 presents the information of factor analysis solution performed through varimax rotation. The item loadings against each factor (factor-1 through factor-3) are from higher to lower.

Table-4: Innovative Capability (IC) Scales Factor Solution through Varimax Rotation

See in Appendix A-4

Table-5 carries the information about internal consistency reliability for Innovative Capability (IC) construct as well as for each of its factors in the form of Cronbach's alphas.

Table-5: Internal Consistency Reliability for Innovative Capability (IC) Construct

See in Appendix A-5

As shown by the table-5, the overall reliability assessed for the Innovative Capability (IC) construct for this study in the form of Cronbach's alpha was .868. This value was a good indicator of the internal consistency reliability of the construct (Leech, et al., 2005). Further the Cronbach's alpha value for support for innovation available to bank officers driven factor was .938, for innovative behavior of bank officers' driven factor was .954, and for tolerance for difference available to bank officers driven factor was .834. Every factor acquired an acceptable level of Cronbach's alpha value of greater than .70, showing that the 17-item Innovative Capability (IC) construct was reliable. Thus keeping in view the above three-factor solution obtained with the help of factor analysis of Innovative Capability(IC) constructs for the present study, fairly considerable support was obtained in favor of hypothesis 2 for this study. That is, Innovative Capability (IC) was found influenced by the support for innovation available to bank officers, bank officers' Innovative behavior, and tolerance for difference available to bank officers.

Initially according to the literature and hypothesis 2, Innovative capability (IC) of organization is influenced by the innovative behavior of the knowledge worker and by the climate for innovation which the knowledge worker perceives within an organization. However, after performing the exploratory factor analysis on the second construct IC of this study, it was observed that IC was being influenced by three factors instead of two. In Pakistani context IC was being influenced by three factors, namely, *the support for innovation available to knowledge worker, knowledge workers'*

innovative behavior, and *tolerance for difference available to knowledge workers*. Now keeping in mind the research findings and empirical testings, the proposed model for the present study suggested earlier has taken the following form:

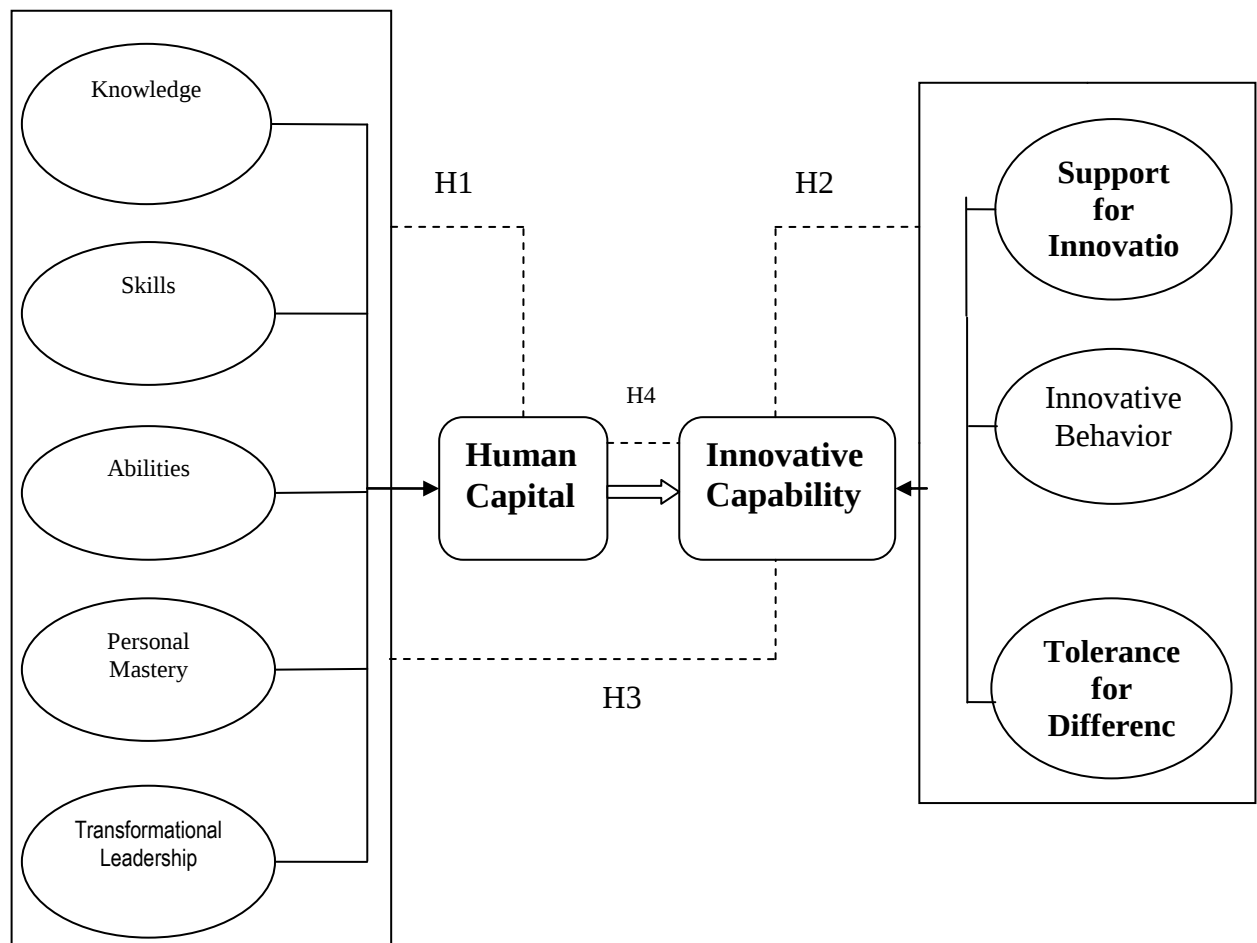


Figure-4: Revised Model for the Study

The use of factor analysis has helped us in getting the contextual verification for the above two main constructs of this study (Black, Hair Joseph, Babbini, & Anderson, 2008; F., 2008), thus providing the construct validity for the present study.

In order to measure the impact of knowledge, skills, abilities, personal mastery and transformational leadership of the knowledge worker on bank's IC, multiple regression analysis technique was used. However before using this technique, factor scores for each of the factors of HC construct were computed. Multiple regression analysis is the study that is used to examine the relationship between a dependent variable and two or more independent variables. In this situation the dependent variable was banks' innovative capability and the independent variables were: bank officers' competence,

bank managements' leadership role, bank officers' knowledge, bank officers' ability, and bank officers' personal mastery. Finally, the use of multiple regression analysis generated a number of output tables. The required and the most relevant information has been combined together and presented in the Table-6 below.

Table-6: Multiple Regression analysis results on Bank's IC

See in Appendix A-6

The value of $F = 17.998$ indicating that a significant relationship was existing between a dependent variable, Innovative Capability (IC) and the five independent variables. Furthermore, the $p < .01$ was also an indicator of a model's significance. Adjusted R^2 's value .337 indicated that 33.7% of the variation in Innovative Capability (IC) was being explained or predicted with the help of these independent variables. In terms of their relative importance in predicting the dependent variable, the most important independent variable was bank officers leadership role ($\beta = 0.379$, $t = 4.910$, $p < 0.01$) followed by bank officers personal mastery ($\beta = 0.211$, $t = 2.732$, $p < 0.01$) followed by bank officers ability ($\beta = 0.188$, $t = 2.276$, $p < 0.01$) followed by bank officers knowledge but less significantly related ($\beta = 0.071$, $t = 1.561$, $p < 0.01$) and last if not least by bank officers skills/competence ($\beta = 0.010$, $t = 1.298$, $p < 0.01$).

For the use of regression analysis, few assumptions in the form of Durbin Watson value, multicollinearity and normality of independent variables were needed to be met. From table-6, it can be seen that the Durbin Watson value 1.447 falls between acceptable range, column of tolerance value indicating not a single independent variable suffering form multicollinearity problem, and the column of skewness statistics showing all values corresponding to their independent variables between -1 and +1, an indicator that there was no normality issue (Leech, Barrett, & Morgan, 2005). Subsequent to all the above stated informations of Table-6 regarding multiple regression analysis results on Bank's IC, a significance support was obtained for hypothesis-3 of this research.

Finally for determining the influence of Human Capital (HC) on bank's Innovative Capability (IC), simple linear regression was used with HC as independent variable and IC as dependent variable. As a matter of fact, for the purpose of measuring this impact, two types of data analysis techniques are recommended. First of which is Pearson correlation and the second one is bivariate regression. Correlation is used when purpose is to know that how these two variables are related, whereas regression is used when the information about independent and dependent variables is already known and the purpose is to find the impact of one on another (Leech, Barrett, & Morgan, 2005). Following above it was decided to use bivariate regression to measure the impact of HC on IC. But before finely using this technique, factor scores for both HC and IC constructs were computed. The use of simple regression analysis produced a number of output tables. The required and appropriate information has been combined together and presented in the following table-7.

Table-7: Simple Regression analysis results on Bank's IC

See in Appendix A-7

From the above table the value of $F = 32.091$ indicating that the model was significant. Moreover, ($\beta = .402$, $t = 5.665$, $p < .01$), showing significance of independent variable HC in predicting the dependent variable bank's IC, by the model. On the whole model was found significant in support of hypothesis 4.

4. Discussion & Conclusion

The present research was the first of its kind to study and measure the impact of human capital on organizational innovative capability. The main objectives of this cross sectional and quantitative research that revolves around a Pakistani private commercial bank were (1) to determine the influence of knowledge workers' knowledge, skills, abilities, personal mastery and transformational leadership within that organization on its human capital, (2) to examine the effects of knowledge workers' innovative behavior and knowledge workers' perception about the climate for innovation within that

organization on its innovative capability, (3) to investigate the influence of knowledge workers' knowledge, skills, abilities, personal mastery and transformational leadership within that organization on its innovative capability, and (4) to observe the effect of collective human capital which the organization possesses on its innovative capability. There were total four hypotheses empirically tested.

For this study, human capital was determined by identifying the five factors of bank officers' competence, bank managements' leadership role, bank officers' knowledge, bank officers' ability, and bank officers' personal mastery, using a 20-item revised human capital construct (or scale). Innovative capability was examined by identifying the three factors of support for innovation available to bank officers, bank officers' innovative behavior, and tolerance for difference available to bank officers, using a 17-item revised innovative capability construct (or scale). Using a systematic random sampling, 200 respondents were approached and 170 responded. For data analysis procedures these 170 responses were used. Results indicated that banks' human capital was found influenced by bank officers' competence, bank managements' leadership role, bank officers' knowledge, bank officers' ability, and bank officers' personal mastery. The research also revealed that innovative capability of bank was found effected by support for innovation available to bank officers, bank officers' innovative behavior, and tolerance for difference available to bank officers. A significant causal relationship was found between bank's innovative capability and bank officers' competence, managements' leadership role, knowledge, ability, and personal mastery. Moreover, another significant causal relationship was found between banks' human capital and its innovative capability.

For this study, each of the items whether belonging to human capital construct or to innovative capability construct was rated on 7-point likert scale. For testing of hypotheses 1 and 2, exploratory factor analysis was used. For hypothesis 1 factor analysis divided the human capital construct into five components, bank officers skills/competence, bank officers leadership role, bank officers knowledge, bank officers ability, and bank officers personal mastery. The finding was consistent with Lynn's (2002) study, which stated that human capital is nothing else but comprises skills and abilities of the employees working in the organization. The outcome was also consistent with Piazza Georgi,

(2002) study, who stated that human capital is the collection of individual skills that financial representatives (bank employees) have at their disposal. Again the outcome was consistent with García's (2008) study, which indicated that the top management support is to be considered very vital to encourage learning as well as innovation in an organization.

The finding was in line with Sveiby's (2002) study, in which he argued quite heavily on this that business success depend more on intangible assets rather than on conventional manufacturing and production factors and according to him among intangible assets knowledge qualifies as one of the most important component. The outcome was consistent with McGregor's (2004) study, in which he states that workers should be able to build relations with others and should possess the ability to carry out job on several projects at a single time. Finally finding was consistent with Senge's (2006) research, in which he describes that the manager's view of personal mastery is essential as his own personal development and will enable him to direct others on their professional road and will help them in their organizational development acting as a mentor.

For hypothesis 2 factor analysis split the innovative capability construct into three dimensions, support for innovation available to bank officers, bank officers' innovative behavior, and tolerance for difference available to bank officers. The finding was consistent with Scott's (1994) study, which stated that innovative organizations are recognized by their flexibility and the support which they render for the employees in their quest of innovative thoughts and ideas and an open mindedness for the difference of opinion among their employees. The outcome was also consistent with Abbey and Dickson's (2003) study, which argued that innovative organizations are distinguished by incentives and benefits offered to the employee as acknowledgment of their exceptional work and by executives readiness to try out few things through novel and innovative ideas. The finding was also in line with the work done by Schroeder and Van de Ven in 2002 which informed that innovation should be taken as a procedure involving multiple phases with each phase requiring distinct actions and different innovative behavior.

In order to test hypothesis 3 and 4, regression analysis techniques were employed in which several independent variables are used to predict a dependent variable. For the overall significance of the regression model, the value of F test statistic and its significance level was used. The value of R^2 provided the information about the amount of variation that can be explained through dependent variable with the help of independent variables. For a significant regression model, the values of t-statistic inform about the importance of each individual independent variable in the model. P-values also provide the evidence about the confirmation of their significance. According to the regression model used for the purpose of testing of hypothesis 3, the findings indicated that bank officers' leadership role, bank officers' personal mastery, and bank officers' ability, were significant positive explanatory variables of bank's Innovative Capability. Whereas, bank officers knowledge was less significantly related to bank's IC, especially for this particular research. Perhaps, by looking at the items of bank officers' knowledge factor of HC, one can understand the reason of bank officers knowledge occurring as a less significantly related variable for IC as it contains either technical or professional knowledge, or banking operations knowledge or banking industry's relevant knowledge. May be all these aforementioned forms of knowledge may not guarantee to create any form of innovation at least in this form of service sector.

According to another regression model used for the testing of hypothesis 4, the findings indicated that banks Human Capital was found positive explanatory variable of banks Innovative Capability. This was consistent with the Wang and Yen's (2008) findings described that individuals carrying advance level of knowledge and talent will become responsible in producing innovative thoughts and practices that can be employed in tools and procedures, ultimately resulting in improving the relations among workforce, supervisors and customers. The finding was found in line with the Stewart's (2003) research work which highlighted that the most important function of HC is advancements in the form of innovative products and services. The outcomes were also found consistent with Morales, Montes, and Jover's (2006) research work, in which they highlighted that individuals having elevated levels of personal mastery are expected to expand their proficiencies and skills on continuous basis, and because of their pursuit for persistent learning arrives the will of organizational innovation. The

findings were also consistent with Vera's (2004), Bell's (2005), and Garcia's (2008) studies in which they stated that supporting a transformational leadership style that encourages the members of organization is essential to promote knowledge and innovation. It facilitates the persons in charge to present himself candidly to education and innovation. This thing helps in motivating them and overcome the inner disbelief and external complexities that stops learning and innovation from being executed in the organization. Besides addition to the professional literature, this research will help managers to identify their important Human Capital elements along with their essential organizational Innovative Capability measures. For managers it is just not sufficient to improve upon the aforementioned aspects of Human Capital, rather HC must be strategically aligned with banks mission and vision. Integration of attaining and cultivating high HC strategy with company's strategy and with other functions areas is necessary. Although innovation demands challenging the existing norms and at times create unwanted environment, but still it needs to be taken very positively and seriously. For the banks to become innovative and create continually learning environment, will help them to cope with difficult time to survive in this intense and competitive environment. Another important implication of this study is that it should provide financial institutions like banks with empirical evidence to become aware of the importance of Human Capital on its Innovative Capability. Based on this, financial institutions can come up with steps necessary to be taken to address those areas which become responsible in enhancing the collective Human Capital capability of the institutions.

Although effort has been made with the intention to make this study a very comprehensive and detailed one, but still it has some limitations. Due to the short time and cost constraint, it was decided to target only those branches of the commercial bank which were located in Lahore. But in case of not facing these constraints, the target population could have been expanded to the branches located in the other cities of the country. For this study cross sectional or social survey design has been used, whose main characteristic is to collect data at one point in time, whereas for studies involving human capital and its impact on innovative capabilities, a longitudinal design might have been another choice. Information about the nature and strength of relationships among different variables involved in this

study has been taken with the help of regression analysis technique whereas use of structural equation modeling could have provided more information about these associations among different variables.

In order to observe or study the organizational innovative capability, present research has considered human capital which is only one component of intellectual capital. In future it is recommended that other components of intellectual capital like organizational or structural capital, and social or relational capital should also be considered. The present study of human capital and its impact on innovative capability has been carried out in banking industry of Pakistan's service sector, whereas in future similar kinds of researches should be done in country's education sector, health sector and even in manufacturing sector. In order to identify the most important components for the both main construct of this study, exploratory factor analysis has been performed using SPSS, it is recommended that for studies like these in future confirmatory factor analysis should be carried out using AMOS.

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