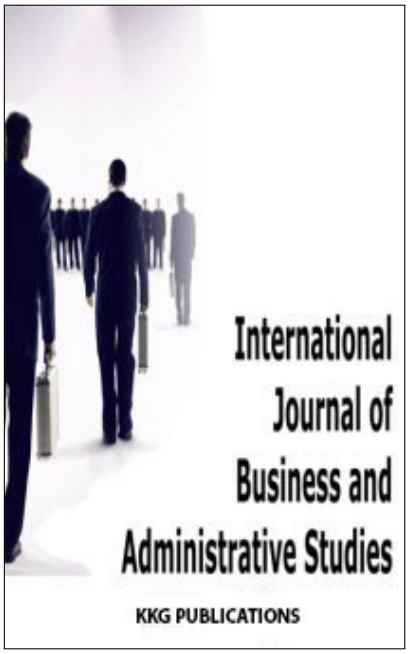

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ANALYZING THE ROLE OF SOFT SKILLS AND HARD SKILLS TOWARDS PERFORMANCE: AN EMPIRICAL STUDY OF THE ENGINEERING INDUSTRY

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Abstract. It is evident from research that nowadays, the IT industry has experienced tremendous growth not just in Pakistan but globally. With this change, organizations are opting for group projects more for diverse ideas and efficiency. A few issues that arise due to group projects lead to the need for soft skills, and how to enhance performance. This research significantly tries to explore and analyze the role of soft skills and hard skills towards performance; furthermore the importance of soft skills necessary or required to work in a diverse group of people. It is evident that the education system of Pakistan has evolved during the past years and group projects are promoted more in order to sharpen the interpersonal skills in IT graduates. The study helped to analyze the role of soft skills and hard skills towards performance and has seen that there is a positive relationship between the variables.

INTRODUCTION

The aim of the contention is to determine the impact of soft and hard skills on the performance of the employees. The performance is also categorized with the task and the context. The combination of the variables has not been experimented in the IT sector. It examines the significance of soft skills needed in a group for its successful and smooth functioning, which is based on the performance of groups. The crucial elements such as the conflict in a group can be resolved through the hard and soft skills. At present, the IT industry has transformed into a vigorous industry globally. This research was conducted by asking 101 engineers to fill a questionnaire, including fresh engineering graduates and professional engineers.

It is considered that all information technology encompasses all elements related to an information system which has a foundation of the computer (Economy Watch, 2010). The IT Industry in Pakistan has experienced tremendous transformation in the past years with a number of Multinational companies providing excellent employment opportunities to Pakistani students. Pakistan with time has experienced a total modification in its educational system, i.e., a shift from SAGE to STAGE or e-learning model. The higher education in Pakistan is now inclined more towards offering professional courses especially engineering or other related fields.

The fascinating technical growth has transformed the conventional methods of teaching. The IT graduates in Pakistan are given live projects to work in groups and teams mainly because of two reasons:

- The IT industry not just in Pakistan but globally requires graduates to possess and attain skills in interpersonal communication, teamwork, and conflict management (Aasheim, Li & Williams, 2009).
- Secondly, Colleges and universities in Pakistan are shifting from the passive to active learning, moreover from class lectures to cooperative learning (Tagg, 2003).

Furthermore, this is the root cause of majority of the problems. CWJobs.co.uk, a recruitment firm, conducted a survey comprising of about 1000 IT professionals. 84% of IT professionals believe that the organizations may offer services related to hard and soft aspects of skills to the employees in the organizations.

Out of all the IT professionals surveyed, 93% believed they would turn out to be more treasured and valuable to businesses with some further education (Zhang, 2012). Though it is seen that group projects are often completed, but due to lack of interpersonal skills, conflict management skills, honesty, lack of knowledge, and proficiency, problems like group-storming are seen to arise majority of the times, which becomes the main reason for the project failure.

The study provides the evidence of the importance and impact of soft and hard skills on the performance in terms of tasks and context, which contributed an innovative prospect to the field of research. The finding of the study can be applied by enhancing the soft and hard skills of the employees. The IT organization and the respective institution can work on the improvement of the skills for the success of respective sectors.

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LITERATURE REVIEW

In order to attain an appropriate leadership behavior, skills such as interactive skills, technical proficiencies, and cognitive attitude along with a mixture of skills related to the competency to understand the human factors i.e., the situation and the people, in particular, are required (Podsakoff, MacKenzie, Moorman & Fetter, 1997; Frantz & Misal, 2016). This is what Strang (2012) said about how to integrate skills in order to attain an appropriate leadership behavior.

Hard Skills

Hard skills are the specific, teachable abilities that can be defined and measured. These include the techniques, methods, computer programming, mathematical, legal, and writing skills. These skills can be learned and can be defined, measured, and evaluated (Agarwal & Ahuja, 2014). It is seen to be difficult to try to have an impact on others and making them cherish and follow a person when one clearly doesn't possess the required capabilities and techniques to perform the respective job.

It is evident that one cannot persuade others in an attempt to perform such a task, which the individual him/herself does not know how to perform. Consider it that a person does not even know the basics of HR, finance or marketing and tries to motivate others to perform in order to surge company revenues (Deci, Koestner & Ryan, 1999; Agarwal & Ahuja, 2014).

Soft Skills

Soft skills may include the elements related to emotions, personality-encompassing aspects, social skills, communication skills, habits, language-related skills, and people orientation. These skills are not basically measurable and quantifiable but are necessary to determine the individual's work performance (Crosbie, 2005; Lavilles Jr. & Robles, 2017).

In organizations today, there is much importance given to such employees (even during hiring), who possess soft skills because it is believed that they recognize the things necessary in order to achieve the organizational targets. It is evident that people possessing excellent interpersonal competencies and personal traits are bound to be irreplaceable and important to an organization (Agarwal & Ahuja, 2014).

IT Organization Preferences

Technical professions nowadays require a wide range of skills. The solution to this problem is that technical educators help their students to add soft skills to their hardcore technical skills. IT organizations nowadays aim to employ individuals possessing both hard skills and soft skills. Training activities are arranged in order to enhance both skills. Though it should be clarified that such training sessions do not categorically transform an individual's competencies. However, it is much dependent on the transferability of the training to the work, which is solely dependent on the individual's enthusiasm, motivational factors and approach towards the organization, him/herself, and the people related to the individual (Aasheim et al., 2009).

Job Performance

It is undoubtedly agreed throughout the world that job performance is a multidimensional construct. However, it has been seen that two factors have received the most attention, which are: contextual performance and task performance (Borman & Motowidlo, 1993). These two factors can contribute independently to effectiveness outcomes for the organization (Edwards, Bell, Arthur & Decuir, 2008).

Task Performance

Task performance includes behaviors that contribute to the core transformation and maintenance activities in an organization, such as producing products, selling commodities, managing subordinates, and delivering services (Motowidlo & Schmit, 1999; Motowidlo & Van Scotter, 1994).

Contextual Performance

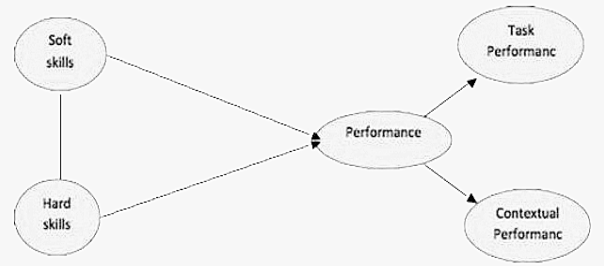
Contextual performance refers to the behaviors that contribute to the culture and climate of the organization; in other words, the framework within which alteration and maintenance activities are carried out. With the context-oriented performance, the behaviors attached are the less prescriptive ones. For example, going by the rules and regulations, cooperating with others and helping coworkers, voluntarily doing extra work, etc (Bowen, Ledford & Nathan, 1991; Bridges, 1994; Hattrup, O'Connell & Wingate, 1998; Motowidlo & Schmit, 1999).

Researchers are of the opinion that more focus is given to the area in which the skill set (soft and hard skills) clearly depicts its impact on performance combined rather than conducting studies of such variables separately.

Conceptual Framework

The main purpose of choosing these variables is to determine a relationship between them i.e., whether they have an influence on one another. This research is based on the supposition that the independent variables i.e., soft skills and hard skills can influence the task-related as well as the context-related performance of an individual.

FIGURE 1
The Effect of Soft Skills and Hard Skills on Performance (Task & Contextual Performance)



Hypothesis

On the basis of literature review, following hypotheses are proposed:

H1: There is a significant impact of Soft skills on performance.
H2: There is a significant impact of hard skills on performance.
H3: There is a significant association between soft skills and hard skills of employees.

RESEARCH METHODOLOGY

The basic purpose of this study was to assess the importance of soft skills and hard skills with regards to contextual and task performance for engineers both professionals and students. A randomly selected population sample was chosen for this study including professional engineers and fresh graduates located in various Universities and Organizations in Islamabad and Rawalpindi. A non probability sampling technique was used in this research for convenient sampling and ease of data collection. A Structured questionnaire was used in this research and respondents were asked to fill it.

The questionnaire, after being finalized, was distributed amongst professional engineers and students, who were more than cooperative to fill it. From a total of 115 questionnaires distributed, 101 were completely filled and returned. The other 14 comprised of 6 completely unfilled questionnaires and 8 with incomplete information.

Instrumentation

Soft skills and hard skills were measured through a valid scale developed by Gueldenzoph and May (2002), whereas performance was measured by an authentic scale introduced by Borman and Motowidlo (1993).

Cronbach's Alpha test is used to determine the internal consistency. The hard skills have a reliability of .536, whereas the soft skills have a reliability of .441, Task performance has a reliability of .461 and contextual performance has a reliability of .540.

RESULTS

Frequency and Percentage of Personal Information

The personal information analysis results showed that frequency of male (65.3%) was higher than females (34.7%). Maximum percentage of engineers was 55.4%, who had graduation qualification and the rest were professionals with more than 2 years of experience. The age group of the respondents ranged between 20 and 46 years.

Correlation Analysis

Hard Skill is found to be positively correlated to soft skill ($r = 0.435$, $p < 0.01$). It also demonstrates that Soft skill and Hard skill are positively correlated to task performance ($r = 0.447$, $p < 0.01$) and ($r = 0.457$, $p < 0.01$). Whereas it showed that soft skill and hard skill are significantly correlated to contextual performance as well ($r = 0.420$, $p < 0.01$) and ($r = 0.458$, $p < 0.01$).

TABLE 1
Variables' Correlation Matrix (*n*=101)

	Hard Skill	Soft Skill	TP	CP
Hard Skill	1			
Soft Skill	.435**	1		
Task Performance	.457**	.447**	1	
Contextual performance	.458**	.420**	.597**	1

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

Regression Analysis

TABLE 2

Model Summary of Regression analysis for Soft Skill, Hard Skill with Task Performance

M	*R*	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics		
					R^2 Change	*F* Change	Sig. *F* Change
1	.321a	.103	.085	.33697	.103	5.625	.005

a. Predictors: (Constant), Soft Skill, Hard Skill

The relationship between the study variables was accomplished by Regression Analysis.

Linear regression analysis was carried out in Table 2 to verify the significance between Soft skill and hard skill with Task performance. The value of the beta coefficient was computed to be 0.177 and 0.254 representing the positive relationship between them. The value of R^2 = 0.103 reveals that change is brought in task performance due to hard skill and soft skill. Hence, it is proved that one unit variation in Soft skills and hard skills causes a .103 unit variation in Task performance. Therefore, there is a positive relationship between Soft skill, hard skill, and Task performance.

TABLE 3

Model Summary of Regression analysis for Soft Skill, Hard Skill with Task Performance

M	*R*	R^2	Adjusted R^2	Std. Error of the Estimate	Change Statistics		
					R^2 Change	*F* Change	Sig. *F* Change
1	.386a	.149	.132	.27897	0.149	8.574	.000

a. Predictors: (Constant), Soft Skill, Hard Skill

To verify the significant relationship between Soft skill and hard skill with Contextual performance, linear regression analysis was carried out. The value of the beta coefficient was computed to be 0.188 and 0.323 representing the positive relationship between them. The value of R^2 = 0.149 reveals that change is brought in contextual performance due to hard skill and soft skill. Hence, it is proved that one unit variation in soft skills and hard skills causes a .149 unit variation in contextual performance. Therefore, there is a positive relationship between soft skill, hard skill, and contextual performance.

DISCUSSION

The integration of skills to attain leadership behavior remained under discussion of researchers. The basic skills are required to be eligible for the specific job (Strang, 2012; Agarwal & Ahuja, 2014). The soft skills are referred not to be measurable and quantifiable but it was accepted by the researchers that it is important to learn in order to enhance work performance (Crosbie, 2005).

Taking forward the learning, the study has proposed that as the hard skills can be learned, soft skills can also be enhanced and employers can invest in the skill enhancement. The employees and job seekers can also improve their soft and hard skills to be competitive in the job market and to prove their performance in terms of task and context. In today's competitive job market, candidates have to bring along a "competitive edge", in disguise of additional skills and knowledge, which distinguishes them from others, who possess more or less the same qualification and evaluation results (Schulz, 2008). Some studies have shown the impact of soft skills on performance but there is no such research conducted for analyzing the role of soft and hard skills with regards to performance keeping in mind Pakistan's IT industry.

There is a wide range of skills in the IT organizations and a challenge for a learner to choose the right skill for the job. To solve the issue, technical educators can help respective learners to learn soft skills and comply with them to fit in the job. The IT organizations conduct the trainings to refresh the skills to enhance employees' competencies. The training sessions help enhancing individual's enthusiasm, motivational factors, and approach towards the organization's policy and culture (Aasheim et al., 2009).

With regard to the job performance, two factors, contextual performance and task performance, contribute to the success of the organization (Borman & Motowidlo, 1993, Edwards et al., 2008). The task performance refers to the behaviors which contribute to the basic transformation and upholding activities in an organization dealing with production, marketing, management, and services (Motowidlo & Schmit, 1999; Motowidlo & Van Scotter, 1994). The contextual performance denotes the

behaviors which contribute to the culture and the support of an organization where team contributes and performs. The behaviors are less reflected in contextual tasks such as following the rules and regulations, cooperating with coworkers, contributing to extra work, etc. (Bowen et al., 1991; Bridges, 1994; Hattrup et al., 1998; Motowidlo & Schmit, 1999). However, the soft and hard skills have an impact on the performance.

The selected variables successfully determined the influence of soft skills and hard skills on individual's performance with regard to the task and contextual performance.

CONCLUSION AND RECOMMENDATION

This study has shown the importance and impact of soft skills and hard skills towards performance with regards to both contextual and task performance. The results of this research have shown a positive relationship between the variables.

The result of this research work is obtained from a sample of a small group of people and with very less experience. On the basis of previous studies, it can be said that this study can be taken further by taking more experienced people as respondents along with a larger sample size. Moreover, this can depict what the importance of soft skills or hard skills is with further advancement and professional growth.

Though there are many studies conducted on soft skills, hard skills, and performance but they have been done individually, but combining these variables in a single paper has been done for the first time. Further, this research can be extended towards other industries as well.

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