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PERCEPTIONS OF STUDENTS ABOUT PROBLEM BASED LEARNING AT THE COLLEGE LEVEL IN FAISALABAD

Saif Ali¹, Sadia Aslam¹, Aminah Qayyum², Humaira Hina¹, Hira Nasir³, Rabia Saleem³, Sadaf I. Khan⁴, Adeela Manzoor⁴ and Naima Nawaz^{3,*}

¹ Institute of Agri. Extension, Education and Rural Development, University of Agriculture Faisalabad, Pakistan

² Government College Women University, Faisalabad, Pakistan

³ Department of Rural Sociology, University of Agriculture Faisalabad, Pakistan

⁴ Department of Home Sciences, University of Agriculture Faisalabad, Pakistan

ABSTRACT

Problem-based learning is viewed as more effective than the traditional learning approaches usually practices at the college level. Therefore, this study was conducted to analyse the perceptions of college students about problem-based learning followed by its advantages and impacts on the students. A total of 120 college students were selected from the two colleges (Government Postgraduate College Samanabad and Government Postgraduate College of Science) in the Faisalabad District of Punjab province. Considering the proportionate sampling, a total of 52 and 68 students from the Government Postgraduate College of Science and Government Postgraduate College Samanabad were selected respectively. Data were collected from the students using a questionnaire and collected data were analysed using Statistical Package for Social Sciences (SPSS). The students had a high level of knowledge that Problem-Based Learning (PBL) motivated them, had positive impacts on the communication and leadership skills of the students and also fostered the knowledge, attitude and skills of students further improving the student's academic performance. Creativity and adoption of advanced approaches (Mean: 4.03; Sd: 0.733), solution of any particular problem (Mean: 4.00; Sd: 0.889) and positive behaviour and character (Mean: 3.98; Sd: 0.957) were perceived as leading supporting factors towards the use of Problem-Based Learning Approach. This study concludes that PBL was more effective as compared to traditional approaches, thus it can be generalized at the colleges level to improve the knowledge, attitude and skills level of students. More research studies are also needed to explore the strengths, weaknesses, opportunities and threats of the PBL at schools and colleges level.

Keywords: Knowledge; Attitude; Problem-based approach; Traditional teaching; Communication skills.

* Email: naimauf@hotmail.com

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INTRODUCTION

Problem-based learning (PBL) is an instructional method that can have several benefits for improving the academic performance of students (Dastgeer and Afzal, 2015). In a study, Aziz et al. (2014) reported that PBL was one of the most effective instructional techniques that were mainly used in medical education after its inception. The PBL helped in producing effective results in examinations. PBL is viewed as having numerous advantages including knowledge acquisition through the positive association between the problems, teachers and the sessions conducted with the students under PBL (Mahmud and Hyder, 2012). This approach was first implemented in medical education in 1960, and now it has been widespread across the world (Barrows, 1996).

Problem-based learning (PBL) is an instructional method that has been found to have a positive impact on student's academic performance. PBL involves presenting students with complex problems or scenarios that require them to apply critical thinking skills to solve. By engaging students in active problem-solving and group work, PBL can help students develop a deeper understanding of the material, improve their retention of information, and enhance their critical thinking skills. Various research studies such as Casassus et al. (1999), Whitfield et al. (2002), Ding et al. (2014) and Balendran and John (2017) have endorsed that PBL had positive impacts on the students and it was way better than the traditional methods of the teaching. At the same time, there are many research studies which have demonstrated that shifting from the traditional curriculum to the PBL curriculum is possible and feasible at the same time, however, the methodological procedure of PBL was perceived as composite to plan and execute requiring a high number of resources and large effort from the teachers (Grkovic, 2005; Salinas-Sánchez et al., 2005; Bosch-Barrera, 2015; Lin et al., 2009).

The National Policy of Education (NEP) (2009) in Pakistan, emphasizes the inclusion of central public issues or challenges in the syllabus, as well as promoting the development of creative thinking, investigative skills, curiosity, problem-solving abilities, courage, interest in learning, and collaboration among learners. However, in Pakistan, there is often a disconnect between theoretical content taught in the classroom and practical application in real life, leading to a lack of educational culture that supports students in understanding problems and acquiring new techniques, skills, and experiences for successful professional lives. This is why teachers and students tend to focus on theoretical rather than practical content. The PBL approach was mainly used in medical education in Pakistan. In a study, Khan and Fareed (2001) found that students taught with the PBL and traditional teaching had the same score, although PBL was more conducive for students empowering them with discipline. Whereas, Chang et al. (1995) found that PBL enhanced the motivation of students and improved learning among students. Integrating PBL with traditional teaching methods could be a widely effective approach to training students for critical thinking. Traditional teaching improved the content of knowledge among students but was unable to enhance critical thinking and problem-solving ability. Whereas, problem-solving techniques strengthened the critical thinking and problem-solving skills among students (Tayyeb, 2013). The students taught through a problem-solving approach had motivation towards self-directed learning, skills development, analytical reasoning and intrinsic motivation (Asad et al., 2015).

Zakaria et al. (2019) stated that PBL was applied to mathematics education for teaching and learning and it was believed by the majority of the students that PBL improved their educational quality and the positive impact was strongly observed. Considering the importance of the PBL it was deemed important to analyze the perceptions of the college students towards the use and impacts of Problem-Based Learning. Currently, the research literature on the use of PBL in medical education is abundant, whereas, in schools and college education, the literature is scanty leaving behind a research gap. In this study, an attempt is made to bridge this literature gap and postulate some recommendations for the future implementation of the PBL approach in Pakistan.

METHODOLOGY

This study was conducted in the District of Faisalabad of the Punjab, Pakistan. The district is famous in terms of educational facilities. This study was focused on college students. A total of two colleges were selected for this study, and the names of colleges are Government Postgraduate College Samanabad and Government Postgraduate College of Science. The students studying Masters in Physics at Government Postgraduate College of Science and students studying Masters of Computer Sciences at Government Postgraduate College were the participants of this study. There were a total of 99 students studying computer sciences and 76 were studying Physics, thus the total population of this study was 175 masters students. The sample of this study 120 students was drawn through an online sample size calculator www.surveysystem.com keeping a 95% confidence level and confidence interval of 5. Proportionate

sampling methods were used to draw a sample size from each stratum (colleges). Thus, a total of 52 students studying Physics and 68 students studying computer sciences were chosen thereby making a total sample size of 120 students. The questionnaire was the research instrument mainly used for the data collection. Formal informed consent was obtained from the college administration for the formal permission to collect data from their students. The administration was informed that the personal information of respondents will be kept anonymous and the obtained information will be used only for the research purpose. The questionnaire was also pre-tested on 20 students other than the sampled respondents for validity and reliability. The Cronbach alpha value of 0.86 endorsed that the questionnaire was reliable to proceed with data collection. Data were collected from the students through by visiting them in their classes. Collected data were analysed using Statistical Package for Social Sciences (SPSS).

RESULTS AND DISCUSSION

Knowledge about PBL

Figure 1 refers to the knowledge of respondents about problem-based learning. Of the different attributes, mostly were known to the respondents. Of the total respondents, 95% were having the knowledge that PBL motivated the students to adopt new techniques and methods of getting deep insights into the topic. The overwhelming majority of the respondents (91.7%) were known that problem-based learning was helpful in group work and team management. They believed that team management was a key aspect while achieving the targets and improving the academic performance of the students. PBL had long-lasting impacts on the student’s development as perceived by 89.2% of respondents. Whereas around 84% of respondents agreed that PBL was supportive in learning and understanding the coursework, therefore the knowledge gained through PBL was perceived better as compared to lecture-based learning technique as perceived by 78.3% of respondents. This implies that the PBL methods were way better than the lecture methods of traditional methods of teaching. Therefore, PBL was more effective in generating ideas among students and providing them with effective solutions to problems (Chuan et al., 2011).

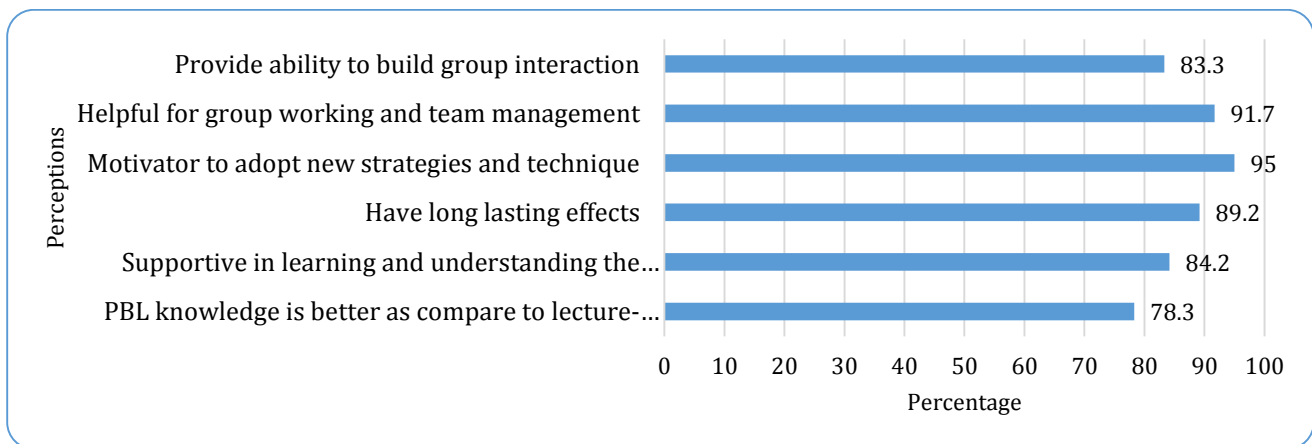


Figure 1. Knowledge regarding problem-based learning (PBL).

Perceived Impacts of PBL

Figure 2 indicates that for 89.2% of respondents, the PBL provided an ability to tackle unfavourable situations easily. This implies that learning through PBL made the students creative and critically strong. Similarly, the students were more efficient as a result of PBL. Around 87.5% of respondents agreed that PBL improved the ability of the students to complete their assigned tasks and assignments in a stipulated time. Leadership skills among students were improved due to PBL. The students had great interest and skill development regarding leading others and improving their leadership skills as perceived by the 87.5% of respondents. The communication skills of students like speaking and listening were improved as supported by 88.5 and 80.8% of respondents respectively. The current findings of the study are endorsed

by various research studies such as Kilroy (2004), Osman (2013) and Ansari et al. (2015) as they found that the PBL approach of learning enhanced the students' skills regarding self-directed learning, the ability of critical thinking, leadership skills, team management and collaborative learning.

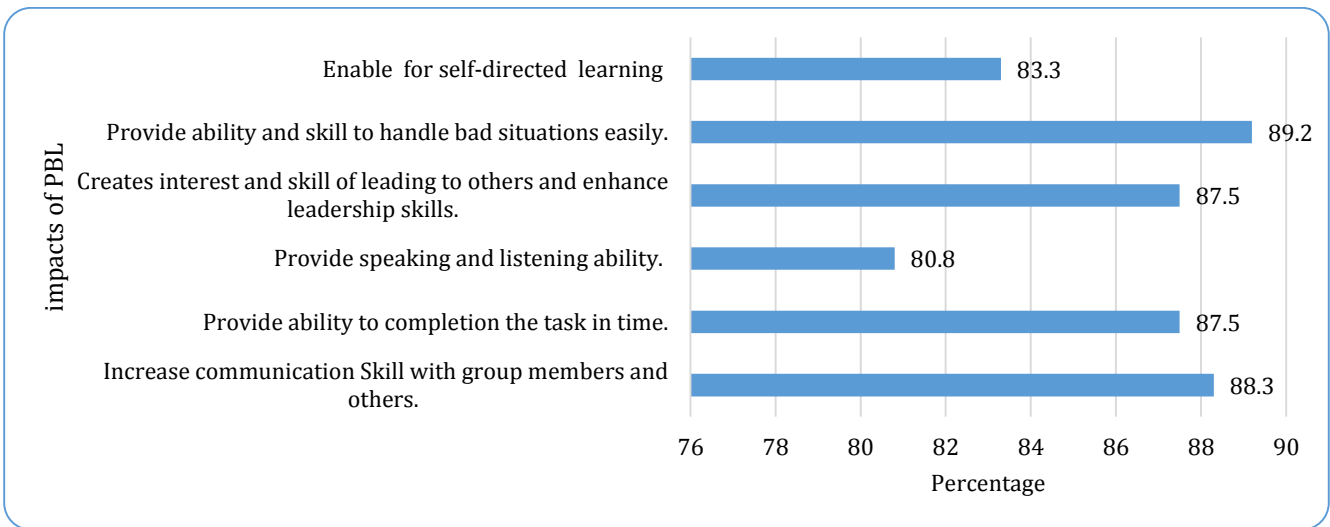


Figure 2. Perception regarding impacts of PBL.

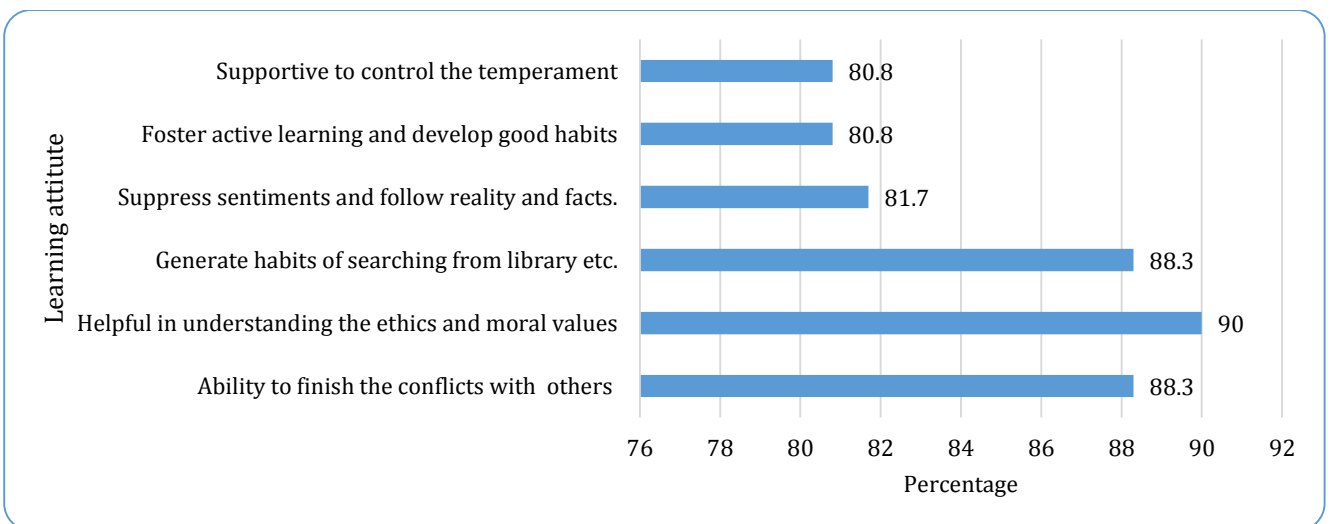


Figure 3. Perceptions regarding learning attitude.

Perceptions Regarding Learning Attitude

Figure 3 shows that the majority (88.3%) of respondents reported that knowledge of PBL provided students with the ability to manage conflicts. This implies that the PBL technique was helpful in conflict management among students. Because students obtained more understanding of ethics and moral values (90%). Following those ethics and moral values assisted students in conflict resolution. Of the total respondents, 88.3% reported that PBL knowledge allowed students to develop habits of searching from the library and other web-based search engines, which not only improved the internet using skills of students but also improved their knowledge, attitude and skills towards learning. It was found that PBL knowledge fosters active learning and the development of positive habits among students as reported by 80.8% of respondents.

PBL knowledge was perceived as supportive by the students to control their temperaments and attitude towards learning. In a study, by Allen et al. (2011) it was found that PBL helped students to explore and

understand real-life issues and emphasize particular solutions. Specifically, PBL improved the learning attitude of the students.

Table 1. Supportive factors of attitude towards PBL.

Factors	Mean ± SD
Persuade creativity and adoption	4.03 ± 0.733
Solving the problem	4.00 ± 0.889
Positive behaviour and character	3.98 ± 0.957
Professional educational approach	3.79 ± 0.943
Expertise in facilitation for the others	3.79 ± 0.963
Make professional and generate a critical sense	3.77 ± 0.976

1=strongly disagree, 2=Disagree, 3=Undecided, 4=Agree, 5=Strongly agree

Table 1 indicates the different supportive factors towards the problem-based approach as perceived by the respondents. The foremost supportive factor was creativity and the adoption of advanced approaches under problem-based learning techniques. This factor was ranked first (Mean: 4.03; Sd: 0.733), implying that the feature of creativity persuaded respondents' attitudes towards PBL.

Another supportive factor was the solution to any particular problem (Mean: 4.00; Sd: 0.889). This feature was second-ranked because through problem-based learning students were comprehending and devising the solutions of the problems. This approach had a positive impact on the behaviour of the students especially towards learning and improving their academics. Therefore, positive behaviour and character were third-ranked supportive factors towards PBL as perceived by the respondents on the Likert scale (Mean: 3.98; Sd: 0.957). Respondents perceived the PBL professional approach as implying the true sense of professional education (Mean: 3.79; Sd: 0.943). Problem-based learning approach was a practical nature approach mainly focused on solving problems and assisting the participants to learn more and grow their academic achievements. Expertise in facilitation to others under PBL was ranked fourth with a mean value of 3.79 and Sd 0.963. Findings are similar to those of Grant (2011) as he found that PBL improved teamwork activities, communication skills, and the ability to search for information and explore and research the problems to devise solutions. Students found PBL's professional approach good enough in generating critical and logical sense among students (Mean: 3.77; Sd: 0.976). This was perceived mainly because of the clarity and problem-solving nature of the PBL approach. This approach helped students improve their behaviour, mindset and academic performance. Research studies such as Chan et al. (2010), Dolmans et al. (2016) and Loyens et al. (2015) found a positive impact of the PBL approach on students' ability to communicate, critical thinking ability, learning attitude and motivation among students towards learning and achieving goals.

CONCLUSIONS AND RECOMMENDATIONS

This study is mainly concerned with exploring the perceptions of the students towards the problem-based learning (PBL) approach at the college level. This study explored that problem-based learning was an effective and fruitful way of providing education to students and it offered many advantages over traditional teaching methods. PBL motivates the students, urge them to set their learning objectives and gives them a part in choices that influence their learning. It generated a more stimulating a challenging educational environment, and helped students in changing their behaviour and improving their academic performance eventually. Creativity, problem solution, professional educational approach, facilitation and critical nature were the key supporting factors behind PBL, therefore, its impacts on the students were positive and long-lasting as compared to traditional teaching methods. The conclusion drawn from the findings reflects that the PBL teaching strategy is very advantageous in improving academic achievement and critical thinking among students. The overall attitude of the students towards learning was more positive and their motivation level was better after participating in discussions about the topic. Problem-

based learning should be compulsory for every student especially college and university-level students must participate in at least one PBL activity. Resources for Problem-based learning activities should be provided in educational institutions for the generalization of the approach on all students irrespective of their gender, age and class group.

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