

## Factor analysis of teamwork skills and civic responsibility as outcomes of service-learning: perspectives of rural college students

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**Abstract:** Creating better citizens is one of the significant goals of education. Educational policies of Pakistan also stress on civic development of students as one of its essential goals. However, scholars have shown concerns about Pakistani students' poor civic sense and teamwork skills. This current study aimed to examine the perspectives of local rural college students on civic responsibility and teamwork as outcomes of service-learning. Data were collected from 136 college students who participated in a service-learning project designed and implemented in Chitral Lower's local college district. A questionnaire consisting of two scales: civic responsibility and teamwork, was used for data collection. The questionnaire was piloted before data collection. Experts checked content validity, and reliability was assessed by using Cronbach's alpha. The principal component analysis technique was applied to analyse collected data with a principal component analysis approach. The results showed that respondents strongly agreed that service-learning significantly improved their sense of civic responsibility and teamwork skills. The results of this study extensively support the findings of previous research studies. However, it is suggested that the findings of this study may further be investigated in other contexts for a better understanding of the role of service-learning as civic and teamwork pedagogy.

**Keywords:** service-learning, civic development, teamwork skills, college students, factor analysis, civic dispositions, democratic process, civic pedagogy.

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## 1. Introduction

The role of education is to prepare people for identifying and resolving their problems and play the role of being responsible citizens (Dean, 2005). However, imparting and educating people about civic responsibilities is complex and multidimensional. For example, it entails framing a plausible framework of civic knowledge, skills, and an engaging plan embodying the societies' cultural approach and development (Yep, 2011). In this sense, the preparation of graduates with civic skills and values has always been the prime objective of the educational institutions, higher education in specific (Eyler & Giles, 1999; Colby *et al.*, 2003). Graduates should reflect a great deal of civic engagement and contribute to the development of their societies (Bowen, 2010). For this purpose, educational institutions use different teaching and learning frameworks. However, after developing the service-learning framework in the late 70s, and specifically in the last two decades, it has been consistently used as a civic development tool (Gallini & Moely, 2003; Cress *et al.*, 2010).

Today's modern societies are looking towards educational institutions to prepare graduates who are well equipped with the necessary social and civic skills (Clinton & Thomas, 2011). More specifically, employers expect academic institutions to provide graduates with high-quality employability skills such as civic sense, communication, teamwork, and problem-solving skills (Conway *et al.*, 2009). Unlike other traditional lecture methods, service-learning is a work-integrated learning approach that provides ample opportunity for learners to learn and apply their skills in real-life situations (Clinton & Thomas, 2011). In addition, as a teaching and learning approach, service-learning develops students' professional skills and civic responsibilities. Researchers have stated that students who participate in service-learning have more effective leadership, communication, and teamwork skills that they may need in the future to work as professionals and citizens (Bamber & Hankin, 2011; Carberry *et al.*, 2013).

Despite much evidence on the relationship between service-learning and civic development, service-learning has been criticized for not been as practical and effective as it claims. For example, it is considered costly, time-consuming, and resource-pulling. Further, it propagates egalitarian and a liberal social justice agenda which is often contrary to the academic environment in some societies (Prentice & Robinson, 2007). However, despite the overwhelming criticism, the literature above provides substantial evidence that service-learning inculcates many positive outcomes and values in students, specifically civic engagement and life skills (Astin & Sax, 1998; Prentice & Robinson 2007). The authors of this study also agree with the supporters of the service-learning pedagogy. In this sense, the present study is aims to examine the college students' perspectives on their sense of civic responsibility and teamwork.

## 2. Theoretical framework

Service-learning is relatively a new term, but the concept of service through education is ancient. It is traced back to the earliest classical period. According to Aristotle and Plato, education aims to produce good citizens and leaders. However, from the 1916s to the 1960s, progressive education flourished in the past century. The leading proponent of this period was John Dewey, an American educationist. He also considered education a process of preparing democratic and active citizens. Thus, service-learning has been around in academic discussions for many years (Holmes, 2013; Speck & Hoppe, 2004).

In the late 1960s, the American national service activities such as Peace Corps, Job Corps, VISTA, and University Community Partnerships started mobilizing thousands of students from different colleges for community service activities. These community service activities formally exposed the importance of learning by service. Oak Ridge Associated Universities first used the term service-learning in 1966. Their job was to promote collaborative research in partnership with business and government agencies (Harkavy & Hartley, 2010). In the 1970s, the term was formally used by Sigmon (1974) in academic discussions. In the mid of 1980s, campus-based organizations like Campus Outreach League (COL) and Campus Compact (CC) were established to promote students' civic engagement activities. Later on, the passage of two crucial acts, the National and Community Service Act (NCSA) in 1990 and the National and Community Service (NCS) in 1993 provided more support to service-learning activities (Denby, 2008).

Today, service-learning is widely integrated into educational institutions all over the world. In service-learning, students are involved in a wide range of community-based activities. This enables the students to connect theory to practice. They also contact different communities (Smith *et al.*, 2010). This interaction provides them wider opportunities to apply their new knowledge and skills in real-life, developing their civic professional and orientations (Waterman, 2014). Researchers also maintain that service-learning develops students' leadership, communication, and teamwork skills. These are considered essential sought-after professional skills in the current job market (Bamber & Hankin, 2011; Carberry *et al.*, 2013). Researchers argue that service-learning effectively promotes students' civic, communication, problem-solving, and leadership skills as a civic and work-integrated learning approach. These skills are essential for employability and active citizenship (Clinton & Thomas, 2011; Fisher, 2014). The current knowledge-based societies and work environment need active citizens and workers. During service-learning students closely interact with communities, among themselves and others. This interaction promotes their potential employability skills such as communication, teamwork, and problem-solving skills (Clinton & Thomas, 2011).

### **3. Literature review**

Service-learning provides students with real-life experiences and problems, enabling them to connect theory to practice. There are many ways to develop this (Sigmon, 1974; Smith *et al.*, 2010). Studies have found that service-learning works as an effective pedagogy to develop civic sense and teamwork among students in a more real-life scenario (Clinton & Thomas, 2011). It is a reciprocal pedagogy that benefits the community and students alike. For example, students provide service and learn from the community service life skills, and the community reciprocally receives service from students (Parker *et al.*, 2009; Bortolin, 2011). This aspect of service-learning as a pedagogy shows that it promotes essential civic skills and refines students' teamwork abilities as a collaborative education strategy. Students work as a team in a community site during service-learning and solve a community problem (Finley, 2011).

#### **3.1. Service-learning**

Service-learning is defined as an educational experience where students participate in an organized service activity to meet an identified community need, reflect on the service activity to gain a deeper understanding of the course content, and an enhanced appreciation of the discipline and civic responsibility (Bringle & Hatcher, 1995; 1996; 2009). Service-learning is

a way of experiential teaching and learning and applying what was learned within a classroom or laboratory setting to problems of the real world (Ali *et al.*, 2012). This definition clarifies that service-learning is very close to work-integrated learning through which students develop their employability skills (Parker *et al.*, 2009). In the last two decades, there has been much research on students' teamwork and civic skills development as the direct outcomes of service-learning (Boyer, 1987; Eyler & Giles, 1999; Furco, 2002; Prentice, 2007; Prentice, 2011). In a study conducted in Jamaica, service-learning was found to develop students' academic and civic skills (Clark *et al.*, 2013). Other writers have stated that one of the potential benefits of service-learning is developing students' teamwork skills (Eyler & Giles, 1999; Falk, 2012). In addition, some studies have found it very useful for promoting students' civic skills and self-efficacy (Astin *et al.*, 2000; Prentice, 2007).

Service-learning is a teaching and learning strategy that effectively connects community service experiences with academic learning and personal growth (Shumer & Duckenfield, 2004). Learning is a continuous process. It occurs in a cycle of actions and reflections involving various activities such as reading, writing, speaking, and listening through mutual interactions between the learner and the environment (Dewey, 1923; Kolb, 1984; Eyler, 2001). Service-learning extends this experience from the traditional classroom to the community, where students find wider learning opportunities through collaboration. This helps develop leadership, teamwork, effective communication, and problem-solving skills (Scales & Blyth, 1997; Schine, 1997; Fertman *et al.*, 2002; Leming, 2001). Unlike volunteerism, service-learning involves applying knowledge and skills to help others in the community. So, the primary purpose of service-learning is to provide service to others in the community and develop students' skills. This allows students in effective academic civic learning (Astin & Sax, 1998; Epstein, 2005; Eyler & Giles, 1999; Furco, 2002). Students develop civic knowledge and skills by participating in service-learning activities (Morgan & Streb, 2001; Scales & Roehlkepartain, 2005). Studies indicated that students participating in service-learning activities better understand community needs and diversity issues (Astin & Sax, 1998; Eyler & Giles, 1999; Theriot, 2006). Students become more politically active when they participate in community service-learning activities in the larger community. This experience has a positive impact on their civic development.

### **3.2. Teamwork**

Teamwork is a collaborative activity where individuals attain a common goal (Falk, 2012). There is limited literature on teamwork in service-learning (Falk, 2012). Falk (2012) mentioned that Vaughn (2010) also found service-learning helpful for developing teamwork skills. Teamwork is different from group work. It involves behavioural, cognitive, and emotional elements in which individuals have a team purpose. It also involves effective communication and negotiation skills. It also requires professionalism and responsibility. It is considered a highly valued skill in work (Drake *et al.*, 2006). Studies show that only 40 percent of the graduates are prepared for teamwork (Hart Research Associates, 2008). When students work together, they learn effectively. They develop collaborative, communication, and reflective skills (Peterson & Miller, 2004). Theoretically, service learning is rooted in social and pragmatic constructivism, progressivism, and experiential learning. These theories explain the importance of experiential learning in the social environment, i.e., communities and organizations and continuous reflection. Generally, experiential learning programs holistic professional, intellectual, civic, and personal development (Perry, 1970; Kolb, 1984; Boud *et*

*al.*, 1993; Dewey, 1923). Some studies have strongly argued that service-learning can provide a safe space for students to develop their collaborative skills (Gronski & Pigg, 2000). William and Falk (2010) found that students' attitudes towards teamwork changed significantly after participating in a service-learning activity. However, the students also faced some challenges during the service-learning training while working as a team. But despite the challenges involved in service-learning, recent research has found it to be a good teaching and learning approach for developing a positive attitude toward and skills for effective teamwork (Falk, 2012). Researchers have termed service-learning as active learning, which aims to develop students' civic and work-related skills and provide service to the community (Rama *et al.*, 2000). In a previous study, scholars collected reports of 31 studies that linked service-learning to increased student citizenship skills. In the same way, many other studies have identified positive effects of service-learning on students' interpersonal development, teamwork, leadership, and communication skills (Saeed & Ahmed, 2021; Ahmed *et al.*, 2021; Eyler, 2001; Moely *et al.*, 2002; Finley, 2011).

However, despite all the benefits of service-learning, the problem is that many countries, including Pakistan, do not give enough attention to this (Dean, 2005). There is a wide gap between the theory and practice in the education system of Pakistan. The education does not produce such graduates deficient in civic and work-related skills. There is an urgent need to bridge the skill gap (Dean, 2005; Kazmi, 2007). Additionally, relative to the amount of research on service-learning, research on the connection of service-learning with civic outcomes is comparatively less (Finley, 2011). However, of late the need for citizenship development has been realized worldwide, especially in the developed world. For example, Scobey (2010) found that service-learning has been integrated as an essential component of many colleges in the United States. However, the skill gap between the theory and practice of the education system still exists in Pakistan (Memon, 2007; Subhan *et al.*, 2012). Over the years, educators have used many teaching and learning methods to train young people for citizenship. Among these approaches, service-learning has been recognized as the most unique and effective educational methodology to prepare future citizens (Colby *et al.*, 2003). Research has consistently reported the positive effect of service-learning on students' academic, personal and civic development (Eyler & Giles, 1999; Gallini & Moely, 2003; Cress *et al.*, 2010; Yep, 2011). One of the essential goals of education is to develop students into future responsible, active, and democratic-minded citizens. Today's democratic societies also seek democratic and informed citizenry (Battistoni, 1997; Dean, 2005).

### **3.3. Civic responsibility**

Civic development is an essential outcome of service-learning (Prentice, 2011). Further, the 4<sup>th</sup> Asia Pacific Regional Conference on Service-Learning urged that civic education prepares students for the future by improving their civic-related knowledge, skills, and dispositions. As a teaching approach, service-learning fosters students' social competence, communication skills, problem-solving skills, and civic orientation (Battistoni, 1997). In the last decades, service-learning has become a popular and effective educational strategy that enhances students' knowledge, skills, their civic obligations and prepares them to cope with the future challenges of their society. Because of these reasons, it has been recognized as an effective method of civic sense (Prentice & Robinson, 2007; Battistoni, 2009).

Furthermore, teaching about civic responsibility using service-learning is directly related to

general education outcomes such as communication, interpersonal skills, leadership, and problem-solving (Colby *et al.*, 2007). Recent trends in service-learning and civic pedagogy have helped a profound understanding of the civic responsibilities of students (Prentice, 2011). For example, it allows students conceptualize course content and realize being responsive citizens (Prentice & Robinson, 2007). This implies that a significant feature of service-learning is its reciprocal nature and connecting the learning outcomes with community service (Gracia & Robinson, 2005). Thus, it provides pragmatic, purposeful, and empowering learning experiences to students and therefore capacitates them to become a productive and valuable member for their societies (Prentice & Robinson, 2007). Research suggests that a curriculum embedded with service-learning enhances students' critical and reflective thinking, personal development, and civic obligations (Saeed & Ahmed, 2021; Ahmed *et al.*, 2021; Gracia & Robinson, 2005). Further, service-learning helps develop moral, ethical, and equitable values in the students (Furco, 2005; Battistoni, 1997). Thus service-learning has three intertwined components of civic development. These include intellectual understanding, which contain content of knowledge, critical thinking, and communication skills; civic skills and attitude, which consists of ethics and a focus on communities and their general wellbeing; and civic accomplishment, which embodies the earlier two components and therefore enable students to demonstrate responsibility in the uplift of the society (Battistoni, 1997).

#### **4. Research methodology**

##### **4.1. Design and sampling**

The study was conducted in a private college in the suburbs of district Chitral lower, Khyber Pakhtunkhwa, Pakistan. All students (N=136) from science group (n= 90) and arts group (n= 46) participated in the study. These students were selected based on a purposive sampling approach as they all participated in the service-learning project. Willingness was obtained from all for data collection. The service-learning project was conducted in the district Chitral lower because it was convenient to both the researchers and students. Being insiders, they had more familiarity with these regions and easy to move around, commute, and carry out the cleanliness activity. Further, the female students did not participate in the service-learning project due to cultural reasons of strict purdah and gendered segregated values. They were not included in the data collection process.

##### **4.2. Service-learning project**

The service-learning project was of 3 hours of community service in which students performed cleanliness activities in the Town-I area. They were instructed to collect dustbins and clean them from different site streets. The students were divided into five groups with other names for each group. They were directed to complete the community service within the given time. They were facilitated with transport and food. Each group was placed under the supervision of one teacher to guide and monitor them during the activity. The students were asked to write a reflective note on the community service at the end of the action and submit it to their concerned supervisors.

##### **4.3. Data collection**

After the service-learning activity, the students were given a teamwork and civic responsibility

questionnaire. They were allowed to freely express their perspectives on the impact of service-learning on their civic sense and teamwork skills. The students filled out the questionnaires after completion of the service-learning activity. The reflective notes were also checked for exploring their perspectives apart from the quantitative assessment. However, the qualitative data was excluded from being out of the study's ambit.

### 5. Results

The collected data were analyzed using descriptive statistics and Explorative Factor Analysis (EFA). The EFA was aimed to explore the factors and range of participation of students in a rural college context in the service-learning activity and its effects on their civic sense and teamwork. The descriptive statistics helped determine the extent of agreement, the mean and standard deviation in the participants' perspectives. Before analysis, the KMO and Bartlett's Test of Sphericity were checked for factor analysis requirements before analysis.

Table-1: KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.961
Bartlett's Test of Sphericity	Approx. Chi-Square	15766.715
	df	210
	Sig.	.000

The analysis in Table 1 showed a KMO index at .96, indicating that the data set was suitable for factor analysis greater than 0.50. Bartlett's test of sphericity was also found to be significant at ( $\chi^2_{(190)} = 15766; p = 0.00$ ). This allows the PCA approach to identify the factor model based on the data.

Figure 1: Scree Plot

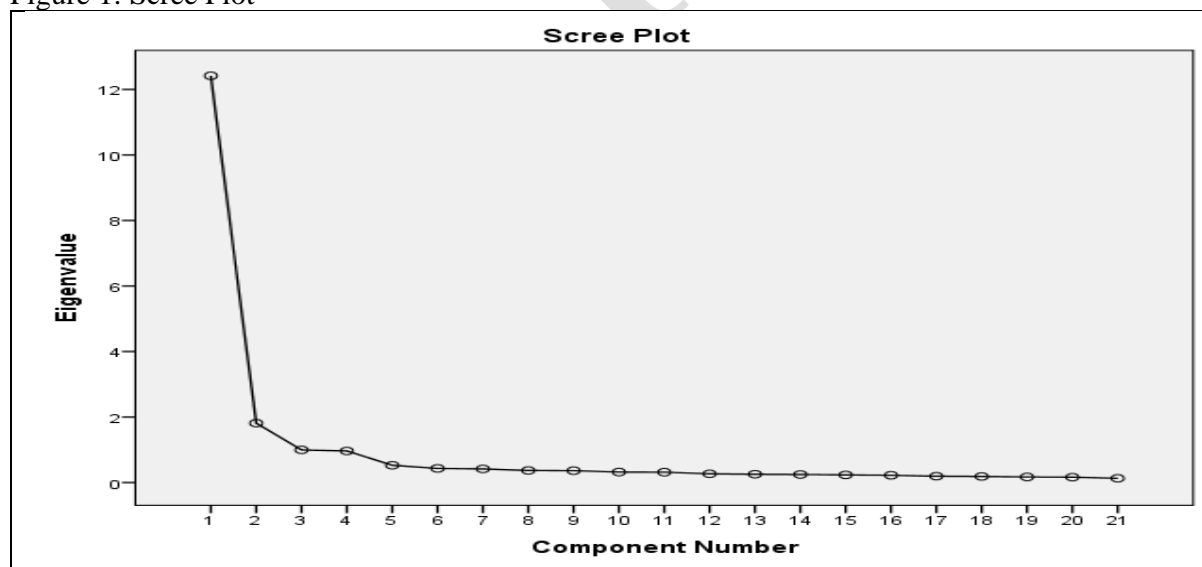


Figure 1 indicates the KMO analysis for examining the criteria of Principal Component Analysis (PCA) to identify the factor structure.

Table-2 shows that two factors were retained based on the criteria mentioned earlier and through observation of the Scree plot. The two-factor model solution explains 67.76% of the total variance. Factor 1 contributes 12.12%, and factor 2 contributes 1.81% of the variance.

Table-2: Total variance explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	12.417	59.128	59.128	12.417	59.128	59.128
2	1.813	8.632	67.760	1.813	8.632	67.760
3	.996	4.744	72.504			
4	.965	4.595	77.099			
5	.528	2.512	79.611			
6	.431	2.054	81.665			
7	.416	1.983	83.648			
8	.369	1.755	85.403			
9	.363	1.727	87.131			
10	.320	1.526	88.656			
11	.316	1.504	90.160			
13	.254	1.211	92.641			
14	.246	1.172	93.812			
15	.234	1.115	94.927			
16	.222	1.056	95.983			
17	.194	.922	96.905			
18	.186	.888	97.793			
19	.170	.811	98.604			
20	.164	.779	99.383			
21	.130	.617	100.000			

Table-3: Items loadings

	Loadings	Mean	Standard deviation (SD)	Skewness		Kurtosis	
				Statistic	Std. Error	Statistic	Std. Error
cr1	.694	4.03	1.055	-1.167	.086	.995	.171
cr2	.699	4.03	1.023	-1.115	.086	.967	.171
cr3	.708	4.10	.992	-1.130	.086	.946	.171
cr4	.690	4.00	1.010	-1.018	.086	.689	.171
cr5	.792	3.99	1.018	-.923	.086	.454	.171
cr6	.825	4.03	.978	-.938	.086	.605	.171
cr7	.773	3.96	1.015	-.975	.086	.681	.171
cr8	.743	3.98	1.003	-.919	.086	.424	.171
cr9	.793	4.06	.956	-1.009	.086	.877	.171
cr10	.787	4.08	.942	-1.053	.086	.956	.171
cr11	.570	4.17	.985	-1.313	.086	1.555	.171
cr12	.407	3.96	1.054	-1.014	.086	.617	.171
tw13	.696	3.98	1.063	-1.030	.086	.569	.171
tw14	.678	3.86	1.071	-.826	.086	.190	.171
tw15	.733	4.16	.936	-1.202	.086	1.479	.171
tw16	.766	4.04	.991	-.986	.086	.648	.171
tw17	.745	4.27	.911	-1.435	.086	2.136	.171
tw18	.817	4.18	.944	-1.159	.086	1.084	.171
tw19	.779	4.14	.976	-1.169	.086	1.132	.171
tw20	.804	4.20	.922	-1.225	.086	1.368	.171
tw21	.781	4.24	.921	-1.407	.086	2.054	.171

The complete analysis in table-3 indicates that these two factors explain students' perspectives of civic responsibility (cr) and teamwork (tw) as outcomes of service-learning. The loadings show a strong correlation (greater than 0.4) among all the items in the questionnaire related to the variables. There is a slight variation in the mean score of the items in the two factors. Despite this, the mean scores are pretty high, and standard deviation represents some variation in the teachers' responses related to civic responsibility and teamwork as service-learning outcomes.

## 6. Discussion

The significant findings of the current study showed that service-learning improved students' civic sense. This finding fully supports the results of previous research. Studies have already found that the rapidly changing, the knowledge-based work environment needs active, skilled, and civically responsible citizens (Denby, 2008). Education is preparing young people for their future roles as responsible and engaged citizens (Falk, 2012). Academic and civic leaders continuously call upon educational institutions to nurture future civic leaders to achieve this goal. The civic leadership development stems from the awareness that today's citizenry needs critical skills such as communication, teamwork, problem-solving, and a strong commitment to civic responsibility to effectively meet the ever-increasing challenges (Harkavy & Hartley, 2010).

The current study revealed that service-learning positively contributed to students' teamwork skills enhancement. This finding also adds to the existing theory about service-learning. Over the years, educators have used different approaches to develop these skills among the students. However, studies have found service-learning as a suitable tool to achieve these goals (Holmes, 2013). As the current research suggested that involving students in service-learning increases their teamwork skills and sense of civic responsibility, it is in line with the opinion of previous writers argue that service-learning effectively links academic knowledge to service experience in a community setting that develops students' civic abilities, leadership and team behaviours (Howard & Nitta, 2012; Mitchell, 2008).

The current study provides evidence that service-learning is civic and teamwork pedagogy. It effectively equips students with the opportunity to get exposure for sharing views and communicating on different matters in the community. This adds to their civic roles, and their teamwork abilities are improved. This is in line with the results of previous researchers that employers and communities in the work industry are increasingly expecting educational institutions for graduates who have highly effective work-related skills such as teamwork, communication, decision-making, and problem-solving skills. Because these skills are also considered the top-rated work-related employability skills in the current job market (Parker *et al.*, 2009). There is evidence that students who have teamwork skills and civic awareness find better chances of employability in the current knowledge-based job market (Williams & Falk, 2010). It is considered a high-impact educational method to develop students' civic competencies and work-related skills such as teamwork, communication, decision-making, problem-solving, and leadership skills (Colby *et al.*, 2003). The results of the current study fully support and enhance the findings of previous research studies and provide new avenues for future researchers for further investigations.

## 7. Conclusion

This study revealed that students who participate in the service-learning demonstrate a better understanding of civic responsibility and teamwork. This means that service learning is a practical approach for promoting teamwork and a sense of civic responsibility among students. This finding supported the earlier findings of McKenna and Rizzo (1999) regarding the role of service-learning in developing students' civic skills. In another study Ash *et al.* (2005) document that students engaged in service-learning had a high level of self-awareness, enthusiasm for civic obligations, and leadership or managerial skills. This study further supports John Dewey's theory that experiential learning develops habits of civic responsibility and increased democratic participation (Sandman & Plater, 2009). Service learning is an experiential learning approach that provides practical learning opportunities for students. The current study was conducted in a rural context of Pakistan with a limited sample. However, for further understanding of the multiple roles of service-learning pedagogy, the results of this study may be further investigated in other contexts and cultures with a more robust sample to get better results.

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