

Impact of service learning on transversal skills development in rehabilitation careers: a scoping review

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Abstract

Background: Evidence-based medical education guides methodological choices to ensure effectiveness in formative processes. Service learning is one of those choices and is considered useful for the development of transversal (also known as transferable or soft) skills in undergraduate health professions students. However, evidence appears to be fragmented, hampering identification of the skills most promoted through this approach. This evidence is critical for those who train healthcare professionals to work in rehabilitation settings, i.e. occupational therapy, physiotherapy and speech therapy. **Method:** A scoping review was conducted using four databases (PubMed, ERIC, LILACS and Web of Science). The Scale for the Assessment of Narrative Review Articles (SANRA) was used to evaluate the quality of the manuscripts and a self-developed checklist based on the Critical Appraisal Skills Program (CASP) protocol and the Analytical Framework Model was used for thematic analysis of the content of the manuscripts. **Results:** Of 248 articles found, 23 met the inclusion criteria, of which more than 50% met high quality standards. The seven

transversal skills developed through service learning were: professional development, teamwork, personal development, critical thinking, intercultural skills, self-efficacy and interprofessional work. Critical competencies such as intercultural skills, critical thinking, global competences and others were enhanced. The impact on community partners was not described and implementation varied substantially. **Discussion:** The findings suggest that service learning not only promotes these seven transversal skills, but also enhances critical competencies for professional development. A lack of uniform implementation hampers comparison and generalization. **Conclusions:** Service learning facilitates the development of essential transversal skills for students in rehabilitation careers. The design of clear implementation protocols that improve its application and maximize its comparability across studies is recommended.

Keywords: Service Learning, Transversal Skills, Medical Education, Undergraduate, Physiotherapy, Speech Therapy, Occupational Therapy, Professional Competence in Health Programs, Education, Rehabilitation

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Background

The education of health professionals is evolving as various theories and factors about adult learning, the role of technology, and the integration of community needs in training outcomes are understood,

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generating new expectations.^{1,2} Health professionals are expected to develop attitudes, competencies and transversal skills³ such as communication, technical abilities, clinical reasoning, emotions, values, and reflection for the benefit of the individuals and

communities served.⁴

Integrated spiral curricula, competency-based education, experiential learning, and situated and social learning have been used to achieve the outcomes related to transversal skills.^{3,5,6,7} These transversal skills are paramount for health professionals in fields such as physiotherapy, speech therapy and occupational therapy, who work in rehabilitation, because of the close and regular interaction with people and communities.^{8,9}

Universities have responded to this need by including service learning in the curriculum.¹⁰ Service learning is defined as a pedagogical approach that integrates community service with academic instruction and structured reflection through active participation in community-based projects.^{11,12} Service learning, especially if included early in a program, is favored based on evidence regarding development of professional identity and behavior,¹³ clinical reasoning skills,¹⁴ understanding of social problems, and cognitive objectives.¹⁵ The use of service learning by universities reflects their sense of social accountability, referring to their responsibility to respond to the problems of the communities in which they are located.^{9,16,17,18}

There is robust theoretical information on the use of service learning to develop transversal skills.^{11,12,17,19} The evidence on the development of transversal skills in undergraduate students is mainly reported according to Kirkpatrick's levels of reaction and learning²⁰ rather than higher levels of change in behavior, or impact.²¹ Reviewing and systematizing the evidence published by institutions on the effect of the use of service learning to develop transversal skills will consolidate what is known in general, and

what could be of particular use for occupational therapy, speech therapy and physiotherapy students in rehabilitation settings. The research question was therefore: "Which transversal skills are developed in undergraduate students of Physical Therapy, Speech and Language Therapy, and Occupational Therapy through the Service-Learning methodology?"

Materials and Methods

A scoping review, assessing the current state of what is known, the amount and type of existing literature, as well as its orientation and focus^{22,23,24} was conducted.

A search was conducted in the Web of Science, LILACS, ERIC and PubMed databases, using search strategies that included the disciplines under consideration, and the following keywords and synonyms: "service learning", "skills" and "undergraduate". Manuscripts written in English and Spanish and published in academic journals between 2014 and 2024 were considered. The results were organized using the Prisma-ScR protocol²⁴ and selected based on defined inclusion and exclusion criteria

The Scale for the Assessment of Narrative Review Articles (SANRA)²⁵ was used to assess the quality of narrative review articles in the health sciences, based on criteria such as clarity of objectives, topic justification, quality of references, and validity of conclusions. In this study, SANRA was applied by two independent reviewers to evaluate the methodological quality of the articles included in the scoping review. The use of this scale enabled identification of high-quality studies, thus

Table 1: Article Inclusion and Exclusion Criteria

PCC Element	Inclusion criteria	Exclusion criteria
Population	Occupational Therapy, Kinesiology, Physiotherapy and/or Speech Therapy students	Graduate students in health careers
Concept	Service-learning experiences that develop transversal skills, soft skills, non-technical skills or soft skills.	Service-Learning experiences that do not refer to the development of transversal skills, soft skills, or non-technical skills.
Context	Curricular and/or extracurricular activities of undergraduate programs of Kinesiology, Physiotherapy, Speech Therapy and/or Occupational Therapy, including interdisciplinary activities.	Interdisciplinary activities that include other health careers and that report results in a general way, without distinguishing by career.

strengthening the validity of the findings regarding the impact of service-learning on the development of transversal skills.

The Analytical Framework Model was used for the thematic analysis. This model starts from a premise or general framework, then analyzes its specific components. The general framework in this study was the use of service learning. The specific components that were explored were its application, results, effectiveness, limitations and benefits associated with the development of transversal skills in students whose careers are commonly linked to rehabilitation services. The Analytical Framework model has been used extensively in the last decade in health policy development and medical education as it allows exploring specific elements of implementation from a general framework.^{26,27}

A summarized version of the checklist for the critical analysis of qualitative evidence developed by the Critical Appraisal Skills Program (CASP)^{28,29} and guiding questions developed by the research team were used to guide the thematic analysis of the evidence in the selected manuscripts. This thematic analysis was conducted by two reviewers, who sought to answer the guiding questions by reading each article in its entirety and then copying texts

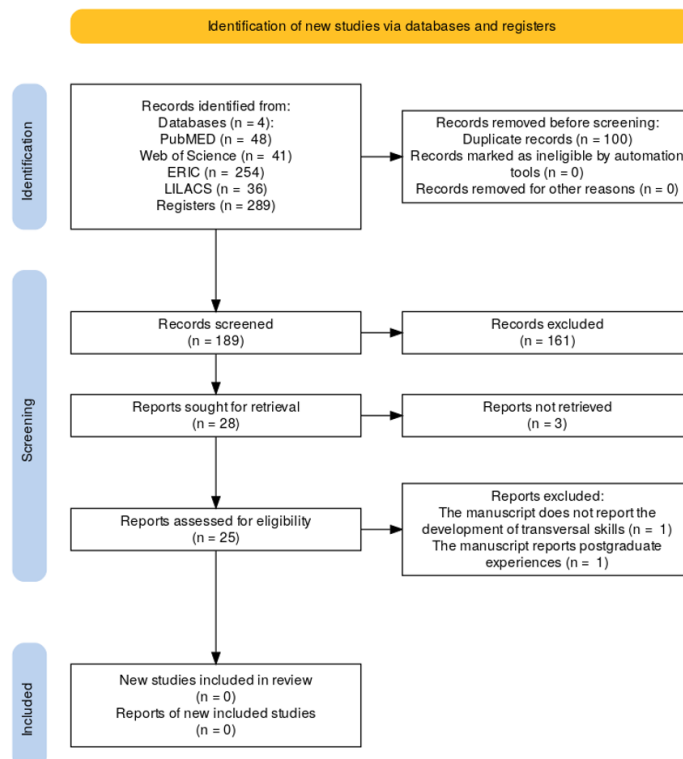
from each article that answered the guiding questions. These questions included questions such as "What is the reported effect on the development of transversal skills in this article?"; "What contributions does the study make to the understanding of the development of transversal skills in kinesiology, speech therapy, and/or occupational therapy students through Service Learning?" and "Who are the facilitators around this topic?" among others. Using this information, reviewers began a thematic analysis through discussions and identification of relevant themes. Results of this thematic analysis were then presented to the other two team members for approval.

The Research Ethics and Safety Unit of the Pontificia Universidad Católica declared this research exempt from ethical and safety evaluation because no personal data or sensitive persons were involved.

Results

In the Identification stage, 289 records were found (PubMed n=48, WoS n=41, ERIC n=254, LILACS n=36), which contained 100 duplicates. In the screening stage, 23 of the remaining 189 articles met the inclusion and exclusion criteria and were eligible for analysis in the final stage.

Figure 1: Flow of identification and selection of items



In the final set of selected articles, 11 used a mixed methodology, 10 used a qualitative methodology, 1 used a quantitative methodology, while 1 study did not state the methodology used.

Application of the SANRA scale²⁵ resulted in 13 articles being designated as high quality, 8 intermediate quality, and 2 low quality (Table 2).

Fourteen service-learning activities were part of the prescribed curricula, while seven were

extracurricular activities and one was not defined. Physiotherapy was the profession that published the most (n=12), followed by occupational therapy (n=11) and speech therapy (n=3). Interdisciplinary service learning activities (were in the minority (n=7). The activities varied in terms of the age of their target population and duration (between 1 and 12 weeks). Only one manuscript did not state the community partner. The thematic analysis yielded four broad areas:

Table 2: Description of selected items

	Article Name	Author(s)	Year	Careers involved	Quality (SANRA)
1	Significant socio- emotional learning and improvement of empathy in physiotherapy students through service learning methodology: A mixed methods research	Rodríguez-Nogueira, O.; Moreno- Poyato, A.; Álvarez- Álvarez, M.J.; Pinto-Carral, A.	2020	Physiotherapy	High
2	A pediatric service-learning program in physical therapy education	Yu-Jen, H.; Wen-Yu, L.; Yang-Hua, L.; Hen-Yu, L.; Wong, A.; Chien-Min, C.	2018	Physiotherapy	Intermediate
3	Active learning of geriatric rehabilitation: deliberations of an undergraduate occupational therapy program.	Chung, J.	2021	Occupational Therapy	High
4	An interprofessional education approach to fall prevention: preparing members of the interprofessional healthcare team to implement STEADI into practice.	Taylor, D.; McCaffrey, R.; Reinoso, H.; Mathis, M.; Dickerson, L.; Hamrick, J.; Madden, S.; Heard, H.; Perlow, H.; Klein C.	2019	Physiotherapy	High
5	Analyzing reflections in service learning to promote personal growth and community self- efficacy	Sanders, M.; Van Oss, T.; McGeary, S.	2016	Occupational Therapy	High
6	Service learning and self-efficacy in exercise science: outcomes of a community fitness training program involving undergraduate Exercise Science students.	Cleveland, K.; Peterson, S.	2022	Physiotherapy	Intermediate
7	Evaluation of international service learning model of health promotion in a developing country	Hall, B.; Lorenzo, A.; Matte, D.; Mozolic-Staunton, B.	2018	Occupational Therapy, Speech Therapy, Speech Pathology	High
8	Impact of clinical and cultural activities on personal growth during international service-learning	Chabot, M.; Mitchell, M.; Stevens-Nafai, E.; Nafai, S.	2022	Occupational Therapy	Intermediate
9	Integrative teaching strategies for the development of competencies that allow health professionals to form part of multidisciplinary teams in the care of chronic patients	Gomez, C.; Berenguer, N.; Berzosa, C.; Acebes, D.; Wozniak, M.; Buesa, A.; Arbones, I.; Benito, L.S.	2019	Physiotherapy	Low
10	Kinesiology career club: undergraduate student mentors' perspectives on a physical activity- based teaching personal and social responsibility program.	Walsh, D.; Veri, M.; Willard, J.	2015	Physiotherapy	Intermediate
11	Learning, teaching, researching: a service- learning experience in physiotherapy final degree project.	Ureta, R.; Sanchez, C.; Arostegui, M.; Martin, YG.	2017	Physiotherapy	Intermediate
12	Design, implementation and evaluation of the service learning methodology in the Speech Therapy program.	Jeldes, P.; González Cifuentes, T.; Villagrán Gutiérrez, I. ; Fouillieux Schalscha, C.; Márquez Espinoza, C.; Fuentes López, E.; Jouannet Valderama, C.	2018	Speech therapy	High
13	Effectiveness of the Community-Academia Student Tutoring (CAST) program in enhancing students' practice placement readiness	Ial-Saban, M.; Weintraub, N,	2019	Occupational Therapy	High
14	Pre-departure training is essential for preparing healthcare teams for service-learning to resource limited Countries	Trotter, S.; Dunnivan-Mitchell, S.; Borman, N.; Kent, A.; Oliva, B.	2021	Occupational Therapy, Physiotherapy	High
15	Servant leadership towards cultural competency and critical thinking: a mixed methods study in Zambia.	Brown, J.	2019	Occupational Therapy	High
16	Service learning methodology reinforces the acquisition of general and specific skills	Ortiz-Masia, D.	2019	Speech therapy	Intermediate
17	Service learning pedagogies to promote student learning in occupational therapy education	Naidoo, D.; Van Wyk, J.; Dhunpath, R.	2019	Occupational Therapy	Intermediate
18	Short-term service- learning: implications for preparing health science students for practice.	Lemmonds, T.; Adam Belmont, J.; Wong Espiritu, E.; Wyant, D.	2021	Physiotherapy, Occupational Therapy	Intermediate
19	Systematic review of service-learning in youth physical activity settings	Carson, R.; Raguse, A.	2014	Physiotherapy	High
20	Transforming through reflection: use of student-led reflections in the development of intercultural competence during a short-term international immersion experience.	Ceo-DiFrancesco, D.; Dunn, L.; Solorio N.	2020	Occupational Therapy	High
21	Undergraduate research and service-learning programs in a kinesiology program at a teaching university	O, J.; Sherwood, J.; Yingling, V.	2017	Physiotherapy	High
22	Working remotely: Innovative allied health placements in response to COVID-19	Salter, C.; Oates, R.; Swanson, C.; Bourke, L.	2020	Physiotherapy, Occupational Therapy	Low item
23	The promise of service learning in a pediatric audiology course on clinical training with the pediatric population.	Kaf, W.; Strong, E.	2011	Speech therapy	High

Transversal Skills

Transversal skills have become a cornerstone of professional competence. Service learning offers a promising approach to fostering such skills in health professionals. One particularly noteworthy finding is the consistent development of teamwork and professional role identification across the studies analyzed. These skills are foundational for successful participation in interprofessional teams

and for understanding the unique contributions of one’s profession within the broader healthcare system. Another significant observation is the emergence of self-efficacy and critical thinking as frequent outcomes. These skills reflect the capacity of students to make informed decisions, engage in reflective practice, and take ownership of their learning.

Table 3: Identification of transversal skills developed through service-learning and relationship with article quality (SANRA)

Professional Development		Teamwork		Personal development		Critical Thinking		Cross-cultural skills		Self-efficacy		Interprofessional work								
n	Quality	n	Quality	n	Quality	n	Quality	n	Quality	n	Quality	n	Quality							
15	H	9	7	H	5	7	H	4	6	H	3	4	H	2	4	H	3	3	H	1
	I	5		I	2		I	3		I	2		I	1		I	1			
	L	1		L	0		L	0		L	0		L	0		L	1			

Uses of Service Learning in Rehabilitation Careers

Educational institutions viewed service learning experiences for occupational therapy, physiotherapy and speech therapy students as suitable for the development of transversal skills. They also named other benefits such as support of personal and professional training processes, development of global competencies, interculturality and globalization, and development of public commitment in their students.

Limitations

Most authors stated that the results of their research were not generalizable since they reported on a particular experience for a particular module or program. The common limitations were the sample sizes, the high academic load of the reflective activities (which could limit the quality of the students' self-report responses) and the bias implied by participation in voluntary activities when the activity was an extracurricular one.

Forms of Service Learning implementation

Educational institutions favored a structured approach to support the development of transversal skills and create a successful experience. This structured approach had common characteristics, such as defined roles, pre-determined evaluation methodologies, defined expected actions and previous agreements with the community partner. Community partners were also integrated in the process and active in decision making and providing feedback to support the development of skills in the students. The most common activities were interprofessional activities, preparation for the service learning experience and reflection. Reflection was described as structured, autonomous and evaluated through validated and standardized guidelines.

Discussion

The seven transversal skills developed by occupational therapy, physiotherapy and speech therapy students participating in service learning programs were: professional development; teamwork; personal development; critical thinking; intercultural skills; self-efficacy and interprofessional work. These seven skills included sub-components such as effective communication, problem solving and adaptability, among others. The diversity of acquired skills mirrors the multifaceted demands of professional practice and highlights the added value provided by service learning. These skills are in line with the current needs of the population and which have been described by other disciplines, such as nursing, psychiatry or education.^{10,14,15,16,21,30,31,32,33}

Other skills developed

Clinical skills and competencies were reported as a common outcome. These outcomes were achieved through technical training and the integration of theory and practice which is typical of experiential methodologies. The development of civic awareness and social responsibility was reported.

It is important to highlight the consonance found between the findings of this research and the current trends in medical education, such as adult learning methodologies, experiential learning, progressive integration of knowledge into practice and community-based learning.^{2,3,6,7,15,34,35,36} The

evidence confirms the relevance of the use of service learning when considering the importance of social responsibility and advocacy within the training of health professionals.^{9,18,13,17,21,37} In addition, there is a clear relationship between participation in service learning activities and the development of cross-cutting skills, clinical competencies and clinical reasoning in students. These results are in line with adult learning theories and underpin the relevance of the competency-based approach and experiential learning in communities for the training of professionals working in the field of rehabilitation.^{4,8,11,33,36,38}

The variability in the implementation of service learning, both in terms of inclusion in the curricula and in the methodology used, poses a challenge. This variability can affect the consistency and effectiveness of the program in the development of transversal skills, which underscores the need for a more uniform structure and planning.

Other aspects that deserve attention are the lack of a common definition of transversal skills and a standardized methodology for implementing service learning. This lack of uniformity makes it difficult to compare results between different studies and limits the generalization of findings.^{12,19} Therefore, it is recommended that a set of minimum implementation criteria be adopted to allow for greater comparison and generalizability.

The manuscripts made little, if any, mention of the impact of service learning on the community partners. This imbalance in the reporting undermines a key principle in service learning: that of reciprocal benefit. Therefore, further research is needed to fully understand how these initiatives

affect the communities served. This community-centered perspective is crucial to ensure that service learning contributes meaningfully to local well-being and development¹³ and does not become another way in which the needs of the communities in which students learn, are overlooked.

Finally, the literature focuses on the description of experiences and outcomes of service learning programs. While this provides a solid foundation for understanding the benefits of this educational approach, it highlights the need to use quality criteria in publications to ensure reliability and validity of reported results. This scoping review concluded that just under half of the manuscripts analyzed lacked the quality necessary to validate the results, jeopardizing the validation of this approach as an effective strategy for developing transversal skills. Greater attention to research methodology, inclusion of appropriate control groups, use of minimum implementation criteria, and a comprehensive evaluation of the results (including impact on the community) are needed.

Conclusions

Service learning is an evidence-supported educational strategy for the development of transversal skills in occupational therapy, physiotherapy and speech therapy students. The evidence is convincing that participation in these programs contributes significantly to the development of transversal, and other, skills fundamental for professional practice in the field of rehabilitation. Future studies are needed to report on the perceptions of relevant stakeholders, especially community partners. Finally, the development of a service learning implementation protocol is proposed to allow for comparisons between studies.

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