

ADDENDUM TO THE ARTICLE:

From service to collective competence: on the relationship between service learning, skills, and participation in higher education

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This addendum (available online at the stable URL <https://hdl.handle.net/10807/326016>) provides some *fine-grained details* of a systematic narrative review aimed at critically examining how two dimensions of service learning – skills acquisition and social/community engagement – are conceptually defined, operationalized, and integrated. In order to make the present document readable, we repeat here some information that is already in the paper. Extra information are the following:

- **A. Details on research platform and databases**
- **B. Figures**
 - **Fig. 1:** distribution, by database, of the 179 records retrieved from the ProQuest platform on July 31st, 2025.
 - **Fig. 2:** Overlap – in number of records – between different databases.
 - **Fig. 3:** Distribution of the 144 valid records (after duplicates removal) along the years of the considered time span.
- **C. Semantic exploration** of the meaning of «engagement», «involvement», «participation» and «skill» in the 144 valid abstracts.
- **D. Bibliography** of the 47 papers selected because, in their abstracts, «skills» and «engagement / involvement / participation» co-occurred in the same sentence.
- **E. Table 1:** categorization of 34 of the 47 abstracts by the weak logical relationships between «skill» and “engage”.

All these details are made available to all readers: (1) so to allow any interested reader to check for the sequence of passages that narrowed down our systematic review to the 13 papers that were finally analyzed; and (2) so to ensure that other researchers can repeat, expand, and modify of our work.

A. Details on research platform and databases

For a significant review, we wanted to search all the main education databases, such as ERIC, Psycinfo and Education Source. After an assessment of various platforms, we

decided to search ProQuest¹, a platform that includes all the needed databases and many more². On July 31st, 2025, we performed the following query:

abstract(“service learning” OR “service-learning”) AND abstract(“higher education” OR college OR university OR “post secondary” OR postsecondary OR “tertiary education” OR graduate OR undergraduate) AND abstract(engagement OR involvement OR participation) AND abstract(skill)

We obtained 179 records from the following databases (in alphabetic order): (1) APA Psycinfo, (2) Coronavirus Research Database, (3) Education Research Index³, (4) ProQuest Central, and (5) ProQuest One Psychology. Some papers appeared in two or more databases, sometimes generating duplicates in our dataset (see next section for duplicates removal).

B. Figures 1, 2 and 3

The analysis in Figg. 1 and 2 was performed *before* cleaning up duplicates, to assess the pertinence of each database and the degree of overlap among them.

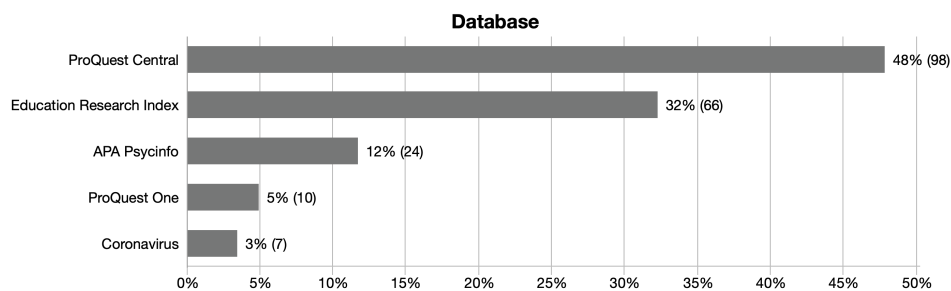


Fig. 1: distribution, by database, of the 179 records retrieved from the ProQuest platform on July 31st, 2025 (see text for query).

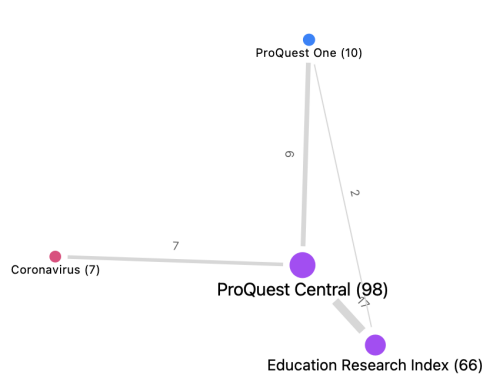


Fig. 2: Overlap – in number of records – between different databases. Psycinfo is absent from the graph because its 24 records were unique. Coronavirus’s 7 records were already contained in ProQuest Central. ProQuest Central and Education Research Index shared only 17 records. And ProQuest One was largely redundant with respect to Central and Education Research Index.

¹ ProQuest is a global leader in educational and research technology, providing access to a vast collection of databases, e-books, and other resources for libraries, researchers, and students. It offers a platform with tools for information discovery, management, and workflow, aiming to improve research outcomes for subscribing organizations. ProQuest is part of Clarivate, a leading information services provider.

² ProQuest encompasses a wide array of databases, covering diverse subjects and content types. ProQuest Central, for example, is a multidisciplinary database with access to numerous other ProQuest databases covering areas like business, health, social sciences, education, and technology.

³ Education Research Index combines two powerful education research indexes, ERIC and the Supplemental Education Index. The unified indexes allow users to search all content via the ERIC thesaurus creating a unified research experience.

After such analysis, 28 records were identified as duplicates and removed, leaving a valid body of 144 records, distributed by publishing date in Fig. 3.

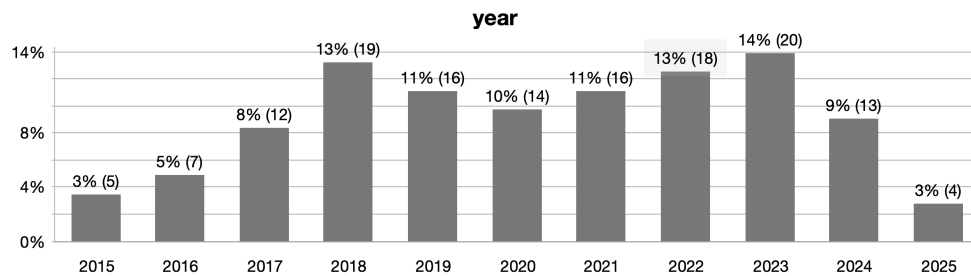


Fig. 3: Distribution of the 144 valid records (after duplicates removal) along the years of the considered time span.

C. Semantic exploration

Before aggregating «engagement», «involvement» and «participation» into a single code (conventionally called “engage”), a semantic exploration of the three terms looked appropriate. For symmetry, a similar, preliminary semantic exploration of «skill» gave the following result. The semantic exploration was performed by reading all the abstracts and inductively categorizing the instances of each term.

In what follows, for each meaning or nuance, we list some references as an example. Many of those references are comprised in the list reported below, section D; and references in bold belong to the group of 13 selected for full text analysis. Only additional references are expanded in footnotes.

- *Engagement* turned out to have many meanings in the considered literature, from active participation and connection (e.g., **Gomez, Fowkes & Price, 2024**, Walcott-Bedeau et al., 2023), to community involvement (e.g., **Gomez, Fowkes & Price, 2024**, Wang et al., 2023⁴; Bopp, 2015), to positive attitudes and confidence (e.g., Ho et al., 2021; Hughes, 2025; van Hoover, 2015⁵). Engagement is also used to highlight interpersonal connection (e.g., Redden & Bugg, 2022; Wang et al., 2023⁶), and bidirectional relationship (e.g., Khiatani & Liu, 2020⁷), and sometimes is listed as a component of well-being (e.g., Demetriou, Lanz & Henry, 2025). Frequently, however, engagement – as we hypothesized in the introduction of our paper – is used to hint to student motivation and investment (e.g., **Getz, 2022; Brand, Brascia & Sass, 2019**) in the context of skills development (e.g., Walcott-Bedeau et al., 2023, Redden & Bugg, 2022; Meiners & Wisdom, 2017; **Brand, Brascia & Sass, 2019**).

⁴ Wang, Y., Dai, K., Lin, Y., & Hong, L. (2023). Bridging bytes and bonds: a qualitative exploration of student experiences in a computer science service-learning course. *Applied Research in Quality of Life*, 19(6), 3039–3056. <https://doi.org/10.1007/s11482-023-10267-9>

⁵ Van Hoover, C. (2015). Innovation in health policy education: project-based service learning at a distance for graduate midwifery students. *Journal of Midwifery & Women's Health*, 60(5), 554–560. <https://doi.org/10.1111/jmwh.12264>

⁶ Wang, Y. Et al. (2023), cit.

⁷ Khiatani, P. V., & Liu, J. K. K. (2019). Reciprocal learning in service-learning? Measuring bidirectional outcomes of college students and service recipients in tutor-based services in Hong Kong. *Innovations in Education and Teaching International*, 57(3), 364–373. <https://doi.org/10.1080/14703297.2019.1607765>

- *Participation* refers to involvement or engagement in various activities, programs, or experiences, often within an educational or community context (e.g., Meiners & Wisdom, 2017; Folgueiras et al., 2020; Godínez Castellanos et al., 2021⁸). Participation can also involve active engagement in learning, community service, research, or other forms of experiential education (e.g., Meiners & Wisdom, 2017; Godínez Castellanos et al., 2021; Dobbins, Edgar & Dooley, 2021⁹).
- *Involvement* encompasses several dimensions: active participation and engagement (e.g., Leary & Sherlock, 2020¹⁰; Tan, Laswad & Chua, 2022; Cabi, 2018), a means to enhance learning, develop social and professional skills, and improve attitudes (e.g., Piol et al., 2019; Suárez-Lantarón & Solís-Galán, 2023), engagement in social concerns (e.g., Piol et al., cit.; Visser & Zweekhorst, 2019; Rodríguez-Nogueira et al., 2020¹¹), reinforcement of values (e.g., Domaradzki, 2022¹²), and engagement of practitioners (e.g., Baldwin et al., 2017¹³).

The term «skills» is used to encompass a range of individual abilities and attributes developed through various educational and experiential learning approaches. These skills include:

- *Hard skills*: subject matter expertise (e.g., Wolf & Previti, 2023), technical abilities (e.g., García-Galera, Martínez-Nicolás & Del-Hoyo-Hurtado, 2021¹⁴), research skills (e.g., Grieve & Murthy, 2023), and practical expertise (e.g., Shuhui, 2018).
- *Soft skills*: communication (e.g., Meiners & Wisdom, 2017; Wolf & Previti, 2023; Lee, Wilder & Liu, 2018¹⁵), teamwork (e.g., Graber, et al., 2017¹⁶; **Brand, Brascia & Sass, 2019**), leadership (e.g., Manning-Ouellette & Hemer, 2019¹⁷), problem-

⁸ Godínez Castellanos, J. L., León, A., Reed, C. L., Lo, J. Y., Ayson, P., Garfield, J., Alva, M., Moreno, M. U., Drake, M. D., Gordon, M., Phillips, S., & Alemán, E. A. (2021). Chemistry in our community: strategies and logistics implemented to provide hands-on activities to K-12 students, teachers, and families. *Journal of Chemical Education*, 98(4), 1266–1274. <https://doi.org/10.1021/acs.jchemed.0c01120>

⁹ Godínez Castellanos, cit.; Dobbins, C. E., Edgar, L. D., & Dooley, K. E. (2021). Facilitating the scholarship of discovery: using the mini-ethnographic case study design. *Journal of Experiential Education*, 44(4), 395–408. <https://doi.org/10.1177/1053825921999685>

¹⁰ Leary, M. P., & Sherlock, L. A. (2020). Service-learning or internship: a mixed-methods evaluation of experiential learning pedagogies. *Education Research International*, 2020, 1–9. <https://doi.org/10.1155/2020/1683270>

¹¹ Visser, M. W., & Zweekhorst, M. B. M. (2019). The development of an evaluation framework on community impact of CSL in the Netherlands. *European Journal of Public Health*, 29(Supplement_4). <https://doi.org/10.1093/eurpub/ckz186.539>; Rodríguez-Nogueira, Ó., Moreno-Poyato, A. R., Álvarez-Álvarez, M. J., & Pinto-Carral, A. (2020). Significant socio-emotional learning and improvement of empathy in physiotherapy students through service learning methodology: a mixed methods research. *Nurse Education Today*, 90, 104437. <https://doi.org/10.1016/j.nedt.2020.104437>

¹² Domaradzki, J. (2022). ‘Who else if not we’. Medical students’ perception and experiences with volunteering during the COVID-19 crisis in Poznan, Poland. *International Journal of Environmental Research and Public Health*, 19(4), 2314. <https://doi.org/10.3390/ijerph19042314>

¹³ Baldwin, J. A., Williamson, H. J., Eaves, E. R., Levin, B. L., Burton, D. L., & Massey, O. T. (2017). Broadening measures of success: results of a behavioral health translational research training program. *Implementation Science*, 12(1). <https://doi.org/10.1186/s13012-017-0621-9>

¹⁴ García-Galera, M.-C., Martínez-Nicolás, M., & Del-Hoyo-Hurtado, M. (2021). Innovation in journalism educational programmes at university. A systematic review of educational experiences at Spanish universities. *El Profesional de La Información*. <https://doi.org/10.3145/epi.2021-may.07>

¹⁵ Lee, S. J., Wilder, C., & Yu, C. (2017). Exploring students’ perceptions of service-learning experiences in an undergraduate web design course. *Teaching in Higher Education*, 23(2), 212–226. <https://doi.org/10.1080/13562517.2017.1379486>

¹⁶ Graber, K. C., Chodzko-Zajko, W., O’Connor, J. A., & Linker, J. M. (2017). Developing leadership skills and a commitment to civic engagement during an undergraduate community-based service learning class. *Kinesiology Review*, 6(4), 317–322. <https://doi.org/10.1123/kr.2017-0028>

¹⁷ Manning-Ouellette, A., & Hemer, K. M. (2019). Service-learning and civic attitudes: a mixed methods approach to civic engagement in the first year of college. *Journal of Community Engagement and Higher Education*, 11(3), 5-18.

solving (Mironesco, 2021¹⁸), critical thinking (e.g., Levine-Brown, 2018¹⁹), interpersonal skills (e.g., Vaidyanathan, Khoursheed & Merrifield, 2023; Biang et al., 2023²⁰), and adaptability (e.g., Huang & Lei, 2023²¹).

- *Personal and professional development*: personal growth (e.g., Sewry & Paphitis, 2018), confidence (e.g., **Knight-McKenna, Hollingsworth & Ammerman, 2019a**), ethical judgment (e.g., Dodson et al., 2022), and civic engagement (e.g., Collins et al., 2021²²).
- *Specific competencies*: skills related to specific fields such as science communication (e.g., Sewry & Paphitis, 2018), intercultural design (e.g., Sánchez-Parkinson et al., 2023²³), and digital literacy (e.g., Arslan & Turk, 2024²⁴).

D. Bibliography

From the 144 valid records, 47 abstracts were selected, in which «skills» and the aggregate «engage»²⁵ co-occur in at least one sentence. Below, we list the references for the 47 abstracts. They are listed by year (most recent to oldest) and, within each year of publication, they are placed in alphabetic order. The 13 references in **bold** were finally selected for full text analysis after the analysis reported below in Table 1. Each of these 13 references is accompanied by a comment and by the precise sentence in the abstract that combines skills and engagement.

1. Demetriou, C., Lantz, C. D., & Henry, K. (2025). Advancing personal and academic growth, community engagement, and skill development through an assistance dog training minor. *Journal of American College Health*, 1–8. <https://doi.org/10.1080/07448481.2025.2455630>
2. Cruz, D. J. L., Guidote, A. M., Jr., Lee Yu, H. L., & Adarlo, G. M. (2024). Assessing the lasting impact of co-curricular service learning in undergraduate chemistry. *Journal of Chemical Education*, 101(5), 1932–1940. <https://doi.org/10.1021/acs.jchemed.3c01333>
3. **Gomez, I., Fowkes, V., & Price, I. (2024). Teaching community engagement for health professions students in underserved areas. *Discover Education*, 3, <https://doi.org/10.1007/s44217-024-00323-3>** The sentence in their abstract («Community engagement concepts incorporated into service-learning experiences help students in the health professions to connect classroom

¹⁸ Mironesco, M. (2020). Service-learning and civic engagement: environmental awareness in Hawai'i. *Journal of Political Science Education*, 17(sup1), 583–598. <https://doi.org/10.1080/15512169.2020.1777146>

¹⁹ Levine-Brown, P. (2018). Book Review: Teaching the whole student: engaged learning with heart, mind, and spirit. *Journal of Developmental Education*, 42(1), 31.

²⁰ Vaidyanathan, A., Khoursheed, L., & Merrifield, S. (2023). Service-learning and community engagement in medical school: do we need to change the way we think about student placements? *British Journal of General Practice*, 73(suppl 1), b1gp23X734181. <https://doi.org/10.3399/bjgp23x734181>; Biang, J. H., Brooks, S. O., Herles, C. M., Borron, A. S., Berle, D. C., & Thompson, J. J. (2023). Understanding the impacts of intensive student internships at a campus agricultural project. *Natural Sciences Education*, 52(2). <https://doi.org/10.1002/nse2.20126>

²¹ Huang, C., & Lei, L. (2023). The impacts of service-learning experience: an exploratory case study of alumni perspective. *Journal of Service-Learning in Higher Education*, 17, 44–56. <https://www.proquest.com/scholarly-journals/impacts-service-learning-experience-exploratory/docview/2890012905/se-2>

²² Collins, L., Hawes, A., Hawthorne, J., Gomez, N., & Saldin, E. (2021). Reading as bearing witness: incorporating the voices of incarcerated youth in honors. *Journal of the National Collegiate Honors Council*, 22(2), 87–99.

²³ Sánchez-Parkinson, L., Moses, N., Burleson, G., Daly, S.R., Holloway, J., Conger, A., Sienko, K.H., & Meadows, L. (2023). Intercultural experiences of engineering students during immersive design projects. *International Journal for Service Learning in Engineering, Humanitarian Engineering and Social Entrepreneurship*, 18(1), 35–51.

²⁴ Arslan, A., & Turk, M. (2023). Wikipedia as an academic service-learning tool in science and technology: higher education case from Siberia. *Journal of Community Genetics*, 15(2), 147–161. <https://doi.org/10.1007/s12687-023-00692-6>

²⁵ «Engagement», «involvement» and «participation» were aggregated as a single code, conventionally called «Engage».

work with clinical practice and learn strategies and skills to improve community health») suggests an attempt at conceptual integration between the considered terms. They describe a «Scholars program in Community Health» designed to train health professions students through service learning in medically underserved communities; «a students' engagement in the mission of their training sites and with surrounding communities» may supply «sustainable or reproducible direct or indirect resources to those sites and communities» (p. 10). Also, experiential learning in real care contexts «may enhance students' knowledge and skills associated with team practices» (*Ibidem*).

4. Guerra-Marmolejo, C., Morante-García, W., Berthe-Kone, O., Chica-Pérez, A., Dobarrío-Sanz, I., Granero-Molina, J., & Ortega-Avila, A. B. (2024). Nursing students' perceptions of learning through a service learning programme with older adults living in poverty in a high-income country: a descriptive qualitative study. *Healthcare*, 12(24), 2493. <https://doi.org/10.3390/healthcare12242493>
5. Hughes, M. V. (2024). Engaging students in a bilingual service-learning health promotion project. *Hispanic Health Care International*, 23(2), 123–128. <https://doi.org/10.1177/15404153241266571>
6. Robinson, A., & Ame, R. (2024). Does international service-learning deliver? A study with control groups of one university's experience with Canada's Queen Elizabeth Scholars Internship Program. *Frontiers: The Interdisciplinary Journal of Study Abroad*, 36(3), 140–177. <https://doi.org/10.36366/frontiers.v36i3.856>
7. Galeotti, G., & Clemente, C. (2023). International Service-Learning for forest fire management and employability in higher education: a qualitative research. *Form@re – Open Journal per La Formazione in Rete*, 23(2), 146–160. <https://doi.org/10.36253/form-14670>
8. Jaworski, J., & Cho, M. (2023). **Implementation of an experiential service-learning course in biomedical engineering design for undergraduate students. *Biomedical Engineering Education*, 3(2), 243-251.** <https://doi.org/10.1007/s43683-022-00103-1> In this abstract we find the intriguing idea of civic engagement as a “lens” to read skills acquisition: «...we provide an example of how to incorporate experiential learning into the biomedical engineering curriculum to address the need for undergraduates to gain the desired skillsets to serve as the next generation of leaders in engineering, medicine, and business all through the lens of civic engagement». In a service-learning course in Biomedical Engineering Design, students work in groups directly with clients, addressing tangible biomedical challenges while developing awareness of social and ethical contexts. As the authors state, their «framework allows the students to reflect on the importance of developing their professional skills along with practicing engineering design through the lens of community engagements» (p. 244).
9. Noguchi, J., Knopov, A., Bencie, N., Mather, T. S., Ricci Chofay, D., Warriar, S., & Rougas, S. (2023). A community-engaged curriculum at Alpert medical school: centering patient communities in medical education. *Rhode Island Medical Journal*, 106(9), 14-19.
10. Saunders, T., McIsaac, T., Baker, T., Beck, K., & Fowles, J. R. (2023). Student-led exercise testing and prescription has benefits for both students and their community volunteers. *Advances in Physiology Education*, 47(3), 633–637. <https://doi.org/10.1152/advan.00131.2022>

11. Suárez-Lantarón, B., & Solís-Galán, G. (2023). Creating inclusive materials: a university Service-Learning experience. *Form@re - Open Journal per La Formazione in Rete*, 23(2), 129–145. <https://doi.org/10.36253/form-14646>
12. Walcott-Bedeau, G., Navarro Garcia, E., Al-Rubaye, H., Stergiou, A., & Mandalaneni, K. (2023). Exploring the value of hosting a grassroots neuroscience workshop that facilitates near-peer engagement between medical students and high school students (local Brain Bee participants) in a developing country in the Caribbean. *Cureus*. <https://doi.org/10.7759/cureus.36222>
13. Wolf, K. C., & Previti, M. (2023). The Pop-Up Museum: A novel approach to project-based service-learning. *Journal on Excellence in College Teaching*, 34(2), 5-31.
14. Boppre, B., Reed, S. M., & Belisle, L. A. (2022). “Real students helping others”: student reflections on a research-based service-learning project in a gender and victimization course. *Journal of Experiential Education*, 46(3), 281–303. <https://doi.org/10.1177/10538259221134873>
15. Dodson, K. H., Baugh, D., Roland, A., Edmonds, S., & York, H. P. (2022). The Peugeot Center Model and Mentoring explored through a case study of the design and installation of a potable water system in Guatemala with ADICAY. *Advances in Engineering Education*, 10(1).
16. **Dunn, E. A., & Bohn, H. J. (2022). Client-based service learning: a public health innovation for strengthening community resilience. *Journal of Homeland Security Education*, 14, 1-8.** In their abstract, «The authors describe the course content, the importance of participatory action research for community partner engagement, the application of experiential learning theory and specific skills strengthened for students, and how their activities fit a socioeconomic model's dimensions». They present a Client-Based Service-Learning (CBSL) program designed to «enable students to engage and understand how to assess and address community needs through research, program planning, implementation, and evaluation» (p. 2). Through the years, the program brings students, faculty, and community partners together to gather data and co-create solutions for vulnerable populations such as migrants, refugees, and the elderly, empowering community resilience.
17. García-Romero, D., & Martínez-Lozano, V. (2022). Social participation and theoretical content: appropriation of curricular concepts in service-learning. *Journal of Higher Education Outreach and Engagement*, 26(1), 71-87.
18. **Getz, M. (2022). Breathing life into conversations on death: using a death café model in a service-learning project. *Innovation in Aging*, Suppl.1, 6, 437.** <https://doi.org/10.1093/geroni/igac059.1715> Students’ reflections touch upon both engagement and skills: «(a) new insights/questions about death encounters/attitudes/practices in America (b) willingness to assimilate and accommodate various aspects of other cultural approaches to death into one’s own philosophy; (c) feelings of accomplishment/awareness of new skills in providing community-based support to people isolated during the pandemic; (d) understandings related to the importance/value of community service and civic engagement; and (e) new found comfort in openly discussing death concepts in this supportive environment». In the context of a gerontology course, the paper explores a service learning project inspired by the Death Café model, in which students and community members meet to discuss death and dying. Engagement is defined as an act of mutual vulnerability and reflection: students engage with older adults, faith leaders, and peers to confront cultural taboos and share

personal narratives around loss and meaning. This process builds both empathy and civic awareness.

19. Redden, L., & Bugg, R. A. (2022). Efficacy and benefits of a required service-learning course in construction management education. *International Journal of Construction Education and Research*, 18(4), 315–332.
<https://doi.org/10.1080/15578771.2022.2100018>
20. Sorge, B. H., Williamson, F. A., Fore, G. A., & Angstmann, J. L. (2022). The role of place attachment and situated sustainability meaning-making in enhancing student civic-mindedness: a campus farm example. *The Journal of Sustainability Education*.
21. Bushman, B., Meek, S., Purpura, M., & Fagan, M. K. (2021). Story hour at a family homeless center: contribution to graduate students' preparation and confidence in preliteracy skills. *Journal of Communication Disorders*, 93, 106124.
<https://doi.org/10.1016/j.jcomdis.2021.106124>
22. Ho, K., Svidinskiy, B. S., Smith, S. R., Lovallo, C. C., & Clark, D. B. (2021). The integration of a community service learning water project in a post-secondary chemistry lab. *Chemistry Education Research and Practice*, 22(3), 602–615.
<https://doi.org/10.1039/d0rp00374c>
23. **Montiel, I., Mayoral, A. M., Navarro-Pedreño, J., & Maiques, S. (2021). Transforming learning spaces on a budget: action research and service-learning for co-creating sustainable spaces. *Education Sciences*, 11, 418.** The article connects action research and sustainability: it «describes the action research (AR) carried out, its main results regarding needs and deficiencies in public high schools in our surroundings, and a subsequent Service-Learning experience promoted by the research group as a solution for upgrading and extending educational spaces and simultaneously developing students' soft skills, empowering youth, participation, local partnerships and other sustainable development goals meeting 2030 Agenda». They account for a Project-Based service learning experience that connects students, teachers, and community stakeholders in redesigning sustainable learning spaces in public schools. Rooted in Participatory Action Research, the project invites students to act as consultants and co-creators, fostering social participation, innovation, and environmental awareness. The «soft» skills developed are directly linked to employability and to the Sustainable Development Goals such as empowering youth, participation, and local partnerships.
24. Queiruga-Dios, M., Santos Sánchez, M. J., Queiruga-Dios, M. Á., Acosta Castellanos, P. M., & Queiruga-Dios, A. (2021). Assessment methods for service-learning projects in engineering in higher education: a systematic review. *Frontiers in Psychology*, 12. <https://doi.org/10.3389/fpsyg.2021.629231>
25. Tan, L. M., Laswad, F., & Chua, F. (2021). Bridging the employability skills gap: going beyond classroom walls. *Pacific Accounting Review*, 34(2), 225–248.
<https://doi.org/10.1108/par-04-2021-0050>
26. Wong, C. K., Berens, P. M., Katta, M. V., Lie, M., Fall, D., Shah, A., Deen, S., Joshi, M., Keenahan, L., Appelbaum, N., Huynh, P. B., & Poythress, E. L. (2021). From education to action: Development and evaluation of a student-directed service learning program. *Medical Teacher*, 44(5), 541–545.
<https://doi.org/10.1080/0142159x.2021.2005242>
27. **Jotia, A. L., Biraimah, K. L., & Kurtz, B. A. (2020). Transformative study abroad programs in emerging nations: Moving toward equitable Global**

North-South partnerships. *Theory into Practice*, 59(3), 279-288.

<https://doi.org/10.1080/00405841.2020.1739954> The abstract suggests a particular attention to community partner engagement: «This research, focused on the development and execution of study abroad programs with the propensity to positively impact their host community, or at least to do no harm, particularly in developing nations – includes analyses of programs that emphasize connecting and coping skills for all participants, community engagement and the avoidance of missionary zeal, and effective service-learning projects». They locate service learning within the North-South study abroad partnerships between two universities, one in the U.S., one in Africa. Engagement is here framed as an ethical and dialogical involvement with host communities, grounded in respect, reciprocity, and sustained collaboration, rather than «charity» or «cultural tourism». The skills developed are essential for enacting this form of ethical engagement, overcoming the paternalistic and consumerist logics that often characterize study abroad programs. The authors emphasize that programs must intentionally avoid asymmetrical power dynamics and promote mutual learning. As they write, the most effective programs are those that «emphasize connecting and coping skills for all participants, [and] a focus on community engagement and the avoidance of missionary zeal» (p. 286).

28. **Brand, B. D., Brascia, K., & Sass, M. (2019). The Community Outreach Model of Service-Learning: A Case Study of Active Learning and Service-Learning in a Natural Hazards, Vulnerability, and Risk Class. *Higher Learning Research Communications*, 9(2), 1-18.** The article emphasizes contribution to the community: «This article provides a case study of how incorporating service learning through a community outreach project can increase student engagement, enhance the depth of understanding of a given topic, build communication and teamwork skills, and contribute meaningfully to the students' community». They present a «community outreach model of service-learning» exemplified by a project developed within a «natural hazards and risk course». The skills enhanced are fostered through the iterative cycle of outreach design and peer–community interaction. The authors note that a «major shift in attitudes and self-efficacy occurred during the development and implementation of their community outreach project» (p. 12) and that the experience «helped students move from apathy to engagement on multiple levels: academic comprehension, skill development, and self-efficacy as community advocates» (p. 17).
29. Karasik, R. J. (2019). Community partners' perspectives and the faculty role in community-based learning. *Journal of Experiential Education*, 43(2), 113–135.
<https://doi.org/10.1177/1053825919892994>
30. **Knight-McKenna, M., Hollingsworth, H. L., & Ammerman, N. (2019). Fostering partnerships with families: academic service-learning in the little village. *Journal of Early Childhood Teacher Education*, 40(2), 57-73.**
<https://doi.org/10.1080/10901027.2018.1514338> The article focuses on relational engagement between students and beneficiary families: «(1) Students entered the ASL experience with excitement and a mostly positive approach; (2) Early to mid-semester, students articulated a high degree of nervousness and discomfort as well as challenges to partnership-building, yet also noted family interest and engagement; and (3) Mid- to late semester, most students expressed their growing confidence in their own skills for relating to diverse families, and identified family strengths». The article describes Little Village, a community-

based academic service learning project that prepares early childhood education students to collaborate with culturally and linguistically diverse families, in a low-income urban area. Service learning is, for the authors, the best way to prepare educators who are aware of «the central role of families in children's lives» and «skilled at establishing trusting partnerships with families to promote children's development» (p. 70) (skills include intercultural communication, collaborative planning, and critical reflection).

31. Piol, M. N., Saralegui, A., Orero, G., Boeykens, S., Basack, S., & Vullo, D. L. (2019). Improvement of laboratory skills of Chemical and Civil Engineering students using an interdisciplinary service-learning project for water quality and supply assessment in low-income homes. *FEMS Microbiology Letters*, 366(12). <https://doi.org/10.1093/femsle/fnz143>
32. **van Rensburg, E. J., van der Merwe, T. R., & Erasmus, M. A. (2019). Community outcomes of occupational therapy service learning engagements: perceptions of community representatives. *South African Journal of Occupational Therapy*, 49(1). <https://doi.org/10.17159/2310-3833/2019/vol49n1a3>** Enhanced community connections are an interesting aspect of this abstract: «(1) increased knowledge and skills, (2) attitudinal change leading to practice reform, (3) increased access to resources and infrastructure, (4) enhanced community connections, (5) enhanced confidence and dignity, (6) enhanced occupational participation, and (7) non-realisation of partnership goals». The study investigates the outcomes of occupational therapy service learning projects in South Africa from the perspective of community representatives, emphasizing reciprocal learning and empowerment. Engagement functions not merely as an educational objective but as the generative principle that produces skills – while those very skills, in turn, deepen engagement.
33. Cheng, S. S. (2018). The practice of professional skills and civic engagement through service learning. *Higher Education, Skills and Work-Based Learning*, 8(4), 422–437. <https://doi.org/10.1108/heswbl-10-2017-0079>
34. Folgueiras, P., Aramburuzabala, P., Opazo, H., Mugarra, A., & Ruiz, A. (2018). Service-learning: a survey of experiences in Spain. *Education, Citizenship and Social Justice*, 15(2), 162–180. <https://doi.org/10.1177/1746197918803857>
35. **Lima, M. (2018). Chance encounters, transformation, and new beginnings. *Journal of Community Engagement and Scholarship*, 11(1), 5-6.** This editorial reflects on how higher education engages with community: «The articles in this issue of JCES tell stories: of a new perspective to gain insight on the effectiveness and nuances of long-term, town/gown relationships; of high school student civic engagement with respect to the great recession of 2008; of a new framework for ensuring community/university partnerships that are equitable; of the role that service learning has in enhancing the global citizenship skills of high school students; and of a service-learning mentoring program focused on leadership development that uses a virtual component to ameliorate geographical and resources issues». Drawing from a serendipitous encounter with a former student and the U.S. National Teacher of the Year, Lima highlights the transformative potential of everyday connections for educators committed to service learning and community engagement. Engagement is portrayed as an ethical posture – a willingness to «listen to stories» (p. 5), to learn through relationships, and to link personal vocation with social responsibility. Within engineering education, Lima argues, engagement humanizes technical expertise

and anchors it in humanitarian purpose. As Lima writes, «There is something energizing about sharing space with engineers who believe that engagement is the key to ensuring that future engineers are humanitarians and not highly skilled barbarians» (p. 5).

36. **Sajdera, K. A., & Ebner, P. (2018). Milk quality assessment: a transferrable international service learning model for undergraduates. *NACTA Journal*, 62(1), 40-46.** The abstract links skills to international engagement: «Following the international experience, students selfidentified dominant themes of communication and cultural competence as skills most often used during the project and most needed for success in international engagement». The authors describe a service learning cross-cultural project on milk quality assessment in rural Romania. The experience involved U.S. and Romanian students who worked with small-scale dairy farmers to analyze milk samples, present findings, and design practical solutions to improve production. By working directly with farmers, students gain insight into international «extension work», developing awareness of cultural contexts and the social dimensions of scientific practice. Students' self-assessments showed that «they were much more motivated to learn about milk quality knowing that they would present what they had learned to farmers in the community» (p. 40).
37. Sewry, J. D., & Paphitis, S. A. (2018). Meeting important educational goals for chemistry through service-learning. *Chemistry Education Research and Practice*, 19(3), 973–982. <https://doi.org/10.1039/c8rp00103k>
38. **Young, S., & Maley, M. (2018). Using practitioner-engaged evidence synthesis to teach research and information literacy skills: a model and case study. *Journal of Academic Librarianship*, 44(2), 231.** The abstract seems to suggest a model in which several processes are instrumentally integrated: «We present a model for teaching research and information literacy skills in the service learning context, making use of the evidence-based practice paradigm and engagement with community partners and practitioners in the field, connecting academic research to real-world practice and problem-solving». The case study centers on a University internship in which one student collaborated with community practitioners from a youth development program to conduct a “Systematic Translational Review” on volunteer recruitment and retention. This dialogic process transforms the student's role from information consumer to knowledge co-creator, fostering understanding of how research translates into real-world action.
39. Meiners, K. M., & Wisdom, C. (2017). Physical therapist students' perceptions from performing strength and conditioning training: academic, professional, and clinical benefits. *Journal of Allied Health*, 46(2), E31-E34.
40. Pitre, C. C., Price, P. G., & Koch-Patterson, P. (2017). Developing civic-minded teacher leaders through service-learning school partnerships. *The Professional Educator*, 41(1), 1-17.
41. **Shalabi, N. M. (2017). Service-learning in Egypt: effects of demographics, course features, and community engagement on civic and developmental outcomes for university students. [Apprentissage par le service communautaire en Égypte: les effets de la démographie, les composantes des cours, et l'engagement de la communauté dans les résultats civiques et liés au développement pour les étudiants universitaires]. *Comparative and International Education*, 46(1), 1-20.** The abstract suggests an attention to

community awareness: «The overall community engagement composite contributed to students' reported outcomes of both enhanced community awareness and interpersonal effectiveness skills». It focuses on students at a private Egyptian university. Using a quantitative design with 61 participants, the research explores how demographics, course features, and community involvement predict civic awareness and interpersonal effectiveness – two developmental outcomes central to service learning. Engagement is conceptualized as students' meaningful participation in community partnerships and extracurricular activities that extend beyond classroom instruction.

42. Soria, K. M., & Johnson, M. (2017). High-impact educational practices and the development of college students' pluralistic outcomes. *College Student Affairs Journal*, 35(2), 100.
43. Goslin, A., van der Klashorst, E., Kluka, D. A., & van Wyk, J., G.U. (2016). Formative reflections of university recreation science students in South Africa as catalyst for an adapted service-learning program. *Australian Journal of Adult Learning*, 56(1), 111-130.
44. Robinson, D. B. (2016). Service learning in Belize: an international internship for physical educators. *Research Quarterly for Exercise and Sport*, Supplement, 87, A128-A129.
45. Zapalska, A. M., Zieser, N., & Kelley, T. (2016). Leadership development in undergraduate programs: an example at the U.S. Coast Guard Academy. *Problems and Perspectives in Management*, 14(1), 30–43.
[https://doi.org/10.21511/ppm.14\(1\).2016.04](https://doi.org/10.21511/ppm.14(1).2016.04)
46. Bopp, M. (2015). Using national initiatives to guide engaged scholarship in the kinesiology classroom. *Kinesiology Review*, 4(4), 385–391.
<https://doi.org/10.1123/kr.2015-0038>
47. Murray, J. W. (2015). Articulating learning objectives for an undergraduate teaching assistant program: merging teaching practicum, leadership seminar, and service learning. *Journal of the Scholarship of Teaching and Learning*, 15(6), 63-77.

E. Table 1 – types of conceptual integration inferred by the abstracts

From the 47 abstracts listed in section D, 34 were excluded from the review, as they did not exhibit hints to an insightful conceptual integration between engagement and skills (Table below).

Level and logical scheme	Sub-level and logical scheme	# of abstracts: references	Emblematic quotes
0: engagement as simply being there	0.1 Participation or involvement or engagement of students are used simply as synonyms to students taking part to the activity	<u>12 abstracts</u> : Demetriou (2025); Guerra-Marmolejo et al. (2024); Galeotti & Clemente (2023); Tan et al. (2021); Wong et al. (2021); Bushman et al. (2021); Piol et al. (2019); Cheng (2018); Pitre et al. (2017); Soria & Johnson (2017); Robinson (2016); Zapalska et al. (2016).	«The research findings confirm the positive relationship between service-learning participation and the development of key soft skills» (Galeotti & Clemente, 2023). «This study supports the notion that service learning engagements help students develop problem-solving skills» (Cheng, 2018).
	0.2 Engagement and synonyms are used with an individual acceptance (one's own engagement in learning)	<u>5 abstracts</u> : Dodson et al. (2022); Sorge et al. (2022); Ho et al. (2021); Queiruga-Dios et al. (2021); Folguez et al. (2020).	«The results demonstrate that both groups of students report favorable engagement and attitudes towards learning chemistry and higher self-confidence levels on performing lab skills after the activity» (Ho et al. 2021).
	0.3 Engagement indicates the practical involvement of faculty or community	<u>3 abstracts</u> : Noguchi et al. (2023); Karasik (2019); Murray (2015).	«Partner recommendations include additional faculty attention to student knowledge of content, skills, and professionalism, as well as increased faculty engagement in all aspects of the collaboration» (Karasik, 2020).
1: community as an opportunity and help for applying and developing individual skills		<u>4 abstracts</u> : Saunders et al. (2023); Walcott-Bedeau et al. (2023); García-Romero & Martínez-Lozano (2022); Bopp (2015).	«These activities help students gain experience by interacting in a professional setting; building skills for data collection, community engagement, and public speaking; and apply content from coursework to real-world situations». (Bopp, 2015).
2: empirical link = both engagement and skills seem impacted by service learning (or lack thereof)		<u>10 abstracts</u> : Hughes (2025); Cruz et al. (2024); Robinson & Ame (2024); Boppre et al. (2023); Suárez-Lantarón & Solís-Galán (2023); Wolf & Previti (2023); Redden & Bugg (2022); Sewry & Paphitis (2018); Meiners (2017); Goslin et al. (2016).	«Each student completed a self-reflection on how the project impacted their transcultural skills and reported increased confidence related to engagement and communication with the Hispanic community» (Hughes, 2025).
	TOTAL:	<u>34 abstracts</u> excluded	