ABMR
APPLIED BUSINESS & MANAGEMENT REVIEW

ISSN 2981-2666
abmr-journal.org
Vol. 1, No. 1 (2025), pp. 1–5

MANAGERIAL PERSPECTIVE

AI Service-Learning (AISL) in Higher Education

ABSTRACT

Service-learning is an educational approach that integrates community-based projects with academic learning commonly in a classroom setting. Reflection is regarded as a crucial element for fostering deeper thinking about community-based solutions (Furco & Novell, 2019). Other common threads within this pedagogy are student participation, action, and reflection (Dymond et al., 2008). The concept of service- learning was defined in the 1960s and then gained more attention in the 1980s (Kenny & Gallagher, 2002). In the 1990s, there was tremendous growth with a focus on civic responsibility (Kenny & Gallagher, 2002). Today, service-learning has become more prominent in the United States as well as internationally. Service-learning provides enriching educational experiences. However, challenges may arise for students and faculty, including frustrations with community partners and the time required to assess service-learning projects (Jacoby, 2014).

While service-learning shares similarities with experiential learning, service-learning distinguishes itself by incorporating opportunities for moral and civic growth (Heffernan, 2001). It prepares students for community-based problem-solving and helps them connect academic learning goals with community needs (Heffernan, 2001). For faculty, service-learning introduces an innovative teaching method that integrates experiential learning into their pedagogy. Community members and partners benefit through increased collaboration, the fulfilment of community needs, and the opportunity to introduce their organizations to students, addressing real-world issues with student involvement. McCarthy & Tucker (2002) found that service-learning has a significant impact on students choosing involvement in community service. Furthermore, service-learning has been more effective than traditional classroom projects when making that connection between course material and theory (Lambright, 2008). This approach to teaching and learning promotes civic engagement, personal development, and academic growth while creating meaningful impacts in the community (Yorio & Ye, 2012).

KEYWORDS Artificial Intelligence · Service-Learning · Higher Education · Experiential Learning · Community Engagement · Civic Responsibility · AI Ethics · Educational Innovation.

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PUBLISHED
1 December 2025

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1 Artificial Intelligence in Education

Artificial intelligence (AI), first introduced in the 1950s, has gained significant attention in recent years (Popenici & Kerr, 2017). Since 2021, there has been an increase in research and publications focused on AI, reflecting its growing importance (Crompton & Burke, 2023). While the United States initially led AI research in education, China has now taken the lead in this field (Crompton & Burke, 2023). Despite its numerous benefits to higher education, concerns about ethics and responsible use remain critical (Mishra & Srivastava, 2024). Nonetheless, AI offers opportunities for innovation and increased student engagement in higher education.

AI in higher education provides several advantages, including improving learning outcomes in coursework and helping students develop skills highly valued in the workplace. It supports personalized learning experiences, enabling students to achieve specific goals. Additionally, AI can streamline administrative tasks, allowing educators to focus more on teaching and learning. However, challenges such as bias, privacy, and access must be addressed. To mitigate these issues, ongoing training and professional development are essential for educators to stay informed about current and emerging AI tools.

2 Intersection of AI and Service-Learning

As AI becomes more popular in higher education, it's also beginning to emerge with service-learning. There are many ways community projects can incorporate AI. Listed below are some general examples of how AI can be involved in these high impact courses: (1) AI-The creation of a resource finder where students can create a chatbot for a local nonprofit's website, (2) AI workshop where students provide guidance for senior citizens on how to use AI tools, (3) AI workshop for schools where students provide after-school programs for middle and high school students about the benefits and challenges of AI, (4) an oral history assignment that allows students to collect oral histories using AI tools, and (5) students creating a workshop or consulting small local businesses that helps them identify and use AI tools for marketing and customer service.

2.1 What is AISL

Artificial Intelligence Service-Learning (AISL) is an innovative educational approach that integrates AI tools and methodologies with traditional service-learning principles. This framework allows students to engage in meaningful community-based projects while applying AI to address real-world challenges. AI Service-Learning emphasizes experiential learning, fostering technical proficiency, and social responsibility. By leveraging AI, students can collaborate with local organizations, underserved populations, or communities to deliver impactful solutions while deepening their understanding of both technology and societal needs (Sass, 2024).

Figure 1: AISL 5-Phase Model



AI Service-Learning is broken down into five distinct phases that creates a process of collaboration, reflection and improvement. The AISL 5-Phase Model is designed to help educators effectively incorporate AISL into their courses and curriculum.

2.1.1 Phase 1: AI Literacy and Training

Before launching the service-learning project, it is essential to establish a baseline understanding of AI among students to ensure the project's success. Educators should administer a brief survey or questionnaire to assess the class's overall knowledge of AI. Based on the results, they should provide online tutorials or in-person training that covers foundational concepts, including the ethical implications of AI. To deepen learning, educators can assign an activity where students explore emerging and popular AI tools. Finally, students' understanding can be evaluated through a reflection exercise or an assessment, such as a quiz.

2.1.2 Phase 2: Community Needs Analysis

In the second phase, educators can initiate the service-learning project with a community needs analysis and assessment. This activity, which can vary in length depending on the course's purpose and goals, involves two key steps. First, students identify and connect with community organizations, leaders, and stakeholders to understand their current challenges and needs. Generative AI tools can support this process by generating targeted questions for specific geographical or societal areas. Second, students collect data about the community, such as demographic, economic, and social information. Generative AI can assist by gathering and summarizing general data to support this effort. Students can then brainstorm potential solutions, using AI to explore innovative or less obvious ideas. However, it is critical to emphasize that students must verify their findings through additional research and direct engagement with the community to ensure accuracy and relevance.

2.1.3 Phase 3: Community-based Learning

Once students have thought about a possible community partner or the instructor has provided one, students should collaborate with community partners to define clear project objectives, so both are on board and agree to the project dimensions. This involves developing a project plan that includes timelines, tasks, roles, and milestones. Make the student know what they are expected to do and how they should communicate with the instructor and the community partners. Begin work on the community project using AI to assist with brainstorming, timelines and checkpoints. Schedule regular check-ins with the student and with the community partner.

2.1.4 Phase 4: Reflective Practice

Phase 4 is essential in service-learning pedagogy. Students should have opportunities to reflect on their project. This can be through group discussions, reflection essays, or journal entries. It's encouraged to have regular reflection sessions at key points in the project, such as after completing orientation, midway through the project, and at the conclusion of the class and/or project. There are several prompts that can encourage students to reflect deeper. Educators can consider including questions about AI bias and challenges using AI with community-based projects.

2.1.5 Phase 5: Evaluation and Feedback

Evaluation and feedback are key to assess the project and redefine a new process if needed. Evaluation includes both student learning outcomes and community impact, such as AI tool usability, community satisfaction, and student skill development. Students can collect surveys from community partners and share project deliverables to evaluate the overall success of the project. To assess student learning, students can share the results of their

project, successes, challenges and recommendations for future projects. Educators should also reflect on the process and the overall success of the AI-infused service-learning project. Reflection can help educators plan the next steps including adjustments. By following this process, it ensures a structured approach that emphasizes both learning and impact, while creating a sustainable model for integrating AI service-learning into community engaged projects.

3 Models for Community-AI Collaboration

Different models can be applied within AI service-learning to create a flexible and community-centered approach: (1) Participatory Design Model: In this model, expert community members are more involved in designing and developing solutions (Drain & Sanders, 2019). AI tools can help ensure shared solutions align with the community members' specific needs and priorities. (2) Service Provider Model: The service provider model is based on providing services for caregivers (McWilliam, 2003). This model in relation to service-learning focuses on AI tools being designed and/or used to enhance current services provided by nonprofit organizations, (3) Capacity-Building Model: "Capacity building as a process that improves the ability of a person, group, organization, or system to meet its objectives or to perform better" (Brown, LaFond, & Macintyre, 2001, p. iii). Focused on education and capacity-building, community members receive specific education and training to manage and develop AI tools they can eventually use on their own, and (4) Consultative Model: This model is focused on skill-building and team problem-solving (Wagner, 2008). More designed in a business format, students or educators act as AI consultants for community members that will assist them in using AI tools effectively.

4 Future Directions and Research Gaps

The integration of service-learning and artificial intelligence (AI) is a relatively new concept, with limited research currently available on this topic. Significant research gaps remain to be explored, including the use of AI tools, addressing AI bias, and fostering cultural awareness and sensitivity in AI applications. Just as the field of AI in education is extensive, so too is the potential for AI in service-learning. Educators and researchers should focus on areas such as conducting longitudinal studies to evaluate the outcomes of AI-driven service-learning, adopting diverse approaches in integrating AI tools into community partnerships, and developing ethical frameworks for AI-based community engagement. These efforts could help establish a more comprehensive understanding of the cross section between AI and service-learning.

5 Conclusion

AI Service-Learning (AISL) represents an experiential approach that merges the power of artificial intelligence (AI) with the principles of service-learning to address real-world issues and challenges. By creating collaboration between students, educators, and community partners, AISL promotes skill development, ethical awareness, and social responsibility. This innovative framework prepares students for an AI-driven future while empowering communities through AI technology and reflective academic learning. By following a structured process, educators can ensure meaningful outcomes, strong partnerships, and impactful contributions to both education and society. As the intersection of AI and service-learning continues to evolve, it offers potential for innovation, equity, and social impact in higher education courses and the community at large.

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