

e-Service-Learning for more digital and inclusive EU Higher Education systems: a new e-SL Design Framework

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Abstract

As e-Service-Learning emerges as a promising tool to foster collaboration and solidarity in Higher Education, there's a pressing need to delve deeper into the factors underlying its efficacy. This paper presents a comprehensive framework of e-Service-Learning design principles and subjects it to empirical validation. Derived from a systematic literature review, the framework's structure was further consolidated through co-design sessions and validated through focus groups involving students, higher education professionals and community partners. Insights from these experts not only reinforce but also refine the initial framework, setting the groundwork for future e-Service-Learning endeavors in higher education. An analysis of the collated data culminated in a framework characterized by four distinct structural elements: three foundational pillars, four sets of design principles, three overarching goals, and a pivotal role of technology as an enhancer of learning. Both the pillars and the design principles are elaborated upon in detail. This study's outcomes hold potential to shape pedagogical strategies in higher education, ultimately driving a more empathetic and contextually relevant approach to learning.

Keywords

e-Service-Learning, design principles, framework, higher education, technology.

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Aprentatge servei virtual per a uns sistemes d'educació superior europeus més digitals i inclusius

Resum

A mesura que l'aprenentatge servei virtual emergeix com una eina amb futur per reforçar la col·laboració i la solidaritat a l'ensenyament superior es fa urgent la necessitat d'aprofundir en els factors subjacents a la seva eficàcia. Aquest article presenta un marc exhaustiu dels principis de disseny d'aprenentatge servei virtual i el sotmet a validació empírica. A partir d'una revisió sistemàtica de la literatura, la credibilitat del marc es veu reforçada per sessions de codisseny i grups focals en què participen estudiants, professionals universitaris i socis de la comunitat. Les aportacions d'experts no només reforcen, sinó que perfeccionen el marc inicial, establint les bases per a futures iniciatives virtuals d'aprenentatge servei a l'ensenyament superior. L'anàlisi de les dades culmina en un marc caracteritzat per quatre elements estructurals diferents: tres pilars fundacionals, quatre grups de principis de disseny, tres objectius generals i el paper fonamental de la tecnologia com a potenciadora de l'aprenentatge. Tant els pilars com els principis de disseny es desenvolupen detalladament. Els resultats d'aquest estudi tenen potencial per donar forma a les estratègies pedagògiques a l'educació superior, impulsant en última instància un enfocament de l'aprenentatge més empàtic i contextualment rellevant.

Paraules clau

Aprentatge servei virtual, principis de disseny, marc, educació superior, tecnologia.

Aprendizaje-servicio virtual para unos sistemas de educación superior europeos más digitales e inclusivos

Resumen

A medida que el aprendizaje-servicio virtual emerge como una herramienta prometedora para reforzar la colaboración y la solidaridad en la enseñanza superior se hace acuciante la necesidad de profundizar en los factores que subyacen a su eficacia. Este artículo presenta un marco exhaustivo de los principios de diseño de aprendizaje-servicio virtual y lo somete a validación empírica. A partir de una revisión sistemática de la literatura, la credibilidad del marco se ve reforzada por sesiones de codiseño y grupos focales en los que participan estudiantes, profesionales universitarios y socios de la comunidad. Las aportaciones de expertos no sólo refuerzan, sino que perfeccionan el marco inicial, sentando las bases para futuras iniciativas virtuales de aprendizaje-servicio en la enseñanza superior. El análisis de los datos cotejados culminó en un marco caracterizado por cuatro elementos estructurales distintos: tres pilares fundacionales, cuatro grupos de principios de diseño, tres objetivos generales y el papel fundamental de la tecnología como potenciadora del aprendizaje. Tanto los pilares como los principios de diseño se desarrollan en detalle. Los resultados de este estudio tienen potencial para dar forma a las estrategias pedagógicas en la educación superior, impulsando en última instancia un enfoque del aprendizaje más empático y contextualmente relevante.

Palabras clave

Aprendizaje-servicio virtual, principios de diseño, marco, educación superior, tecnología.

1. Introduction

The e-SL4EU project “e-Service-Learning for more digital and inclusive EU Higher Education systems” (funded by the European Union under the Erasmus+ KA2 Programme, 2021-2024) focuses on emergence of e-Service-Learning (e-SL) as an innovative pedagogical approach based on experiential learning within the context of higher education in Europe. The project aims at increasing the social responsibility in higher education through the promotion of the use of e-SL as a way for fostering the quality of education, also generating a positive impact on the community organizations they will work with and, consequently, on the wider society.

There are multiple factors influencing learning and student achievement in e-SL activities, but the quality of the lived learning experience is paramount. Paniagua and Istance (2018) highlighted that research on the general principles of good teaching had shown that effectiveness is not determined primarily by the “surface level” of specific teaching methods or ways of organising students, but rather by the “deep level” of instruction, i.e. the quality of interactions between teachers and students around meaningful content (Paniagua & Istance, 2018, p. 22).

The e-SL4EU project addresses the open question of the qualitative transformation of SL into e-SL by offering missing educational resources for HE teachers' training on how to effectively structure training processes and support community organizations in innovation (Culcasi et al., 2023).

The European project involves six partners: University of Silesia in Katowice (Poland), LUMSA University (Italy), Matej Bel University in Banská Bystrica (Slovakia), University of Zagreb (Croatia), National University of Science and Technology POLITEHNICA Bucharest (Romania), and ValueDo s.r.l. (Italy). The needs identified by the cooperation partnerships are:

- The capacity and readiness of HEI teachers to manage an effective shift towards socially inclusive digital education, based on an innovative

pedagogical approach that integrates community service into the students' curriculum (Need 1)

- The digital and instructional design skills of the lecturers, so to exploit the opportunities that new technologies ensure also for Service-Learning (Need2)
- The shift from a transmissive model into an innovative pedagogical approach that integrates community service into students' curriculum (Need 3)
- The active role of users/ students, that should be aware of the opportunities ensured by e-SL (Need 4)
- The possibility to measure the impact of the e-SL activities both on students' learning and on the community (Need 5)
- The focus on the digital skills and competencies that students can develop through e-SL activities (Need 6)
- The possibility to exchange best-practices and guidelines for the organization of e-SL projects (Need 7).

The scope of this contribution is to provide insights into the design process of Service-Learning in the digital environment (e-SL) and into what are the new quality elements to be considered, according to international experts. Specifically, this study aims to present the first e-SL4EU project result (PR1) designed to develop Design principles (DP) and Quality Elements (QE) for e-SL projects.

While e-SL certainly does have specific disciplinary pedagogical choices that influence design and facilitation, Lucas and Thomas (2021) argued for a generalized framework. Following the same line of thoughts an e-SL Design Framework was developed to provide a comprehensive tool that could help faculty, university leaders, community partners, and other stakeholders to design effective and meaningful e-SL activities.

Ultimately, by describing the first results of the European project, the aim of this study is to open a debate on new digital design requirements and quality elements for an effective and inclusive e-SL course.

2. Theoretical framework

In just a few decades, Service-Learning has gone from being a little-known pedagogical approach to becoming one of the most impactful educational strategies (Paz-Lourido & de-Benito, 2021). As Eyler and Giles (2007) state, SL emerged to integrate the potential benefits of experiential learning and community service. Service-Learning involves the complex process of acquiring individual knowledge with inviting positive collective community action (Guthrie & McCracken, 2010).

While SL is not new, a recent innovation is the balanced planning of SL projects in a close interaction with technologies, an acceleration due to the Covid-19 pandemic. According to Sparkman (2020) the technology came to the SL to stay; it is therefore necessary to orient pedagogical reflections towards the search on the current status of this relationship, looking for design principles for what is now known as electronic Service-Learning (e-SL).

According to Modic Stanke et al. (2021) e-SL is a special kind of SL, additionally recognized the emerging role of technology in shaping student's participation in the community and provided a quality experience while meeting the needs of multiple participants from multiple grounds, giving them the ability to make connections across the disciplines.

In an era driven by technology and interconnectedness, in which the boundaries of learning extend beyond traditional classrooms, e-SL combines the potentialities of technology and the principles of experiential education in a dynamic blend (Manasia, 2023). The virtual environment becomes an educational tool that expands working in a local community. It is interesting to notice that, although the e-SL has been expanded during the pandemic, it still works in a post-pandemic phase, leading to potential new paths of experiential

education and offering higher education institutions a new frame seeking to foster meaningful engagement, collaborative learning, and impactful community involvement through technology.

3. Methodology

The Project Result 1 (PR1) of the e-SL4EU Erasmus+ KA2 Programme (2021-2024) -coordinated by LUMSA- aims to develop Design principles for e-SL projects and definition of quality elements for each process step, within a new "e-SL Design Framework".

The process involved six different phases from December 2021 to July 2022 with corresponding methods:

- phase 1: Analyzing the state of the art of e-Service-Learning through a systematic literature review (SRL). Duration: Dec 21 – Jan 22 (3 months);
- phase 2 and 3: Organizing two co-design sessions involving all members of the project partners for proposing design principles and quality elements for an e-SL course. Duration: Feb 22 (1 month);
- phase 4: Elaborating a first list of design principles and quality elements to be evaluated during the next phase. Duration: Mar-Apr 22 (2 months);
- phase 5: Conducting focus groups (one per partner with 12 people each) with HE lecturers, stakeholders and students for validating the design principles and quality elements. Conducting an international focus group involving international experts. Duration: May 22 (1 month);
- phase 6: elaborating the final version of the design principles and quality elements for e-SL within a new "e-SL Design Framework". Duration: Jun-Jul 22 (2 months).

3.1. Literature review

The systematic review was conducted in line with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) that allowed for rigorous search on the following topic: e-SL coverage, technological interaction types used, frameworks adopted, design principles and quality elements. Six Electronic [Culcasi, I.; Cinque, M.; Manasia, L. y Ianos, G. \(2023\). e-Service-Learning for more digital and inclusive EU Higher Education systems: a new e-SL Design Framework. RIDAS, Revista Iberoamericana de Aprendizaje-Servicio, 16, 159-182. DOI10.1344/RIDAS2023.16.10](#)

databases -Web of Science, Scopus, Semantic Scholar, ERIC, ProQuest and Elsevier- were used. Using keywords and filters all partners were involved in the search for articles, each with at least one database in charge. The screening phase started with 188 matched articles from the different databases and ended with 64 included articles. Specifically, the systematic literature review addressed the following questions: What is the coverage of e-SL in higher education? (RQ1); What features do the e-SL projects have? and how do the technological components interact? (Q2); What types of research are available in the literature, what are their main objectives and results? In particular, what are the frameworks adopted for e-SL? (Q3); How do virtual learning spaces enhance and/or impede students' e-SL experience? (Q4); What are the quality elements of the projects analyzed and what are the design principles for e-SL? (Q5).

3.2. Co-design sessions

The co-design sessions -one dedicated to the design principles, one to the quality elements- were nurtured by an extensive state of the art analysis (previous step) that took into consideration the most advanced practices adopted by worldwide HEI. The sessions were implemented using different techniques like Conversation Starters, Brainstorming, Working Group, Rapid Prototyping, and other activities to get the entire group to become an active part of the creative development of a product by interacting directly with the research teams. Indeed, the method is grounded in the belief that all people are creative and that users, as experts of their own experiences, bring different points of view that inform design and innovation direction. The process allowed highlighting divergent and convergent points between the creative work of the partners members involved and the material emerging from the literature. The final results of the two co-design sessions provided the first list of design principles and quality elements for an e-SL course, thanks to a synthesis work led by LUMSA.

3.3. National focus groups

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Based on a common methodology, one national focus group per partner was organized in order to collect feedback on the first list of e-SL design principles and quality elements. Each University involved national experts, HE lecturers already implementing e-SL projects in the past, students who have/have not already taken part in e-SL activities, and representatives of the NGO sector. A total of 58 people joined. The outputs of the focus group consisted of contextual data, final definition and list of design principles and quality elements and a brief description of the emerging themes, changes made and the main reasons for the changes or non-changes.

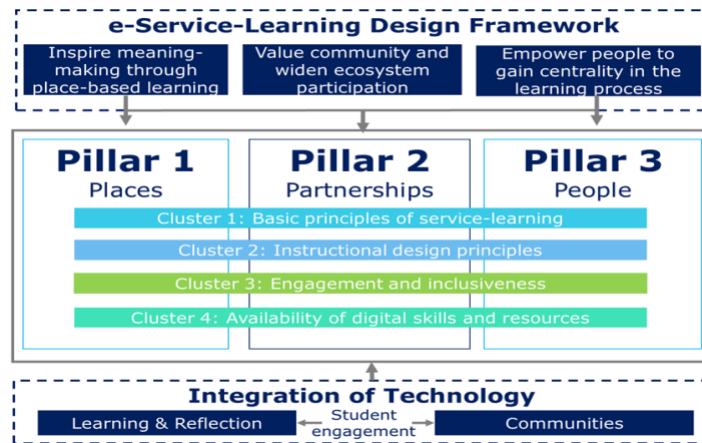
3.4. International Focus group

A final international focus group involving all project partners and 8 HE experts (HE lecturers/trainers) was conducted. Through this process, the partners validated quality elements and design principles that allowed them to finalize the "e-SL Design Framework" and define the milestones on which to create the MOOC for teachers focused on supporting the design of learning experiences.

4. Results: the e-SL4EU Design Framework

This article presents findings from a study that adopted a mixed-methods approach, intertwining SRL with co-design sessions and focus groups. The objective was to formulate and validate design principles and quality elements of e-SL. Drawing from the gathered data, the working group developed the e-SL Design Framework (refer to Figure 1) aimed at facilitating both learning and service design for a diverse array of stakeholders, including university instructors, learning designers, and community partners. The Framework encompasses four structural components: three core pillars, four clusters of design principles, three overarching objectives, and technology serving as a learning catalyst.

Figure 1. The e-SL Design Framework

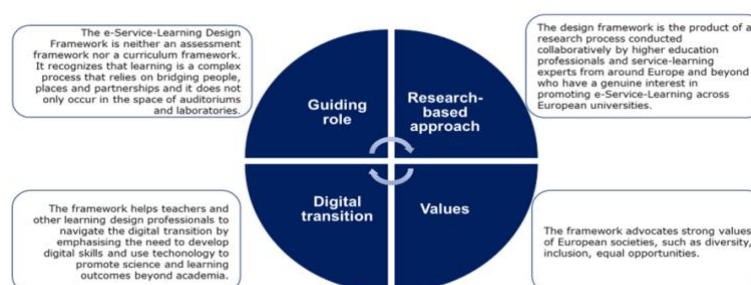


For each component category, the Framework defines essential concepts and interconnects them with other components. While not exhaustive, the Framework's components offer varied perspectives on how universities might approach e-SL and how students might experience it.

The e-SL Design Framework, as an evolving learning framework, presents a refined pedagogical blueprint tailored for e-SL initiatives within tertiary education. It champions broader educational objectives while providing pivotal guidelines for the holistic integration of e-SL.

This Framework encapsulates an expansive perspective on the quintessence of learning and the aspirational academic outcomes in higher education. Concurrently, it cultivates a coherent terminology and understanding, grounded in rigorous consensus, but retains the agility for bespoke contextual adaptations (see Figure 2).

Figure 2. Key features of the e-SL Design Framework



People, places, and partnerships as core pillars of the e-SL Design Framework

Culcasi, I.; Cinque, M.; Manasia, L. y Ianos, G. (2023). e-Service-Learning for more digital and inclusive EU Higher Education systems: a new e-SL Design Framework. *RIDAS, Revista Iberoamericana de Aprendizaje-Servicio*, 16, 159-182. DOI10.1344/RIDAS2023.16.10

The e-SL Design Framework integrates three foundational pillars of the new culture of learning' -places, people, and partnerships (Thomas & Brown, 2011)- and draws on an ecosystem approach to higher education (Cooke et al., 2004; Dalziel, 2015; Finegold, 1999). The pillars synergistically link four principal design clusters, aiming to elevate student engagement. These foundational pillars serve as structural roadmaps for the design journey, with the potential to bolster student engagement and achievement across the quartet of clusters. To expand ecosystem participation, the emphasis is on leveraging both people and partnerships, thereby creating a conducive environment for heightened student involvement. Furthermore, diversifying learning venues is a strategic move to support e-SL, leveraging technology to transcend geographical confines. Place-centric learning harmonizes acquired knowledge with its intrinsic context, aiming to facilitate profound comprehension and identity development (Winthrop et al., 2018). As a consequence of these complex relationships, when implementing e-SL, the pillars intricately guide not just curriculum and course design but also the nuances of service development and the overarching learning experience.

Four clusters of e-SL design principles

The e-SL Design Framework delineates four distinct clusters to systematize the design principles inherent in crafting e-SL activities: (1) Basic Principles of Service-Learning; (2) Instructional Design Principles; (3) Engagement and Inclusiveness; and (4) the Availability of Digital Skills and Resources. In the Framework the concept of cluster is central. These Design Principles, grounded in empirical research, serve as foundational guidelines for conceptualizing e-Service-Learning projects. Each principle, formulated as a key concept, elucidates a particular approach or requisite directive integral to the design process, thereby steering both actions and reflective practices.

1. *Basic Principles of Service-Learning*: in venturing into the domain of e-SL, educators must first ground themselves in the basic principles of the Service-Learning pedagogy. This encompasses not merely forging a palpable connection between learning objectives and service-driven goals,

- but also pivots on addressing societal dilemmas, ensuring pedagogical sustainability, and amplifying both student motivation and engagement.
2. *Instructional Design Principles*: crafting e-SL experiences necessitates that educators adhere to specific instructional design tenets. Paramount among these are endowing learners with centrality and agency, and synergizing various pedagogical strategies in a cogent and impactful manner.
 3. *Engagement and Inclusiveness*: fusing the insights from the aforementioned design principle clusters yields a curriculum that is both engaging and inclusive. With a heightened cognizance of the nuances in e-SL, educators can adopt a holistic stance—incorporating diverse perspectives, championing inclusivity, fostering robust partnerships with societal collaborators, and nurturing technologically-augmented communities of practice. Such adherence to these principles empowers educators to cultivate a continual culture of reciprocity among a wide spectrum of stakeholders.
 4. *Availability of Digital Skills and Resources*: certainly, the formulation of e-SL endeavors necessitates a proficient utilization of technology. Consequently, educators must be discerning of contexts to cultivate the advancement of digital competencies, ensuring that the emphasis remains on pedagogical outcomes rather than the technological mediums themselves. The adept integration of technology not only enhances learning and self-regulation but also facilitates efficacious methods for knowledge synthesis and dissemination.

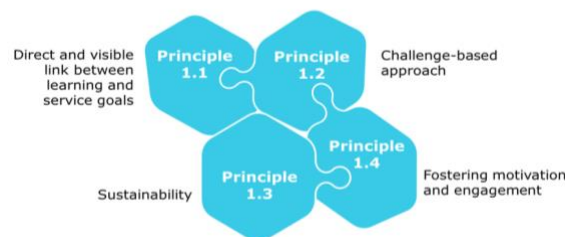
Cluster 1: Basic principles of SL

The first cluster delineates four principles as outlined in Figure 3: Principle 1.1 emphasizes a direct and visible correlation between learning objectives and service aspirations; Principle 1.2 champions challenge-based approaches; Principle 1.3 underscores the essence of sustainability; while Principle 1.4 seeks to intensify motivation and engagement among learners.

Drawing from these foundational principles, it becomes evident that the successful amalgamation of e-SL into curriculum and course design hinges on a nuanced understanding of diverse knowledge realms and academic territories. Beyond the domain-specific profundity, there is a heightened focus on transversal competencies, also referred to as human literacies. For any e-SL-infused program or course, it's imperative to cement a clear and consistent alignment between educational goals and service-oriented targets. Such targets ought to be attuned to the exigencies of the vocational landscape or be shaped by broader societal challenges, directing the educational journey towards marked outcomes. In this schema, prioritizing impact-driven learning accentuates the essence of experiential education, making it profoundly resonant for students by invigorating their intrinsic motivation and engagement. Embracing an interdisciplinary thematic amalgamation, especially one rooted in real-world applicability, warrants priority to ensure learning's relevance. This diversified thematic landscape, replete with choices, inherently amplifies student-driven agency and reflective cognition.

Figure 3. Cluster 1 – Basic principles of SL

Cluster 1: Basic principles



Cluster 2: Instructional design

Within the sphere of instructional design, specific principles stand out as cornerstones for constructing e-SL projects. These principles, although varied, provide a unified direction for educators as they navigate the terrain of e-SL (refer to Figure 4): Principle 2.1 Combinations of pedagogies; Principle 2.2 Student centrality and autonomy; Principle 2.3 Learning awareness /

Constructive alignment; Principle 2.4: Horizontal integration; and Principle 2.5: Vertical integration.

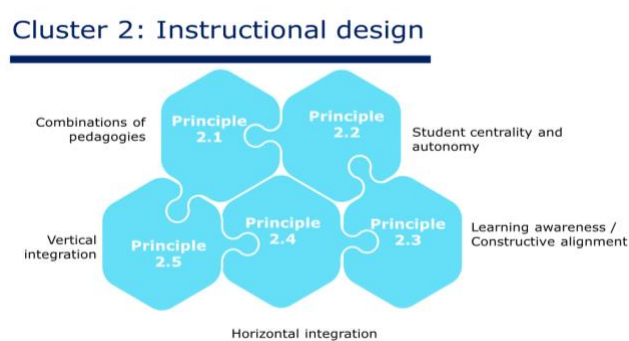
In the realm of e-SL project formulation, there is a conspicuous absence of unanimous agreement on course or service design modalities. This leads to the inference that the orchestration and execution of e-SL initiatives do not adhere strictly to a singular pedagogical blueprint. Instead, they manifest as a confluence of diverse methodologies, integrating both time-honored and pioneering pedagogies in the e-Service Learning landscape.

In this context, two distinct layers of combinations have been identified, encapsulating methodological and organizational facets. The diversification of approaches and methodologies stands as a linchpin in fostering heightened student engagement. Indeed, e-SL is intrinsically an innovative experiential approach to education. Yet, its pedagogical potency is further augmented when intertwined with other educational strategies such as research-based learning, challenge-based learning, gamification, flipped learning, or discussion-based teaching, which have demonstrated effectiveness in nurturing student centrality and autonomy across various contexts.

Navigating the organizational dimension, both horizontal and vertical integrations have proven to be successful strategies in orchestrating e-SL. Vertical integration paves the way for collaborative e-SL projects involving both undergraduate and graduate students, fostering a rich milieu of collaborative learning. On the other hand, horizontal integration facilitates the co-creation of e-SL projects involving multidisciplinary teams comprising students and community partners, thereby enhancing the potential for broader societal impact. Notably, adult and non-traditional students often perceive a heightened potential for community impact when accorded the autonomy to select their service-learning site placements, thereby accentuating the imperative of promoting student collaborative agency. This approach acknowledges the significant role students play in formulating goals, engaging in critical reflection, and adopting responsible actions to instigate positive change.

Moreover, the technological convergence, as highlighted in Cluster 4, enables a versatile amalgamation of synchronous and asynchronous learning activities, enhancing the e-SL projects' breadth and depth. Platforms such as social networks and other collaborative tools can foster student engagement through asynchronous discussions or polls, complemented by resources like wikis, podcasts, or reflection tools that further enrich the asynchronous learning experience in e-SL projects.

Figure 4. Cluster 2 – Instructional design principles



Cluster 3: Engagement and inclusiveness

Within the cluster of "Engagement and Inclusiveness," several principles surface as instrumental in shaping e-SL projects. These principles underscore the significance of holistic involvement and the embracement of diversity: Principle 3.1: Tackle equity, diversity & inclusion; Principle 3.2: Encompass all voices; Principle 3.3: Reciprocity and partnership with communities; and Principle 3.4: Build relationships among students (see Figure 5).

Contextual dimensions not only dictate the appropriateness and efficacy of pedagogical strategies but also delineate the learner demographics and their relevant needs. The interplay of individual, societal, and cultural antecedents emerges as pivotal factors warranting acknowledgment. Empirical findings indicate that non-traditional and marginalized learners are particularly poised to derive benefits from e-SL. The inherent flexibility in attaining learning objectives, coupled with the social regulation of learning trajectories and enhanced peer

interactivity, evidently amplify learning gratification, mitigate cognitive exertion, and galvanize motivation.

In digital learning milieus, it becomes paramount to navigate and harness the novel avenues that technological advancements unveil, especially in fostering connectivity and a sense of communal affiliation. In this regard, technology is harnessed to cultivate adaptive learning environments and streamline the genesis and dissemination of knowledge.

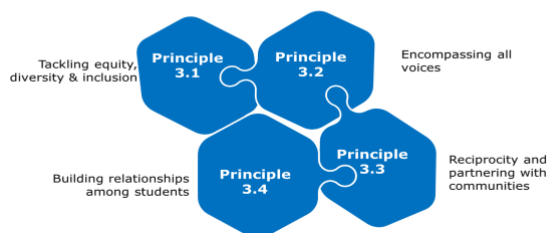
An adaptable design paradigm empowers students to tailor their modus operandi and collaborative groupings, reflecting their multifaceted needs, predilections, and potentialities. Recognizing and addressing variances in student cognition, motivational drivers, foundational knowledge, and experiential backgrounds becomes imperative. Such a paradigm envisions micro-modifications, ensuring augmented support and oversight for students who either teeter on the brink or grapple with academic challenges.

Mandating consistent interaction, particularly through sporadic real-time communication, educators can catalyze community cohesion amongst students, a fundamental precursor to thriving virtual Service-Learning endeavors. Empirical narratives highlight the salience of cultivating a profound sense of community allegiance for e-SL's triumphant outcomes.

In the e-SL paradigm, community emissaries metamorphose into 'pedagogical catalysts'. To optimally perform in this capacity, forging alignments between community partnerships and learning deliverables is essential. Concurrently, community collaborators play an integral role in co-orchestrating the learning journey, occasionally influencing the very essence of learning endeavors, their sequential flow, and the service design blueprint.

Figure 5. Cluster 3 – Engagement and inclusiveness design principles

Cluster 3: Engagement and inclusiveness



Cluster 4: Availability of digital skills and resources

Within the cluster of "Availability of Digital Skills and Resources," a series of guiding principles are elucidated, each underscoring the integral role of technology in e-SL projects. These encompass: Principle 4.1: Skill development; Principle 4.2: Digital tools for flexible learning; Principle 4.3: Technology to help, not hinder learning; Principle 4.4: Technology for critical thinking; Principle 4.5: Online channels for collaboration and two-way communication (see Figure 6).

In crafting e-Service-Learning pedagogies conducive to efficacious learning outcomes, there is a pressing necessity for intricate methodologies and pioneering paradigms. Within this framework, the service component materializes as a conduit to both manifest and consolidate knowledge and aptitudes, particularly amplifying the depth of learning via introspective reflection. The quintessence of this endeavor hinges on invigorating profound online learning strategies, anchoring them in a dynamic and evolving pedagogical architecture.

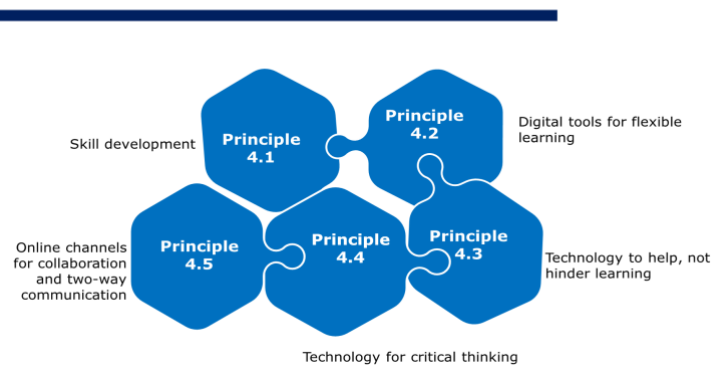
Numerous scholarly investigations centered on Service-Learning within the realm of online technical writing courses have illuminated its efficacy. This pedagogical approach notably facilitates students' connection to pragmatic contexts, nurtures their engagement with target audiences, imbues them with a lucid intent for writing assignments, and catalyzes the assimilation of profound learning tactics. Given the omnipresence of technological interfaces in e-SL, it

becomes imperative to adeptly navigate designs that utilize technology as a pedagogical adjunct, galvanizing both learning and collective endeavors.

Furthermore, it is of paramount significance for educators, and to a measured extent, community affiliates, to possess profound acumen regarding technological utilization and the confluence of technological and pedagogical content knowledge. This ensures a seamless metamorphosis from the casual engagement with social media platforms and analogous virtual arenas to their structured incorporation for pedagogical ends. Consequently, the technological baton is handed over from educators to learners, amplifying their prowess to adeptly maneuver within these digital landscapes, fostering collaboration, and efficiently curating and disseminating both learning and service derivatives.

Figure 6. Cluster 4 – Availability of digital skills and resources design principles

Cluster 4: Availability of digital skills and resources



4. Conclusions

A basic reason why e-Service-Learning deserves such attention is because it is so influential on direction and learning outcomes, boosting the experiential nature of learning and helping students to get working on real societal challenges. As e-SL is increasingly expanding, it is necessary to investigate the factors that determine its effectiveness.

One important factor that influences the effectiveness of e-SL is the quality of e-learning services, especially when e-SL takes place fully online or in a hybrid mode. Pham et al. (2019) found that overall e-learning service quality has a

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direct effect on student satisfaction and loyalty. Universities need to continually improve the quality of e-learning services to bring satisfaction to students. Another factor that affects the effectiveness of e-SL is learners' computer self-efficacy. Chien (2012) found that learners' computer self-efficacy moderates the relationship between system functionality and training effectiveness (Chien, 2012). Higher computer self-efficacy strengthens the relationship between functionality and effectiveness. Therefore, it is important to consider learners' computer self-efficacy when designing e-SL programs. The availability of e-learning facilities is also a key factor in the success of e-SL implementation. Priatna et al. (2020) emphasized that e-learning should be implemented using web-based technology to provide students with access to learning anytime and anywhere (Priatna et al., 2020). Therefore the availability of e-learning facilities at higher education institutions is crucial. Additionally, the pedagogical strategies and management of learning resources play a significant role in the effectiveness of e-SL. Sridharan et al. (2010) highlighted the importance of learner-centered learning, collaborative learning, explorative learning, adaptive learning, concept mapping, and blended learning in e-learning ecosystems (Sridharan et al., 2010). Finally, the use of cloud computing has gained attention as a critical success factor: it offers unlimited computing resources and flexibility, making it a dominant technology for e-learning (Naveed & Ahmad, 2019).

This paper presented a comprehensive Framework of e-Service-Learning design principles derived from a systematic literature review, and subjected to empirical validation (two co-design sessions and national and international focus groups) involving students, higher education professionals and community partners. The innovative aspect of the Framework lies in connecting together the complexity that such a pedagogical proposal implies, incorporating the technological dimension without compromising the solidarity and learning objectives. Indeed, given the ubiquity of technologies and the enormous potential they represent, as well as the huge need for the development of critical thinking associated with

their use, it becomes imperative to skillfully navigate projects that use technology as a pedagogical complement.

In conclusion, the effectiveness of e-SL is influenced by various factors. These include the quality of e-learning services, learners' computer self-efficacy, the availability of e-learning facilities, pedagogical strategies, and the use of cloud computing. By considering these factors, educational institutions can enhance the effectiveness of e-SL and provide students with valuable learning experiences. Ultimately, the study's outcomes hold potential to shape pedagogical strategies in higher education, driving a more empathetic and contextually relevant approach to learning.

Future research should investigate the role of personalized learning in e-SL. Personalized learning involves tailoring educational experiences to meet the individual needs and preferences of learners (Pham et al., 2019). By incorporating personalized learning approaches in e-SL, educators can provide customized content, activities, and assessments that align with students' interests, abilities, and learning styles. This can lead to increased engagement, motivation, and learning outcomes.

Secondly, it is important to explore the impact of social interaction and collaboration in e-SL, when it takes place completely in the virtual environments, which may limit opportunities for face-to-face interaction and collaboration. Research (e.g. Agrawal et al., 2017) has shown that social interaction and collaboration are crucial for effective learning. Future studies should analyze how to foster meaningful social interactions and collaborative learning experiences in e-SL, such as through the use of online discussion forums, group projects, and peer feedback.

Additionally, future research should examine the effectiveness of different assessment methods in e-SL. Traditional assessment methods, such as exams and essays, may not fully capture the skills and competencies developed through e-SL experiences. Alternative assessment methods, such as e-portfolios, videos and presentations may provide a more comprehensive and authentic

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assessment of students' learning outcomes in e-SL. Exploring the use of innovative assessment methods can help ensure that the full range of students' knowledge, skills, and abilities are assessed.

Furthermore, the research should be directed towards the investigation of the role of technology in supporting e-SL. Advancements in technology, such as virtual reality, augmented reality, and artificial intelligence, have the potential to enhance the learning experiences and outcomes in e-SL. Some researches (e.g. Culcasi et al., 2022) already explored the different roles played by technology in e-SL by creating a modelization on four types of technological interaction, from the least to the most complex, while also considering the students' level of digital, personal, and social skills. Research should explore how these emerging technologies can be effectively integrated into e-SL environments to provide immersive and interactive learning experiences.

In conclusion, future studies in relation to e-SL should focus on personalized learning, social interaction and collaboration, alternative assessment methods, and the integration of emerging technologies. By exploring these areas, researchers can contribute to the continuous improvement and effectiveness of e-SL, ultimately providing students with valuable and impactful learning experiences.

References

- Agrawal, V., Agarwal, S. & Agrawal, A. (2017). Perception of employees toward e-learning service quality: exploratory factor analysis. *Industrial and Commercial Training*, 49(7/8), 350-356. <https://doi.org/10.1108/ict-06-2017-0042>
- Chien, T. (2012). Computer self-efficacy and factors influencing e-learning effectiveness. *European Journal of Training and Development*, 36(7), 670-686. <https://doi.org/10.1108/03090591211255539>
- Cooke, P., Heidenreich, M. & Braczyk, H.-J. (Eds.). (2004). *Regional innovation systems: The role of governance in a globalized world*. Routledge.

Culcasi I., Russo, C. & Cinque, M. (2022). E-Service-Learning in Higher Education: Modelization of Technological Interactions and Measurement of Soft Skills Development. *Journal of Higher Education Outreach and Engagement*, 26(4) 39-56.

Culcasi, I., Cinque, M. & Manasia, L. (January 2023). *e-Service-Learning for more digital and inclusive EU Higher Education systems*. Paper presented at the XI National and V International Congress of University Service-Learning, Barcelona, Spain.

Dalziel, P. (2015). Regional skill ecosystems to assist young people making education employment linkages in transition from school to work. *Local Economy: The Journal of the Local Economy Policy Unit*, 30(1), 53–66. <https://doi.org/10.1177/0269094214562738>

Deliwe, A. P. (2021). Factors essential for successful and sustainable e-learning. 7th International Conference on Higher Education Advances (HEAD'21). <https://doi.org/10.4995/head21.2021.12893>

e-SL4EU Erasmus+ KA2 Programme (2021-2024). <https://e-sl4eu.us.edu.pl/en/home/>

Eyler, J. & Giles, D. E. (2007). *Where's the Learning in Service-Learning?*. San Francisco, CA: Jossey-Bass, San Francisco.

Finegold, D. (1999). Creating self-sustaining, high-skill ecosystems. *Oxford Review of Economic Policy*, 15(1), Article 1. <https://doi.org/10.1093/oxrep/15.1.60>

Guthrie, K. & McCracken H. (2010). Teaching and Learning Social Justice through Online Service-Learning courses. *International Review of Research in Open and Distance Learning*, 11(3), 79-94.

Lucas, S. E. & Thomas, N. (2021). Listening to care experienced young people and creating audio-bites for social work education. *Social Work Education*, 40(7), 915–927. <https://doi.org/10.1080/02615479.2020.1762857>

Manasia, L. (ed). (2023). *Facilitation methodology for e-Service-Learning in Higher Education. A Guideline to designing e-Service-Learning experiences*. e-SL4EU Consortium.

Modic Stanke, K., Tomurad, I. & Majdak, M. (2021). Benefits and Implications of a hybrid service-learning model. *ICERI2021 Proceedings*, 740-748.

Naveed, Q. N. & Ahmad, N. (2019). Critical success factors (csfs) for cloud-based e-learning. *International Journal of Emerging Technologies in Learning (IJET)*, 14(01), 140. <https://doi.org/10.3991/ijet.v14i01.9170>

Paniagua, A. & Istance, D. (2018). Teachers as Designers of Learning Environments: The Importance of Innovative Pedagogies. OECD. <https://doi.org/10.1787/9789264085374-en>

Paz-Lourido, B. & de-Benito, B. (2021). Editorial del número especial: El Aprendizaje-Servicio en el Entorno de las Tecnologías Digitales. *EduTec. Revista Electrónica de Tecnología Educativa*, 78, 1-7. <https://doi.org/10.21556/edutec.2021.78.2317>.

Pham, L., Limbu, Y. B., Bui, T., Nguyen, H. & Pham, H. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? evidence from vietnam. *International Journal of Educational Technology in Higher Education*, 16(1). <https://doi.org/10.1186/s41239-019-0136-3>

Priatna, T., Maylawati, D. S., Sugilar, H. & Ramdhani, M. A. (2020). Key success factors of e-learning implementation in higher education. *International Journal of Emerging Technologies in Learning (IJET)*, 15(17), 101. <https://doi.org/10.3991/ijet.v15i17.14293>

Sridharan, B., Deng, H. & Corbitt, B. (2010). Critical success factors in e-learning ecosystems: a qualitative study. *Journal of Systems and Information Technology*, 12(4), 263-288. <https://doi.org/10.1108/13287261011095798>

Sparkman, K. N., Vajda, A. & Belcher, T. (2020). Advancing Human Services Education: Exploratory Study of International Service-Learning and Digital Pedagogy. *Journal of Service-Learning in Higher Education*, 18, 1-18.

Thomas, D. & Brown, J. S. (2012). *A new culture of learning: Cultivating the imagination for a world of constant change*. Soulellis Studio.

Winthrop, R., Barton, A. & McGivney, E. (2018). *Leapfrogging inequality: Remaking education to help young people thrive*. Brookings Institution Press.