



# A Systems View of Supporting the Transfer of Learning through E-Service-Learning Experiences in Real-World Contexts

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## Abstract

Despite the fact that e-service-learning has been regarded as a means to providing students with valuable real-world experiences, the pace of implementing e-service-learning into online courses has not kept up with the overall growth of online learning. Further examination into instructional strategies and supports to facilitate e-service-learning are needed. To address this need, a systematic review of research was conducted to examine instructional supports used to facilitate e-service-learning experiences in an online environment. Many authors recommended the importance of providing the tools necessary to promote collaboration in the online environment. This study proffers a conceptual framework to support the design of learning experiences that promote service-learning, real-world experiences, while contending with contextual factors that impact transfer of learning in authentic contexts. It also examines how instructional scaffolds are being used in digital settings to mitigate design challenges and promote authentic experiences through e-service-learning activities.

**Keywords** Authentic learning · E-service-learning · Instructional supports · Transfer-of-learning

With the growing number of technological resources available to instructors and students learning in digital environments, more emphasis is being placed on promoting authentic learning experiences (Broadbent and Poon 2015; Kim et al. 2014; Lee et al. 2014; Rashid and Asghar 2016; Song and Hill 2007). Authentic learning experiences are activities that provide real-world relevance, are ill-defined, and require the learner to critically practice and apply course content over a sustained period (Herrington et al. 2014; Reeves et al. 2002).

Good instructional design practices should account for bridging the gap between the learning environment and the transfer setting where the learner will most likely apply their newly acquired knowledge (Jonassen 1997; Van Merriënboer and Kirschner 2017). Transference of learning involves a learner being able to utilize the knowledge and skills obtained from learning experiences and apply them to a situated real-world setting (Perkins and Salomon 1994).

One particular instructional method that has been used to provide authentic learning experiences in coursework is service-learning. Bringle and Hatcher (1996) defined service-learning as “credit-bearing educational experience” in which students “gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility” (p. 222). With the growing demand for online course offerings, more instructors are looking for opportunities to incorporate service-learning from a distance. E-service-learning is a learning experience where “the instructional component, the service, component, or both are conducted online” (Waldner et al. 2012, p. 125). This differs from traditional online learning in that there is a community experience that is woven into learning activities. This term has also been used interchangeably with service e-Learning (Dailey-Hebert and Donnelly 2010).

Waldner et al. (2012) suggest that service-learning can be viewed across a spectrum with traditional service-learning on one end of the spectrum and extreme e-service-learning on the other end. They propose a typology for e-service-learning projects to be categorized according to four types of e-service-learning (Table 1). Type I involves course instruction delivered online with the service-learning component being completed onsite at a community site. Type II involves course

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**Table 1** Types of E-Service-Learning (Waldner et al. 2012)

	Course Instruction	Service-Learning Experience
Type I	Online	Onsite
Type II	Onsite	Online
Type III	Blended	Blended
Type IV	Online	Online

instruction being delivered onsite in a face-to-face manner with the service-learning component being completed entirely online. Type III involves a hybrid approach where both instruction and service are taught onsite and online. Type IV, otherwise known as extreme e-service-learning consists of instruction and service-learning experience being completed entirely online.

E-service-learning experiences provide students with an opportunity to apply acquired knowledge to a real-world situation. These activities enable learners to experience first-hand how various contextual factors may promote or inhibit project outcomes. In the last five years, there has been a considerable increase in studies exploring the use of e-service-learning as a pedagogical strategy in distance education (Helms et al. 2015; Shaw 2018; Stefaniak et al. 2018; Yusop et al. 2018).

There are many advantages to incorporating e-service-learning into coursework. E-service-learning activities can remove geographical barriers by bringing learners and community partners together on projects (Waldner et al. 2012). Activities are grounded in a real-world context and provide students with an opportunity to solidify their understanding of course concepts by actively applying what they are learning to an actual project (Conrad and Donaldson 2012; Schwehm et al. 2017); it helps to promote a sense of community in an online environment among learners (Early and Lasker 2018; Lehman and Conceição 2010; Pool et al. 2017; Shea et al. 2006) instructors, and project stakeholders, and it help promotes the importance of self-regulation through reflection during the learning process in an online environment (Broadbent and Poon 2015; Coulson and Harvey 2013; Levesque-Bristol and Stanek 2009; Lynch 2017; Wang et al. 2013).

## Purpose of the Study

With the increase in distance education offerings (Allen and Seaman 2010), instructional designers are tasked with finding new ways to create authentic learning experiences that can be delivered in an online learning platform (Herrington et al. 2014). Despite the fact that e-service-learning has been regarded as a means to providing students with valuable real-world experiences (Dailey-Hebert and Donnelly 2010; Guthrie and McCracken 2010; McGorry (2012); Schwehm

et al. (2017); Strait and Sauer 2004), the pace of implementing e-service-learning into online courses has not kept up with the overall growth of online learning (Waldner et al. 2012). Further examination into instructional strategies and supports needed to facilitate e-service-learning are needed in order to support transfer of learning to real-world situations.

The purpose of this study is to conduct a systematic review of research that examines instructional supports used to facilitate e-service-learning experiences in an online environment. With a continued need for authentic learning experiences in online instructional settings (Bryant and Bates 2015; Moreillon 2015; Yang et al. 2014), this study proffers a conceptual framework to support the design of learning experiences that promote service-learning, real-world experiences, while contending with contextual factors that impact transfer of learning in authentic contexts. It also examines how instructional scaffolds are being used in digital settings to mitigate design challenges and promote authentic experiences through e-service-learning activities.

This systematic review analyzed the research on e-service-learning to answer the following research questions:

1. How was e-service-learning used in these studies?
2. What instructional scaffolds were used to facilitate e-service-learning activities?
3. What challenges did the instructors encounter facilitating e-service-learning activities?
4. What suggestions and implications did the current research have for future exploration of e-service-learning?

## Method

### Inclusion Criteria

The following inclusion criteria were established for the selection of studies to be analyzed in this systematic review.

1. Research must focus on e-service-learning projects that have been implemented. Published research that reported the results of surveying instructors' and students' general perceptions of e-service-learning across multiple institutions (e.g. Prentice and Robinson 2010; Schwehm et al. 2017), were excluded.
2. Research must report detailed descriptions of the e-service-learning instructional activity by reporting quantitative or qualitative data. Theoretical and conceptual manuscripts were excluded from the systematic review but were used to inform the literature review for this study.
3. Research studies must be published in a peer-reviewed journal.

## Identification of Eligible Studies

Relevant research was retrieved from the Educational Research Information Center, Education Research Complete and Education Full-Text, PsycINFO, and Google Scholar. This search yielded 430 papers. Keyword searches were conducted using “e-service-learning” or “service-learning or service learning” in combination with “distance education,” “virtual instruction,” or “online instruction.” No restrictions were put on the date that papers were published as e-service-learning is relatively new compared to service-learning, in general. As a result, 24 papers published from 2003 to 2019 met the inclusion criteria and were included in the analysis.

## Analysis

The studies were analyzed in three phases. During the first phase, each study was reviewed in terms of discipline, type of e-service-learning experience according to Waldner et al.’s (2012) typology, participants, and duration of the course. The second phase involved reviewing each study for challenges that were noted by the researchers regarding the facilitation of the e-service-learning activity(s), and suggestions for future research on the topic. The third phase involved examining the studies for themes related to the transfer of learning, particularly about factors such as perceptions of utility, perceived resources, transfer coping strategies, and social support as identified by Tessmer and Richey (1997).

## Results

### Discipline

All of the studies took place in higher education settings. As indicated in Table 2, the majority of studies

were conducted in education ( $n = 6$ ), communications ( $n = 4$ ), and humanities ( $n = 4$ ) disciplines.

### Types of e-Service-Learning Project and Duration

Each study was categorized according to Waldner et al.’s (2012) typology of e-service-learning experiences (Table 3). A total of 14 studies were categorized at Type I, meaning instructional was provided online with the service-learning experience occurring onsite. Two of the studies were categorized as Type II, meaning that instruction was provided onsite and the service-learning activity was provided online. Four of the studies were categorized as Type III, meaning that the instruction and the service-learning components were blended between online and onsite activities. Lastly, four of the studies were categorized as Type IV, otherwise known as extreme e-service-learning, meaning that all content and service-learning activities were carried out in an online format.

All of the service-learning projects were completed in a semester-long course (Table 4). The majority of the studies ( $n = 19$ ) reported that the service-learning experience and course were conducted during a semester greater than 12 weeks. A total of 5 studies reported completing activities in shorter semester time frames.

### Use of Instructional Supports to Facilitate E-Service-Learning

A majority of the studies mentioned the use of web 2.0 tools to provide opportunities for their learners to engage in an online platform, both asynchronously and synchronously. Instructors mentioned the benefit of posting recorded videos on the course website for students to refer to as they were working on different projects (Stefaniak 2015; Bourelle 2014; Michael et al. (2018)). Many authors recommended the importance of providing the tools necessary to promote collaboration in the

**Table 2** Disciplines in the reviewed studies ( $n = 24$ )

Discipline	N	Studies
Architecture	1	Sandy and Franco (2014)
Art History	1	Gasper-Hulvat (2018)
Communications	4	Bourelle (2014); Garcia-Gutierrez et al. (2017); Shaw (2018); Soria and Weiner (2013)
Humanities	4	Burton (2003); Goertzen and Greenleaf (2016); Gurthrie and McCracken (2010); Purcell (2015)
Education	6	Stefaniak (2015); Stefaniak et al. (2018); Alexander and Khabanyane (2013); ChanLin et al. (2016); Michael et al. (2019); Tracey and Kacin (2014)
International Relations	1	Harris (2017)
Library Science	1	Becnel and Moeller (2017)
Business	1	Hagan (2012)
Music	1	Pike (2017)
Nursing	1	Early and Lasker (2018)

**Table 3** Types of e-service-learning studies among the reviewed studies ( $n = 24$ )

Type of e-service-learning	N	Studies
Type I	14	Alexander and Khabanyane (2013); Becnel and Moeller (2017); Bourelle (2014); Burton (2003); Early and Lasker (2018); Gasper-Hulvat (2018); Goertzen and Greenleaf (2016); Guthrie and McCracken (2010); McClure and Fuhrman (2011); Michael et al. (2019); Mironesco (2014); Purcell (2015); Sandy and Franco (2014); Shaw (2018)
Type II	2	ChanLin et al. (2016); Garcia-Gutierrez et al. (2017)
Type III	4	Stefaniak (2015); Hagan (2012); Harris (2017); Jordaan (2014)
Type IV	4	Stefaniak et al. (2018); Pike (2017); Soria and Weiner (2013); Tracey and Kacin (2014)

online environment (Stefaniak 2018; Maddrell 2015; Bourelle 2014). Tracey and Kacin (2014) encouraged their learners to participate in impromptu design sessions where students logged onto Google Hangouts at the same time and worked on their projects together. This provided their students with an opportunity to interact via video and provide immediate feedback to one another as they shared their work using other Google applications.

While instructors provided a variety of tools for learners to use to collaborate, the authors recognized the importance of allowing students to determine what would work best for their groups. Michael et al. (2018) reported that after interacting with the tools provided by the instructors, they developed their own Facebook page where they could provide status updates to one another regarding their projects. Bourelle (2014) utilized a class wiki page where students could continue to edit and refine their work.

While every project recognized the importance that reflection serves in e-service-learning activities, the Stefaniak (2015) found that students completing journaling assignments throughout the semester provided the instructor with the opportunity to provide frequent feedback on their projects as well as help them connect their service-learning projects to the course content. These journals provided a space for students to communicate any frustrations they may have been encountering throughout the process.

While these instructional technology tools can provide a great deal of assistance in bridging students, instructors, and

community partners together from a distance, the instructional designer must be cognizant of students' familiarity with the technologies provided (Guthrie and McCracken 2010; Tracey and Kacin 2014). E-service-learning provides a mechanism to promote student engagement through multiple learning exercises through the duration of a course. Transfer of learning can be supported through the integration of reflection activities that are strategically dispersed throughout the course to allow for students to build upon newly acquired skills and knowledge.

### Challenges with Facilitating E-Service-Learning Experiences

Regardless of discipline or type of e-service-learning project being implemented, it is critical that the e-service-learning course is student-centered and encourages students to take an active role in their learning experience. Recognizing that online learning requires a higher level of independence, e-service-learning projects can benefit the learning experience by having students actively engage with the course content and with others in the course, ultimately achieving a higher level of participation and autonomy (Bourelle 2014). It is important the instructor communicates and manages clear expectations to their students in terms of what is expected of them during the e-service-learning experience (Stefaniak 2015; Soria and Weiner 2013).

**Table 4** Duration of e-service-learning studies among the reviewed studies ( $n = 24$ )

Duration of Project	N	Studies
< 12 weeks	5	Burton (2003); Early and Lasker (2018); Harris (2017); McClure and Fuhrman (2011); Pike (2017)
12- week semester	19	Stefaniak (2015); Stefaniak et al. (2018), Alexander and Khabanyane (2013); Becnel and Moeller (2017); Bourelle (2014); ChanLin et al. (2016); Garcia-Gutierrez et al. (2017); Gasper-Hulvat (2018); Goertzen and Greenleaf (2016); Guthrie and McCracken (2010); Hagan (2012); Jordaan (2014); Michael et al. (2019); Mironesco (2014); Purcell (2015); Sandy and Franco (2014); Shaw (2018); Soria and Weiner (2013); Tracey and Kacin (2014);

Communicating with community partners appeared to be a frequent source of contention as mentioned in the studies. Many of the studies suggested that students and/or community partners felt a disconnect and expressed wanting more interaction during the project (Bourelle 2014; McGorry 2012). Other challenges that may present during the project are the community stakeholders lack of awareness in terms of what the students are doing for their projects (Goertzen and Greenleaf 2016).

Maddrell (2014) advocates that all project parties must “have a clear understanding of the desired student learning outcomes, the needs of the client, the goals and boundaries of the project, information and access needs, roles of all stakeholders required...” (p. 219). She emphasizes the need for role definition and the importance for the community partner to identify key individuals in their organization who will be responsible for interacting with the learners during the service-learning experience.

Another area that instructors must be mindful of when facilitating e-service-learning projects in their online courses is their students’ access to materials and community partners (ChanLin et al. 2016). Nielsen (2016) noted a challenge with distance learning students in isolated and rural areas finding opportunities to engage in service-learning. This is particularly an issue if a Type I e-service-learning model is being implemented. A solution to this would be to communicate expectations to both students and the community partners and facilitate means for them to communicate with one another in a virtual space.

A challenge that instructional designers must be aware of is how to address cultural diversity during the e-service-learning project. One of the benefits to traditional service-learning experiences where learners would complete activities in their local community is that they were often familiar to them. Instead, students who are engaged in extreme e-service-learning or Type II e-service-learning may experience a disconnect between understanding the community they are serving (Gasper-Hulvat 2018; Guthrie and McCracken 2010; Hinck 2014; Mironesco 2014). Harris (2017) emphasizes the importance for students to understand the socio-cultural context in which their projects are to be delivered. “In the virtual model, students [have] to experience immersion of a different kind—by engaging in intense research about the social, cultural, and political context” (Harris 2017, p. 109). Soria and Weiner (2013) advocate that e-service-learning experiences provide students to “remain grounded in the real world” (p. 190) as they work on their projects.

### Suggestions for Future Research

As evidenced by the relatively few studies providing examples of e-service-learning activities that were included in this systematic review ( $n = 24$ ), there is a need for further exploration to support these types of authentic learning experiences

in online environments. Soria and Weiner (2013) advocate for additional research to be conducted across multiple disciplines to examine the impact that e-service-learning experiences have on student learning outcomes in online courses. To solidify the transfer of knowledge, Bourelle (2014) suggests that research is needed to examine how the goals of service-learning are directly aligning with the subject matter competencies required for individual classes.

The second area of foci requiring attention is the need to unite community partners and learners. While Waldner et al. (2012) touted that a benefit of e-service-learning is that it removes the geographical boundaries traditionally imposed by face-to-face onsite service-learning programs, it also poses several challenges in terms of providing effective mediums for communication. ChanLin et al. (2016) recommend that ongoing analysis is needed to explore the dynamics involving how students and community partners interact with one another in an online environment. This is especially important for studies that are categorized as a Type IV or extreme e-service-learning experience.

### Implications for Ensuring Transfer of Learning

As previously mentioned in this article, Tessmer and Richey (1997) have indicated that perception of utility, perceived resources, transfer coping strategies, and mechanisms for social support are all factors that contribute to learners’ transfer of learning. Table 5 provides examples of strategies an instructor may incorporate within their e-service-learning course to facilitate their learners’ transfer of learning.

Perceived utility accounts for the extent that a learner believes that the activity will be useful to their professional development (Tessmer and Richey 1997). Students need to make the connection between what they are learning and how they will be able to use this to support future career aspirations (Jordaan 2014; Soria and Weiner 2013). It is also important for instructors to communicate project expectations to their students. Maddrell (2014) suggests that developing a student contract between the instructor and the student is a good document to refer back to during the project to ensure that students are staying on task. Tracey and Kacin (2014) suggest imposing project management tools to help students plan the time needed to complete tasks. This strategy also serves as a coping strategy when students are feeling overwhelmed carrying out a project in a real-world context.

E-service-learning projects encourage students to take an active role and responsibility in their learning experience (Bourelle 2014; Goertzen and Greenleaf 2016; Waldner et al. 2010). Oftentimes, this increased role in participation helps students demonstrate their problem-solving abilities and critical thinking skills (Garcia-Gutierrez et al. 2017; Larson 2006; Matthews & Zimmerman 1999; Waldner et al. 2012).

Another example is imposing flexible deadlines depending on the nature of the e-service-learning projects. Several



**Table 5** Strategies to support the transfer of learning in e-service-learning activities

Factor	Strategies
Perceptions of utility	Expectations of activities align with students' competencies Communicating expectations of autonomy Flexibility during project
Perceived resources	Use of learning management tools (i.e. discussion boards, video conferencing) Access to community partners and stakeholders
Transfer coping strategies	Journaling Project management tools Virtual tours of environment Class discussions aligning projects with course concepts
Social support	Group forums (i.e. Facebook, wikis) Virtual team meetings

studies noted that the instructor needed to be flexible and willing to adjust project timelines depending on circumstances that were not in control of their students (Stefaniak 2015; Michael et al. 2018; Tracey and Kacin 2014).

In addition to learners believing that they have the skills necessary to carry out the tasks related to the project, it is also imperative that they believe that they have the necessary resources to accomplish the work. Examples of resources include providing students with access to tools they can use to communicate with project stakeholders (Bourelle 2014). These tools may include class discussion boards, wikis, video conferencing, and social media forums. Several authors (Stefaniak 2015; Becnel and Moeller 2017; Guthrie and McCracken 2010; Helms et al. 2015; Pike 2017; Tracey and Kacin 2014) mentioned that providing these resources is simply not enough; the instructor should provide an orientation to the tools and resources to help students gain familiarity.

Transfer coping strategies are strategies that an instructor may rely on to help learners in the real-world environment as they encounter challenges (Tessmer and Richey 1997). Examples may include journaling throughout a course so that an instructor can provide immediate feedback (Stefaniak 2015), incorporating project management tools to help students manage their resources (Tracey and Kacin 2014), providing virtual guides of a community to cultivate a better understanding of the environment (Sandy & Fuhrman, 2014), and facilitating class discussions regarding challenges experienced during the project and the relationship between course concepts (Bourelle 2014).

It is important to consider what social resources students may need to support their transfer of learning. Due to the perceived geographical disconnect that may sometimes occur during e-service-learning projects, the instructor must work to promote a learning environment where there is sufficient interaction between the students and the instructor, peers, and community partners. Examples of social support may include providing the technological resources needed for students to interact with the community partners (Jordaan 2014; Soria and

Weiner 2013) and access to the appropriate community stakeholders (Maddrell 2015). Providing these experiences for students to interact with members of their community to complete authentic tasks enhances their interpersonal skills in addition to supporting their knowledge acquisition (Goertzen and Greenleaf 2016).

## A Conceptual Framework to Support Learning Transfer in E-Service-Learning Activities

There are few conceptual frameworks have been developed to guide instructional design practices for e-service-learning activities (Bourelle 2014; Guthrie and McCracken 2014; Yusop et al. 2017). Many e-service-learning studies have relied on the community of inquiry framework (Early and Lasker 2018; Lynch 2017; Pool et al. 2017) for their theoretical grounding. While these frameworks support varying aspects of instructional design considerations, one can argue that a systems view of instruction has been neglected. Figure 1 presents an overview of how an instructional designer or educator may utilize a systems view to design instruction that meets the requirements of e-service-learning, adheres to the principles of situated learning, and addresses factors that influence the transfer of learning.

This framework suggests that the instructional designer view the course instruction and e-service-learning experience as two separate subsystems that interact and influence one another within the larger learning system (the course). In the instructional subsystem, the instructional designer is responsible for presenting course content and coordinating the persons (students), objects, and processes involved in the learning process.

The classroom and e-service-learning project subsystems have a reciprocal relationship in that they simultaneously inform and enhance the students' experiences. The e-service-learning projects help students ground course concepts by applying their knowledge to real-world scenarios (Bourelle 2014; ChanLin et al. 2016; Pike 2017; Waldner et al. 2012).

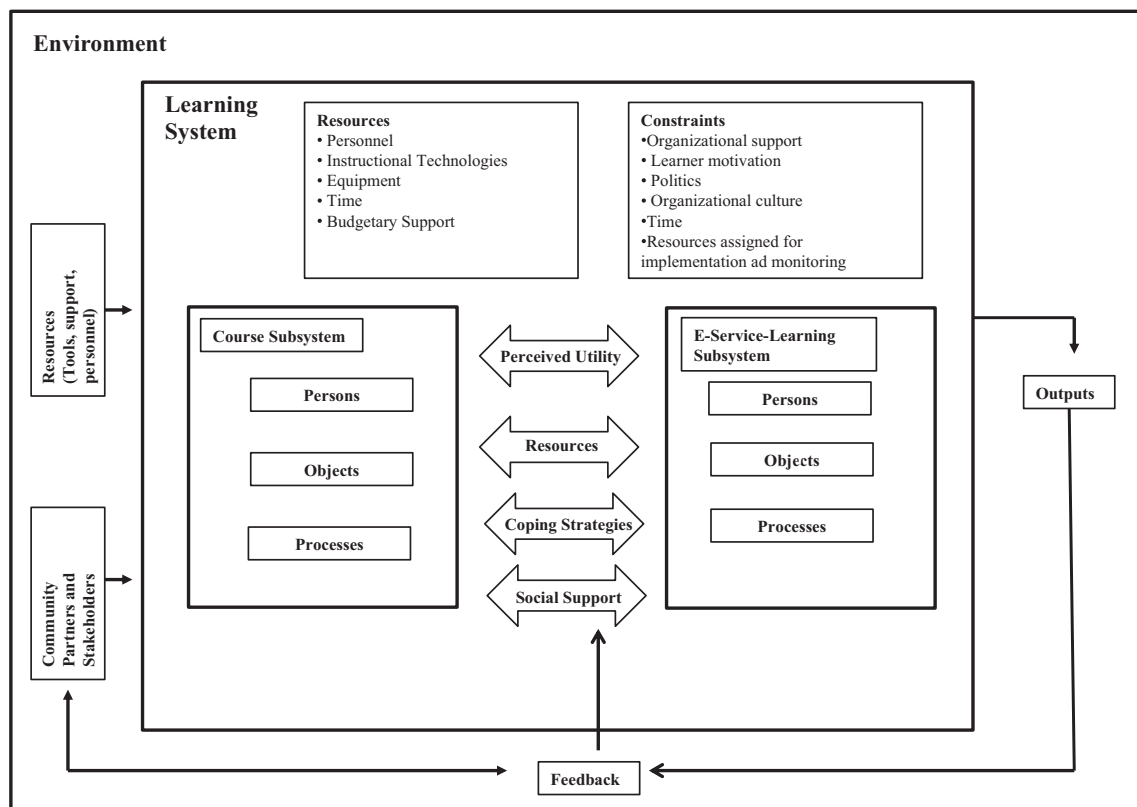


Fig. 1 Utilization of a Systems View to Design E-Service-Learning Experiences

As projects are underway, the instructor needs to engage their students in discussions specifically about how their service-learning projects are aligning with the subject matter and course competencies (Bourelle 2014; Helms et al. 2015).

As students interact within both subsystems, the instructor must provide supports to help them transition from one subsystem to another, thus ensuring a smoother transfer of learning. The instructor needs to help students understand the relevancy of their e-service-learning project as it relates to the course (Becnel and Moeller 2017). Instructors can enhance students' perceptions of utility by engaging them in discussions, providing them with transfer strategies to help them address challenges during the project. Design-based research would be especially helpful in designing, testing, refining, and extending the theoretical foundations of this pedagogical design (McKenney and Reeves 2019; Wang and Hannafin 2005).

## Conclusion

Proponents for e-service-learning advocate that these online experiences eliminate geographical boundaries traditionally imposed by local face-to-face experiences (ChanLin et al. 2016; Harris 2017; Hinck 2014; Waldner et al. 2012). These experiences provide students with opportunities to ground content they are learning in courses to real-world contexts

(Bourelle 2014; Soria and Weiner 2013; Waldner et al. 2010). These experiences better prepare students for the expectations that they will most likely experience in future jobs (Stefaniak et al. 2018; Soria and Weiner 2013; Jordaan 2014).

In order to ensure the transfer of learning, instructors must contend with technological nuances unique to online instruction (Guthrie and McCracken 2010; Lee et al. 2016; Michael et al. 2018; Tracey and Kacin 2014). By promoting mechanisms for clear communicating between the instructor and students, among students, and with community partners, the instructor is better positioned to deepen their learners' understanding of the content.

This article offers a framework for supporting learning transfer in e-service-learning activities. It recognizes the role of the instructor in facilitating learning by addressing perceived utility and resources related to the experience, providing transfer coping strategies, and providing a mechanism to promote social support among the class and project stakeholders. By taking a systems view and viewing the course and the service-learning experience as two separate subsystems, the instructor can better visualize what is needed to deepen students' understanding and transfer of learning to real-world contexts.

## Compliance with Ethical Standards

**Conflict of Interest** The author declares that they have no conflict of interest.

This systematic review of research did not involve human subjects.

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