

## Improving Student's Learning Outcomes through E-Service Learning Based on Authentic Learning Strategy

Valerie Bukas anak Marcus<sup>1\*</sup>, Noor Azean binti Atan<sup>2</sup>, Nurul Farhana Jumaat<sup>3</sup>,  
Juhazren Junaidi<sup>4</sup>, Mohd Nihra Haruzuan Mohamad Said<sup>5</sup>

<sup>1,2,3,4,5</sup>Universiti Teknologi Malaysia, Malaysia  
vbukas2@live.utm.my

Received: 21 September 2018

Received in revised form: 2 October 2018

Accepted: 15 October 2018

Published: 1 November 2018

### ABSTRACT

Student Learning Outcomes are statements that determine what the students know, can do or can demonstrate when they have completed or participated in a course. In order to achieve optimum student learning outcomes in a course at Higher Education Institutions, assessments should be conducted in a meaningful and authentic learning environment, such as service learning. However, for courses involving students from various faculties and across-discipline, they need a technology as a medium for better cooperations in the process of teaching and learning. Therefore, the purpose of this study was to examine the effects of online platform use in the service-learning programme, based on an authentic learning strategy towards Student Learning Outcomes (SLOs). A quantitative research design was used to conduct this research, involving 30 undergraduate students from different faculties who enrolled in one of the co-curriculum courses. The data analysis involved a pre-post-test in learning activities score. An analysis of Student Learning Outcomes (CLO1, CLO2, and CLO3) through a series of service learning activities in an online platform, based on authentic learning, showed an increment in the students' scores. Thus, this study concluded that integrating e-Service Learning in an authentic environment provides a further enhancement of Student Learning Outcomes.

### Keywords

e-service learning, online learning, authentic e-learning

### Introduction

Student Learning Outcomes (SLOs) are defined by Boyd (2010) as statements that describe the assessable and measurable knowledge, skills, abilities or attitudes which students should attain by the end of a learning process. Prentice and Robinson (2010) mentioned that, the drawback of assessing student learning in specific courses or disciplines is that, the focused assessments given by teachers are not easily translatable into a deeper understanding of how students accumulate learning across institutions. Therefore, they suggested conducting service learning, well in tandem with one of the key initiatives included in the Malaysian Education Blueprint, introduced by the Ministry of Education Blueprint in 2013 to enhance student learning experience. The Blueprint indicated that, student learning experience can be enhanced with the increased use of experiential and service learning to develop the 21<sup>st</sup> century skills, as well as leveraging technology-enabled models to empower personalized learning (Ministry of Education, 2016). Service learning is a programme that seeks to encourage student learning through experience related with services in the community (NYLC, 2005). Service learning provided students with the opportunity to help others and to reflect the way they have benefited from doing so (Bringle and Hatcher, 1996). It promotes engagement with the community, classmates and the instructor as well as the course content by putting theory to practice through their experiences.

Authentic learning, as a pedagogical approach, enhances a meaningful learning, as this approach is based on the situated learning theory which highlights the importance of learning in the context. It facilitates the learners to use their existing knowledge, understand it in the context of the training, apply their knowledge, analyze and evaluate situations, and create new outcomes. Authentic learning is most effective when actually carried out in real-life locations and practices. However, it is now proven that, it can also benefit learners through a carefully designed Web-based environment. Apart from increasing students' academic retention, service learning with an authentic

learning strategy has also been proven to enhance all round real-life skills, as found by Liu (2015). The study showed that, authentic learning, such as writing the proposal for a real-life problem, can generate a potential solution, as the service learning portion of the assignment can provide a specific real-life location for problem solving. In addition, the study also indicated that, authentic learning experience can inspire students to move further to serve the

community. By doing so, the gap between the authentic learning and service learning can be bridged, thus, potentially leading students acquire all round real-life skills and a sense of providing services to the community.

## Literature Review

### Students Learning Outcomes

Student learning outcomes (SLOs) are often defined as an articulation of knowledge on what students know or can do after completing a course or a programme. One of the main challenges about the adoption of learning outcomes is the philosophical one that academic study should be open-ended and that learning outcomes do not fit in with this liberal view of learning (Adam, 2004). Prentice and Robinson (2010) mentioned that, the downside of assessing student learning in specific courses or disciplines is that, the focused assessments given by teachers are not easily translatable into a deeper understanding of how students accumulate learning across institutions. Besides, they stated that, it was difficult to compare student learning among diverse institutions of education across the country. In their research, they suggested one plausible approach that can be used as a common method of instruction to assess students' learning outcomes, in the form of service learning.

### E-Service Learning

According to Eyler and Giles (1999), service learning is a pedagogical approach that necessitates students to link the course content to the service context through reflection and discussion. However, service learning is at the risks of being left behind as instructors increasingly transit to online learning platforms. Although most service-learning is arranged and planned locally, some service learning projects have online components. Many educators consider abandoning service learning initiatives when migrating to online teaching as they view the online medium as a barrier to service learning. However in reality, online learning is a facilitator rather than a barrier to service learning. Online service learning, also known as e-Service Learning, holds a great potential to transform both service learning and online learning from geographical constraint provided that online platforms are equipped as a tool to promote engagement. A prior research by Waldner *et al.* (2012) presented that, there are four types of service learning. In the first type, Hybrid Type I, the service is fully conducted on site with teaching fully online, while in the second type, Hybrid Type II, the service is provided fully online while the teaching is also fully online. The third type, Hybrid Type III, is a blended format of instruction and service, done partially online and also on site, while the fourth type, the extreme e-Service Learning, has its instruction and service done fully online.

Unfortunately, there is a lack of in-depth studies investigating this type of service learning. As such, there is a need to help in promoting e-Service Learning pedagogy by doing more related researches to better understand its outcomes. This will enable the possibility to break the technology barrier, so that, there will be a more effective and smooth transition to an online service learning platform. As for this study, e-Service Learning was defined by the researcher as Hybrid Type III, due to the nature of the course learning outcomes intended to be investigated. Waldner *et al.* (2012) suggested a further research to promote an e-Service Learning pedagogy in terms of gaining a more in-depth understanding about it, hence, the reason this study was conducted. In addition to this, many researches have been carried out solely on the effectiveness of authentic learning principles in service learning, without relating these two components in online platforms.

The e-service learning platform in this study was based on Massive Open Online Courses (MOOCs). Numerous researches have emerged for the past few years among enthusiastic advocates of MOOCs. The interactive technology promised to deliver teachings from high standard institutions, such as, Harvard, Stanford and MIT. David Pritchard, one of the MIT physicists and other researchers published a study of Mechanics ReView, an online course, taught based on an on-campus course of the same name. They found out that, MOOC was generally effective at communicating tough material, such as, Newtonian mechanics, even to students who were not from the MIT background. In addition, students who started the online course knowing the least about Physics, showed some significant improvement during tests, as much as excellent students'. With this in mind, the same results were sought by the researcher while conducting the service learning through online platforms.

Not much is known about the most effective types of approaches to service learning. Service Learning is a student-directed teaching and learning strategy that empowers students to make a difference in addressing real-world and authentic problems related to academic contents. By definition, an authentic learning is a real-life learning. As the elements of an authentic learning strategy are quite similar with the service learning process, they both complement each other very well. To engage learners with both the course material as well as participating in service learning, a model that is ideally suited to improve students' learning outcomes, Authentic Learning strategy, was implemented in this study.

## Authentic Learning

According to Herrington *et al.* (2009), authentic learning has its foundation in the theory of situated cognition or situated learning, together with other pedagogical approaches developed over the last two decades, such as, anchored instructions. The technologies associated with e-learning provide ideal affordances for the approach, both in blended and fully online courses. A well-designed task and the activities students are engaged in, may enable and facilitate complex learning and motivate and engage students in its execution. A well-designed task can be so much more than an opportunity for students to practice and apply their learning. Authentic learning provides students with realistic experiences to acquire knowledge, collaborate, learn the way to ask good questions and show their understanding. More details of authentic learning implemented in this paper are discussed in the section below.

## Methodology

An online learning platform based on Massive Online Open Courses (MOOCs) was created as an online platform for the e-Service Learning. Learning activities are designed based on an authentic learning strategy as mentioned by Herrington *et al.* (2009) (Refer Table1).

**Table 1.** Elements of Authentic Learning in Learning Activities

No	Learning Activity	Elements of Authentic Learning
1	Lesson Notes and Mind Tester	1 <sup>st</sup> - Provide authentic contexts that reflect the way the knowledge will be used in the real life
2	Preparation of Organizational Chart – Field Visit – Proposal Writing	4 <sup>th</sup> - Provide multiple roles and perspectives 1 <sup>st</sup> - Provide authentic contexts that reflect the way the knowledge will be used in the real life 2 <sup>nd</sup> - Provide authentic tasks to the learners 8 <sup>th</sup> - Provide coaching and scaffolding by the teachers at critical times
3	Presentation of Proposal	7 <sup>th</sup> - Promote articulation of tacit knowledge to be made explicit
4	Implementation of Service Learning	2 <sup>nd</sup> - Provide authentic tasks to the learners 3 <sup>rd</sup> - Provide access to expert performances and the modelling of process 7 <sup>th</sup> - Promote articulation of tacit knowledge to be made explicit 8 <sup>th</sup> - Provide coaching and scaffolding by the teachers at critical times 9 <sup>th</sup> - Provide for authentic assessments of learning within the tasks
5	Writing Final Report	7 <sup>th</sup> - Promote articulation of tacit knowledge to be made explicit 9 <sup>th</sup> - Provide for authentic assessments of learning within the tasks

This paper used a quasi-experimental design with a quantitative approach. The quasi-experimental design involved selecting groups, upon which a variable was tested without any random pre-selection process. The samples in this study comprised a total of 30 undergraduate students taking one co-curriculum subject as their elective subject for their degree programme. Purposive sampling was used, as all students from one section were chosen as samples in this study. A total of three series of learning activities with pre-post assessments were conducted by the researcher, consecutively, to compare the marks for each assessment in this course in order to evaluate the effects of the treatment from the e-Service Learning programme, based on their learning outcomes (Refer Table 2).

**Table 2.** Course Learning Outcomes

Course Learning Outcomes	Details
<b>CLO1</b>	Organize ICT (Information, Communications and Technology) information through training and exploration of its use, in line with technological developments
<b>CLO2</b>	Encourage engagement and respect the views of members of the group in solving authentic issues regarding ICT integration in the development of community activities.
<b>CLO3</b>	Analyze and decide on implementing service learning programme, taking into account the views of each group member and the impact on the community

**Table 3.** Distribution of Marks for Assessments

Learning Activities	Student Learning Outcomes	Graduates' Attributes	PRE-ASSESSMENT	POST-ASSESSMENT
<b>A</b>	CLO1 CLO3	SC1, TW1, TW2, AD3, GC3	Learning Portfolio for Service Learning Programme & Presentation	Final Report for Service Learning & Presentation
<b>B</b>	CLO1 CLO2	TW1, TW2, AD3	Documentation Proposal by Committee	Final Project Documentation by Committee
<b>C</b>	CLO2 CLO3	TW1, TW2, GC3, AD3	Cabling Project in Computer Lab	Cabling Project in School

For a fair evaluation, researcher decided to use a rubric guideline from Centre of CoCurricular and Service Learning (CCSL) UTM. This guideline help researcher to evaluate student's learning outcomes in more organized way based on UTM Graduates Attributes. There are four attributes involved in this rubric which are scholarship, global citizen, leadership and teamworking skills and also, adaptability. According to this rubric, there are 4 types of tasks that students need to complete. There are Finding Information, Outdoor Class Project, Service Learning Activity and Final Report of Service Learning from the students. For this purpose of study, the researcher has broken these down into 6 kinds of tasks under three different learning activities.

Learning Activity A involved two course learning outcomes (CLO), namely, CLO1 and CLO3. There were four graduates' attributes involved in this learning activity, namely, Scholarship (SC1), Leadership and Teamworking Skills (TW1 and TW2), Adaptability (AD3) and Global Citizen (GC3). For Pre-Assessment 1, students were required to prepare a learning portfolio for their service learning program and present their outcomes in the class. Meanwhile for Post-Assessment 1, students were required to write their final report for the service learning and present their final output (Refer Table 3).

The second learning activity, Learning Activity B, involved two course learning outcomes, CLO1 and CLO2. In this activity, three graduates' attributes, namely, Leadership and Teamworking Skills (TW1 and TW2) and Adaptability (AD3) were sought by the researcher. Documentation proposal is their Pre-Assessment 2 meanwhile the final project documentation of overall project matter is their Post-Assessment 3. Students were evaluated according to their roles in the Service Learning program committee.

Last but not least, there were two course learning outcomes involved in Learning Activity C, which were CLO2 and CLO3. Throughout this activity, four graduates' attributes were used for the evaluation purposes. They were, Leadership and Teamworking Skills (TW1 and TW2), Adaptability (AD3) and Global Citizen (GC3). Students were required to go through a network cabling project in computer lab for their practical hands-on after series of lectures for their pre-assessment. Then, for the post-assessment, they undergo a Service Learning program for more exposure in big scale of network cabling project. Students' assessments were evaluated by the researcher through observation. The observation marks were later reviewed by the lecturer of this course for more accurate findings. Marks for each

student were computed in 100 percent each. Rubrics from the Centre for CoCurriculum and Service Learning (CCSL UTM) were used by the researcher as a guideline to evaluate students' learning outcomes. The findings from students' learning outcomes are tabulated according to the range, as in Table 4. The range of the marks was derived from UTM Academic Guidelines (2015).

**Table 4.** Range of Students' Learning Outcomes

Marks	Level of Student's Learning Outcomes
90 – 100	Excellent
80 – 89	Very Good
75 – 79	Good
70 – 74	Satisfactory
65 – 69	Fair
60 – 64	Unsatisfactory
55 – 59	Pass
50 – 54	Poor
45 – 49	Very Poor

As seen in Table 4, students' learning outcomes were assessed according to the range of marks from their pre-post assessments in each of the learning activities involved. The highest range of marks, from 90 until 100, indicated that, the students were able to achieve their learning outcomes at the excellent level, while the lowest range of marks indicated a very poor level of students' learning outcomes. Using this range as a practical guideline enabled the researcher to identify the level of each students' learning outcomes in a more detailed manner. The results from this study can be used as a reliable resource for future research references.

## Results

### Analysis of Pre-Post Assessment for Learning Activity A

The mean for marks in Pre-Assessment 1 is 45.73, while that for marks in Post-Assessment 1 is 89.17 (Refer Table 5). Based on these two means from the analysis, it can be seen that, the mean for marks in Post-Assessment 1 is greatly higher than that in Pre-Assessment 1. The increased mean for marks in the Post-Assessment 1 indicates the ability of the Service Learning programme to improve students' learning outcomes. The marks scored for the post-assessment are in the range of 73-100, with a total of 33.3% of the students getting 80% and higher. The minimum mark achieved for this assessment was 73%, implying the students' learning outcomes being at a satisfactory level only. Table 6 shows inferential statistics for this learning activity. A nonparametric test, Wilcoxon Signed Ranks, was used as the data which was not normally distributed.

**Table 5.** Descriptive Statistics for Pre-Post Assessment 1

	N	Mean	Std. Deviation	Minimum	Maximum
<b>APre</b>	30	45.73	7.786	37	63
<b>APost</b>	30	89.17	8.902	73	100

**Table 6.** Wilcoxon Signed Ranks Statistics for Learning Activity A

	APost - APre
<b>Z</b>	-4.809 <sub>a</sub>
<b>Asymp. Sig. (2-tailed)</b>	0

A Wilcoxon signed-rank test showed that, Post-Assessment 1 ranks for Learning Activity A was statistically significantly higher than Pre-Assessment 1 ranks,  $Z = -4.809$ ,  $p < .005$ . Thus, it can be concluded that, there is a

significant difference in the students' performance, before and after the implementation of the service learning programme, which enhanced their learning outcomes in this subject.

### Analysis of Pre-Post Test Assessment for Learning Activity B

The mean for marks in Pre-Assessment 2 is 54.30, while that for marks in Post-Assessment 2 is 61.10 (Refer Table 7). Based on these two means from the analysis, it can be seen that, the mean for marks in Post-Assessment 2 is slightly higher than that in Pre-Test, although some students did not show an improvement after the Service Learning programme through this assessment. The range of marks for Post-Assessment 2 is between 57% - 67%, with a total of 40% of the students scoring 63%. The minimum mark for this assessment was 57%, indicating that, the students' learning outcomes were only at the passing level. It can be deduced that; the Service Learning programme does not have an enormous affect in this learning activity. Table 8 shows inferential statistics for this learning activity.

**Table 7.** Descriptive Statistics for Pre-Post Assessment 2

	N	Mean	Std. Deviation	Minimum	Maximum
<b>BPre</b>	30	54.30	14.549	2	65
<b>BPost</b>	30	61.10	3.166	57	67

**Table 8.** Wilcoxon Signed Ranks Statistics for Learning Activity B

BPost - BPre	
<b>Z</b>	-3.796 <sub>a</sub>
<b>Asymp. Sig. (2-tailed)</b>	.000

A Wilcoxon signed-rank test showed that, Post-Assessment 2 ranks for Learning Activity B was statistically significantly higher than those for Pre-Assessment 2,  $Z = -3.796$ ,  $p < .005$ . Hence, it can be concluded that, there is indeed a significant difference in the students' performance, before and after the service learning programme, which enhanced the students' learning outcomes in this subject. Although there is a slight increment of mean values in marks for Post Test, this result does not have a huge influence on improving the students' learning outcomes, even after the Service Learning programme.

### Analysis of Pre-Post Test Assessment for Learning Activity C

The mean for marks in Pre-Assessment 3 is 57.93, while that for marks in Post-Assessment 3 is 77.13 (Refer Table 9). Based on these two mean values from the analysis, it can be seen that, the mean for marks in Post-Assessment 3 is greater than that in Pre-Assessment 3. This enormous difference proves that, the Service Learning programme is really effective in improving students' learning outcomes for this activity. The students showed a great improvement and the range of marks scored is in between 68% – 87%. A total of 20% of the students scored 72% in their Post-Assessment 3. The minimum mark achieved for this assessment was 68%, indicating that, the learning outcomes for this assessment was at a fairly good level after the Service Learning programme. Table 10 shows inferential statistics, Paired Sample T-Test for this learning activity.

**Table 9.** Descriptive Statistics for Pre-Post Assessment C

	N	Mean	Std. Deviation	Minimum	Maximum
<b>CPre</b>	30	57.93	2.303	53	62
<b>CPost</b>	30	77.13	5.631	68	87

**Table 10.** Paired Differences of Pre-Post Assessment 3

Paired Differences		95% Confidence Interval			t	df	Sig. (2-tailed)
Mean	Std. Deviation	Std. Mean	Lower	Upper			
-19.200	1.59217	.5346	-21.196	-17.204	-19.671	29	.000

Based on the T-Test output in Table 10, results of this assessment are significant ( $t = 19.671$ ,  $df = 29$ ,  $p < 0.05$ ). These findings showed that, there is a significant difference in the students' performance, before and after the service learning programme, enables the enhancement of the students' learning outcomes.

Based on the overall findings of this study, Service Learning programme proved its ability to improve students' learning outcomes as the mean marks for all the post-assessment in each learning activity improved. The most tremendous impact was shown in Learning Activity A, where the mean marks for Post-Assessment 1 increased drastically, compared to the other learning activities. It is expected that, after going through the programme, students were able to understand better to express their tacit knowledge into documentation and presentation. Meanwhile, Service Learning programme is also able to enhance the students' learning outcomes in Learning Activity C, which is to do with practical hands-on in installing network and infrastructure. Although the effect was not as great as in the Learning Activity A, but the majority of the students did very well in this activity which caused an increase in their mean marks for Post-Assessment 3.

## Discussions and Conclusion

Researchers conducted three series of learning activities related to this research objective. These three learning activities included pre-post assessment for evaluation of the effect of treatment from the Service Learning program. First, Learning Activity A comprised of creating a learning portfolio for Service Learning program as pre-assessment meanwhile students need to write a final report for Service Learning program and present their output as post-assessment. Through this learning activities, students will be able to organize information through training and exploration of its use in line with technological development. Apart from that, students also will be able to analyze and decide on implementing service learning program taking into account the views of each group member and the impact on the community. Based on the findings tabulated in Table 5, the increment of mean marks for Post-Assessment in this learning activity suggest that the Service Learning program is able to improve student's learning outcomes in this course. In addition, findings in Table 6 also indicated that there is a significant difference of ranks between Pre- and Post- Assessments. Therefore, researcher concluded that the Service Learning program able to enhance student's learning outcomes at satisfactory level.

Next, for Learning Activity B, students were required to write a documentation proposal by roles that they have been assigned as their pre-assessment and writing final project documentation as their post-assessment. The outcomes of these learning activities are that the students were expected to be able to organize their information and also encourage them to engage and respect the views of members of the group in solving authentic issues regarding ICT integration in the development of community activities (Ebrahimi, 2016). Findings in Table 7 shows that the mean marks for post-assessment of this learning activity is slightly higher than the pre-assessment. Researcher suggests that Service Learning program has minimal effect on this learning activity. In addition to this finding, the inferential statistics that displayed in Table 8 prove that there is statistically significantly higher ranks for student's post-assessment marks. Hence, researcher concluded that the Service Learning program is able to improve student's learning outcomes at the minimum passing level only.

Last but not least, students were anticipated to engage and improve their teamworking skills as they need to work in a team during the implementation of service learning program for Learning Activity C. Based on Table 9, it shows that mean marks for post-assessment is increasing in a great number. This enormous difference shows that Service Learning program have a great influence on this learning activity. Furthermore, inferential statistics in Table 10 suggest that the result of the post-assessment is significant. As a conclusion, researcher conclude that Service Learning program is effective in enhancing student's learning outcomes at fairly a good level for this course.



In improving student learning outcomes, it is important to use a suitable strategy and learning approach to achieve the desirable results. A recent study by Bettencourt (2015) proved that students' service learning experiences supported most course-specific learning outcomes when student's learning outcomes are designed carefully and defined clearly. This study investigated using the service learning program based on authentic learning strategy to improve learning outcomes with technology-integrated subject, so the researcher was able to monitor participants' process of learning by using student learning outcome as a benchmark. Apart from this, participants of this study also are able to practice classroom theory into a real-world situation resulted in an authentic and meaningful learning. By injecting Authentic Learning strategy in conducting this Service Learning program, it allowed participant to be able to assess the problem in real life situation and come out with a proposed idea to solve the problem which it draws upon learner core strength in addition to use the skills that they are developing personally. Moreover, learning by doing through this Service Learning using Authentic Learning strategy for approach enables student to be more interactive among peers and increase their understanding in the subject matter. In fact, students were also able to acquire and improve their soft-skills or more known as graduates' attributes through this technology-integrated, project-based service learning. The majority of the students involved in this study achieved improved marks in their Post-Assessment, indicating that, they were really able to experience an active learning while going through the e-Service Learning programme. With the support of online learning platform in delivering the content, students are able to experience globalized online learning.

### **Limitations and Future Studies**

Despite the encouraging findings in this study, there is a need for additional researches to explore the impacts of the programme on greater numbers of participating students and academics. A sample size in this study limits the generalizability of the results. More comparative studies are needed to explore the learning outcomes among participating students and their non-participating peers. A strategy or framework of assessing students' learning outcomes should be developed in the future, specifically in terms of the way service learning benefits should be assessed accordingly, because it seems that, assessments of course-specific comprehension has not been affected much by the skills gained in the service learning experience.

### **Acknowledgement**

The authors would like to express their greatest appreciation to Universiti Teknologi Malaysia for supporting this study. The authors would also like to gratefully acknowledge the support provided by the UTM Dana Pembangunan Pengajaran (CTL) with the Cost Center No. R.J130000.7731.4J238.

### **References**

- Adam, S. (2004), Using learning outcomes: a consideration of the nature, role, application and implications for European education of employing learning outcomes at the local, national and international levels, July, Report on United Kingdom presented at the Bologna Seminar, Heriot-Watt University, Edinburgh.
- Bettencourt, M. (2015). Supporting student learning outcomes through service learning. *Foreign Language Annals*, 48(3), 473-490.
- Boyd, M., & Vitzelio, T. (2010). A guidebook to student learning outcomes and administrative unit outcomes.
- Bringle, R. G., & Hatcher, J. A. (1996). Implementing service learning in higher education. *The Journal of Higher Education*, 221-239.
- Blueprint, M. E. (2016). Blueprint 2013-2025. (2013). *Ministry of Education, Malaysia*.
- Ebrahimi, S. S. (2016). Effect of Digital Reading on Comprehension of English Prose Texts in EFL/ESL Contexts. *International Journal of English Language and Literature Studies*, 5(2), 111-117.
- Eyler J. S., Giles D. E., Stenson C. M., Gray C. J. At glance: What we know about the effects of service-learning on college students, Faculty, Institutions and communities, 1993–2000: third edition. Campus Compact.

Herrington, J., Reeves, T. C., & Oliver, R. (2009). *A practical guide to authentic e-learning*. Routledge.

Prentice, M., & Robinson, G. (2010). Improving student learning outcomes with Service Learning. *American Association of Community Colleges (NJ1)*.

Waldner, L. S., McGorry, S. Y., & Widener, M. C. (2012). E-service-learning: The evolution of service-learning to engage a growing online student population. *Journal of Higher Education Outreach and Engagement*, *16*(2), 123-150.