

The Effectiveness of E-Service-Learning on Student Developmental Outcomes during COVID-19: Comparison against the Traditional Service-Learning

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Abstract.

COVID-19 accelerates the adoption of e-learning for different types of curriculums, including experiential learning such as service-learning (SL), however its effectiveness and success factors are still under-researched. Using the mixed method, this study reveals the effectiveness of e-service-learning (E-SL) and its good practices, by contrasting the student developmental outcomes between the traditional face-to-face SL and E-SL. This paper compares two different cohorts of students in a Hong Kong university who took the same credit-bearing undergraduate management course under the same setting, including instructor, curriculum, and assessment criteria, but engaged in traditional SL and E-SL in different academic years. They rated on various developmental outcomes based on their perception with a self-reporting quantitative measurement instrument before and after SL experience. Qualitative method was also employed to analyze students' learning artefacts, to explain differences in student developmental outcomes between the two cohorts and identified any good practices for E-SL. Results show that a significant enhancement in student developmental outcomes arise from SL experience for both cohorts. Despite no significant difference between the two cohorts regarding the effectiveness of enhancing student developmental outcomes, E-SL appears to slightly outperform traditional SL. The qualitative analysis has also generated various good practices, such as stakeholders' commitment and students' constant reflection, from which students could flip the challenges posed by the online environment in E-SL into learning opportunities facilitating their performance.

Keywords: e-service-learning; student developmental outcomes; good practices; reflection; stakeholders' commitment

1. Introduction

COVID-19 accelerates educational sector to adopt online education in training and development. Service-learning – a form of experiential learning – is no exception. Online service-learning, or e-service-learning (E-SL), has been employed by higher education institutions globally during the pandemic in response to lockdowns, school closure and social distancing measures. Online education is not something new and has been adopted for decades; however, it has never been implemented on such a large scale. Although there is prior research on experiential e-learning (ee-learning) integrating experiential learning and e-learning, its

focus is on professional and practical learners (Carver et al., 2007; Nilles, 2007; Riedel et al., 2007) rather than students engaging in E-SL. Since the effectiveness of traditional service learning (SL) depends heavily on face-to-face (F2F) interaction between students and the community, there is a lack of research on how E-SL affects student developmental outcomes (Marcus et al., 2020).

The current study, therefore, aims at 1) comparing the effectiveness of traditional SL to E-SL in terms of student developmental outcomes; and 2) offering insights into situation when experiential learning goes online during the pandemic, how educators and trainers can improve its effectiveness. We first conduct a literature review of ee-learning focusing on E-SL and virtual teams, particularly their benefits and challenges to student development. We then report a study which compares student developmental outcomes arising from the same course between traditional SL and E-SL respectively adopted before and during the pandemic. Since the course was taught by the same instructor with the same structure and syllabus, therefore many possible confounding variables can be controlled to ensure comparability. The significance and good practices to both SL and training and education community are also discussed.

1.1 Literature Review

1.1.1 Experiential e-learning (ee-learning) and E-Service-Learning (E-SL)

Experiential e-learning (ee-learning) is a combination of experiential learning with technology to incorporate real-world experience into academic study in a distant time-shifted environment (Nilles, 2007; Riedel et al., 2007). E-SL is a type of ee-learning. Before elaborating E-SL, we first define service-learning (SL) as a course-based and credit bearing educational experience in which students meets community needs by participating in service activities, and through reflecting on which to enhance academic performance and course understanding along with better sense of civic responsibility (Bringle & Hatcher, 1995). E-SL is an e-learning form of SL. Students in both SL and E-SL engage in three elements – service, course content and reflection, and reflection is the most important as it connects the other two. Through reflection, students can re-examine their values and assumption, strengthen their learning by critically evaluating service experiences, resulting in various positive developmental outcomes (Eyler, 2002; Eyler et al., 1996; Kiely, 2005). In light of this, insights into E-SL can also be applied to the training and educational sector.

E-SL is defined as SL with either the instructional or service component, or both are partly or entirely conducted remotely online requiring students to deliver service in-person onsite (Jacoby, 2014; Waldner et al., 2012). E-SL is increasingly popular under technology advancement (Waldner et al., 2010). Tantamount to traditional SL, E-SL is also designed to offer students with educational experience by organised service activities to meet community needs. Upon completing service, students can acquire better understanding of the course content after applying them in the real-life settings. In addition to knowledge application, problem-solving, leadership, empathy, self-confidence, and sense of social responsibility can also be developed (Astin et al., 2006; Celio et al., 2011; Eyler et al., 2001; Yorio & Ye, 2012). Moreover, E-SL's additional advantages include low cost, high accessibility, time and geography flexibility, diversity in experience, and development of digital citizenship (Said et al., 2014; Salam et al., 2019). As a type of ee-learning, E-SL has been developed into various formats, and Waldner et al. (2012) classified it into two broad categories: 1) hybrid, in which either service or teaching is online; and 2) extreme E-SL (XE-SL) in which service and

teaching are entirely online. In XE-SL, students rely on electronic communication technologies to build virtual teams to pursue common goals (Bell & Kozlowski, 2002; Hertel et al., 2005).

1.1.2 Traditional SL versus E-SL

Some studies pointed out that E-SL bears similar student developmental outcomes with traditional SL in academic achievement, personal growth, practical skills, and social responsibility (Faulconer, 2021; McGorry, 2012). However, E-SL has additional benefits: 1) develops sense of community, self-regulation, and self-driven problem solving abilities when students working in an online environment (Early & Lasker, 2018; Hinck, 2014; Lynch, 2017); and 2) allows service to be offered with higher geographic, socio-cultural and economic diversity (Guthrie & McCracken, 2010; Waldner et al., 2012). On the other hand, some studies contended that stakeholders need to put extra efforts in communication to keep up students' commitment and participation to make E-SL effective, (Kuh, 2014; Schwehm et al., 2017; Waldner et al., 2010) which might result in compromising the effectiveness of E-SL.

1.1.3 Objectives of the Current Study

The discrepant results about the E-SL effectiveness revealed by the prior literature may be attributed to the research design. Since many studies only reported the findings from a single E-SL programme without a well-controlled group design, by contrasting similar traditional SL group, to highlight the differences in student developmental outcomes. The current study hence addresses this issue by using a single SL course with similar settings conducted in both traditional SL (F2F) and XE-SL mode.

2. Methods

2.1 The SL course under study

We compared the student developmental outcomes arising from SL between the traditional SL and XE-SL mode in an undergraduate SL course titled "Leadership and Teamwork" offered by Lingnan University. The course objective was to develop students' leadership and team skills which students apply through providing services via SL projects to serve Hong Kong community.

2.2 The traditional SL and XE-SL cohorts

The data for the traditional SL cohort were collected from students of fall term, 2017 and 2018 preceding the pandemic when both course and SL projects were conducted F2F on-site, hereafter called F2F cohort. The data for XE-SL cohort were collected from students of fall term, 2020 when both course and SL project were conducted entirely online. All the course settings, including the instructor (i.e., the first author), curriculum, course structure and duration, assessment methods and criteria, and SL project types (except that two teams in XE-SL cohort conducted research-based SL projects that the students from F2F cohort did not) were the same and hence largely comparable (see Table 1).

Table 1: The Course and SL Project List of the F2F and XE-SL Cohort

Course Name	Leadership and Teamwork (offered by Lingnan University)
Instructor	Same person in both F2F and XE-SL
Course Content	To develop leadership and team skills through SL projects to serve the community
Assessment	Reflective journal, SL project report
SL Objectives	Students can apply knowledge learnt at class, develop professional skills, such as research, problem-solving, social competence, and enhance civic engagement

Cohort	F2F		XE-SL
Academic Year	2017-18	2018-19	2020-21
Time	Sep - Dec 2017	Sep - Dec 2018	Sep - Dec 2020
SL Project (Type*, No. of Students) Remark *: D: Direct I: Indirect R: Research	Team 1: Lingnan Info Day 2017 (D, 9) Team 2: Active Aging Programme (D, 7) Team 3: Halloween Night (D, 6)	Team 1 & 2: SIM Life (D, 12) Team 3: Active Aging Programme (D, 4) Team 4: Language for Smart Traveller (D, 2) Team 5: English is Fun (D, 1) Team 6: Lingnan Info Day 2018 (D, 3)	Team 1: Lingnan Info Day 2020 (D, 7) Team 2: Young Ambassador Training Programme (D, 6) Team 3A & 3B: Research Project on the Effectiveness of Blended Mode of Summer Internship (R, 12) Team 4: Online Educational Videos for Kids in Kindergarten (I, 7)
No. of Students	22	22	32

Remark: Lingnan Info Day were conducted by the same community partner, and both Active Aging and Young Ambassador Training Programme were conducted by the same community partner throughout both F2F and XE-SL cohorts.

Both cohorts contained mainly senior business student to fulfill SL requirement. To ensure similar students' background for comparison, exchange students were excluded from the analysis as they were absent in XE-SL cohort. During the pandemic, the instructor conducted the course in an XE-SL mode by using both synchronous (Zoom, WhatsApp, WeChat and phone call) and asynchronous communication tools (e-mail, Google Drive and Moodle). Using these tools, students formed virtual teams to 1) communicate with community partners, and 2) deliver SL service to the community. Comparing with F2F cohort, the students in XE-SL cohort used various online communication technologies to overcome social distancing measures.

2.3 Quantitative data

2.3.1 Data collection - Instruments

Lingnan University's Domain Scale (LUDS) was employed to assess the developmental outcomes perceived by students. LUDS comprised 33 items under eight subscales: knowledge application (3 items), problem solving skills (4 items), project management skills (4 items), leadership skills (3 items), social competence (4 items), communication skills (3 items), research skills (6 items) and civic orientation (6 items), on a 10-point Likert scale from 1 for "totally disagree" to 10 for "totally agree". The internal data of Lingnan University showed satisfactory reliability of the instrument. The current sample also indicated similar results with Cronbach's alpha values ranged between .80 and .97 for the subscales. Moreover, two additional items evaluating the students' self-performance and their satisfaction level toward the SL programme were added in the post-test phase after they finished the SL project on a 10-point Likert scale. The performance item is "Overall, I had good performance in the SL programme" and the satisfaction item is "Overall, I am satisfied with the SL programme".

2.3.2 Data collection - Procedures and participants

Students of both cohorts were required to complete the instruments online before they began (pretest phase) and after they finished (posttest phase) the SL projects, and were assured data confidentiality and their grades were not affected. F2F cohort consisted of 39 students, mainly female (62.1%) of business (51.7%) and social sciences (24.1%), and 69.0% was year 4 students. A comparable composition of student background was also found in XE-SL cohort,

consisting of 31 students mainly female (64.5%) from business (71.0%) and year 4 students (74.2%). Table 2 depicts their profiles.

Table 2: The Profile of F2F and XE-SL cohort

	Cohort				Year of Study	Cohort			
	F2F		XE-SL			F2F		XE-SL	
Gender									
Male	13	33.3%	11	35.5%	1	1	2.6%	0	0.0%
Female	26	66.7%	20	64.5%	2	0	0.0%	3	9.7%
Major					3	6	15.4%	5	16.1%
Business	28	71.8%	22	71.0%	4	32	82.1%	23	74.2%
Social Sciences	10	25.6%	6	19.4%					
Arts	1	2.6%	3	9.7%					
Total	39	100.0%	31	100.0%	Total	39	100.0%	31	100.0%

2.3.3 Data analysis

Independent sample t-tests between F2F and XE-SL cohort on the eight student developmental outcomes in the pretest scores was firstly conducted for baseline comparison. Then, the data were analysed by Repeated Measures under General Linear Model of SPSS to investigate the main effects from the within-subject factor (pretest vs. posttest phase of a student) and their interaction (i.e., the level of pretest-posttest change) to compare the traditional SL and XE-SL effectiveness. It was expected that there was significant within-subject effect, meaning SL, no matter F2F or XE, should enhance student developmental outcomes. Moreover, we explored if there was any interaction effect indicating traditional SL and XE-SL would create different degrees of influence on student developmental outcomes. Independent t-tests were also performed to compare the students' ratings on the two additional items evaluating students' self-performance and their satisfaction level toward the SL project in both traditional SL and XE-SL modes.

2.4.1 Data collection

Since quantitative findings only indicated the change of student developmental outcomes without providing details about contributing factors, we collected qualitative data to identify 1) possible reasons for the quantitative findings revealed by the comparisons between F2F and XE-SL cohort on student developmental outcomes and 2) good practices for XE-SL. Data sources include: 1) students' reflective journals; 2) SL project reports and 3) qualitative comments given by students in the posttest phase. Data confidentiality was also assured.

2.4.2 Data analysis

The qualitative data were analysed by both authors who read through and discussed the data for categorisation. An emergent scheme of categories connecting student accounts was matched with these contents: 1) results of student developmental outcomes identified in the quantitative analysis and 2) literature review results regarding E-SL. Furthermore, the scheme of categories included different kinds of good practices illustrated in the process of E-SL project suggested by the students for explaining E-SL effectiveness.

3 Results

Quantitative results

Descriptive statistics, including means and standard deviations, of the eight student developmental outcomes of both F2F and XE-SL cohort are reported in column 2-13 in Table 3. Column 1-3 in Table 3 shows pretest scores, indicating non-significant differences across the outcomes and hence no baseline differences. Column 4-9 in Table 4 shows repeated measures analysis results with two major findings. First, significant enhancement exists across all students' developmental outcomes between pretest and posttests phase, indicating that students in both cohorts perceived that SL experience had facilitated their learning. Second, insignificant interaction effects to all student developmental outcomes show that F2F and XE-SL cohort do not differ in the degree of enhancement in student learning, indicating same effectiveness of the traditional SL and XE-SL.

Table 3: Results of Baseline Comparisons and Repeated Measures Comparisons

Developmental Outcomes	Baseline Comparisons			Repeated Measures Comparisons					
	t	df	p	Within subject			Interaction		
				F	df	p	F	df	p
Knowledge Application	.05	68	.96	20.06	1	.00	3.65	1	.06
Communication Skills	-.75	68	.46	31.40	1	.00	.00	1	.98
Project Management Skills	-.17	68	.87	35.40	1	.00	.14	1	.71
Leadership Skills	.11	68	.91	23.82	1	.00	.50	1	.48
Social Competence	-.12	68	.90	40.88	1	.00	1.29	1	.26
Problem Solving Skills	.31	68	.76	47.30	1	.00	1.67	1	.20
Research Skills	.21	68	.83	30.30	1	.00	2.23	1	.14
Civic Orientation	-.18	68	.86	46.16	1	.00	1.11	1	.30

Table 4: Descriptive Statistics of the Eight Developmental Outcomes

Developmental Outcome	F2F (n=39)					XE-SL (n=31)					\bar{X}_{Diff}^*
	Pretest		Posttest		Diff	Pretest		Posttest		Diff	
	\bar{X}	SD	\bar{X}	SD		\bar{X}	SD	\bar{X}	SD		
Knowledge Application	7.50	1.09	7.88	1.11	.38	7.48	1.03	8.44	.72	.96	.57
Communication Skills	7.54	.95	8.23	1.12	.69	7.75	1.34	8.45	.93	.70	.01
Project Management Skills	7.42	.98	8.19	1.03	.78	7.46	1.19	8.34	.83	.88	.10
Leadership Skills	7.46	1.04	8.14	.98	.68	7.43	1.30	8.33	1.09	.90	.23
Social Competence	7.60	1.08	8.29	.86	.69	7.63	1.13	8.62	.69	.99	.30
Problem Solving Skills	7.60	.97	8.31	.99	.71	7.52	1.19	8.56	.69	1.04	.33
Research Skills	7.38	1.03	7.97	1.08	.59	7.32	1.25	8.34	.80	1.02	.44
Civic Orientation	7.54	1.11	8.28	1.04	.74	7.59	1.05	8.60	.73	1.01	.27

Note *: Pretest-posttest differences between the two cohorts

Furthermore, column 12 in Table 4 reports the difference between the two cohorts in pretest-posttest difference (denoted by \bar{X}_{Diff}), i.e., the change of developmental outcomes perceived by the students before and after SL. Despite insignificant interaction effects, it is noted that the changes created by XE-SL are consistently higher than those in F2F cohort, except the same outcome of communication skills. Such differences are particularly higher in knowledge application ($\bar{X}_{Diff} = .53$), research skills ($\bar{X}_{Diff} = .44$), problem solving skills ($\bar{X}_{Diff} = .33$) and social competence ($\bar{X}_{Diff} = .30$). Lastly, the comparison of both additional items of self-evaluation over SL performance ($p=.04$) and satisfaction ($p=.03$) yield significant results, meaning that XE-SL students perceived higher performance and satisfaction towards SL projects than F2F cohort (see Table 5).

Table 5: Comparisons of the Overall Performance and Satisfaction Perceived by Students

Item	F2F (n=39)		XE-SL (n=31)		Comparison		
	X	SD	X	SD	t	df	p
Overall, I had good performance in the SL programme.	8.18	1.19	8.71	.90	-2.06	68	.04
Overall, I am satisfied with the SL programme.	8.21	1.20	8.77	.84	-2.24	68	.03

The results confirmed our expectations of significant enhancement on student developmental outcomes before and after SL. There were no statistically significant differences between F2F or XE-SL cohort over the degree of enhancement on student developmental outcomes. Nevertheless, XE-SL was more effective than traditional SL in enhancing student developmental outcomes, and XE-SL cohort has higher perceived performance and satisfaction than F2F cohort.

3.2 Qualitative results: Developmental outcomes

Dovetailed with the quantitative findings, the qualitative data showed that XE-SL achieved a higher level of student developmental outcomes than F2F cohort, including knowledge application, research skills, problem-solving skills, social competence, leadership and team skills, and civic orientation. Possible explanations are as below.

3.2.1 Knowledge application

The quantitative findings revealed that XE-SL was .57 (on a 10-point Likert scale) higher than F2F cohort in knowledge application which was due to stakeholders were aware of the challenge in implementing XE-SL, thereby providing supports to students. Moreover, students put more effort in gauging progress to improve their performance in the next service. The stakeholders were able to flip the online challenges into opportunities by capitalising online communication. For example, a XE-SL student who designed and executed online workshops to primary school students explained:

"...due to the difficulty of teaching kids online, the community partner deliberately conducted many reflection sessions immediately after each workshop...each team member was conscious of applying what we had learnt in lectures to serve the community." (Team 2, 2020/21)

3.2.2 Research skills

The quantitative findings displayed that XE-SL was .59 higher than F2F cohort. It could be attributed to the two teams in XE-SL cohort which engaged in a research type SL project whilst F2F cohort had not (See Table 1), thereby the former contributing much of the enhancement of research skills for XE-SL cohort.

3.2.3 Problem-solving skills

The quantitative findings exhibited that XE-SL was .33 higher than F2F cohort. It could result from the fact that XE-SL students working in the virtual environment needed to improvise by themselves to solve problems. This practice became particularly necessary when timely support from other stakeholders was not available. A student explained:

"... due to the pandemic, the university might carry out Information Day online, so we came up with alternative plans for online activities by ourselves...However, we had to solve problems on the online mode rather than following practices of previous years." (Team 1, 2020/21)

3.2.4 Social competence

The quantitative findings manifested that XE-SL was .30 higher than F2F cohort. This might be caused by opportunities brought by flipped challenges of virtual teams. XE-SL students needed to pay more effort and time on teambuilding with synchronous online communication before SL projects began, and this virtual teambuilding in turn enhanced students' social competence. A student explained in her reflective journal:

"Our team decided to better understand each other by initiating various interesting topics for discussion... keeping in touch frequently and making timely response with each other to build our team. ... resulting in good friendship." (Team 4, 2020/21)

3.2.5 Leadership and team skills

The quantitative findings showed that XE-SL was .27 higher than F2F cohort, The reason for this could be attributed to the fact that making virtual teams function required XE-SL students to practise more leadership and team skills than in physical teams, hence becoming more aware of applying leadership and team theories learnt in the course. For instance, a student conducting a research project stated:

"During the pandemic when team members could only rely on messaging platforms like WhatsApp and Zoom, I learnt paying more attention to conveying my instructions [as a leader]... With strong leadership, I ensured nobody misinterpreted my messages when we did not see each other in-person." (Team 3, 2020/21)

3.2.6 Civic orientation

The quantitative findings indicated that XE-SL was .23 higher than F2F cohort. It could be caused by the fact that more effort was made by SL coordinators and trainers to remind students of the potential community impacts from the SL projects. Consequently, students could better understand and connect the project content to civic outcomes, rendering the enhancement of civic learning. A student working on the research project emphasised:

"We were informed that the results of our SL project ... were shared among the public in the form of infographics which could enhance their understanding of how the community adapt their work and life...during the pandemic." (Team 3, 2020/21).

3.3 Qualitative results: Good practices

From the qualitative findings, we identified good practices during the pandemic when students practised XE-SL. They include prior on-line experience and abundant preparation by stakeholders, commitment from stakeholder, and constant reflection.

3.3.1 Prior on-line experience and abundant preparation by stakeholders

By the time when XE-SL projects began, all stakeholders had already acquired adequate experience in online teaching and learning and hence they were able to design effective XE-SL projects. Besides, the course instructor had three months to plan how to run XE-SL with community partners. Sufficient preparation resulted in smooth project execution.

3.3.2 Commitment from stakeholders

The instructor, course coordinators and community partners had paid significantly more efforts to support students on virtual communication. A student pointed out,

"My professor and course coordinators gave us detailed information, guidelines and instructions to prepare for the SL projects ... I could obtain useful advice promptly." (Team 3, 2020/21)

The community partners also showed commitment by providing timely support to XE-SL. Another student recollected,

"The community partner gave us many useful suggestions and feedback before and after the workshops which made me realise my weaknesses, and helped me to overcome them ". (from Team 2, 2020/21)

3.3.3 Constant reflection

XE-SL students in virtual teams tended to carry out timely reflection after service through synchronous communication together with instructor and community partners. Such constant reflections had enabled students to transform service experiences into developmental outcomes, as illustrated in this reflective journal:

"After every single workshop and meeting, I had a debriefing section myself. I would try to evaluate my performance, and revise what I had learnt, and self check whether I could improve my performance in the next workshop." (Team 2, 2020/21)

4 Discussion

Although the current study demonstrated no statistically significant difference in student developmental outcomes between XE-SL and F2F cohort under a well- controlled comparison, XE-SL seemed to have outperformed the traditional SL in enhancing students' abilities in knowledge application, problem solving, research, social competence, teamwork and leadership, and civic orientation. XE-SL students also achieved higher level of perceived performance and satisfaction towards SL experiences than F2F students. These results dovetailed with previous studies that XE-SL had a comparable performance to that of traditional SL as an efficacious pedagogical practice (Figuccio, 2020; McGorry, 2012).

Further analysis of qualitative data revealed possible causes for the findings. Adequate online experience and preparation by stakeholders is a vital factor for XE-SL success, instructor and students having prior online course experience could maximise its effectiveness.

Another reason for the success of XE-SL cohort was good preparation. The instructor, course coordinators and the community partners had jointly planned to shift the course from F2F SL to XE-SL at least three months in advance to align with the university's effort to promote online learning in the long run. This echoes with the general response from higher education that COVID-19 has motivated the renewal and development of online teaching and learning as an emergency measure, which in turn has further developed SL towards a better curriculum by incorporating E-SL elements in the long run (Karalis & Raikou, 2020).

Furthermore, XE-SL students' reflective journals and project reports divulge that the students, instructor, and community partners have developed a strong sense of consciousness regarding the implementation challenges posed by virtual teams and online communication in XE-SL. This made the stakeholders to be more vigilant and hence put more effort on teambuilding, progress monitoring and evaluation throughout the process. Oftentimes, these measures were conducted through reflection sessions immediately after service. Past studies confirmed that reflection in SL is a powerful tool through which students can re-examine their assumptions and values along with evaluating their performance, inducing positive student developmental outcomes (Eyler, 2002; Eyler et al., 1996; Guthrie & McCracken, 2014; Kiely, 2005). Comparing qualitative data between student's SL project reports from the two cohorts revealed that students had conducted more frequent reflections in XE-SL. It is because the uncertainty generated by XE-SL had stimulated, rather than hindered, stakeholders to become

more committed and engaged with constant and immediate reflections to safeguard the project quality and outcomes, resulting in students' developmental benefits in knowledge application, social competence, teamwork and leadership, and civic engagement.

In addition, our findings revealed that both the instructor and community partners performed good practices such as constant communication and providing feedback to students to compensate insufficient immediate response under the online learning environment (Tabor, 2007). Consequently, XE-SL students with regular reflection achieved better learning.

Despite committed stakeholders, the XE-SL students still had to face many challenges. For example, owing to reliance on asynchronous communication tools with inadequate immediate feedback, they needed improvise effective solutions independently, through which they developed problem-solving skills, self-reliance and independence. This finding echoes with past research that online SL interns improved problem solving abilities as they needed to complete assigned job tasks independently without close supervision (Wong et al., 2021).

Under social distancing measures, the university had removed most F2F interaction opportunities among stakeholders especially between students and service recipients. However, this had contrarily triggered students' higher civic orientation as both the instructor and SL coordinators constantly reminded students of the significance in creating potential community impacts by the SL projects and how they could achieve such impacts. From this, we can see how stakeholders' commitment and awareness can turn an adverse XE-SL learning environment into a conducive hotbed that students can develop skills to overcome challenges.

5 Conclusion

The current study has supplemented evidence to existing E-SL research by comparing the effectiveness of traditional SL and XE-SL on student developmental outcomes in the Asian context. Quantitative comparisons demonstrated that XE-SL seemed to have outperformed traditional SL slightly in some areas on student developmental outcomes. The qualitative analysis highlighted several good practices for making XE-SL, or even any SL, an efficacious pedagogy, including prior experience and sufficient preparation, instructor's and community partner's commitment, and constant reflections. These practices are triggered by stakeholders' awareness of potentially adverse environments created by virtual teams and online environment.

For the training and education community, the significance of the current study is that even experiential learning (such as SL) which requires intensive personal interaction can enable learners to achieve various developmental outcomes in an online learning environment, and learners perceived XE-SL effective and satisfactory. Online delivery has become popular in training and education nowadays with a promising future accelerated by the pandemic. Educators recognise that COVID-19 is an opportunity for incorporating online learning into official curriculums to capitalise its benefits in many Asian countries (Ta, 2020). Therefore, this study deserves further research into the mechanism as to how it can maximise students' learning outcomes to benefit stakeholders such as service recipients and the community.

This study is subject to several limitations. First, the sample size was relatively small, and only focused on a single course from one institution. These confine generalisability of the study. Second, the analysis of the findings relied on self-reporting surveys and learning artefacts such as reflective journals and project reports from which derived subjective

perceptions may suspend judgment whether the findings were “true” reflections of reality (Gabriel, 1995). Third, the current study revealed that the adverse environment created by the uncertainty of E-SL could be both a challenge and stimulant to stakeholders, however further investigation into its mechanism is out of our scope.

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