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Lessons Learned from a Discipline-Specific Language Support Initiative for Multilingual Students (MLSs) in a Foundational Course in Health Sciences: A Mixed Methods Case Study from a Western Canadian University

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Abstract

This mixed methods explanatory case study intends to explain low utilization of a joint initiative to improve language skills targeted to English as an additional language (EAL)/multilingual students (MLSs) in a disciplinary context. Considering the importance of discipline-specific language and literacy skills, a university health sciences faculty and an English language learning centre at a western Canadian University collaborated on a joint initiative to support EAL/MLSs. Language support services, such as an extra semester-long adjunct language tutorial, drop-in language services, and language support files uploaded on the Canvas Learning Management System (LMS) were provided for students enrolled in a first-year introductory-level health sciences course. A comparison of a pre-test and post-test Post-Entry Language Assessment (PELA) revealed improvements in both writing skills and perceived language skills. However, the discovery of the underutilization of language support services prompted a sequential explanatory mixed methods case study to identify learners' reasons for low participation. Findings from the quantitative survey and qualitative interviews are shared along with recommendations for improving language support service utilization.

L'étude de cas explicative à méthodes mixtes vise à expliquer la faible utilisation d'une initiative commune pour améliorer les compétences linguistiques ciblées sur l'anglais langue additionnelle et à l'intention des étudiants et étudiantes multilingues dans un contexte disciplinaire. Étant donné l'importance des compétences langagières et en alphabétisation spécifiques à une discipline, un professeur universitaire de sciences de la santé et un centre d'apprentissage de l'anglais d'une université de l'Ouest du Canada ont collaboré à une initiative commune visant à soutenir les services de soutien linguistique d'anglais langue additionnelle et les étudiants et étudiantes multilingues. Cette initiative a offert un tutorat linguistique additionnel d'une durée d'un semestre, des services linguistiques sans rendez-vous et des fichiers de soutien linguistique téléchargés sur le Canvas Learning Management System (LMS). Ces services ont été offerts aux étudiants et aux étudiantes inscrits dans un cours d'introduction aux sciences de la santé de première année. La comparaison entre un pré-test et un post-test de l'évaluation linguistique post-entrée a révélé des améliorations à la fois des compétences écrites et des compétences linguistiques perçues. Toutefois, la découverte de la sous-utilisation des services de soutien linguistique a donné lieu à une étude de cas séquentielle explicative à méthodes mixtes visant à identifier les raisons de la faible participation des apprenants et des apprenantes. Les résultats de l'étude quantitative et des entrevues qualitatives sont partagés avec des recommandations pour améliorer l'utilisation des services de soutien linguistique.

Higher education institutions in the 21st century are facing an ever-increasing multicultural and multilingual student (MLS) population. Over 642,000 international students studied in Canada in 2019 alone, which represented a 13% increase from the previous year (The Immigration, Refugees and Citizenship Canada, as cited in Canadian Bureau for International Education, 2020). This increase is significant, as many students have been identified who struggle with learning English language in a post-secondary setting (Fass-Holmes & Vaughn, 2014), and supports the need for changes in curriculum and pedagogical practices to adequately serve the needs of all (Murray, 2016). At times of intensified internationalization, developing strategies to promote the academic success of multilingual students is a challenge that demands university-wide initiatives and cross-disciplinary collaborations (Ilieva et al. 2019). As the demand for quality education increases, universities around the globe are striving to meet national and international standards (Ryan, 2015).

Realizing the importance of discipline-specific language and literacy skills, a faculty of health sciences and a centre for English language learning located within a university in western Canada, collaborated on a joint pilot project to provide support to English as an additional language (EAL)/multilingual students (MLSs) in order to improve their language and communication skills in a disciplinary context in a first-year introductory health sciences course. For blinding purposes, references to the name of the university where this work was conducted have been replaced with [University], the faculty of health sciences responsible for administering the course has been replaced with [Faculty], and the unit described as the language learning centre has been replaced with [Centre]. Language proficiency and language support needs of students were evaluated using a Post-Entry Language Assessment (PELA) focused on writing skills (See Appendix A), which was conducted at the beginning of the course. The [Faculty] discipline instructor (course instructor) collaborated with the [Centre] language instructor in assigning students into categories depending on their language needs and in establishing provision of language support. It was assumed that free language support services would be appealing to students who needed to improve their language skills.

The comparison of results of pre-test and post-test revealed that there were improvements in writing skills. However, an unanticipated outcome was that language support services were underutilized. In this regard, a mixed methods case study, employing a sequential explanatory design, was conducted to understand student decision-making related to using the services. This report outlines mixed methods research as well as the process, outcomes, and lessons learned during the joint pilot project. Hopefully, this information will be useful for stakeholders in Canadian post-secondary institutions who are interested in similar initiatives. This includes settings that require a closer integration of academic language and literacy support alongside disciplinary content (Cammarata, 2016) to address the linguistic diversity of student populations.

Literature Review

A number of studies from the late 1980s onwards have documented positive outcomes for language integration in teaching content (Brinton et al., 1989; Cenoz, et al., 2014; Lin, 2016; Morton, 2016), primarily in the K-12 educational system. More recently, language and content integration has also been attempted in higher education contexts (Harris & Ashton, 2011) including Stoffeslma et al. (2017) who found that language skills development can be combined with course content in a non-western university context.

An example of post-secondary language integration is embedded in the four models of second language development support (Fenton-Smith & Humphreys, 2015). The [Centre] at [University] considered the models when outlining possible options that could be offered to university faculties from various disciplines (who want to support MLSs in their classrooms). These models are identified in Figure 1:

Figure 1
Four Models of Second Language Development Support (Fenton-Smith & Humphreys, 2015)
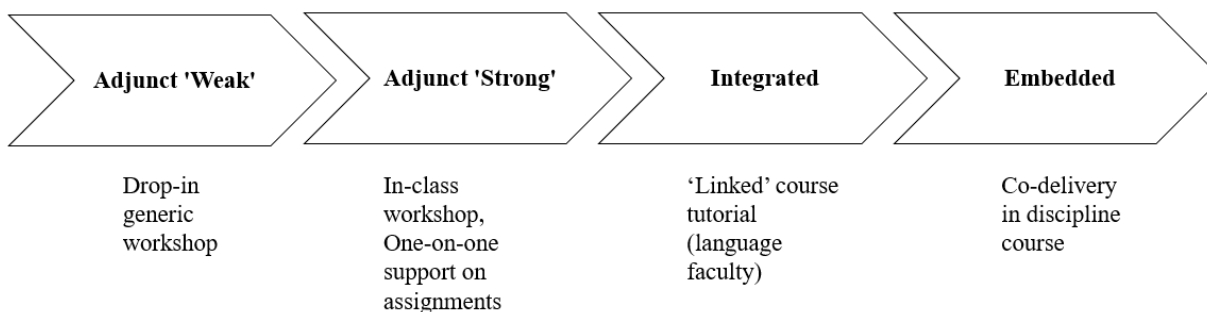
A brief description of each of the four models of second language development support (Figure 1) are as follows:

1. *Adjunct 'Weak'* model is a generic language support exemplified by drop-in language services available to students from any discipline or the offering of a general academic English workshop.
2. *Adjunct 'Strong'* model refers to services such as an in-class workshop for a discipline-specific group of students and the offering of one-on-one support on assignments within a disciplinary course.
3. *Integrated* model refers to support linked to a particular course with a language specialist administering language tutorials relevant to the course content.
4. *Embedded* model usually involves full curriculum redesign with disciplinary language at the heart of a content course and thus entails the co-delivery of language services within the course, usually provided by the disciplinary specialist (Fenton-Smith & Humphreys, 2015).

Students in need of language support were identified through the administration of a PELA during the first session of the course, and there is a brief reference to literature that provides information on the development of PELAs in higher education. Commonly, PELAs focus on reading and writing and do not incorporate speaking skills. Most are developed in-house and either administered university-wide to first-year students or within a specific discipline (Read, 2015).

The development of the language support initiative was informed by a similar study on the effectiveness of the provision of language services conducted in a nursing program at an Australian university. San Miguel et al. (2013) discussed a model which included tutorials that were integrated into a first-year Bachelor of Nursing curriculum. Following the administration of a PELA, EAL students with low English proficiency were grouped in specific streamed tutorials in a first-semester subject focusing on the sociology of health. Tutorial materials and assessments were developed collaboratively with the goal to provide explicit attention to academic practices such as appropriate use of evidence in academic writing as well as reading analytically and writing clearly. While "core" resources were the same across all tutorial groups, there were "extra"

offerings that provided "extension activities and readings" (p.24). This enabled tutors to adapt teaching materials to their respective groups as well as provide "writing to learn" activities and "on the spot" explanations of cultural information and vocabulary; all common pedagogical strategies in the streamed tutorials (p. 24). San Miguel et al. shared the results of the student focus group interviews, which included: advantages and disadvantages of attending the streamed tutorials, the importance of the tutor, learning about reading and writing in the context of the tutorial and, finally, "moving on" [from the tutorials] (p. 27).

There have been many studies conducted to explore the importance of provision of language support services and implementation strategies in higher education in Western universities (Andrade, 2006; Wolf & Phung, 2019). Trosset et al. (2019) found that repeat users of writing centers were more likely to be successful with their writing skills. Benefits of language support have also been found within non-western universities where writing centre users have had an overall improved essay writing score (Tiruchittampalam et al., 2018). Despite the benefits provided by writing support services, studies still show underutilization of writing centers (Trosset et al., 2019; Salem, 2016). To the authors' knowledge, there is a shortage of studies exploring the fundamental causes of underutilization of language support services in higher education in the Canadian context.

In this regard, two main research questions were identified to frame this study: What are the impacts of English language services provision on the language skills of students; and what, why, and how, do students make decisions regarding utilization of the language support services?

Method

Study Design

This initiative used a sequential explanatory mixed methods case study exploring the underlying causes and challenges of the underutilization of language services. Creswell and Plano Clark (2018) have defined a mixed methods case study design as "a type of mixed methods study in which the quantitative and qualitative data collection, results, and integration are used to provide in-depth evidence for a case(s) or develop cases for comparative analysis" (p.116).

Figure 2
Study Design: A Sequential Explanatory Mixed Methods Case Study
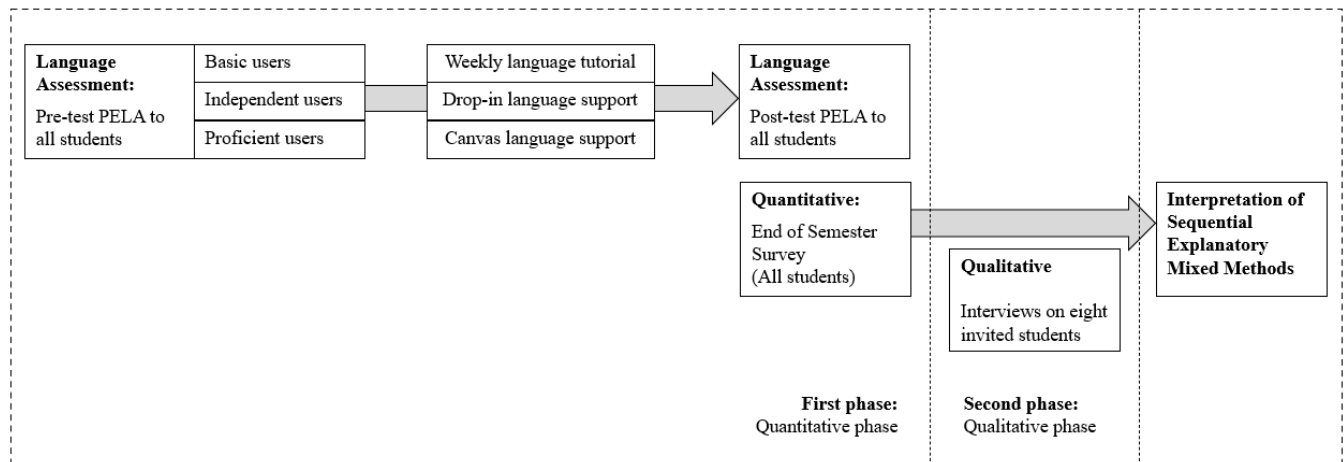
The first phase, the quantitative phase, involved a comparison of a pre-test and post-test PELA with the language support serving as the intervention[1]. The purpose was to assess the impact of English language services provision on the language skills of EAL students. The language initiative was designed as a combination of Adjunct 'Strong' and Integrated models from Four Models of Second Language Development Support (Fenton-Smith & Humphreys, 2015), and included the provision of extra semester-long adjunct language tutorial, one-on-one or drop-in language services related to course assignments, and language support materials on the Canvas Learning Management System (LMS).

All services were free-of-charge, administered in Fall 2018, and accessible to students regardless of language proficiency. The additional semester-long adjunct language tutorial (one hour per week) was provided to those who needed support throughout the semester. One-on-one drop-in-style appointments were also available at the [Centre]. The language support materials on the Canvas LMS included documents to build skills focused on grammar, sentence construction, assignment writing tips, and other related topics.

The pre-test/post-test design was conducted using the PELA, administered in class during the first and last weeks of the semester for the language assessment. The pre-test PELA allowed for classification of students into different language proficiency categories (basic, independent, and proficient users) and designation of their first language. Language support services were recommended to Basic and Independent users regularly throughout the semester, although all students were invited to utilize the services. The post-test PELA was conducted to measure improvement in language skills, using actual treatment principle. The pre-test and post-test PELA were anonymously graded by a [Centre]'s research assistant. Language skills improvement was assessed by comparing pre-test and post-test PELA of all students, depending on the language support services they used.

A quantitative cross-sectional survey (See Appendix B) was conducted at the end of the semester, concurrently with the post-test PELA, to collect data on utilization of the services and

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[1] This work was originally considered to be a quality improvement initiative used exclusively for assessment, management, or improvement purposes, and was exempt from the [University] Research Ethics Board review in November 2019. The authors re-submitted the approval for publication to the [University] Research Ethics Board in November 2020 and were granted an exemption (Approval number 30000008, dated Nov 24, 2020).

students' perceived improvement of their own language skills. The survey data assisted in identifying a potential predictor of external and internal factors that influenced a student's decision in utilizing the language support service. However, the survey explains only "what" students did in terms of accessing assistance and was unable to capture the complete details of the situation including "why" students decided to use or not to use the language support.

It was necessary to utilize a qualitative method in order to identify contextual information such as social, economic, and cultural factors contributing to students' uptake of language support services. Quantitative and qualitative methods are complementary and can provide a more complete picture of the data when used in combination (Creswell, 2013). The under-utilization of the services among a high number of students needing language support (as assessed by the PELA) led to the progression of this study into the second phase, the qualitative phase, using semi-structured interviews. In addition to obtaining quantitative survey data, the qualitative interviews of selective student participants provided an even deeper understanding of the issues.

The interviews were conducted during Winter and Spring of 2019 and focused on factors influencing the utilization of language support services. Student participants were stratified into four categories based on their need and use of the services: a) language support needed and used, b) language support needed but not used, c) language support not needed and not used, and d) language support not needed but used. Analysis of the cross-sectional survey guided the preparation of the Interview Protocol; two students from each need and use category (stratum) were selected using a stratified random sampling method and invited to an in-person interview.

A stratified random sampling method also allowed for the selection of information-rich participants from the determined categories, and the specificity of the interview guide permitted the study team to collect more usable data and reduce information redundancy. There were only a few students in 'needed and used' and 'needed and not used' categories; thus, two students from each stratum were interviewed. Hennink et al. (2017) have suggested that a small sample size is enough to reach code saturation. The interviews were conducted by research assistants who were employed as teaching assistants during the Fall 2018 course. All interview participants provided consent to be audio-recorded, and interviews were transcribed for thematic analysis.

Participants

A total of 244 students, with a majority being first-year, were enrolled in the introductory health sciences course in Fall 2018 semester with 238 participating in the post-test PELA and post-semester survey. Using stratified random sampling, eight students were selected for interviews.

Instruments

For the quantitative analysis in the first phase, a PELA writing test was used. The PELA consisted of a brief written essay on a health sciences topic with a forty-minute time limit created by the language instructor with input from the discipline instructor. The PELA rubric was adapted from the IELTS TASK 2 Writing Band Descriptors (British Council, n.d.). The IELTS TASK 2 Writing consists of Band 1 to 9, but the [Centre] adapted student language proficiency as band 0 to 12. The Writing Band was categorized as follows: Proficient users of English (Green, Band 10 to 12), Independent users of English (Yellow, 7 to 9), and basic users of English (Red, 0 to 6).

The end of semester cross-sectional survey questionnaire was designed and customized in consultation with both discipline and language instructors. The interview protocol was developed

from the findings of the cross-sectional survey. SPSS (IBM SPSS Statistics for Windows, Version 25.0) was used for quantitative analysis and Microsoft Word (Microsoft Apps for enterprise, version 2016) for thematic analysis of interview data.

Data Analysis

Statistically significant differences of individual pre-and post-test were assessed using paired t-tests. Practical significance of improvement in language using PELA were assessed using Cohen's *d* effect size calculations. Effect size can be explained as the degree of difference there is between groups or how strong the relationship is between variables (Durlak, 2009). Effect size of 0.2 to <0.5 can be interpreted as a small effect size, 0.5 to <0.8 as a median effect size, and $\geq$ 0.8 as a large effect size. Adjusted effect size is calculated by the effect size of interest group controlled by effect size of parallel group.

Adjusted Effect Size = Effect Size of Interest Group – Effect Size of Parallel Group

To ensure credibility, a few approaches were applied within the methodology to ensure quality data analysis. The interviewers were previous teaching assistants for the course and were already known to many of the interviewees. This permitted the acquisition of richer data. The qualitative data collected throughout was coded based on general emerging themes. Traditional tools for qualitative data analysis such as highlighting, sticky notes, and comment sections were used to identify salient themes. Qualitative analysis was initially conducted separately, identified themes were cross-referenced, and overlapping sub-themes were used to identify the main themes. Prolonged engagement and triangulation were some approaches identified that ensure the trustworthiness of a study of this nature (Korstjens & Moser, 2018).

Findings

First Phase: Quantitative Analysis

Among those who took both pre-test and post-test PELA assessment (238 students), 153 (64.3%) reported English as their first language, 63 (26.5%) mentioned that they use English as an additional language or were a multilingual student (EAL/MLS), and 22 (9.2%) did not specify their language. Among EAL learners, most spoke Chinese (Cantonese or Mandarin), Punjabi, Korean, Tagalog, Farsi, Hindi, Russian, and Vietnamese.

The pre-writing assessment with the PELA showed that five students (2.1%) were categorized as basic users of English; 32 (13.4%) were categorized as independent users of English; and 201 (84.5%) were categorized as proficient users. Thus, 37 students (basic and independent users of English, 15.5%) were recommended to utilize the language support services offered on site and online. However, the services were open to all students regardless of their language proficiency.

Association Between Language Proficiency and Utilization of Language Support Services

Cross-tabulation of the language proficiency and utilization of language support services revealed that only 28 (11.8% of total participants) used the services during Fall 2018. Among them, 11 students were basic and independent language users (29.7% of 37 recommended users), and 17 students were proficient language users (8.5% of 201 proficient language users).

Results of Pre- & Post-Writing Assessment

The difference between pre- and post-writing assessment using the PELA was measured, including statistically significant testing (paired t-tests) and practically significant testing (effect sizes using Cohen's d effect size calculations). Analyses were conducted according to classification on students' first language, language proficiency categories, and language support services utilization (Table 1). Overall, there was an improvement in the average PELA Score among First Language, Proficiency, and Utilizations of Language support service categories, with an improvement ranging from 0.20 to 1.14, with the Basic or Independent Language Users revealed as the highest improvement in pre-test and post-test comparisons.

Adjusted effect size calculation results supported that there were significant clinical improvements in all categories. The most improvement (median effect size) was seen among basic or independent language user groups (0.66); and small effect sizes were seen among EAL or MLS (0.39) and language support service users (0.26).

End of Semester Cross-Sectional Survey

163 students responded to the end of semester cross-sectional survey. Among them, 17 were language support service users and 146 were non-users.

Perceived change in language skills among language support service users.

Perceived change in language skills (knowledge, confidence, and ability) and average perceived language skills for pre- and post-services among language support service users were calculated using data from 17 students who used support services and responded to the survey. The findings revealed that all perceived language skills (scale of 0-4 range) improved, the average language skills improvement was from 2.18 to 2.97, and all paired t-tests were statistically significant (Table 2). All perceived language skills, including average perceived language skills, had large effect size (>0.8), with the exception of confidence in improved reading skills, which had median effect size (0.74).

Table 1

Changes in Language Skills among First Language, Language Proficiency and Utilizations of Different Language Support Services

	Pre-test (*SD*)	Post-test (*SD*)	Difference	*n*	Paired t-test *p* value	Effect size Cohen's *d*	Adjusted Effect size Cohen's *d*
First Language							
EAL or MLS	10.00 (1.215)	10.67 (0.937)	0.67	54	0.000	0.64	0.39
English as first language	10.68 (0.709)	10.86 (0.690)	0.18	129	0.000	0.25	
Language Proficiency							
Basic or Independent Language Users	8.33 (0.698)	9.47 (1.336)	1.14	29	0.000	1.07	0.66
Proficient Language Users	10.77 (0.496)	10.97 (0.479)	0.20	169	0.000	0.41	
Language Support Services Utilization							
Language Support Services Users	9.60 (1.252)	10.30 (1.149)	0.7	28	0.000	0.58	0.26
Non-Language Support Services Users	10.54 (0.906)	10.82 (0.778)	0.28	170	0.000	0.33	

Table 2

Perceived Language Skills, Before and After, among Language Support Service Users (n=17)

	Before	After	Pair t-test *p* value	Effect size Cohen's *d*
Knowledge of grammar and sentence structure needed for health science communication	2.24	3.00	0.000	0.99
Knowledge of vocabulary and terms needed for health science communication	2.18	2.94	0.000	0.93
Confident that I have the knowledge and skills that will improve my reading skills in health sciences	2.29	2.94	0.007	0.74
Confident that I have the knowledge and skills that will improve my writing skills in health sciences	2.00	2.82	0.003	0.84
Ability to use accurate vocabulary and terms needed for health science communication	2.00	2.82	0.006	0.81
Ability to write grammatically correct sentences and paragraphs in health sciences	2.24	3.06	0.003	0.88
Ability to read academic texts (articles, book chapters, etc.) in health sciences	2.35	3.18	0.000	0.92
Average perceived language skills	**2.18**	**2.97**	**0.000**	**1.04**

Main reasons for not using language support services among non-users.

Based on the end-of-semester responses of 146 non-users of language support services, 119 students (81.5%) said they were categorized as proficient language users and believed they did not need any services. Other reasons included time conflict, and no interest in accessing language assistance or the use of other online language support such as the Grammarly editor tool (data not shown).

Hypothetical incentives questions to increase language utilization.

Among students who may have expressed language support needs, hypothetical incentive-based questions were asked in order to determine how to increase language utilization.

Table 3

Students' Preference to Various Language Support Utilization Incentives

I would have used language support services if they had been …	Agree (row %)	Don't Agree (row %)
… more relevant to my assignments.	56 (74.7)	19 (25.3)
… more convenient (immediately after the lecture).	40 (54.8)	33 (45.2)
… offered during the class/lecture time (shorten the lectures and give time for language tutorials).	47 (64.4)	26 (35.6)
… bonus marks (4-5% for the term) given.	67 (90.5)	7 (9.5)
… a gift card ($50-100 for the term) given.	55 (75.3)	18 (24.7)
… the regular tutorials had an added language component.	42 (58.3)	30 (41.7)
… should be offered for this course/other health science courses in the future.	45 (63.4)	26 (36.6)
… on Canvas and if they had been in the form of recorded videos (in addition to text)	24 (33.8)	47 (66.2)
… on Canvas and if they were more relevant to my course Assignments.	51 (70.8)	21 (29.2)
… on Canvas and they should be offered for this course/other health science courses in the future.	51 (72.9)	19 (27.1)

The findings revealed that students desired more relevant and convenient language materials along with incentives to encourage usage of the language support. It was noted that the provision of language videos on Canvas LMS was not chosen by many students.

Second Phase: Qualitative Analysis – Interview Findings

To understand more about language support services and to triangulate with the quantitative survey findings, qualitative interviews were conducted in Winter and Spring of 2019. Two students from each category were interviewed about (1) what they perceived as the benefits and (2) challenges of utilization of language support services, and (3) their perceptions of the PELA. The need and use categories included: a) language support needed and used, b) language support needed but not used, c) language support not needed and not used, and d) language support not needed but used.

Benefits of Using Language Support Services

The survey findings of perceived benefits of using language support services were supported by the interviews with the students. Potential benefits are considered "perceived" as they are the expressed opinions of the respective interviewees. Overall, the most salient themes focused on specific supports that were found to be helpful, such as online content, and students expressed that knowing more about the services would have provided more increased benefit and value.

A student in the Needed/Used category liked the [Canvas LMS] weekly outlines because they highlighted the importance of course material and content as well as condensed and summarized the material to one page. One Needed/Used category interviewee shared, "I think [the materials] are really good and also the professor [...] created a [section] only for [...] language. It is easy to find and to read." Another Needed/Used student mentioned, "I thought [Canvas LMS] [was] helpful in [assisting with] writing," while a different interviewee shared "I liked knowing which [topics] were going to be important for the test, and I found the summary [materials] useful with the concepts that [I] needed to know..."

Students also revealed that using the services could have helped them to succeed with class assignments or exam preparation. Some expressed regret that they were not aware of the services while enrolled in the course. An interviewee in the No Need/No Use category said "...because of [the challenging aspects of] the assignments […], using the language support could have helped [me] out a bit." Many similar comments were conveyed in retrospect, implying that students were uninformed of the potential benefits and did not realize until after the course and/or during interviews that the support could have been beneficial.

Challenges of Utilizing Language Support Services

Students were asked about the various challenges of utilizing the language support services. The three most prominent themes included general uncertainty, perceived usefulness of material, and logistical considerations.

When discussing the challenges of utilization, uncertainty was a notable theme identified by interviewees, as many were uncertain or had a mixed understanding about the purpose of the drop-in language tutorials. A student in the Need/Used category said they did not know "what you

would do in these drop-ins," nor if they had to sign up to attend. Another student from the Needed/No Use category revealed that they thought the drop-in was mainly for "...people who were 'sort of ESL,'" an assumption that the services were for individuals whose first language was not English. This person shared that they "assumed [I] could speak English" so they did not need the drop-in support. Not all students were unsure about the purpose of the services, as another interviewee from the Needed/No Use category mentioned that they "knew [the drop-in] was a service for people having trouble with English." A sense of uncertainty was expressed by interviewees in regard to understanding the purpose of the services and who they were intended to support.

The second common theme was connected to perceived usefulness of the material, and included discussions on content preferences, teaching style, and overall perceived level of usefulness of the content for student success in the course. Comments on preferences of teaching style and tutorial and drop-in content were also shared. A student in the Needed/Used Category said that both the language tutorial content and teaching style were "…kind of boring, and overwhelming with so much [material] and I just had started the course and found [the language support] to [not be] interesting." A No Need/Used category student commented that the language tutorials seemed to be more of a lecture-style format and were not very engaging for student participants. Students would have preferred an increased focus on in-class participation so that the tutorial would have been "less dry." A Needed/Used category student found the format of the drop-in service to be "weird" because it was less structured and not a conventional lecture format. They also shared that the language support services were not useful when compared to the weekly discipline tutorial.

An interviewee from the Needed/Used category expressed frustration about the lack of structure along with concerns about how to ask for assistance from the language instructor during the drop-in services. As the drop-in focused on allowing students to ask language-related questions, there were additional challenges for those who were not sure about what questions to ask to best aid their specific language needs, "...because sometimes I didn't really know what my problem [was] and how to improve my second language."

The third theme related to the challenge of underutilization involved logistical considerations of the services, including timing, location, scheduling, communication, and all issues related to navigating how to use the services, including complications with Canvas LMS. A Needed/No Use category student spoke about time conflicts with their schedule outside of school, and a student from the Needed/Use category said that it was difficult to go directly from the regular course tutorial to the drop-in. Students from the Needed/No Use category specified that participation in extracurricular activities and the need to prioritize other coursework, could impact timing or that the services were too time-consuming in their schedules to attend alongside their other responsibilities.

In general, students had issues around navigating how to use the services as some did not know what was available or did not keep up with announcements or instructions, and a No Need/Used interviewee shared that they had challenges in finding the physical room location on campus. Additionally, interviewees expressed many difficulties using the language materials loaded on Canvas LMS. Some scenarios described included a No Need/Used category student who referred to an absence of clarity about the purpose and use of online materials and a No Need/No Use student who identified no familiarity with Canvas LMS as a new student. An interviewee from Needed/Used suggested that the support materials were "overwhelming" while an interviewee from Needed/No Use commented that they were unaware of the materials. One student from the

Needed/No Use category stated that there was no situation where support was needed, while another from the same category noted that there was no time to read materials on Canvas LMS. When discussing logistics and Canvas LMS, a No Need/No Use student shared "To be honest, [...] It was my first semester here. So [I am] still getting used to Canvas, and I didn't really use it."

Student interviews provided an increased level of insight toward understanding the diverse reasons for underutilization. Many of the significant themes around challenges were discussed multiple times and the diversity of additional factors added to the complexity of understanding perceived barriers to using the services. The information obtained contributed to a foundational understanding of the many challenge-focused considerations when addressing future language support initiatives.

Perceived Impressions of the PELA

As the (pre-) PELA was conducted at the beginning of the semester to identify student language proficiency, interviewees were asked about their experience with the PELA. General themes included both perceived uncertainty and perceived usefulness about the PELA. Some interviewees saw the PELA as a mechanism to determine language support needs while others felt confused about the assessment purpose. Students from the Needed/Used category commented that there was no communication as to the purpose of the PELA, why the PELA was conducted, and how it could improve language proficiency.

A Needed/Used category student mentioned that the PELA test and its essay writing component was confusing and intimidating because "the [introductory health sciences] course was not a [designated] writing course." Due to the PELA score being unrelated to course learning and overall grades, some Needed/Used category students believed that the PELA "[was] not that important."

A No Need/No Use interviewee stated that they did not require additional support during the class, because they believed they were "okay at the time." Another No Need/No Use student thought that it was not crucial to use the services based on their PELA score:

> "... [the discipline instructor] said [...] the first [language] category was [...] strongly [recommended], and then the second one was [...] kind of [recommended], the third one [...] you didn't really need to go. [...] because I ended up in that third category. I thought it wasn't super crucial that I went to [the language support]."

One Needed/No Use category interviewee noted that the PELA gave them the impression that the discipline instructor wanted students to succeed in the course and this was seen as a positive benefit of the PELA. However, most comments connected to the PELA were related to uncertainty rather than a recognition of the practical aspects about how the PELA would assist their language needs.

Discussion and Conclusion

This project attempted to determine the impacts of English language service provision on the language skills of students and to gain an understanding of how the students made decisions to access the language support services. To the authors' knowledge, there are no other studies within a Canadian context examining a similar inquiry and finding a different result. The use of a

sequential explanatory mixed method case study design allowed for comprehensive insight into the complexities involved in the language support service use within a university setting. The quantitative phase assessed the impact of free English language services on the language skills of EAL/MLSs selected using a PELA. Conversely, the qualitative phase focused on understanding the various factors influencing the use of the services.

The PELA test revealed that EAL/MLS, Basic or Independent Language Users, and language support services users benefited from the support services in terms of improving their language and communication skills, both in perceived improvement and in writing essays. The comparison groups (non-users) in this study also enhanced their language and communication skills, although the benefits were lesser. This improvement among the users' skills is consistent with the endorsed effects of writing centers on students' written English (Tiruchittampalam et al., 2018). Stoffeslma et al. (2017) proposed that language skills development can be integrated within the course contents, and that the language improvements observed among the non-users in this study can be explained by an English-language-focused curriculum design of the foundations course.

The diverse reasons shared by students provides an explanation for the low utilization of the services. Students often felt uncertain as to how participation in language support services would strengthen and assist in learning (their) discipline (relevancy), that the services were not for them or that those with a strong English background were exempt from participation. Such findings are consistent with first-year post-secondary student expectations which include the belief that they are in charge of their own study (Hassel & Ridout, 2018). The findings are also comparable to the Australian Nursing study findings where students felt doubtful or uncertain that their language skills had been strengthened as a result of participation in a language program (San Miguel et al., 2013). First-year students can also overestimate their abilities which may explain why some suggested that the services were not for them (Cook & Leckey, 1999). Students shared that they were overwhelmed with extracurricular activities and other responsibilities and would prioritize their other coursework over utilizing the available supports. This is in line with knowledge that first-year students often have difficulty in keeping pace with their workload in post-secondary settings (Lowe & Cook, 2003).

Other explanations involve the logistics of the services such as location, timing, navigation, the style, and the content of the offered services. San Miguel et al. (2013) also suggested that the language instructors play a significant role in creating a positive learning environment and that some instructors, depending on their ESL (English as a Second Language) teaching strategies and skills, may be more effective than others. Students shared that they did not always find the content of the services to be helpful and that the teaching style and presentation of course material was not necessarily effective for learning information or in promoting the value of the language services as a whole.

Despite the perceived language improvement benefits, students did not garner all the advantages provided. In addition to a lack of awareness of availability and a belief that the services were not necessary, the various factors influencing low utilization included expectations of more structured, customized, convenient, and attractive language services; convenience of location and time; clarity and timeliness of communications; ease of exploring materials on Canvas LMS; confusing messages between discipline and language instructors; and low perceived benefits. These factors seem to suggest an inadequate communication process and a disconnect between the support program and the students for whom these services are intended. However, it is worth noting that effective communication regarding the services may be insufficient as student decisions

to seek help are already set before coming to university (Salem, 2016). Other studies have additionally indicated that student self-efficacy can play a role in help-seeking and utilization of services (Williams & Takaku, 2011).

Language and communication skills are important within a university setting as they allow students to make sense of the materials and can also assist with their future career endeavors. The growing number of individuals having difficulties with the English language in a post-secondary setting necessitates the implementation of language support services programs. Based on this case study's findings, the provision of free and generalized language support services must be effectively communicated and specifically tailored to various student needs. As seen in this project, implemented support services that are insufficient in these areas can be subject to underutilization.

Limitations

There are potential limitations to discuss in the context of this project. Due to the limited number and slow response rate among the eligible sample for interviews in each need and use category, the sample size of the qualitative data collection may have been inadequate, as only two students in each need and use language category were interviewed. There may have been bias present in the misclassifications of students into the various need and use categories (classification bias), which in turn may have caused discrepancies in interviewee comments about language service usage, as well as the selection of students to interview (selection bias). The end of semester cross-sectional survey questionnaire was customized to capture the utilization data, and validity and reliability of the instrument have not been validated.

Additionally, interviews were conducted a few months after course completion so information bias such as recall bias may have been present among interviewees. Finally, as only a few students attended the language tutorial or drop-in services, it is difficult to claim that the improvement in PELA writing is due to the language support services. The language-based intervention was brief, and it was challenging to see an actual improvement. A more precise measurement of the Canvas LMS use was not possible due to the inaccessibility of utilization data of Canvas LMS by the project team at the time of preparing the manuscript. They were unable to determine the exact number of individuals who used the system and could not categorize the participants accordingly.

Although this study lacks statistical generalizability, the emphasis is on theoretical propositions and analytic generalization. Nonetheless, it is a novel approach towards addressing an important and exacerbating language problem in Canadian Higher Education and a practice-based concrete example with strategies to remove barriers to access language support services for EAL/MLSs. The student interviews were rich in detail with ideas related to enhancing student usage of the language services such as increasing communication and collaboration between the instructors and undergraduates.

Implications and Recommendations

Many interviewees expressed concerns about issues related to the promotion of the language support services, for whom they were intended, and how exactly a student could benefit. Students had various misconceptions and believed the language support services were primarily for EAL or for individuals having difficulties with English. Students also believed that those with a strong English language background were exempt and indicated that there was not enough

information provided by the instructors. They were additionally unclear as to how the services would assist them academically. Therefore, it is recommended to focus on raising both student and faculty awareness of the key importance of English Language skills in current and future academic and career success.

Students, in retrospect, acknowledged the importance of the language support services in assisting them with course materials and assessment; and indicated if they had known about the assistance, that they would have used it to simplify and supplement what they were learning. They also emphasized that improved communication and collaboration between the discipline instructor, language instructor, and students during the delivery of language support would help to strengthen their understanding of the benefits of these services. This could allow for better integration of course specific language needs with the language services.

Some students commented that the offered materials were uninteresting and did not contextualize or relate to the course material while others indicated that it was not worth the time and effort to utilize the support. They suggested that language support that is integrated with course content could facilitate a different interpretation than what is discussed in class. Overall, an increased alignment between the support services and assignments could be beneficial.

In addition, it is recommended to incentivize student utilization of services by linking their participation to grades/assessments. Student beliefs regarding the lack of need for higher language skills due to prioritizing course content over grammar and writing explains another possible reason for low utilization. Students noted that the optional nature of the language services reinforced the notion that it would not impact their grades and that offering additional grades for participation could be an incentive for language service use.

Students had various challenges with utilizing the language services that included, location of services, different priorities, first-year adjustment, time management, time conflicts, and uncertainty about the type of language assistance required. These different factors suggest that support services need to accommodate the various needs of the targeted individuals. Consequently, it is recommended to provide ways for students (e.g., through regular polling) to have ongoing dialogue with the support team and be involved in decisions regarding schedules and type of assistance offered throughout the course of the term. The team could then act upon feedback, given the dynamic, evolving, and varied language needs of students.

The challenges encountered by drop-in language services in terms of structure and scheduling conflicts and the busy lifestyle of first-year students reinforces the need for online delivery for a larger portion of language support and instructions. Some students explained how the online materials were favorable because of ease of accessibility. They were also more attracted to utilizing services if communication with the language instructor was available during online office hours.

Recommendations for Further Study

The authors of this article have ongoing questions as to how language support services can improve student course performance in areas such as engagement and participation as well as promoting success with future career aspirations. More studies should be conducted covering such topics as the provision for customized language support relevant to the discipline, effective and attractive support services with convenient times and locations, establishment of clear channels of communication between instructors and students, and measurement of the long-term impact of language support services. It is also notable that teaching assistants, who grade written assignments

and tend to be closer with individual students, can encourage students in need of language support to enroll in the necessary services. While there are numerous reasons why students underutilize language support services, the identification of underlying factors contributing to low utilization could have useful implications in offering and tailoring these programs to serve the diverse needs of EAL/MLSs in Canada and beyond.

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Appendix A
Post-Entry Language Assessment (PELA)

Student # _____
Time allotted: 40 minutes

Directions:
This assignment will help you understand your own understanding of the concept of health early on in the semester. You can use this as a reference point to examine if/how your ideas change over time.

For this assignment, you need to write an essay in response to the following three questions:

1. **What is your understanding of the word "health"?**
2. **What factors do you think influence health, as you define it?**
3. **Please refer to and reflect on at least 3 health-related experiences (e.g., injury, health issue) you have had in your life.**

Your essay needs to be at least 300 words (Between 2-3 pages).
In your writing, try to:

- write clearly and order your ideas logically
- use academic vocabulary
- use grammatically correct sentences

Appendix B
End of Semester Cross-sectional Survey Questionnaire

Student # _____

In this course in the Fall 2018, Centre offered the first 2 tutorials (reading and summarizing articles), discipline specific weekly language tutorials, drop-in support services, and uploaded language support files on Canvas for those students who need language and literacy support.

Q 1. How helpful did you find these **language services**? (check only once for each row)

		Not at all helpful (1)	Not so helpful (2)	Somewhat helpful (3)	Very helpful (4)	Extremely helpful (5)	Did not use the service (0)
1	The first 2 tutorials (reading & summarizing articles)						
2	Weekly language tutorials or drop-in services						
3	Language support files uploaded on Canvas						

Q 2. How much time did you spend on **the language support files** on Canvas throughout the term?

		0 hours (None) → skip Q 3 and go to Q 4 (0)	1 - 3 hours (1)	4 - 5 hours (2)	6-10 hours (3)	More than 10 hours (4)
1	Time spent on the language support files on Canvas					

Q 3. If you have used any of the language support services, what is your **perceived language skills before and after using them**? (If you haven't used these services, skip this question and please go to Q 4)

		Before using the language services					NOW				
		Not OK		*OK*			*Not OK*		*OK*		
	Capacity	0	1	2	3	4	0	1	2	3	4
1	Knowledge of grammar and sentence structure needed for health science communication										
2	Knowledge of vocabulary and terms needed for health science communication										
3	Confident that I have the knowledge and skills that will improve my reading skills in health sciences										
4	Confident that I have the knowledge and skills that will improve my writing skills in health sciences										
5	Ability to use accurate vocabulary and terms needed for health science communication										
6	Ability to write grammatically correct sentences and paragraphs in health sciences										
7	Ability to read academic texts (articles, book chapters, etc.) in health sciences										

Q 4. What is the main reason, **if you didn't attend/use ….** (**check ALL** that apply)

	Main reason	I was placed in the green category and do not need language support → skip to Q 5 (0/1)	I am not interested in using language support (0/1)	I have a time conflict (0/1)	I use other language support services at SFU (0/1)	I use other types of software and online language support (e.g., Grammarly) (0/1)	It wouldn't help my future success (0/1)
1	Did not attend the tutorials and/or drop-in support services						
2	Did not use the language support files on Canvas						

Q 5. **Hypothetical incentives:** I would have used language support services, if they had been …
(please answer each statement that you agree or not). (If you don't need any language support,
skip this question and end the survey)

	Statement	Agree (1)	Don't agree (0)
1	I would have attended the **language tutorials or drop-in services** if they had been more relevant to my assignments.		
2	I would have attended the **language tutorials** if they had been more convenient (immediately after the lecture).		
3	I would have attended the **language tutorials** if they had been offered during the class/lecture time (shorten the lectures and give time for language tutorials).		
4	I would have attended the **language tutorials** for bonus marks (4-5% for the term).		
5	I would have attended the **language tutorials** for a gift card ($50-100 for the term).		
6	I would have attended the tutorials if the regular tutorials had **an added language component.**		
7	**In general**, **language tutorials or drop-in services** should be offered for this course/other health science courses in the future.		
8	I would have used the **language support files <u>on</u> <u>Canvas</u>** if they had been in the form of recorded videos (in addition to text)		
9	I would have used the **language support files <u>on</u> <u>Canvas</u>** if they were more relevant to my course Assignments.		
10	**In general**, **language support files <u>on</u> <u>Canvas</u> should** be offered for this course/other health science courses in the future.		