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COMPARISON OF KNOWLEDGE RETENTION IN FACE-TO-FACE AND ONLINE ENGLISH LANGUAGE LEARNING FOR ADULTS

Tatiana Ginzburg[1], Edīte Sarva[1]

[1] University of Latvia, Latvia

ABSTRACT

Online education has become increasingly important in recent years. With the development of technology more pedagogical methods can be applied online, thus increasing the diversity of learning experiences for learners and teaching opportunities for educators. Considering the benefits of online education such as accessibility, convenience, the possibility of differentiation and personalization, it is important to evaluate the feasibility of wider implementation of this learning modality. This is especially significant in adult education, as adult learners are self-motivated and potentially have developed self-directed learning competence – both essential for successful learning online. However, adults often experience time-related constraints so online may be the only learning modality available for some of them. There are ongoing and extensive discussions on the benefits and drawbacks of face-to-face and online learning. This paper aims to analyze the relationship between a course modality and knowledge retention as one of the important aspects of learning effectiveness. The data is gathered from two demographically similar cohorts of adult students who took an English language course of the same volume and content either online or face-to-face. The results show no statistically significant difference in knowledge retention between these modalities. However, there is an indication of better knowledge retention in writing after an online course.

Keywords: *online education, face-to-face education, adult learners, knowledge retention, English as an additional language*

Introduction

Research into comparing learning outcomes between traditional face-to-face (F2F) and online modalities so far has produced mixed results, with no significant or modest difference being the most common conclusion (Jabeen & Thomas, 2015; Nguyen, 2015; Soffer & Nachmias, 2018). Most studies examined learning outcomes in undergraduate courses, using completion rate, and grades earned for assignments and final tests as the main indicators. Harmon & Lambrinos (2006) hypothesize that more mature

graduate students, who have better developed human capital and thus are better at self-directed learning, achieve higher test scores in online classes compared to F2F ones. The idea is reiterated in a study comparing learning outcomes in F2F and online Master of Business Administration (MBA) courses, simultaneously pointing out that, controlling for an associated selection bias, the outcomes of an online course are lower than those of F2F (Skidmore & Anstine, 2005). It is worth noting that all the studies use students in degree programs and their final course tests for the analysis.

At the same time, while retention of knowledge is an essential aspect of learning effectiveness (Turner & Turner, 2017), the research into it in adult education is scarce. This research aims to answer the following question: what is the impact of a course modality on knowledge retention in an English as an additional language course for adults?

Literature Review

Adult education online

With the advent of technology, online learning has gained popularity worldwide. Online learning has become a common method for adults to acquire new skills and knowledge, as well as to advance their careers. It offers several benefits for adult learners. Firstly, online learning is flexible, allowing learners to study at their own pace and at a time and location that suits them best. This is particularly important for adults, since adults refer to work-related lack of time as one of the main reasons preventing them from participating in education. Secondly, online learning is often more affordable than traditional classroom-based learning, as it eliminates costs associated with traveling and accommodations. Thirdly, online learning offers a wider range of courses and subjects, as it enables learners to access resources and materials from all over the world. In addition, online learning can be more personalized than traditional classroom-based learning, as it allows learners to choose the content and pace of their learning (Bonde et al. 2014, Dhawan, 2020, Nolen & Koretsky, 2018). Moreover, online learning can improve learners' digital literacy and computer skills, which are essential in today's workplace (Gudmundsdottir & Hatlevik, 2018, Instefjord & Munthe, 2017).

Development of technologies led to the increase in the use of various teaching formats. Among those the most common are asynchronous learning, synchronous learning and various combinations of both, with flipped classroom gaining significant popularity (Tang et al., 2020; Russell & Murphy-Judy, 2021).

Despite the benefits of online learning, there are also limitations that must be considered. Firstly, online learning requires self-motivation and discipline, as learners must be able to manage their own learning. It can sometimes lack the personalized support and feedback that is available in traditional classroom-based learning, which can impact learners' motivation and engagement. Secondly, online learning may lack the social interaction that occurs in traditional classroom-based learning, which can result in feelings of isolation and disengagement. Thirdly, online learning can be challenging for learners with limited computer skills or access to technology. Finally, online learning can be less

effective for certain types of learning, such as practical or hands-on learning (Azorín, 2020, Dhawan, 2020, Reimer & Schleiche, 2020, Digiuseppe et al., 2017, Bonde et al., 2014, Lee & Choi, 2017). Online learning is still widely seen as inferior to face-to-face instruction (Hodges et al., 2020) and there are also concerns connected to legal and ethical aspects when implementing online learning, including safety online and observing copyright (Rubene et al. 2021, OECD, 2020, Yang & Huang, 2008).

It is probable that the adoption of online learning will continue to grow (Azorín, 2020, Balyer & Öz, 2018, Nolen & Koretsky, 2018). Since online education is a recent form of learning, it is crucial to investigate and evaluate the effectiveness of various teaching methods and subject matters, including the competencies provided through this format. This is particularly important in light of the rapid advancement of technology and the increasing range of online activities available.

To summarize, online learning offers several benefits for adult learners, including flexibility, affordability, wider subject choice, and improved digital literacy. However, there are also limitations to online learning, such as the need for self-motivation, lack of social interaction, and potential challenges for learners with limited technology skills and access. Future research should explore strategies to enhance the benefits and mitigate the limitations of online learning for adult learners.

Methodology

Research context

This research focuses specifically on the retention of knowledge that adult learners gained in English as an Additional Language (EAL) course. Reflecting on the increasing globalization, mobility, and the fact that adults become multilingual and multicultural later in life, The Douglas Fir Group defines EAL as "additional language learning at any point in the life span *after* the learning of one or more languages has taken place in the context of primary socialization in the family" (The Douglas Fir Group, 2016, p. 21). This research compares results of the English language proficiency test administered to selected students 1–2 years after completing the course.

Two demographically similar cohorts of adult students took courses of the same volume and content at Riga Technical University (RTU) Riga Business School English Language Center (RBS ELC). One course was delivered in the traditional F2F format in the 2019–2020 academic year to the faculty and academic staff of RTU (n = 43) as a part of an EU-funded project. In the 2020–2021 academic year following COVID-19-related restrictions, it was moved online having been restructured according to the principles of the flipped classroom (Bergmann & Sams, 2012; Chen et al., 2021; Russell & Murphy-Judy 2021; Tang et al., 2020). This cohort comprised RTU academics (n = 35) and RBS ELC adult students (n = 31) who studied the same content in a less distinctive flipped format over a longer period. Since analysis of knowledge retention shows no significant difference between the results of the latter two groups (Ginzburg & Daniela, 2023), these students can be considered as a homogeneous group.

Research design

The aim of this research is to provide data that would eventually guide practice; therefore, we use pragmatism as the philosophical worldview (Saunders et al., 2019). The students were placed into groups according to their initial level of English to avoid mixed-ability groups and, although they could not select a modality, they could choose not to participate in studies. Therefore, assignment to a group was not totally random and thus, a quasi-experimental design is used as the research method (see Figure 1). We use quantified change in proficiency level defined through an independent secure online test EduSynch CEFR Level Test (Edusynch) administered 1–2 years after the course to draw conclusions on the knowledge retention in each modality.

We took the following steps to analyze knowledge retention:

1. Student placement into study groups. In the 2019–2020 academic year, all students took a written test followed by an interview with an ELC instructor. They were placed in the groups according to their overall level. In the 2020 – 2021 academic year, RTU students were placed in groups upon completing an EduSynch test that included all four language skills (reading, listening, speaking, and writing), while RBS ELC students sat an online placement test followed by a Zoom interview with an ELC instructor. The group levels corresponded to those of the Common European Framework of Reference for languages (CEFR).
2. Intervention. All students had an English language course of 100 academic hours, regardless of the modality. At the end of the course and provided students met all course requirements, they received a certificate stating that the corresponding level of English is achieved. For pragmatic purposes of this research, we assume that the level is constant across language skills. We use the data from the courses administered in the traditional F2F format (see Figure 2), and in two online formats employing the principles of flipped classroom (Figure 3 and Figure 4).

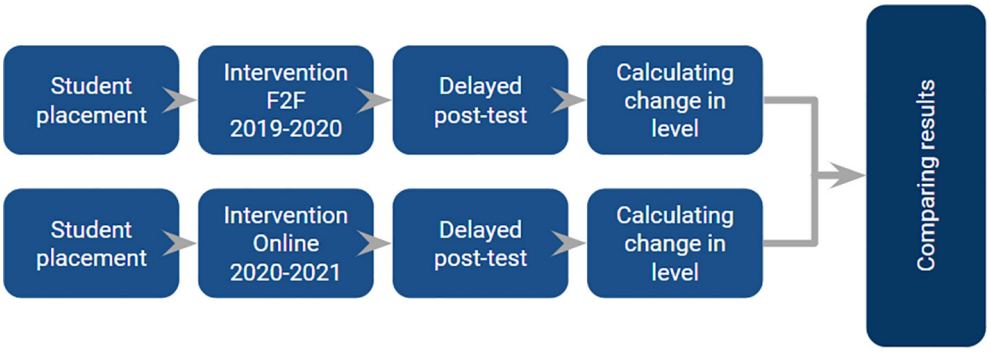

Figure 1 Research design

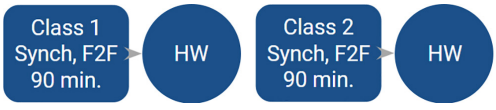

Figure 2 Face to Face modality

Figure 3 Online modality – standard

Figure 4 Online modality – intensive

3. Delayed post-course testing. All students were approached one year after the course with the request to sit an online proficiency test. Nineteen students (44.2%) from a F2F course and eighteen (27.3%) from those who studied online agreed to take the test. The EduSynch test demonstrates high reliability and high validity for the total scores, and moderate validity for the individual skills' scores (Mughisi, 2022). It defines the overall level of English as well as for each of the language skills according to CEFR. However, it utilizes more discrete levels than RBS ELC uses, so we employed the following scale: A1+/A2; A2+/B1−/B1; B1+/B2-; B2; B2+; C1.
4. Calculating changes in level. If the EduSynch test result was equal to the level achieved in a course, the change was considered as zero, the result different by one level yielded +/− 1, etc. We used IBM SPSS 22 to calculate mean values for overall and by-skill changes in levels for each group and for independent samples t-test to find out whether the differences are significant.

Results

Descriptive statistics show a slightly smaller overall change in level after an online course (see Table 1). Considering the change in skills, it appears that it is smaller after a F2F course for Reading and for an online course for Listening, Speaking, and Writing. However, in all cases a smaller loss of level is characterized by a wider spread of data, as demonstrated by standard deviations. On the other hand, Levene's test shows homogeneity of variances was not violated for any of the categories. Moreover, the change may not be considered significant overall $t(35) = -.553$, $p = .584$, for Reading $t(34) = 1.305$, $p = .201$, Listening $t(35) = -.749$, $p = .459$, and Speaking $t(34) = -.576$, $p = .568$. It is significant for writing $t(35) = -2.468$, $p = 0.019$.

Table 1 Change in Levels After F2F and Online Courses

	Modality	*N*	Mean	Std. Deviation	Std. Error Mean
Change in level, Overall	F2F	19	−.84	.83	.19
	online	18	−.67	1.09	.26
Change in level, Reading	F2F	18	.06	1.26	.30
	online	18	−.50	1.30	.31
Change in level, Listening	F2F	19	−.26	1.45	.33
	online	18	.06	1.11	.26
Change in level, Speaking	F2F	18	−1.11	.90	.21
	online	18	−.89	1.37	.32
Change in level, Writing	F2F	19	−1.53	.96	.22
	online	18	−.72	1.02	.24

Discussion

Overall change in proficiency level after a F2F course appears close to that after an online one. The differences in mean values are not revealed as statistically significant, and the data for the online course varies more. Although not large, the sample sizes allow for the use of parametric tests (Boneau, 1960; Mircioiu & Atkinson, 2017) and the number of observations in each set are similar. The changes in specific skills vary more for F2F and online; however, apart from the change in writing, they are not proved as significant. At the same time, considering the high validity and reliability of the EduSynch test for overall language proficiency and moderate ones for the separate skills, we believe that we can accept all the differences as not significant. This confirms the research in comparing F2F and Online learning in higher education (Harmon & Lambrinos, 2006; Jabeen & Thomas, 2015; Nguyen, 2015; Soffer & Nachmias, 2018, Turner & Turner, 2017). However, it contradicts the results of a degree course for more mature students (Skidmore & Anstine, 2005). On the other hand, none of the previous research focused on adult education.

The results indicate that a language course of the same content and volume delivered either F2F or online may lead to the similar retention of knowledge in adult learners. As an essential factor in assessing effectiveness of teaching and learning, this adds a data-based argument to the discussion of the feasibility and value of online education.

At the same time, several points need to be kept in mind. Firstly, the students in both cohorts were motivated people with well-developed learning habits and relatively good technical skills. The results could potentially be different with demographically different learners. Secondly, although the samples were not small, the result could be more convincing with a larger number of observations. Admittedly, it is not easy to persuade adults to agree to a proficiency test a year after a course, so more research would be useful. Thirdly, comparing these results with the change in levels after the same course delivered in a blended modality would provide more information on how it affects knowledge retention. Finally, adult education providers and decision makers should consider other criteria of teaching effectiveness before planning training programmes, i.e. students' perceptions of each modality.

Conclusions

This small-scale research allows to draw the following conclusions:

1. Controlling for other factors, we cannot state that the modality of this course had an impact on participants' knowledge retention.
2. The results of this research suggest that online modality can be as effective as face to face modality for adult learning.
3. Taking into account the social nature of language learning which could be considered one of the main challenges for online learning, it is probable that similar or possibly better results would be seen for other learning content.
4. Further research could use larger samples, explore knowledge retention with different learning content, and include other modalities such as blended for comparison.

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