Article

Competence Development Strategies after Covid: Using PBL in Translation Courses

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Abstract: The Pandemic in 2019 forced a digital adaptation with direct consequences on all educational stakeholders. On behalf of teachers and trainers, while many regarded these changes with some scepticism, others embraced the opportunity to integrate technology into their teaching methods and as learning resources. As translation trainers, it is essential to follow and understand the translation market. Thus, the exponential changes that digital technology has brought to this sector over the years impose constant shifts in teaching and learning methods and resources. In fact, translators require vast competencies, amongst which is the flexibility to adapt. In translation training Project-Based Learning (PBL) has been established as an essential teaching and learning method, as it has proven to foster the development of competencies as it simulates the translator's work environment. Thus, the need to adapt new strategies reinforced PBL and its benefits. PBL, however, similar to a freelance translator, places the student in the centre of the learning process, where self-regulation becomes essential, as it is necessary to analyse the market/situation and be flexible enough to adapt to the context accordingly. As of 2018-2019, technical translation courses at ISCAP have implemented PBL as their main teaching and learning method. At the same time, a study on student self-regulation began. The purpose was to understand student perception on their own self-regulation competence and its development or lack thereof after one year of PBL. Results indicate that PBL is seen as a useful simulation of the translation labour market and that it does enhance many essential competences, amongst which is student self-regulation.

Keywords: translation; project-based learning; self-regulation; teaching and learning

1. Introduction

The enormous developments in education have unquestionably been made possible by technology. This happened due to the exponential growth of the Internet and educational technologies that allowed deep transformations in the teaching-learning process and paradigm along the years. However, it is undeniable that the burst of the COVID19 pandemic contributed immensely to this evolutionary process [1], because technology was the common answer for the implementation of strategies able to guarantee classes in virtual environments. As stated by the Council of Europe "The need to find an alternative to face-to-face learning has spawned numerous experiments in the use of digital technology for education purposes, which have again led to a number of innovations in the use of existing devices and types of software"[2].

While pushed into Emergency Remote Teaching (ERT), educators very quickly had to embrace disruption and implement changes while complying with the learning objectives established for their courses. Although it is important to understand how, in some situations, ERT was converted into online learning, it is also noteworthy to acknowledge how previous experimental teaching and learning methods were fomented due to COVID19 and became the norm.

This paper will consider the effects that the pandemic had on online PBL in technical translation education and training, in the context of the Porto Accounting and Business

School (ISCAP), a Higher Education Institution (HEI) in Portugal. It presents a study focused on project-based learning (PBL) over the course of three years, a strategy that was being tested as a way to simulate a translator's work environment and potentiate the development of competences, particularly self-regulation, prior to the pandemic, but which became an established teaching and learning approach in translation training.

Thus, the study we describe derived from an experimental study implemented in 2018-2019, prior to the pandemic and based on the research led by Mohamed Yassine Zarouk [3]. This experimental study indicated positive self-regulation results in an online PBL approach to translation. Thus, as lecturers of the course, we decided to re-implement the same course design and the questionnaire, which became especially relevant given that in March 2020 there was a lockdown due to COVID19 and teacher and student interaction changed from a face-to-face scenario to an online, technology-mediated scenario. The same situation was repeated in the spring of the following school year (2020-2021).

Section 2 provides an overview of the theoretical concepts which underpin our study, namely competence development in translation using Project-based learning strategies. Section 3 describes the methods and procedures implemented to address our research question: Does online PBL foster the development of essential competences for future translators, namely self-regulation? Did the lockdown affect student self-regulation? Section 4 depicts and discusses our findings. Finally, Section 5 provides conclusions that may be drawn from our longitudinal study.

2. Theoretical Background

2.1. Professional Competences of Translators

Currently, formal training, such as a university degree, is not always required to work as a professional translator. This is true for several countries, Portugal included. However, when a translator recognises him/herself as a professional translator, due to having experience working as a translator, it is important that he/she takes into consideration the need to have the competences to ensure the quality of a translation service.

As a result, extensive research has been done over the years addressing the competences translators should have, often inductive in nature. These scholars and/or translators include, to name a few, Harris and Sherwood [4], Chesterman [5], Shreve [6], Neubert [7], Pym [8], and Albir and Taylor [9].

In addition, it is also important to address standards and guidelines for translation service providers, such as ISO standard – ISO 17100:2015 (amended in 2017) on Quality Translation Services - which lists the competences that translation service providers (TSP) need to have, in order to guarantee translation quality. This list encompasses translation competence; linguistic and textual competence; competence in research, information acquisition, and processing; cultural competence; technical competence, and domain competence [10]. Furthermore, the European Master's in Translation (EMT) network (a quality label established in partnership with the European Commission and Higher education Institutions) publishes a framework for translator's training and translation competence to maintain "the quality of training and to help young graduates to integrate smoothly in the translation job market"[11]. The first framework was published in 2009, followed by considerable changes in 2017. The last framework, published in 2022, "has now become one of the leading reference standards for translator training throughout the European Union and beyond" [11] (p.2), both in higher education institutions and the industry. The initial versions of the framework needed updates to mirror the aims of European translation programmes, as they train their students for a dynamic and highly technological workplace, even though the fundamental principles established in 2017 remain valid. This framework presents 14 competences that translation students should have in order to perform well in the translation labour market. The competence which we identify as the most relevant for this particular study is number 11 - "Check, review, revise

and evaluate their own work and that of others according to standard or work-specific quality objectives and assess the appropriateness of using tools for the work at hand" [11] (p.8). This competence clearly encompasses the concept of self-regulation, an essential competence in the era of digital technology, which was particularly relevant during the educational context influenced by COVID, that forced teachers and students to work more independently remotely.

In sum, in translation training, it is important to remember the competences professional translators will need to effectively integrate the evolving labour market. In fact, as Albir states, "translator training cannot ignore new pedagogical models that advocate competence-based training and an integrated approach to teaching, learning and assessment" [9] (p.257). In order to accomplish that ultimate goal, which is preparing students for a real work setting, by developing the core competences they will need, this paper will be focusing on a Project-based Learning approach as a means to foster self-regulation with translation students, before and after COVID19.

2.2. Self-Regulation

Self-regulation in learning (SRL) is considered by Zimmerman as "self-generated thoughts, feelings, and actions that are planned and cyclically adapted to the attainment of personal goals" [12] (p. 14). Describing self-regulation as "cyclical", means that there is a continuous iterative engagement, using task-specific and metacognitive strategies, while gathering information on their value, to achieve defined goals. Despite the theories and models available in the literature across multiple disciplines, most describe self-regulation as a process with before (initial expectations), during, and after (self-reflection) phases. Zarouk, supported by the works of Pintrich [13] and Zimmerman [14], states that "self-regulated learning (SRL) is an active and iterative process in which learners participate metacognitively, motivationally, and behaviorally in their learning process in pursuit of their goals and the contextual characteristics of their environments"[3] (p. 129). Self-regulation is how one controls their thinking, behaviour, emotion and motivation to attain their goals using personal strategies.

For professional translators, self-regulation often exceeds the individual and includes a social and interactive component. Indeed, translation has long ceased to be an individual process. The success of (online) collaborative work relies on the self-regulation abilities and methods that each person brings to the group, whether this is in an educational setting or a professional context. Additionally, one needs to consider the assistance throughout the project given to one another to support self-regulation within the group (co-regulation), and finally, the shared or collective regulation, which includes communication strategies, the regulation of group motivation, and project coordination strategies (shared regulation) [15].

Thus, we consider that self-regulation is crucial for PBL because it enables students to assume the responsibility for their own learning and become more actively engaged in the process. Students set their own objectives, track their own development, and adapt their approaches as necessary to achieve those objectives. Self-regulation helps students become more independent learners and take ownership of their learning. They can identify their strengths and limitations and also, as mentioned before, develop lifelong learning skills.

2.3. Project-Based Learning

Teaching and learning methods are continuously changing, but it is crucial to guarantee that the appropriate strategies are used, in order to achieve the learning outcomes. Moreover, it is important to align education with the market's perspectives and trends to allow students to understand what the market expects of them. This is clearly a challenge, because to emulate a professional context for students to work on poses difficulties for teachers and institutions alike. The translation market is increasing exponentially [16], and with this growth and the incorporation of digital solutions, the

translation process is no longer a single-person activity; it is a complex process that very often needs to be prepared, organized and overseen.

In PBL, ill-structured challenges (using either authentic [17] or simulated projects) are used for the learning process, which, according to Tan [18] is as an on-going active, student-centered approach. Michel, Lavoué, and Pietrac [19] and Shet *et al.* [20] also claim that PBL demands that students take control of their learning process, fostering the development of subject-matter expertise, teamwork, critical thinking, and problem-solving skills.

Hence, PBL emerges as a plan to bring an idea or action to life where students are the main actors. In translator training, students are introduced to translation projects, where they learn by doing, *i.e.,* they organise the translation project from the moment they receive it from the "client" until they deliver the final translated document. This means that the students need to organise their time, assume roles and distribute tasks in order to meet the client's requirements, just like a translation service provider (either a translation company or a freelance translator).   In sum, in a traditional translation classroom, the use of a PBL approach requires the completion of a number of challenging activities in a predetermined amount of time [21].

Studies on PBL in translation training are not new (González and Díaz [22], Li, Zhang and He [23], Moghaddas and Khoshsaligheh [24], and Apandi and Afiah [25]).

Our approach is, as already mentioned before, supported by Zarouk's *et al* [3] study on the impact of online Project-Based Learning on Self-Regulation in Higher Education. The authors describe a study conducted in the school year 2018/2019, prior to the pandemic, and report that all the groups that participated in the study claimed to have increased their motivation for learning. The translation group (students from technical translation course at ISCAP) additionally claimed a high level of satisfaction and usefulness when questioned on PBL. These participants appreciated the design of the course, where they worked in teams and where each member had specific roles and tasks. The online PBL scenario, used via the institutional platform Moodle, sought to replicate authentic translation scenarios, through projects. The authors also conclude that the translation group significantly improved their self-regulation and collaboration strategies in comparison with the other groups that participated in the study. These findings are consistent with similar results suggesting that well-structured but flexible teaching design can promote students' active learning behaviors and teamwork as suggested by Zarouk *et al.*, who refer to Shih and Tsai [26], as well as Sakulviriyakitkul [27].

Given this context, and the positive results of the previous study, we as the teachers involved in the project, decided to maintain the course design and, once again, study participant perspectives on self-regulation over the course of the years that followed. It is within this premise that we propose to address the following research questions, as stated previously:

Does online PBL foster the development of essential competences for future translators, namely self-regulation?

Did the lockdown affect student self-regulation?

The methods and procedures implemented to provide answers to these questions are depicted in the section that follows.

3. Methods and Procedures

The study aims to examine an online project-based learning approach on students' self-regulated learning strategies over a period of three years, which include the imposed lockdown due to Covid19. It is a quasi-experiment study [28] following a pre-test-post-test design, where we adopted a quantitative methodology to measure student self-regulation learning processes and strategies.

3.1. Sample and participants

Given the positive and encouraging results from the previous study [3], which pertained to the school year 2018-2019, the teachers decided to replicate the online PBL design in the technical translation courses. The study presented in this article was conducted between March and June of 2019-2020, 2020-2021, and 2021-2022, which correspond to the second semester of the school year, the timeframe in which the technical translation courses are taught at ISCAP.

At the beginning of the second semester, in 2019-2020, 91 students had enrolled; in 2020-2021, 82 students had enrolled, and in 2021-2022, 79 students had enrolled in the Technical Translation course on ISCAP's Moodle platform. Two teachers participated in the planning and structuring of the PBL course design, and then conducted the course and evaluated the students. The teachers adopted the roles of facilitators and clients throughout the different projects. A detailed description on the online PBL design implemented has already been published [29].

Participation in the projects was mandatory for all students who opted for Continuous Assessment. However, student participation in the questionnaires (pre-test and post-test) was voluntary. They were openly invited to participate in the study by filling the pre-test and post-test questionnaires on the first and the last sessions, but there was no control system in place to verify that they did. As a result, a significantly lower number of students than those who had initially enrolled in the course answered the pre and post questionnaires.

Indeed, only the questionnaires of the students who filled both the pre-test and post-test were initially included in this study. In other words, to examine the impact of our approach, we wanted to measure and compare students' initial and final self-regulated learning strategies questionnaire.   In this sense, it is important to mention that since most participants would be automatically excluded from the study, we decided to look at the data from various perspectives, as will be described below. Although we have not researched the reasons students did not answer the questionnaire, as it is not part of the purpose of the present study, we will consider this in our discussion.

3.2. Data collection instruments

To measure the students' self-regulation learning strategies, we used the same instrument as Zarouk, the Self-Regulation Project-Based Learning (SRPBL) questionnaire. The questionnaire is an adapted self-report instrument created by the author to measure self-regulation in online and blended learning environments [30], adapted from the original Self-Regulation Questionnaire (SRQ), proposed by Brown, Miller, & Lawendowski [31], and validated for consistency. The questionnaire focuses on three main Self-Regulation pillars (motivation, self-regulation, and collaboration). Specifically, the questionnaire used in this study comprises a five-point Likert scale (1. Strongly disagree – 5 strongly agree) and is defined by a set of statements, which grouped into three main constructs: Motivational Beliefs (11 statements), Self-regulation Strategies (27 statements) and Collaborative Strategies (9 statements).

4. Results and Findings

Initially, we performed a comparative analysis of 16 participants enrolled in the Technical Translation course. These participants answered to the Pre-test (Q) in March and April 2020 and to the Post-Test (P) in May and June of 2020 (2019-2020). This sample was the only consistent group which enabled us to establish a comparison regarding students' self-regulation learning strategies, as we were able to pair participant responses.

For this sample, questions belonging to the constructs, *Motivational Beliefs* and *Self-Regulating Activities Before Learning*, were analysed, both individually and grouped. For each student, the average of the scores given in the items belonging to *Motivational Beliefs* was computed and used as value for this construct. Similarly, the average values of the items belonging to every construct were computed for each student. This is described in section 4.1. Normality of the data was checked with the Shapiro-Wilk test, and parametric

or non-parametric tests were then performed accordingly. To compare between the results of the constructs in the pre-test and in the post-test, paired samples T-test were performed. Afterwards, a further analysis of each item was carried out using the Wilcoxon paired samples test.

In the second phase, we decided to proceed with a longitudinal analysis of the full post-test (P) questionnaire for 2019-20, 2020-21 and 2021-22 (see section 4.2). For this analysis, a longitudinal sample of 49 students was collected. Descriptive statistics and Shapiro Wilk normality tests were performed, separately by school year, for three levels of variables:

- item by item,
- items grouped in nine constructs,
- and items grouped in three main dimensions.

The reliability of the constructs was analysed with Cronbach's alpha.   The dimensions, constructs and items were tested for differences across the years with ANOVA, Kruskal Wallis tests and Mann-Whitney tests.

4.1. Comparative analysis of the Pre-test and Post-test for 2019-2020

For each student, the average of the scores given in the items belonging to each of the two constructs present both in the pre-test and in the post-test was computed. These average values were analyzed as variables representative of the constructs.

Shapiro Wilk tests indicated that the variables follow a normal distribution, so parametric tests could be used (T test for paired samples). From these T tests, p=0.723 and p=0.422 >5% were obtained, thus concluding that there are no significant differences in the means of the constructs in the pre-test and post-test (Table 1).

Table 1 - Paired Samples T test for comparing the constructs in the Pre-Test and Post-Test

		Paired Samples T Test						
		Paired Differences						Significance
		Mean	Std. Deviat.	95% Confidence Interval of the Difference		T	df	Two-Sided p
				Lower	Upper			
Pair 1	Motivational Beliefs (Pre-test) - Motivational Beliefs (Post-test)	-0.02500	0.27689	-0.17254	0.12254	-0.361	15	0.723
Pair 2	Self-Regulation Strategies Before Learning (Pre-test) - Self-Regulation Strategies Before Learning (Post-test)	0.10000	0.48442	-0.15813	0.35813	0.826	15	0.422

A closer analysis of each item in the pre-test and post-test was performed.

The Wilcoxon test is a non-parametric test to analyze whether there are differences in paired samples. In this case, we used it to test differences between the answers given in the pre-test and in the post-test, *i.e.*, before and after the learning period (Table 2). This non-parametric test was used because the sample was small, and most variables did not follow a normal distribution.

Table 2 – Wilcoxon Test for comparing items in the Pre-Test and Post-Test

Wilcoxon Signed Ranks Test	Z	Asymp. Sig. (2-tailed)	Result
Self-motivational beliefs: In online learning, I prefer support material that challenges me so that I can learn new things.	-0.905[b]	0.366	No differences
Self-motivational beliefs: If I study appropriately, I can understand the contents of this module.	-1.890[c]	0.059	There are significant differences
Self-motivational beliefs: I think I am able to use what I learn in other situations.	-1.414[c]	0.157	No differences
Self-motivational beliefs: I believe I can do an excellent work in this module.	0.000[d]	1.000	No differences
Self-motivational beliefs: I am sure I can understand the topics presented in the readings	-2.887[c]	0.004	There are significant differences
Self-motivational beliefs: Getting a good grade is the most rewarding thing for me.	-1.000[c]	0.317	No differences
Self-motivational beliefs: It is important and useful for me to learn the subject of the module	-2.530[b]	0.011	There are significant differences
Self-motivational beliefs: I am very interested in this topic (Subtitling)	-0.816[b]	0.414	No differences
Self-motivational beliefs: I expect to succeed in this module.	-1.732[b]	0.083	No differences
Self-motivational beliefs: I am sure that I will master the module's competence and subject matters.	-0.277[c]	0.782	No differences
Metacognitive activities before learning: I think about what I really need to learn before starting a task.	0.000[d]	1.000	No differences
Metacognitive activities before learning: I set short-term (daily) as well as long-term (weekly) goals for online training.	-.776[c]	0.438	No differences
Metacognitive activities before learning: I set goals to help me manage my study time for this module.	-.647[c]	0.518	No differences
Metacognitive activities before learning: I think of alternative ways to solve a problem and choose the best course of action in this module.	-.277[b]	0.782	No differences
Metacognitive activities before learning: At the beginning of a task, I think about the study strategies I will use.	-2.667[b]	0.008	There are significant differences

a. Wilcoxon Signed Ranks Test

b. Based on positive ranks.

c. Based on negative ranks.

d. The sum of negative ranks equals the sum of positive ranks.

The results showed interesting results (at the 5% level of significance) as to the participants' perception in the following three items of the pre-questionnaire and the post-questionnaire: 1) Q: *I am sure I can understand the topics presented in the readings* - inquired about the level of confidence the students could feel on their autonomous study. The findings show that the participants reported a higher level of self-confidence as to learning autonomously and confidently; 2) Q: *It is important and useful for me to learn the subject of the module* - the results show a slight decrease as to the perceived importance and usefulness of the contents. It may indicate some dependence on teacher guidance which was normally the case in face-to-face context. In Metacognitive activities (self-regulation) before learning, a significant decrease was noted in: 3) Q: *At the beginning of a task, I think*

about the study strategies I will use - participants regarded planning strategies as irrelevant and unnecessary, which may indicate that previous preparation work had little effect on students' performance.

If a 10% of significance was considered, it would still be possible to detect the existence of significant differences in the answers given in the pre-questionnaire and in the post-questionnaire for Q: *If I study appropriately, I can understand the contents of this module*. This refers to students' motivational beliefs and self-awareness of the importance of study to properly understand the content. It is apparent that the confidence in the effectiveness of studying increased.

In sum, an analysis of the Pre-test and Post-test in 2019-2020 revealed significant differences in two common constructs: *Motivational Beliefs* and *Self-Regulation Strategies Before learning*.

4.2. *Longitudinal analysis of the post-test for 2019-2020, 2020-2021, and 2021-2022*

Opting for a longitudinal analysis, the verified sample comprises 49 students, 20 enrolled in 2019/20, 24 in 2020/21 and only 5 from 2021/22. The full questionnaire obtained an excellent internal consistency, with a Cronbach's Alpha of 0.933. Grouping the questions into three higher level dimensions - **Motivational Beliefs, Self-Regulation Strategies,** and **Collaborative Strategies** - also revealed a good reliability, with Cronbach's alpha ranging from 0.833 to 0.891. Reliability statistics mainly good when we grouped the questions by the nine lower-level constructs, the exception was for *Time management* (Table 3). This could be due to the reduced number of items in this construct and also to a misunderstanding of the questions presented.

Table 3 - Reliability analysis of the questionnaire.

Dimensions	Constructs	Reliability Statistics		
		Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Full questionnaire		0.933	0.938	58
Motivational Beliefs	Motivational Beliefs	**0.833**	**0.836**	**10**
Self-Regulation Strategies		**0.891**	**0.898**	**27**
	Before learning	0.803	0.808	5
	During learning	0.733	0.736	4
	After learning	0.814	0.819	4
	Time management	0.422	0.442	4
	Environment Structuring	0.743	0.750	4
	Persistence	0.799	0.805	6
Collaborative Strategies		**0.875**	**0.885**	**21**
	Peer Learning	0.850	0.857	9
	Help Seeking	0.919	0.934	12

4.2.2 Longitudinal analysis of the three dimensions

The three main dimensions were analysed for the three school years in the sample. Collaborative strategies follow a normal distribution (Table 4), but the other two dimensions do not have a normal distribution in some of the school years. Therefore, for the first two dimensions, non-parametric tests were implemented, while for the third dimension, we used parametric tests.

**Table 4** – Descriptive statistics and normality tests for the dimensions in the longitudinal sample

Dimensions	School Year	N	Mean	Std. Dev.	95% Confidence Interval for Mean		Min.	Max.	Shapiro-Wilk			Test Result
					Lower Bound	Upper Bound			Statistic	df	Sig.	
Motivational Beliefs	2019/20	20	4.185	0.513	3.945	4.425	3.2	5.0	0.963	20	0.610	Normally distributed
	2020/21	24	4.408	0.376	4.249	4.567	3.7	4.9	0.897	24	0.018	**Reject normal dist. for 5% significance**
	2021/22	5	4.400	0.235	4.109	4.691	4.0	4.6	0.813	5	0.103	Normally distributed
	Total	49	4.316	0.435	4.191	4.441	3.2	5.0	0.947	49	0.029	**Reject normal dist. for 5% significance**
Self-Regulation Strategies	2019/20	20	3.687	0.514	3.446	3.928	2.8	5.0	0.955	20	0.454	Normally distributed
	2020/21	24	3.997	0.397	3.829	4.165	3.3	4.6	0.929	24	0.091	**Reject normal dist. for 10% significance**
	2021/22	5	3.778	0.334	3.363	4.193	3.3	4.2	0.922	5	0.545	Normally distributed
	Total	49	3.848	0.460	3.716	3.980	2.8	5.0	0.981	49	0.602	Normally distributed
Collaborative Strategies	2019/20	20	4.133	0.463	3.916	4.350	3.3	5.0	0.964	20	0.630	Normally distributed
	2020/21	24	4.288	0.418	4.111	4.464	3.4	4.9	0.949	24	0.257	Normally distributed
	2021/22	5	4.371	0.309	3.987	4.756	4.0	4.8	0.972	5	0.885	Normally distributed
	Total	49	4.233	0.429	4.110	4.357	3.3	5.0	0.966	49	0.171	Normally distributed

Testing for differences across the years (Table 5), significant differences in the mean (and median) were found only in **Self-regulation strategies**, for 10% of significance (Kruskal Wallis p=0.087). The dimensions **Motivational Beliefs** and **Collaborative Strategies** do not show significant differences across the years (Kruskal Wallis p=0.293, and ANOVA p=0.378, respectively). For 5% significance, the variances of the three dimensions can be considered homogeneous across the years.

Table 5 – Testing the main dimensions across the school years for differences in variance, mean and median.

Dimensions	Tests of Homogeneity of Variances				ANOVA		Kruskal Wallis Test		
	Levene Statistic based on Mean	Sig.	Levene Statistic based on Median	Sig.	F	Sig.	Kruskal-Wallis H	df	Asymp. Sig.
Motivational Beliefs	2.672	0.080	2.624	0.083	1.581	0.217	2.456	2	0.293
Self-Regulation Strategies	1.325	0.276	0.850	0.434	2.718	**0.077**	4.883	2	**0.087**
Collaborative Strategies	0.830	0.443	0.403	0.671	0.993	0.378	2.274	2	0.321

If we consider the evolution of the results across the years, there is an increase in the mean of the dimension **Self-Regulation Strategies** (green in Fig 1) followed by a decrease. This increase of self-regulation strategies from 2019/20 to 2020/21 was found to be significant with the Mann-Whitney test (p=0.039), but the decrease from 2020/21 to 2021/22 was not significant (p=0.203). The dimensions **Motivational beliefs** and **Collaborative Strategies** experienced stable results with a light increase of the mean, which is nonsignificant.
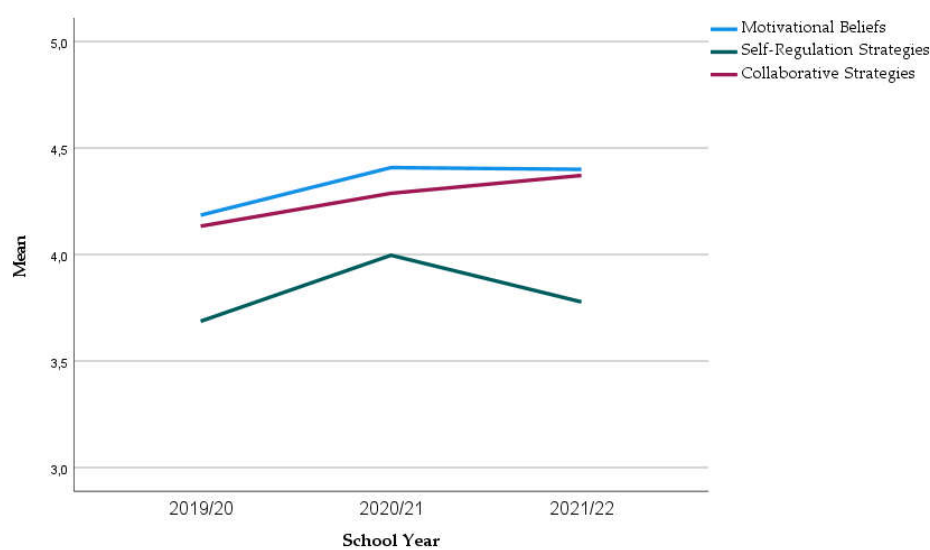
Figure 1 – Evolution of the mean values in the main dimensions

4.2.3 Analysis of the constructs

While analyzing the nine constructs of the questionnaire in more detail (Table 6), it is possible to see that most of the variables do not follow a normal distribution. Thus, we used nonparametric tests to analyse the differences across the years.

Table 6 – Descriptive statistics and normality tests for the constructs in the longitudinal sample.

| Construct | School Year | Descriptives | | | | | | | Tests of Normality | | | |
| | | N | Mean | Std. Dev. | 95% Confidence Interval for Mean | | Min. | Max. | Shapiro-Wilk | | | |
					Lower Bound	Upper Bound			Statis.	df	Sig.	Test result
Motivational Beliefs	2019/20	20	4.185	0.513	3.945	4.425	3.2	5.0	0.963	20	0.610	
	2020/21	24	4.408	0.376	4.249	4.567	3.7	4.9	0.897	24	0.018	
	2021/22	5	4.400	0.235	4.109	4.691	4.0	4.6	0.813	5	0.103	
	Total	49	4.316	0.435	4.191	4.441	3.2	5.0	0.947	49	0.029	Reject normal dist.
Self-Regulation Strategies Before Learning	2019/20	20	3.580	0.686	3.259	3.901	2.2	5.0	0.954	20	0.433	
	2020/21	24	4.092	0.472	3.892	4.291	3.2	5.0	0.969	24	0.642	
	2021/22	5	3.480	0.976	2.269	4.691	2.0	4.6	0.969	5	0.870	
	Total	49	3.820	0.667	3.629	4.012	2.0	5.0	0.971	49	0.260	Normally dist.
Self-Regulation Strategies During Learning	2019/20	20	3.638	0.741	3.291	3.984	2.0	5.0	0.973	20	0.819	
	2020/21	24	4.052	0.500	3.841	4.263	3.0	5.0	0.966	24	0.563	
	2021/22	5	3.650	0.418	3.131	4.169	3.0	4.0	0.881	5	0.314	
	Total	49	3.842	0.629	3.661	4.022	2.0	5.0	0.964	49	0.140	Normally dist.
Self-Regulation Strategies After Learning	2019/20	20	3.738	0.784	3.370	4.105	1.8	5.0	0.957	20	0.478	
	2020/21	24	3.938	0.618	3.677	4.198	2.5	5.0	0.941	24	0.168	
	2021/22	5	3.450	0.837	2.411	4.489	2.0	4.0	0.751	5	0.030	
	Total	49	3.806	0.713	3.601	4.011	1.8	5.0	0.935	49	0.010	Reject normal dist.
Time Management	2019/20	20	3.525	0.697	3.199	3.851	2.5	5.0	0.903	20	0.046	
	2020/21	24	3.531	0.485	3.326	3.736	2.8	4.8	0.939	24	0.153	
	2021/22	5	3.650	0.762	2.703	4.597	3.3	5.0	0.644	5	0.002	
	Total	49	3.541	0.596	3.370	3.712	2.5	5.0	0.906	49	0.001	Reject normal dist.
Environment Structure	2019/20	20	3.950	0.701	3.622	4.278	2.8	5.0	0.919	20	0.095	
	2020/21	24	4.208	0.641	3.938	4.479	3.0	5.0	0.917	24	0.051	
	2021/22	5	4.450	0.671	3.617	5.283	3.5	5.0	0.852	5	0.201	
	Total	49	4.128	0.675	3.934	4.322	2.8	5.0	0.928	49	0.005	Reject normal dist.
Regulation Persistence	2019/20	20	3.708	0.703	3.379	4.037	2.5	5.0	0.965	20	0.656	
	2020/21	24	4.090	0.590	3.841	4.339	3.0	5.0	0.944	24	0.196	
	2021/22	5	3.967	0.183	3.740	4.193	3.7	4.2	0.828	5	0.135	
	Total	49	3.922	0.631	3.741	4.103	2.5	5.0	0.962	49	0.118	Normally dist.
Peer Learning	2019/20	20	4.172	0.530	3.924	4.420	3.3	5.0	0.945	20	0.291	
	2020/21	24	4.273	0.510	4.058	4.488	3.4	5.0	0.928	24	0.088	
	2021/22	5	4.000	0.820	2.982	5.018	2.7	4.9	0.901	5	0.417	
	Total	49	4.204	0.547	4.047	4.361	2.7	5.0	0.958	49	0.079	Reject normal dist.
Help Seeking	2019/20	20	4.104	0.635	3.807	4.401	2.9	5.0	0.945	20	0.301	
	2020/21	24	4.299	0.534	4.073	4.524	3.3	5.0	0.930	24	0.095	
	2021/22	5	4.650	0.410	4.141	5.159	4.0	5.0	0.871	5	0.271	
	Total	49	4.255	0.580	4.088	4.422	2.9	5.0	0.937	49	0.011	Reject normal dist.

The construct with higher mean values is Motivational Beliefs, followed by Help seeking and Peer Learning. The construct with lower mean scores is Time Management (Figure 2). The latter may, once again, indicate teacher interference. As this occurred during the lockdown, the need to assure students were keeping up to date may have had a negative effect on student time management autonomy. On the other hand, it is also possible to see this as a lack of students' time management skills, in line with the literature [32] [33] [34] [35].
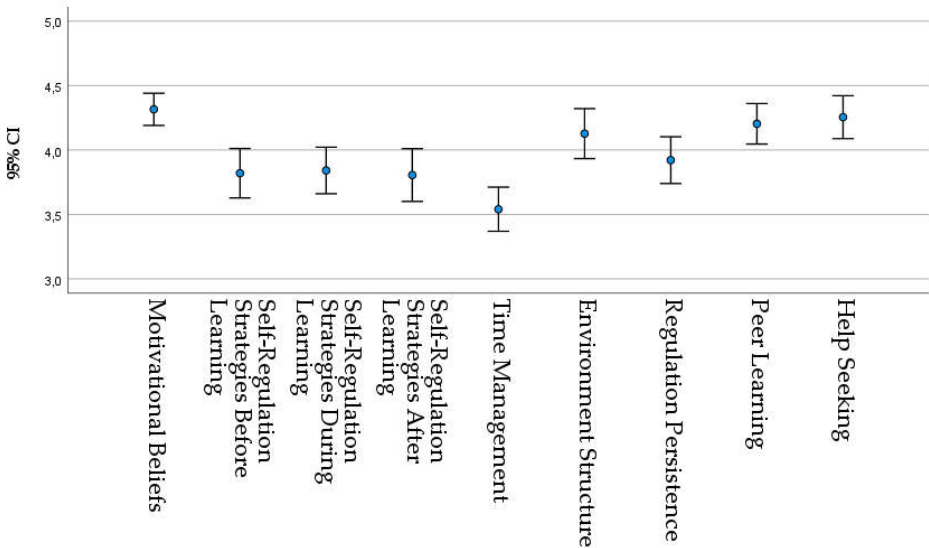
Figure 2 – 95% confidence intervals for mean of the constructs in the longitudinal sample.

Figure 3 depicts the evolution of the mean values of the nine constructs along the years. Almost all constructs increased after the first year of COVID19. After two years, three constructs increased their mean values (*Time management, Environment structure, Help seeking*) and the other six constructs decreased. However, through ANOVA and Kruskal Wallis tests (Table 7), it was possible to find that the only constructs which showed significant differences across the years were *Self-regulation Strategies (SRS) before learning* and *SRS during learning* (ANOVA $p=0.016$ and $p=0.069$, respectively). A closer inspection of these differences with Tukey post-hoc test for multiple comparisons proved that there was a significant increase in *SRS before learning* and *SRS during learning* from 2019/20 to 2020/21 ($p=0.025$ and $p=0.072$, respectively) but the decrease from 2020/21 to 2021/22 is non-significant ($p=0.125$ and $p=0.375$, respectively).
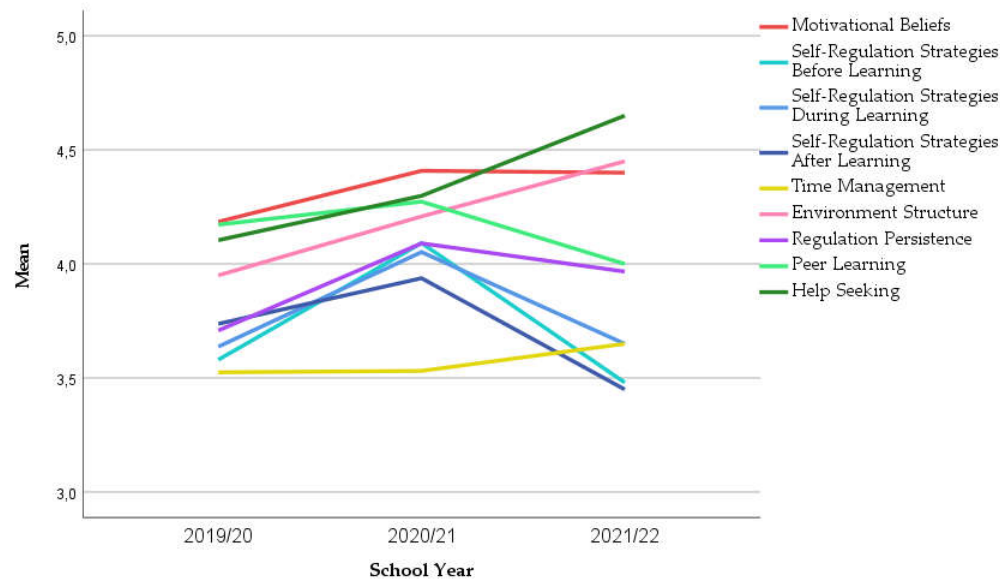
Figure 3 – Evolution of the mean of the constructs in the longitudinal sample.

Table 7 – Testing the constructs across the school years for differences in variance, mean and median.

Construct	Tests of Homogeneity of Variances				ANOVA		Kruskal Wallis Test		
	Levene Statistic based on Mean	Sig.	Levene Statistic based on Median	Sig.	F	Sig.	Kruskal-Wallis H	df	Asymp. Sig.
Motivational Beliefs	2.672	0.080	2.624	0.083	1.581	0.217	2.456	2	0.293
Self-Regulation Strategies Before Learning	1.680	0.198	1.528	0.228	4.504	**0.016**	8.477	2	**0.014**
Self-Regulation Strategies During Learning	1.609	0.211	1.748	0.185	2.834	**0.069**	5.799	2	**0.055**
Self-Regulation Strategies After Learning	0.539	0.587	0.494	0.614	1.129	0.332	2.000	2	0.368
Time Management	1.363	0.266	0.576	0.566	0.091	0.914	0.389	2	0.823
Environment Structure	0.006	0.994	0.025	0.975	1.460	0.243	2.215	2	0.330
Regulation Persistence	3.599	0.035	3.533	0.037	2.105	0.133	3.725	2	0.155
Peer Learning	0.227	0.798	0.124	0.884	0.563	0.573	0.544	2	0.762
Help Seeking	1.636	0.206	1.252	0.296	1.978	0.150	3.795	2	0.150

4.2.4 Analysis item by item

In the two constructs where significant differences in the mean values across the years were found (*Self-regulation Strategies before learning* and *SRS during learning),* we analysed each item closer. All items increased their mean values from 2019/20 to 2020/21 and decreased in the following year (Figs. 4 and 5). However, the significant differences are mainly in three following items (Table 8 Kruskal Wallis Test p=0.034, p=0.006, and p=0.068) and only in first year (Mann-Whitney Test p=0.013, p=0.001, and p=0.022, respectively):

• Metacognitive activities before learning: I think of alternative ways to solve a problem and choose the best course of action in this module.

- Metacognitive activities before learning: At the beginning of a task, I think about the study strategies I will use.
- Metacognitive activities during learning: I have a specific goal for each strategy I use in this course.
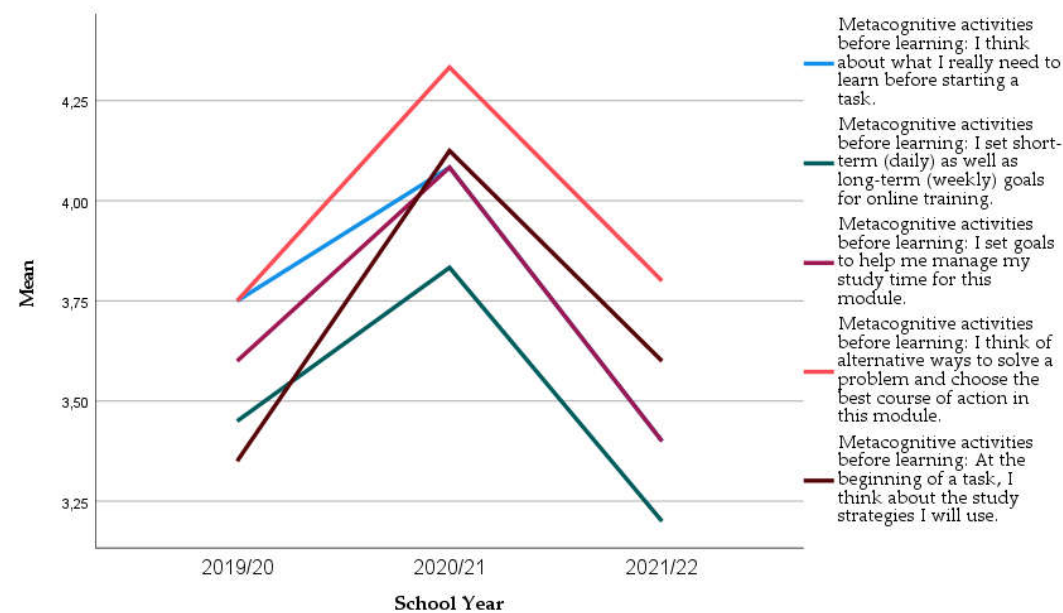

Figure 4 – Evolution of the mean of the items from *Self-regulation activities before learning* in the longitudinal sample.
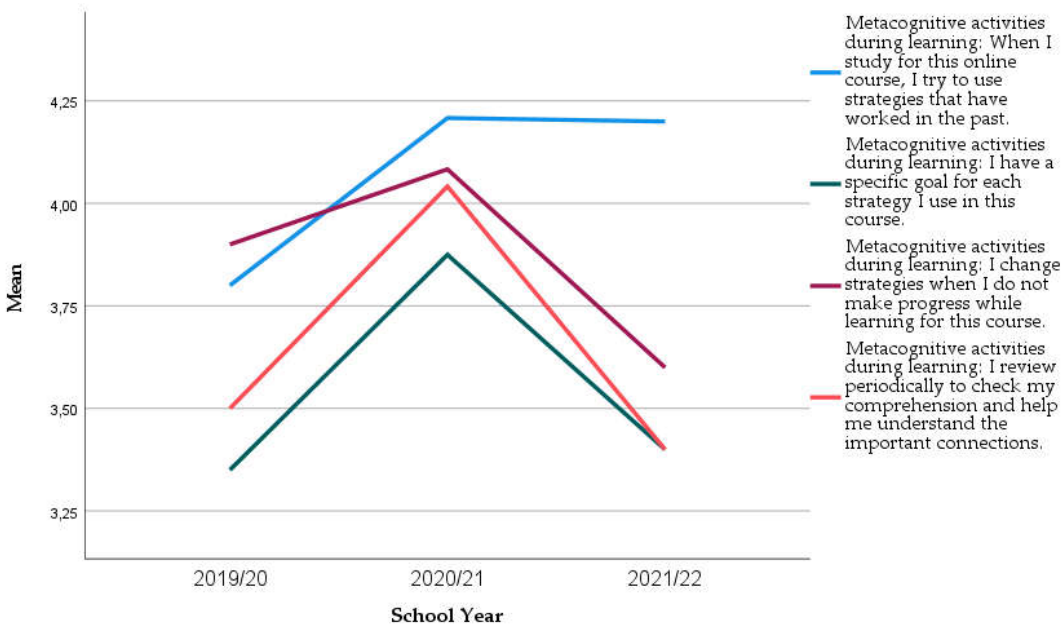

Figure 5 – Evolution of the mean of the items from *Self-regulation activities during learning* in the longitudinal sample.

Table 8 – Kruskal Wallis test for some of the items across the school years.

Kruskal Wallis Test			
	Kruskal-Wallis H	df	Asymp. Sig.
Metacognitive activities before learning: I think about what I really need to learn before starting a task	2.659	2	2.659
Metacognitive activities before learning: I set short-term (daily) as well as long-term (weekly) goals for online training.	1.323	2	0.516
Metacognitive activities before learning: I set goals to help me manage my study time for this module	2.486	2	0.289
Metacognitive activities before learning: I think of alternative ways to solve a problem and choose the best course of action in this module.	6.772	2	0.034
Metacognitive activities before learning: At the beginning of a task, I think about the study strategies I will use.	10.304	2	0.006
Metacognitive activities during learning: When I study for this online course, I try to use strategies that have worked in the past.	1.488	2	0.475
Metacognitive activities during learning: I have a specific goal for each strategy I use in this course.	5.366	2	0.068
Metacognitive activities during learning: I change strategies when I do not make progress while learning for this course	2.017	2	0.365
Metacognitive activities during learning: I review periodically to check my comprehension and help me understand the important connections.	4.511	2	0.105

Grouping Variable: School Year

4.3. Comparing data before and after COVID19

As a curiosity, and as we had the data, we decided to compare the general results obtained by Zarouk with the students enrolled in 2018-2019, before the Pandemic breakout, with the results from our study, carried out after the breakout (in the school years 2019-20, 2020-21, and 2021-22). The Z test was used to compare the mean values in the nine constructs. The results in Table 9 show that all constructs presented significant differences (p-value < 5%). The mean of all constructs increased significantly.

Table 9– Comparison of the results before covid and after covid.

Constructs	Before Covid: school year 2018/2019 (Zarouk et al, 2020)			After Covid: school years 2019/20, 2020/21, and 2021/22			Z test for comparing means	
	N	Mean	Std. Deviation	N	Mean	Std. Deviation	Z	p-value
Motivational Beliefs	84	**2.67**	0.68	49	**4.316**	0.435	-17.017	<0.0001
Self-Regulation Strategies Before Learning	84	**2.56**	0.60	49	**3.820**	0.667	-10.898	<0.0001
Self-Regulation Strategies During Learning	84	**2.85**	0.51	49	**3.842**	0.629	-9.389	<0.0001
Self-Regulation Strategies After Learning	84	**2.62**	0.59	49	**3.806**	0.713	-9.843	<0.0001
Time Management	84	**2.48**	0.46	49	**3.541**	0.596	-10.735	<0.0001
Environment Structure	84	**2.67**	0.51	49	**4.128**	0.675	-13.087	<0.0001
Regulation Persistence	84	**2.68**	0.57	49	**3.922**	0.631	-11.338	<0.0001
Peer Learning	84	**1.89**	0.62	49	**4.204**	0.547	-22.393	<0.0001
Help Seeking	84	**2.24**	0.56	49	**4.255**	0.580	-19.564	<0.0001

5. Conclusions

In this study, we proposed to revisit the affordances of implementation of Project-based learning in terms of the development of self-regulation strategies before, during and after the pandemic. PBL approach places the student at the center of the learning process, and as a result, self-regulation becomes essential, as it is crucial to analyze the market/situation and adapt to it accordingly. With the need to change into ERL, the relevance and significance of self-regulation strategies were questioned and the necessity to analyse and assess its suitability to the online environment emerged.

In the context of technical translation courses at ISCAP where PBL was being used, data was collected in relation to the students' perceptions of self-regulation competence and its development or lack thereof. Over the course of three years, questionnaires were carried out, before and after PBL implementation, and data was collected. Thus, a statistical analysis was performed, and the quantitative data was analysed.

In the first phase of this study, with ERT in place, no significant differences were found regarding the impact of the Motivational Beliefs and Self-Regulation Strategies reported in the Pre-test and the Post Test. However, a more detailed observation showed that a higher level of self confidence in autonomous learning was achieved but a lower level of the importance and usefulness of the course contents was noted.

After, the longitudinal analysis revealed that, with the exception of time-management, which has also been widely discussed in the literature, student self-regulation strategies increased.

In the translation labour market, the competences needed are vast and everchanging. Given the fluidity of the market, self-regulation becomes essential. Thus, translation training should reflect these market needs for success. PBL approaches enable the development of competencies, self-regulation included, and simulates the translator's work environment. Thus, PBL is seen as a positive methodology, which enhances self-regulation and other competence development in translation training. Covid19 and the consequent

lockdown may have led to ERT, but the work implemented, such as course design and student centre teaching and learning approaches, for example, have proven to be beneficial for the development of transversal competences and skills, becoming established practices in educational institutions.

The study described is not without its limitations. One is the fact that it is a quasi-experiment and, in itself, the design raises issues of comparability and the rationale between case and effect. Additionally, the questionnaires, although highly recommended, were not mandatory. For that reason, students frequently choose not to respond, as was shown in the final year of the study, where the sample comprised 5 students. Therefore, it is not possible to use the data from 2021-2022 confidently.

Student participation was voluntary. However, they were informed that questionnaires would be coded for pre and post analyses. We may reflect on student understanding of confidentiality as another issue, which may have, in some way, influenced student participation. Even though it is crucial to identify participants in order to establish correlations between the pre-test and the post-test, it may be possible that students would answer questions in a way that they believe the teacher is anticipating.

The impact and effectiveness of an online project-based learning approach on students' self-regulated learning strategies is satisfactory and we suggest that future studies readdress other constructs within this competence, possibly followed with in-depth interviews to understand the student rationale behind some of the findings. To address the lack of student participation, a possible solution might be the distancing of the lecturers from the actual research.

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