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ORIGINAL RESEARCH

Project-based language learning in Turkey, Greece, and Cyprus: A systematic review

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Abstract

Project-Based Learning (PBL), referred to as Project-Based Language Learning (PBLL) when students learn a second, foreign, or additional language through project work, is a growing field of research worldwide. Since the 1980s, PBLL has been empirically studied in numerous contexts: in K-12 and higher education settings, multiple target languages, and many regions and countries. However, as the number of PBLL studies has increased, the need for analyzing PBLL research on a global scale and through regional and country-level analyses has become of high importance. Through analyzing research from countries with strong PBLL research, regional and global research trends, as well as gaps, can be identified, while areas that have been amply researched can be satisfactorily concluded.

This paper will discuss findings based on a systematic review of PBLL in Turkey, Greece, and Cyprus, which are part of an ongoing global study on PBLL research (Beckett et al., 2020). We will highlight PBLL studies within the region, identifying regional trends in K-12 and higher education research, multi-country projects, and research gaps in technology and assessment, which are seen as gaps in PBLL research worldwide (Beckett and Slater., 2020).

Keywords project-based learning; project-based language learning; case study; Turkey; Greece; Cyprus

1. Introduction

Project-Based Learning (PBL), an approach to learning and teaching with roots in Dewey's (1916) and Kilpatrick's (1918) theories of learning, PBL is well-known for its use of critical thinking, collaboration, and problem-solving. With origins in 18th-century continental Europe (Pecore, 2015), where students of architecture or engineering would have final exams which involved solving real and practical problems, through time, PBL has expanded to include language learning, which is sometimes referred to as Project-based language learning (PBLL). Beckett (1999) defines PBL for language learning as "a series of individual or group activities that involve language/content learning through planning, researching (empirical and/or document), analyzing and synthesizing data, and reflecting on the process and product orally and/or in writing by comparing, contrasting, and justifying alternatives" (p.4). In today's educational climate, PBL has become a desired education approach for teaching 21st-century skills, including integrated language, content knowledge, and problem-solving skills, used independently and collaboratively with technology (Beckett, Slater, & Mohan, 2020).

Global investigations of PBL research and the questions teachers and researchers pose within second and foreign-language PBLL projects are central to this ever-evolving field. PBLL has been the topic of numerous empirical research studies and doctoral dissertations over the past several decades (e.g., Beckett, 1999; Eyring, 1989). Through PBLL, students can simultaneously learn content, language, and cooperative learning skills through innovative, student-centered learning (BIE, 2013).

Beckett et al. (2020) presented preliminary findings on their global systematic review of over 350 empirical PBLL research articles, highlighting empirical research from over 35 countries and multicountry studies. Though their report had many promising findings, notably that 91% of papers reported positive results from PBLL, the study also found a lack of assessment, underreported technology use, a lack of quantitative work, less rigorous qualitative work, and uneven regional publishing over the past 30 years. Moreover, on a global scale, 60% of the students were from postsecondary institutions, with some countries publishing very few papers outside the

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university context - in K-12 schools or adult education.

Little is seemingly known about the regional growth in PBLL research, especially in relation to the trends and themes in local contexts. While quality PBLL research is indeed taking place globally, due to a lack of systematic reviews on PBLL as a field, and a lack of a dedicated PBLL journal or conference, this disparate information is hard to glean. Moreover, due to many studies reporting similar results (e.g., Stoller, 2006), one naturally wonders what more could be learned if the field were to undergo an extensive regional and global review, prompting researchers everywhere to push their studies to the next stage.

Where we hope to begin by exploring the PBLL landscape of Turkey, Greece, and Cyprus. In contrast to trends in PBLL research globally seen in Beckett et al. (2020), the second researcher of the Beckett et al. (2020) study and the second author of this paper noticed that the PBLL research being produced in Greece was predominantly at the K-12 level, prompting her to want to explore this country's research further. Moreover, Turkey seemed to be an appropriate country to contrast, due to the large and similar number of rigorous studies coming from this context, as well as because most of its studies were at the higher education level. Adding Cyprus to balance out the scope of our work, a small but potentially insightful regional case study was born. Therefore, in this present study, we will comparatively review current PBLL research in Turkey, Greece, and Cyprus, highlighting research that has been done in the region and hopefully posing new ideas for teachers and researchers, both locally and globally.

2. Literature Review

Project-Based Learning's foundations are rooted in the very fabric of education, drawing upon observations from well-known educators and philosophers. Through an understanding of the origins of PBL, documented as early as the 1500s in architectural schools in Europe (Knoll, 1997), one can understand its significance for modern society and desirability as a language and content learning approach.

2.1. PBL's foundations

Growth, experience, and meaning were the three pillars upon which John Dewey (1916) based his learning theory, which became the keystones of PBL. According to Dewey, human beings learn through growth; growth happens through experience, and meaning is acquired through this process. However, meaning cannot be achieved without the existence of the environment. A founding father of PBL, William Kilpatrick (1918), believed learning begins when the student is inspired to learn and has a goal to achieve. Kilpatrick's project method was inspired by Edward Thorndike's educational psychology, connectionism, and specifically his ideas of a stimulus and response approach to learning - theorizing that learning happens

when there is a response to a stimulus in the nervous system, making new connections. (Sutinen, 2013). In Kilpatrick's learning model, however, the learner is the focus, positioned in such an expansive way that the teacher's role is left unclear. According to Kilpatrick, the teacher must simultaneously "produce events that motivate the pupils" and give students as much freedom as possible for their project (Sutinen, 2013, p.1044).

2.2. PBL and technology

PBLL researchers in second language acquisition have expanded the scope of PBLL to include all forms of language instruction, from second language learning, foreign language learning, heritage language learning, and beyond. With research spanning many grades, ages, contexts, and project types, PBLL is seen as a versatile approach to language learning, content learning, and skills development for language learners. This blend of language learning and collaboration can be seen through frameworks including Greenier's (2020) ten C's of PBLL: coaching, concept generation, confrontation, comprehension, creation, critique, change, culmination, collaborative reflection, and composition.

As the field has matured, theories, best practices, and assumptions have been put forth by major researchers. Proposing a theoretical foundation for PBLL, Stoller (2006) reports the eight most commonly cited benefits of using PBLL, paraphrased as follows: authenticity, motivation, enhanced language skills practice, improved abilities to function in a group, increased content knowledge, improved confidence, increased autonomy, and improved decision-making skills. While technology is not listed among Stoller's benefits, researchers such as Iakovos et al. (2011) recommend using technology in integrating Content-Based Instruction (CBI) and PBLL to increase authenticity and motivation. These combinations of language, technology, and content are seen in diverse technology-enhanced studies worldwide. For instance, Dooly & Sadler (2016) integrated technology, language learning, telecollaborative learning, and science content knowledge into a 10-week project for 7-8-year-old students - a study that checks all of the aforementioned boxes.

2.3. Gaps in current PBL research

Despite the field's growing sophistication, many gaps have emerged that should be explored more deeply. As paraphrased by Beckett and Slater (2020), three major areas in need of additional research are: (1.) how PBLL can promote the development of language form and function, (2.) technology infused PBLL for language learning development, and (3.) the assessment of PBLL, not only in terms of language learning but also for non-language focused PBLL (pp.7-10). Furthermore, Beckett et al.'s (2020) call for a more comprehensive global and regional understanding of PBLL is a worthy endeavor.

While a case study highlighting the rich PBLL

work in Turkey, Greece, and Cyprus in itself would be a meaningful endeavor, taking the call in Beckett & Slater (2020) into consideration, we desire to center our investigation around the gaps raised in their book. As such, the current synthesis additionally aims to determine to what extent language form and function, technology, and assessment are addressed within PBLL research within this context. Our questions, therefore, are as follows:

1. What trends in PBLL exist in Turkey, Greece, and Cyrus?

2. To what extent do the gaps noted in recent PBLL research (i.e., Beckett and Slater, 2020; Castro Huercano, 2020) exist within these three countries?

It is hoped that by answering these questions, we will be able to shine a light on the meaningful PBLL work happening within this region, discover PBLL trends within and between each country, and prompt further research and collaboration within the region and world.

3. Methods

The data for this study, empirical PBLL research articles from Turkey, Greece, and Cyprus, are drawn from an ongoing larger study (Beck et al., 2021; Beckett et al., 2020) that looks at PBLL research on a global scale. In the larger study, a team of researchers, including the second author, systematically searched academic databases using a combination of keywords: peer-reviewed academic journal articles on project-based second and foreign language learning or teaching, published in English between 1980-2020, in kindergarten to graduate school contexts, including adult education. Databases including Academic Search Complete, ERIC, MLA Full Texts, Linguistics and Language Behavior Abstracts, MLA International Bibliography Full Text, Social Sciences Dissertation Abstracts, and PsychINFO were searched. To gain a holistic understanding of PBLL research, the larger study also included book chapters, theses, and dissertations in the review. In total, over 700 articles were collected by the team, which were analyzed based on systematic inclusion/exclusion criteria.

For the current study, only empirical research articles from the three countries of interest from the larger dataset were included, resulting in 13 articles from Turkey, 13 from Greece, and two from Cyprus. This list is by no means comprehensive, especially considering that only English articles were sought for this study; our hope is that the 27 articles are, to some extent, representative of the PBLL research conducted in these contexts. Additional non-empirical articles, such as critical literature reviews and position papers, were found in the region but were not included in the analysis, though we did cite them wherever appropriate (i.e., Kurubacak, 2007). These articles are worth noting as they demonstrate the critical thinking regarding PBLL that is surely happening worldwide, which is necessary to move the field forward.

To aid data collection and analysis, a datasheet was created for the current study. Areas of interest for the researchers included: the type of study (quantitative, qualitative, or mixed methods); the age, grade, and the number of participants (for teacher-based studies, interest included number and preservice or in-service status); the research questions, major findings, the extent to which technology was used, and the benefits or challenges noted by the article's researchers. To answer the call in Beckett & Slater (2020), when reviewing the articles, the following items were also searched for: the extent to which PBLL was used for teaching language form or function, the extent to which technology was used for teaching language form or function, and how projects were assessed.

4. Results

4.1. Turkey

The findings out of thirteen research articles for Turkey will be presented in two major sections; findings for higher education and findings for K-12 level, while highlighting some of the key aspects of the PBLL framework such as technology use, form and function, and assessment. Of these studies, three were case studies, four were mixed methods, four were quantitative, and two were qualitative research designs. Six PBLL studies conducted at the university level were included in this paper. One of these studies' most significant and common findings was the opportunity to use the target language in an authentic setting. Additionally, a more positive attitude towards the target language was observed in all of the studies. Implementing PBLL into the existing curriculum resulted in a positive correlation between language and affective skills. Both the students involved in PBLL work and the teachers who implemented it in their classes reported evidence for the effectiveness of PBLL on all aspects of language learning. The projects helped the students improve not only their sense of responsibility but also their time management skills. Finally, project work contributed to students' self-esteem since they were given more responsibility during the projects and experienced their ideas being valued.

Technology use was prevalent in most Turkish studies explored in this paper, including technology in all higher education studies. The most commonly used technologies for PBLL included WhatsUp, FaceTime, Skype, online discussions, and Microsoft Word. Including technology in project work resulted in higher learning gains, as reported by students and teachers. Moreover, technology seemed particularly effective in multi-country studies, where students worked with teammates from different countries (e.g., Saricaoglu & Geluso, 2020).

At the K-12 level, studies explored the teachers' beliefs and practices and examined students' beliefs about and attitudes toward project work. The overall results reveal that PBLL positively contributed to

students' development of language skills and content knowledge (e.g., Duman & Yavuz, 2018). Moreover, the teachers reported high motivation levels to foster learner autonomy during project work (e.g., Urun, Demur, & Akar, 2014). Interestingly, there seems to be a great deal of variation in the PBLL research at the K-12 level. Studies examined topics ranging from traditional grammar teaching to computer-assisted project work (e.g., Hos & Kekec, 2014; Erdogan & Dede, 2015). Bas and Beyhan's (2010) study is a significant contribution to PBLL research, with results demonstrating that PBLL, when combined with other teaching theories (e.g., multiple intelligences), is quite effective.

Form and function hold a significant place in PBLL research. However, the findings from the Turkish articles reveal that only some of the studies explicitly focus on form and function. Among these, some focus only on function (e.g., Erdogan & Dede, 2015), while others mention both (e.g., Demir, 2019; Saricaoglu & Geluso, 2020). Allan and Stoller (2005) highlight both form and function in PBLL with their study, which follows Kilpatrick's purposing, planning, executing, and judging framework in project work (1918). In Allan and Stoller's study, the students were asked to take part in a real-life project with implications for their immediate surroundings when they evaluated the local tramcar system in Turkey, holding a public forum after the completion of the project. Findings include maximized student engagement in the project and increased motivation and willingness to learn English.

Assessment is another critical aspect of the PBLL framework, previously identified as a gap by Chen and Hirch (2020). The findings of articles examined in Turkey's context demonstrate that the use of assessment to evaluate project work is a common practice. Ten out of thirteen studies included a form of assessment during or after the projects. The most popular forms of assessment were self and peer assessment (e.g., Duman & Yavuz, 2018), portfolio assessment (e.g., Gulbahar & Tinmaz, 2006), and using an analytic scoring rubric (e.g., Avci & Adiguzel, 2017).

A comparison of findings between the university level and a study from the K-12 level showed that the use of technology was prevalent at both levels. However, at the university level, technology was included in almost all PBLL work; at the K-12 level, it is implemented with less frequency. An example of technology-incorporated PBLL work can be found in Duman and Yavuz (2018). Duman and Yavuz's (2018) was conducted with 10th graders. The pre-and post-test design revealed that the experimental group, who used websites to complete their projects, showed higher motivation towards English classes.

Moreover, a notable study outside our research timeframe is Kemaloglu-Er & Sahin's (2022) study conducted with 7th graders. In this study, technology was implemented in the project presentations by students and during interactions with the overseas participants via Skype. Another difference between higher education and K-12 level studies in Turkey was

the focus of research. While the higher education level studies mostly investigated the implementation of PBLL in English language classrooms, in K-12 level studies, PBLL use was examined both in language and subject courses. Despite clear gains, some resistance against the project work was observed. Bulu and Yildirim's study (2008) revealed that most group members reported low levels of trust in other group members during project work. At the end of the study, results showed even lower levels of trust. As another drawback, despite the clear benefits of PBLL for both students and teachers, PBLL was still regarded as more time-consuming than traditional methods, especially at the K-12 level. Lastly, in terms of assessment for project work, self and peer assessment was found to be the least preferred method of evaluation among teachers.

4.2. Greece

Within the context of Greece, a total of 13 articles were found by the larger (Beckett et al., 2021) study, and ten were determined to be specifically PBLL-related. Of these, seven studies were conducted at the K-12 level, one study was situated within higher education, and two studies employed teachers as the participants in the study. Studies included quantitative (1), qualitative/mixed methods (6), and case studies (5). Research questions generally asked to what extent a particular project type contributes to learning (5), how effective PBLL is when combined with another approach or method (5), what teachers' attitudes towards or awareness of aspects related to PBLL are (2), and how students learn with PBL (1). Benefits found in the studies included innovation, communicative collaboration, autonomous language learning, improved writing strategies, and confidence, similar to other PBLL studies (i.e., Stoller, 2006). In addition, technology was integrated into all Greek PBLL studies, including the internet, videos (e.g., from Youtube), online survey tools, email, and other tools. Blogs, Wikispaces, and Webquests appeared in multiple studies, showing a particular interest among researchers in these web-based tools in Greece.

K-12 studies made up the majority of PBLL research among these articles, comprising 70% of the studies. Interestingly, five of these studies were conducted at the elementary level, one at the junior high school level, and one at the high school level, distinguishing Greece as a promising country for young language learner research. All of the elementary school level research was at the 5th or 6th grade level, which may indicate a gap at the early elementary level grades. Elementary-level studies included learning about local history (Fragoulis & Tsiplakides, 2009), European countries (Korosidou & Griva, 2013), portfolios for oral assessment (Efthymiou, 2012), WebQuests (Oulousidou, 2018), and science education through PBLL and CLIL Content and Language Integrated Learning (Hasogia & Vlachos, 2019).

Only one Greek PBLL study at the university level (Mamakou & Grigoriadou, 2010) was analyzed, which

combined PBLL, English for Specific Purposes (ESP), and content knowledge in a telecollaborative project for university engineering students. The two other studies determined not to be PBLL-related were also at the university level. While these studies (Koutsbasis & Vosinakis, 2012; Roussinos & Jimoyiannis, 2013) did not have a foreign language learning component, these PBL studies demonstrated great insight into student learning. In their study, Koutsbasis & Vosinakis (2012) integrated PBL and studio-based learning for graduate students in human-computer interaction. Roussinos and Jimoyiannis (2013) focused on student participation patterns in a freshman-level course with a Wiki project, determining that there were four types of student participants: leaders, moderators, peripheral members, and lurkers, and that Wikis can be effectively implemented into higher education courses. In a sense, it is unfortunate that these studies did not integrate a foreign language component, as they could have increased their students' language learning and global awareness.

In addition, two studies where K-12 teachers were the focus of the investigation were found in Greece (Tsourapa, 2018; Tzoutzou, 2018), each surveying over one hundred teachers. Tsourapa (2018) focused on teachers' attitudes (N=121) towards 21st-century skills in EFL classes: the literacies and skills the EFL teachers felt were necessary to develop, which tools teachers would like to use and use to teach these skills, what barriers prevent them from integrating educational technology into their classrooms, and how they guide learners in learning the social conventions of the internet. Tzoutzou (2018) focused on Web 2.0 technologies, examining how familiar EFL teachers (N=149) are with Web 2.0 technologies, how they are used in their classrooms, pedagogical theories and teaching methods for Web 2.0 tools, teacher training for using Web 2.0 tools in class, how supportive Greek-state schools are of integrating Web 2.0 tools into the classroom, what barriers exist to implementation, and what solutions could solve these problems. Since the teachers included details about projects and tools they have used, these two studies are useful in understanding the Greek context and the ease with which technology, 21st-century skills, and PBLL can be blended.

While technology was integrated into all studies, serving as a focal point for many, focused instruction on teaching form and function and using technology to practice specific language skills were not explicitly seen in the studies. Overall, language learning skills were described in general terms, such as improving writing skills or intercultural communicative competence through the technology tools utilized. Mamakou and Grigoriadou (2010), in their higher education-based study, addressed this specifically, noting:

> The project "moves away from the conventional instructional mode of teaching academic reading, writing, speaking and listening … and introduces a framework which unites and coordinates all skills under the umbrella "project & presentation." In this sense, students' focus is off the language form and on the language use, thus language becomes the medium for the implementation of the project and the presentation of it in class" (p.130).

While there is no inherent problem with a foreign language as a project medium, in line with Beckett and Slater's (2020) argument, foreign language forms and functions can be reinforced through project work, which can allow students to specifically see how their language proficiency has grown through the project.

In terms of the assessment of PBLL, in the eight studies where students were the participants, four studies mentioned how students were assessed, three studies needed to be clearer as to how students were assessed, and one did not specifically mention assessment. Projects that specifically describe an assessment procedure used a rating scale (2), pre-test/post-test (1), or used the project to assess (1). Of the assessment studies where the assessment procedure was not specified, a final project or presentation of the final project was evaluated, though there were no details on how this was accomplished. Finally, one project was designed so that motivation was being assessed by the researchers, and seemingly not the project itself.

4.3. Cyprus

Only two studies based in Cyprus were uncovered by the larger study, with one (Kourieos, 2014) directly related to PBLL. As Kourieos' study (2014) is exemplary, highlighting many of the strengths of technology-enhanced PBLL, it will be discussed in detail. In this mixed-methods study, 115 students from Cyprus University of Technology and the University of Valencia participated in an online digital storytelling project that aimed to develop students' language skills, digital skills, and other abilities. Using tools including Google+ and Prezi, the researchers saw an increase in students' teamwork and creativity through the project, though challenges included a lack of time, lack of technology skills, issues with teamwork, and problems related to the fact that the project was not related to the student's degree programs. While the researchers found that English skills improved, there was no specific teaching of English form or function. In terms of assessment, students completed a self-assessment and assessed their classmates via a survey. As a multi-country study, the researchers determined that the Spanish students seemed to enjoy the project more than the Cypriot students and that the Spanish students had more access to resources.

5. Discussion

This paper explored PBLL trends and gaps in three Mediterranean countries via a small case study. From a pool of over 700 research articles collected for a larger PBLL analysis (Beck et al., 2021; Beckett et al, 2020), 27 articles featuring PBLL research in Greece, Cyprus, and Turkey were selected for analysis. Of these 27 articles, 22 were directly related to Project-based

language learning. As the findings demonstrate, some important gaps were identified in these studies. However, further research is still needed to confirm the findings or apply new techniques to PBLL research. Looking at the findings individually by category (K-12, higher education, technology, form and function, assessment), their implications will be discussed in this section.

5.1. K-12

Between Greece and Turkey, our study included a total of ten K-12 PBLL studies, seven from Greece and three from Turkey. There were five studies at the elementary level, two at the junior high school level, and two at the high school level, with Turkey contributing one study at each level. Within our specified region, K-12 studies constituted 37% of the total; however, concerning Greece alone, 70% of its studies were K-12 related. In addition, K-12 teacher studies were found in all three countries.

The lack of K-12 studies seen in Turkey and Cyprus is not uncommon, and in fact, it is expected. In countries with stringent Institutional Review Board protocols, such as the United States, child participants are considered a vulnerable population, and obtaining permission for studies requires extra safeguards to be put in place, such as receiving parent or guardian consent (Office of Research Ethics, 2021). Moreover, conducting research studies within higher education institutions may be more feasible and thus frequently seen, as professors and graduate students have access to various participant groups through the various language learning classes offered on a given campus. However, issues of double agency or captive populations can occur when faculty involve their students as participants in their research and must be ethically addressed with each study (Ferguson et al., 2004).

We were encouraged by the number and percentage of K-12 articles found in Greece and pleased with the Turkish K-12 studies. While classroom studies may seem difficult to generalize, each study, whether qualitative, quantitative, or mixed methods, provides insight into how PBLL works and why it is effective with our young learners. We wholeheartedly support additional research at the K-12 level, especially with very young learners (e.g., kindergarten to 2nd grade), which were not seen in the articles we sampled.

5.2. Higher education

The PBLL approaches investigated for this review display how PBLL can be implemented in higher education settings. As illustrated in the findings section, most research in the university context focuses on language acquisition, especially in Turkey (e.g., Allan & Stoller, 2005; Avci & Adiguzel, 2017; Aycan, Ozkardas & Ozturan, 2018), demonstrating a positive relationship between the use of PBLL and higher motivation to learn the language. The increased student motivation reported might stem from opportunities the

project work affords to use the target language in an authentic setting. As the PBLL practices featured in this review display, a variety of project work is implemented, ranging from cross-cultural situations to real-life situations to creating class magazines, all of which provide learners with the opportunity to use language in authentic contexts. As highlighted in Liang, Xie, and Gao (2019), PBLL practices are strikingly different from traditional teaching methods. Overwhelmingly, learners respond well to authentic and meaningful use of language through project work.

5.3. Gaps in technology

Despite the inclusion of technology in most studies reviewed in this context, there is still a need for more consistent technology implementation, especially in K-12 level studies in Turkey. These findings can be explained by Ertmer's (2005) study, in which she argued that teachers' inclusion of technology in their classrooms is just as closely linked to their pedagogical beliefs as to the technology training and logistic support they receive from their institutions. The gaps in technology also appear in the number and selection of technologies used in PBLL. The findings in this paper indicate that the most commonly used technologies are WhatsUp, FaceTime, Skype, blogs, online discussions, WebQuests, Wikis, and Microsoft Word. With technology occupying our daily personal and professional lives, there is a clear need for various applications and tools to be incorporated into PBLL (Alharthi et al., 2021) and technologies like 3D printing (Beck & Kurt, 2022). Artificial Intelligence is one of the rising technologies of today's world; however, none of the studies included in this paper integrates it. Augmented and virtual reality are other examples of popular technologies that could be used with PBLL as well.

5.4. Form and function

When the articles were explored for form and function, it was discovered that, except for a few studies (Allan & Stoller, 2005; Demir, 2019; Saricaoglu & Geluso, 2020), form and function were not explicitly mentioned in PBLL research. Gleason and Link's (2019) study emphasizes the pressure on teachers to include both form and function in their classrooms to comply with the national standards, placing a strong emphasis on technology when teaching language and content. The authors advocate that PBLL is amongst the most popular approaches that can be used to merge language and content by illustrating how to integrate Technology Enhanced Form-Function (TEFF) and PBLL. By merging these two approaches, they argue that form and function can best be taught while maximizing the benefits of technology use. Another study that underscores the importance of form and function in PBLL is Liang, Xie, and Gao's (2019) action research, which showcases how language and content could be taught through PBLL. The authors assert that despite exam-centric teaching in China, trends are changing, with calls for a more student-centered approach to

learning.

5.5. Assessment

The finding that there is an assessment component described in most, but not all, research studies reinforce the assessment gap in PBLL, identified by Beckett and Slater (2020). Within the studies, assessment tended to occur at the end of the project, with teachers rating the project itself, the project presentation, or how much students had learned at the end of the unit. Even if studies incorporate pre-tests and post-tests, many opportunities to evaluate student learning, growth, and the progress of their project are either lost or not being reported. As Hunaiti et al. (2010) notes, within PBLL, "there are plenty of opportunities for assessment at different stages of the project, and the student will be summatively assessed on the work done within the project" (p.198). The researchers continue, stating, "the use of different types of assessment throughout different phases of the project will encourage the students to reflect on their thinking and learning, which helps them to develop professional skills." They report that this will help students who may be disadvantaged by only being provided one assessment method (pp.198-199).

In addition, researchers must ensure that the constructs they assess dovetail with PBLL. According to a meta-analysis of problem-based learning, a type of PBL, Gijbels et al. (2005) found that problem-based learning "had the most positive effects when the focal constructs being assessed were at the level of understanding of the principles that link concepts (p.45). Logically, this makes sense; if students spent weeks designing PowerPoint projects on one historical figure, learning the content and language for their presentation, only to be assessed on all concepts that happened within that historical time period, the results of the assessment would likely not be fruitful. However, if the assessment instead asked how that one historical figure's life ties into the larger social or political events of the time (principles that link concepts), the results would be fairer to the student and more reflective of the learning that took place through PBLL.

While most studies investigated in this region incorporated assessment practices, if researchers were to embed and report multiple forms of assessment throughout all stages of the project, it would ensure that assessments match the learning that is taking place within that stage of the project. By reporting more formative and summative assessments, we will better understand the language, content, and skills students develop through projects.

5.6. Multi-country projects

Multi-country PBLL has occurred in several regions worldwide, with children as young as seven years old (e.g., Dooly & Sadler, 2016). The benefits of multi-country studies include language and content learning, intercultural communication skills, and global understanding. Only three such studies were found within the scope of the current study: Calogerakou and

Vlachos (2011), between Greek and Italian high school students; Saricaoglu and Geluso (2020) between Turkish and American university students, and Sevilla-Parvon and Nicolaou (2017), between Cypriot and Spanish university students. While each country in our region of interest was represented in these multi-country studies, all of these students were of high school or undergraduate age. While it is not always feasible to create multi-country telecollaborative projects due to planning and time zone differences, the opportunity for students to communicate with students from other languages is an invaluable opportunity for students and teachers and, therefore, encouraged.

6. Limitations

While this regional look into the PBLL research of Turkey, Greece, and Cyprus was insightful in uncovering regional trends, some limitations should be noted. First, a major challenge in this paper was related to the nature of the systemic review of the larger study from which the research papers were pulled. It is possible that the database search could have overlooked key articles due to varying reasons, such as whether certain journals were included in the databases, the use of different terminology when referring to PBL/PBLL, or not referring to PBL or PBLL explicitly in the article. Another drawback was noted due to the language of search; English was used as the primary language in this review, which may have left out quality research studies written in other languages.

Finally, while the current study was envisioned to be a study on PBLL in Mediterranean contexts, there are countries we were unable to study due to time and resource constraints, including Spain, Portugal, and France, to name a few (no Italian studies were found in the larger study). Additionally, even though Cyprus was included in this paper, only one research article was explored deeply.

7. Future directions

Several future directions can be gleaned from the analyzed studies. Although the results of the studies explored in the context of Turkey, Greece, and Cyprus displayed numerous educational gains for both students and teachers, the time spent on the PBLL activities still poses a challenge. This might result from a lack of training for students to get the best outcomes from the projects and a need for more encouragement from institutions for PBLL work.

As seen through this regional study, certain persistent gaps remain in PBLL research. Despite the popular use of technology in higher education studies, there still needs to be more consistent technology inclusion in K-12-level PBLL research. There appears to be a clear need for more cross-cultural studies in PBLL research too, especially at lower grade levels. Additionally, most articles were found to lack an

explicit mention of form and function instruction, which could provide future avenues for research.

Moving forward, conducting regional analyses of PBLL in other parts of the world, including PBLL hotspots like Southeast Asia (e.g., Indonesia, Thailand, and Malaysia), East Asia (e.g., Taiwan, Japan, and China), and South America (e.g., Brazil and Columbia) would be illuminating to see how researchers in other global contexts have integrated form/function, technology, and assessment into project work, as prompted by Beckett & Slater (2020). Publication of the major study from where this regional analysis originated (Beck et al., 2021; Beckett et al, 2020), should also help guide the field forward.

8. Conclusion

With PBLL's worldwide growth, teachers and researchers will continue implementing this engaging approach in educational contexts. As more gaps in PBLL research are addressed and closed, new ones will emerge in response to the ever-changing trends in teaching and learning. For the future growth of this exciting field, we hope teachers and researchers within Turkey, Greece, Cyprus, and beyond are encouraged to continue exploring the many questions related to PBLL and sharing their discoveries with the larger community, both regionally and globally.

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