

Portfolios as learning and alternative-assessment tools in EFL context: A review

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Abstract

Portfolio, i.e., a collection of evidence for learning progress, has been increasingly employed both as learning and assessment tools in foreign language education. However, prior researchers tend to utilize different theoretical frameworks as well as varying in their implementation procedures. This review firstly reports on the educational affordances and challenges of portfolio-based learning (PoBL) in EFL context. It also proposes a conceptual framework for future PoBL implementation and research based on previously adopted frameworks and empirical findings. An extensive journal search was conducted for selecting empirical papers for this review, resulting in 19 research papers that satisfied the preset criteria. Findings indicated that the commonly adopted theoretical frameworks for PoBL education involved learner-centered approach, self-regulated learning, digital literacy and portfolio as an assessment tool. Previous researchers normally followed seven stages for implementing PoBL programs. As for the educational affordances, PoBL was found to help enhance EFL learners' foreign language achievements, metacognitive skills, self-regulated learning, assessment literacy and digital skills. Challenges in PoBL employment involves learners' anxiety, lack of digital competence and the reliability of PoBL as an alternative assessment. Potential methodological issues in previous studies were raised and pedagogical implications for effective PoBL programs discussed.

Keywords: portfolio, e-portfolio, web-based portfolio, alternative assessment, EFL learners

Introduction

As learner-centered approach has been widely advocated in foreign language classrooms, educators and researchers are calling for more effective assessment method that can reflect the multifaceted nature of students' learning. One of such innovative methods is portfolio-based learning (PoBL), a potential alternative to the traditional standardized assessment Baturay and Daloğlu (2010). Conceptually, Evans (1995) referred to portfolio as "an evolving collection of carefully selected or composed professional thoughts, goals, and experiences that are threaded with reflection and self-assessment" (p. 11). PoBL differs from the conventional assessment/pedagogical approach in that it focuses more on

the learning process. Learners' learning progress is assessed continually and on different aspects in PoBL programs rather than commonly product-oriented tests in traditional language teaching. This is believed to provide learners with more opportunities to practice the target language as well as reflecting on their learning progress.

While several reviews have been conducted for PoBL studies, they tend to examine portfolio only as a learning tool rather than an alternative assessment tool (e.g., Aygün & Aydın, 2016; Burner, 2014) and primarily focus on writing training (Charvade, Jahandar, & Khodabandehlou, 2012). Additionally, prior research has adopted different theoretical frameworks and implementation procedures, which could have interfered with these research results. Such variations also complicate and make it difficult to compare previous PoBL studies. It thus necessitates a common PoBL procedure as well as a conceptual framework so as to facilitate future research.

This paper firstly examines various theoretical frameworks employed in previous studies, thereby proposing a new conceptual framework that can be applied for future PoBL studies. Then, a common procedure in designing and carrying out PoBL programs will also be identified to serve as a guideline. Next, it reports on the educational affordances of and existing issues in PoBL implementation. Findings from this review are expected to inform relevant stakeholders, e.g., educators and policy-makers, of the potentials and challenges in PoBL approach, so well-informed decisions can be made to ensure the success of applying PoBL as a new innovative pedagogical and assessment approach.

Method

Various scientific journal databases were employed to retrieve potentially criteria-matched papers, including Web of Science, Scopus, Google Scholar and Google Search. Keywords entered the search engines involved but not limited to “portfolios”, “portfolio assessment”, “portfolio in EFL context”, and “portfolio learning”. To maintain a comparable quality of the collected research articles, several selection criteria were adopted for the retrieved papers:

- Being empirical studies
- Addressing the employment of portfolios
- Having been conducted in EFL context
- Published in English language
- Published in Scopus-indexed journals (i.e., to ensure the quality of the collected papers)
- Published between 2010 and 2018

The extensive search resulted in 19 papers that satisfied the criteria to be reviewed. The selected articles were then analyzed both inductively and guided by previous literature. Specifically, the articles are critically read and analyzed with emerging themes being grouped together. Throughout the review process, each paper was revisited continuously for verifying and extracting relevant information.

Finding and Discussion

In this section, common theoretical frameworks adopted in prior PoBL research are first presented. Next, a new conceptual model for PoBL is proposed based on the reviewed theoretical frameworks as well as relevant empirical findings. Educational affordances and challenges of PoBL implementation are subsequently discussed before existing methodological issues are pointed out.

Theoretical Frameworks in Previous Portfolio Studies

Prior researchers have utilized various theoretical frameworks for PoBL research. Nunes (2004) charted two main guiding principles with regard to the nature of portfolio: (1) should be featured with “on-going interaction between teachers and students” and should “document the reflective thought of the learners” (p.328). Chau and Cheng (2010) promoted another two characteristics of PoBL approach, i.e., personalized learning and learner responsibility, promoting the role of independent/autonomous learning.

Other researchers established their theoretical framework by comparing portfolio-based assessment with traditional standardized test (e.g., Baturay & Daloğlu, 2010; Kabilan & Khan, 2012). Reviewing PoBL advantages is another approach for building the research framework (e.g., Baturay & Daloğlu, 2010; Kabilan & Khan, 2012; Nicolaidou, 2013; Wang & Jeffrey, 2017).

The following subsections will elaborate more comprehensibly on the theoretical frameworks that have been adopted.

Learner-centered pedagogical approach

Learner-centered approach is one of the most popular theoretical frameworks employed for PoBL studies. This can be attributed to the fact that PoBL focuses on the learners’ activeness and learning autonomy compared to traditional teaching where EFL learners commonly receive new knowledge passively and teachers are the primary source of knowledge. With a paradigm shift to a learner-centered classroom, EFL learners are encouraged to be active agents in their learning process, constructing and building up their own knowledge based on prior experience (e.g., Sharifi, Soleimani, & Jafarigohar, 2017) as well as interacting with others (i.e., teachers and peers). Chau and Cheng (2010) indicated that portfolio learners should be “active agents involved in constructing knowledge, refining their understanding, and learning socially through sharing with peers and teachers” (p. 933).

Self-regulated learning process

Self-regulated learning (SRL) is also another common conceptual framework for implementing PoBL approach. Indeed, PoBL learners should be able to self-regulate their learning, i.e., planning, monitoring and reflecting on the learning progress (Chau & Cheng, 2010). Self-reflection is particularly valued since its advantage to facilitate deep learning (Thang, Lee, & Zulkifli, 2012). Thus, to be able to succeed in their PoBL programs, EFL learners should actively engage in the process of critically analyzing, organizing and evaluating their learning activities.

Portfolio as formative assessment and assessment literacy among learners

Portfolio can be considered as a form of formative assessment, which can promote students' learning (Wang & Jeffrey, 2017). Self and peer assessment tend to be an inherent component of portfolio-based learning in previous studies. The process of monitoring and reflecting on learning activities informs learners of necessary modifications for their upcoming activities. Through these assessment activities, learners have the opportunities to reflect on their learning strengths and weaknesses. Receiving feedback from teachers and friends further helps enhance their L2 language skills (Nicolaidou, 2013). The aforementioned reasons make the benefits of formative assessment and learners' assessment literacy, i.e., self and peer assessment, a possible theoretical framework for previous portfolio research.

Digital literacy

In addition to the pedagogical paradigm shift, PoBL activities are increasingly carried out with the assistance of web-based technology, also called "e-portfolio" or web-based portfolio. E-portfolio is normally preferred compared to the traditional paper-and-pen one due to its affordance for ubiquitous learning. Learning without time and space constraints in web-based environment increases opportunities for target language practice as well as making the language learning process flexible, thus promoting learning autonomy among EFL learners (Cong-Lem, 2018a, 2018b). The popular integration of web-based technology requires EFL learners to possess adequate digital skills to function effectively in the digital environment, e.g., in creating e-portfolio artifacts (e.g., Huang & Hung, 2010b; Wang & Jeffrey, 2017). This makes digital literacy a component in previous portfolio frameworks.

Process of Designing and Implementing Portfolios for Language Teaching

Another purpose of this review is to address the variations in PoBL design and implementation procedure. This is essential for the future advancement of PoBL research as it helps researchers to have a guideline in developing their PoBL programs as well as making PoBL studies more consistent. Most of the reviewed PoBL studies normally followed seven stages as presented in Figure 1.

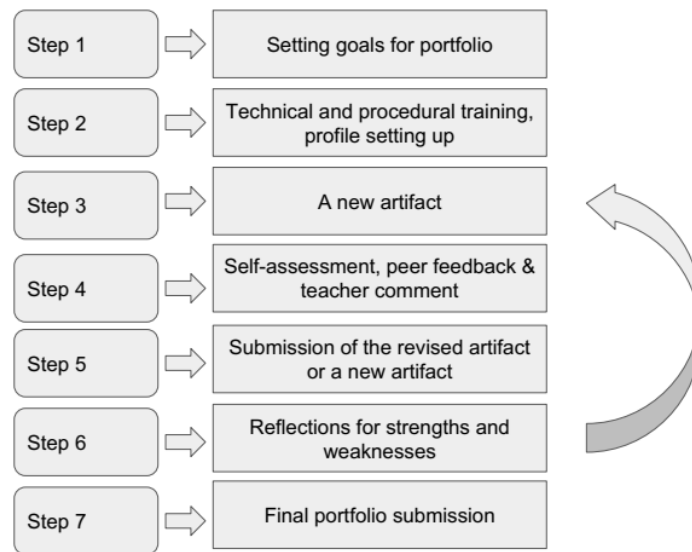


Figure 1. Procedures of Portfolio Implementation in Language Classroom

As indicated in the Figure 1, the first step is to determine the purpose of learning or assessment in the target PoBL program, which in turn inform the decisions for PoBL activities, e.g., what artifacts to be required and to what extent self-assessment or reflection to be practiced/evaluated. For instance, if the purpose of the researcher when implementing PoBL is to serve as an alternative assessment tool, self-/peer assessment tasks will be assigned with appropriate score weights. In contrast, if PoBL is employed mainly as a learning tool, self- and peer assessment can serve as a channel for the learners to obtain peer feedback. Thus, the score weight for these assessment activities may be less relevant to the learning process. Step 1 concerning the planning stage is particularly critical to the success of the PoBL program as work overload and rigid portfolio implementation could impede the PoBL advantages (Aliweh, 2011; Giuseppe Rossi, Magnoler, & Giannandrea, 2008).

In the second step, training session is carried out, e.g., technical training sessions if the PoBL program involves using technology. Other relevant information about the PoBL implementation, e.g., assessment rubrics, goals, should be made clear to learners. To familiarized inexperienced learners with self and peer assessment, instruction and pilot activities should be performed. In Stage 3, students normally start creating their first artifact including but not limited to essays, audios, diaries, notes, video clips (e.g., Huang & Hung, 2010b; Hung, 2012).

Step 4 is particularly of critical value as learners are expected to exercise their metacognitive skills to self-assess their own and peer work against given criteria. In the fifth stage, depending on the learning objectives, participants may be required to submit a revised artifact and a totally new one. Reflection on learning strengths and weaknesses in the sixth stage will provide EFL learners with opportunities to monitor their learning progress and make essential modifications to their language learning. In the last phase, the learners submit a collection of their artifacts as proofs of learning achievements.

Empirical Evidence on the Educational Affordances of Portfolios

Linguistic achievements

Enhancing learners' language competencies is one of the most commonly reported benefits of PoBL approach (e.g., Baturay & Daloğlu, 2010; Charvade et al., 2012; Nezakatgoo, 2011; Nicolaidou, 2013; Sharifi et al., 2017). Baturay and Daloğlu (2010) examined whether keeping web-based portfolio improved Turkish EFL students' writing skill at the elementary level. The participants were asked to keep a portfolio of their compositions and other entries such online survey, English checklist and self-assessment form. From the analysis of pre and posttest results, the learners were found to improve their L2 writing significantly. In the same vein, Farahian and Avarzamani (2018) also found a significant improvement in writing competence for students in the PoBL group, outperforming the control group.

Aside from writing skill, PoBL can also be an effective approach to teach other language skills. Huang and Hung (2010a) conducted a study spanning 19 weeks to examine the effect of web-based portfolio keeping on Taiwanese EFL learners' L2 speaking ability. The students were instructed to set up personal portfolio profiles on a web-based system called Wretch. In the following weeks, they were required to upload audios in which they verbalized their thoughts about lesson-related topics as well as reflections on their portfolio learning experience. The results indicated a significant improvement in the EFL learners' L2 oral proficiency.

As for reading skill, Charvade et al. (2012) recruited 50 Iranian EFL students who were split into two groups, one of which was asked to keep a portfolio of their reading (i.e., the treatment group). Adopting an experimental design, the learners were administered two Nelson 300D reading tests as their pretest and posttest. The results showed that the experimental group significantly improved their reading competence from the pretest to posttest as well as outperforming the control group in reading achievements.

By the same token, Hosseini and Ghabanchi (2014) instructed the treatment group in their study (including a group of EFL Iranian students) to keep a collection of their reading logs, recording summaries of paragraphs read. The foregoing reading logs were then self-assessed by the learners (with the teacher's support) and peer-assessed by their classmates. Statistical results indicated a significant better reading performance, measured by Michigan reading comprehension tests, in favor of the experimental group.

Likewise, Sharifi et al. (2017) conducted an experimental study, implementing portfolios to teach vocabulary for 66 Iranian students who were randomly split into control and portfolio groups. The latter group was instructed to study new vocabulary on a website designed to help them acquire new words based on vocabulary learning strategies (Nation, 2001). Findings indicated that learners in the PoBL group significantly outperformed those in the control group in the vocabulary posttest.

Motivation and metacognitive skills

In addition to language achievements, PoBL approach has also proved to benefit EFL learners' learning motivation, learning autonomy and critical thinking. Thang et al. (2012) found that Malaysian college students demonstrated a development in

communication, networking and management skills after participating in the PoBL course. The authors pointed out the “problem-solving involved in developing e-portfolios encouraged students to be more autonomous and positive towards learning” (Thang, Lee & Zulkifli, 2012, p.288).

Hung (2012) found that web-based PoBL enhanced pre-service teacher’s community of practice, peer learning and critical thinking. In his study, 18 graduate students in Taiwan were asked to accomplish various learning tasks such as keeping reflective journals, writing critical responses to peers’ posts and taking conference notes. Nicolaidou (2013) noticed that her students developed their feedback-providing competence and critical thinking skill over time. Similarly, Lo (2010) contended that PoBL program helped her participants, i.e., Taiwanese EFL learners, develop their critical thinking skill and autonomous learning through managing their time and learning.

Hashemian and Fadaei (2013) investigated whether PoBL approach could benefit 150 EFL learners’ learning autonomy. The participants were split into two groups randomly and required to keep a portfolio of their compositions. They could write about different topics, including their own interest. After submitting the first drafts, they would be asked to reflect on their writing and correct their writing as suggested by their teachers’ feedback. After 10 sessions, the students were distributed a learning autonomy questionnaire. The findings showed that the experimental-group students significantly improved their learning autonomy, including goal-setting, planning and self-reflection skills.

Farahian and Avarzamani (2018) reported an empirical study that examined the effect of PoBL on Iranian EFL learners’ metacognitive knowledge in writing skill. The participants in the treatment group were found to differ significantly with those in the control group in terms of linguistic knowledge self-efficacy and strategic knowledge. They also had more positive attitude toward receiving teacher and peer feedback compared to the control-group learners. This positive result could be attributed to the fact that students in the experimental group were encouraged to self-reflect on their writing process as well as having teacher and peer discussions frequently.

In short, it has been demonstrated in prior research findings that with PoBL approach, EFL learners could significantly benefit their metacognitive knowledge and learning motivation, promoting the development of other higher-order thinking skills such as critical thinking, peer assessment and self-regulated learning capability.

Enhancement of assessment literacy

Enhancing learners’ assessment literacy is another educational merit of PoBL programs. Indeed, assessment literacy has become an integral component of PoBL programs (e.g., Aydin, 2010; Hung, 2012; Kabilan & Khan, 2012; Lam, 2013; Nicolaidou, 2013). Learners’ assessment literacy refers to the ability to self-assess one’s own and others’ work. This process enables the EFL learners to self-reflect on their learning process, promoting autonomous learning (Hashemian & Fadaei, 2013). Though engaging in assessment tasks, learners can develop their assessment literacy.

Nicolaidou (2013) examined how PoBL implementation could impact the development of students’ feedback skill during a year. Through qualitative content analysis, she noticed a gradual improvement in the learners’ feedback provision. Specifically, the students started providing constructive feedback (up to 64%) in the

following months of the PoBL course instead of simple feedback as in the first month. Likewise, participants in the study by Kabilan and Khan (2012) acknowledged that PoBL was “one of the most effective assessment methods in augmenting self-assessment and peer assessment” (p.1013). They were able to improve their assessment skills, understanding their own as well as their peers’ learning strengths and weaknesses.

Community of practice

In an eighteen-week study by Hung (2012), EFL graduate students, pursuing their master’s degree in Teaching English to Speakers of Other Languages (TESOL), were asked to keep portfolio artifacts for their Language Assessment course. The required artifacts featured six categories of learning tasks: reflections on journal articles, critical responses to pedagogical scenarios, group projects, taking conference notes, self- and peer assessment and reflective journals at the end of the course. The concerned researcher utilized interview, observation and text analysis as his research instruments and the findings demonstrated that PoBL assisted the participants in building a community of practice. Indeed, it creates a “community in which these language teachers could interact through reading each other’s entries, discussing ideas, commenting on issues, and exchanging information. This e-portfolio-based community not only enhanced peer interaction through peer feedback but also exposed learners to different perspectives” (p.27-28).

Information technology skill

Given the educational advantages of web-based and mobile technology (Cong-Lem, 2018a, 2018b), the majority of the reviewed studies chose to integrate technology into their PoBL program. This is because technology can facilitate the creation of portfolio artifacts, peer feedback provision as well as supporting online learning tools. It has been found in previous studies that learning with the support of web-based technology could improve the learners’ digital skills (e.g, Kabilan & Khan, 2012; Thang et al., 2012). For instance, participants in Thang, Lee and Zulkifli (2012) indicated that the process of developing their personal e-portfolios helped develop their technology skills. In the same line, Kabilan and Khan (2012) reported on the transformation of pre-service TESOL teachers from being nervous initially to actually enjoying working with the educational technology.

The flexibility of learning artifacts in PoBL

While individualizing the learning process, PoBL also affords EFL learners the flexibility in creating their learning artifacts. Previous educational researchers allow their participants to submit a wide range of PoBL artifacts, including but not limited to text, compositions, oral diaries, journal entries, speeches and videos (e.g., Huang & Hung, 2010ab; Hung, 2012; Lam, 2013; Nicolaidou, 2013). Wang and Jeffrey (2017) encouraged Chinese college students to obtain evidence for their own learning progress.

The participants reported on their enjoyment and preference for the PoBL approach as a form of learning assessment.

In a nutshell, empirical findings from previous studies have advocated for various educational affordances of PoBL approach, comprising enhancing language knowledge and skill, metacognitive competence, motivation, building community of practice and developing digital skills. It also individualizes the language learning process through affording the flexibility in artifact creation.

Challenges in Portfolio Implementation

While applying PoBL pedagogical approach can promote language learning, there still exist various issues which may threaten the success of PoBL implementation. In this section, shortcomings of portfolios reported in prior research are discussed, namely learners' anxiety, lack of digital skills, and concern for the validity and reliability of portfolio as an alternative assessment tool.

Learning anxiety due to time consuming and peer-learning difficulties

When implementing PoBL approach, language learners are commonly required to carry out various learning tasks. For instance, participants in Hung's study (2012) needed to perform six types of learning assignments: reflections on journal articles, critical responses to pedagogical scenarios, group projects, taking conference notes, self- and peer assessment and reflective journals at the end of the course. In Aydin's study (2010), Turkish EFL learners pointed out that portfolio was time-consuming, tiring and boring. The process-oriented portfolio may demand students to spend significantly more time and commitment to accomplish the learning tasks and lead to their negative attitude (e.g., Kabilan & Khan, 2012). Learning with other peers also appeared challenging for some EFL learners (Aydin, 2010).

Technical-related difficulties

It is commonplace that learners within the same classroom come from various economic, sociocultural and educational backgrounds. This may contribute to the variations in digital competence among the learners. Failing to recognize different needs for individual learners or to provide timely support can discourage lower-digital skill learners from accomplishing their e-portfolio tasks, which leads to their anxiety or resistance. For instance, Hung (2012) noticed technology resistance could become a problem, causing anxiety and hindering the effectiveness of portfolio keeping. Thang, Lee and Zulkifli (2012) carried out a portfolio implementation for Malaysia EFL learners and found that technology competence played a significant role in determining the learners' experience with portfolio program.

Multiple teacher identity

Instead of performing the conventional role of a knowledge transferrer, language instructor in PoBL programs should be able to adopt various teacher identities. This can thus be a challenge, especially when the learners are new to the PoBL approach. Indeed,

Lo (2010) reported that she faced various challenges when implementing PoBL program for her Taiwanese EFL learners due to their being inexperienced with portfolio keeping and autonomous learning. Thus, she needed to perform various roles including decision-maker, facilitator and resource person. It is conceivable that the language teachers should be able to adopt multiple roles or identities so as to succeed in PoBL programs instead of simply being a knowledge transferrer.

The validity and reliability of portfolio as an alternative assessment tool

The variations in implementation procedures and flexibility in artifact collection make portfolio less appealing as an assessment tool. For example, Taiwanese EFL learners in Huang and Hung's study (2010b) voiced their concern that the students' speaking audios submitted on the PoBL online platform might not truly reflect the students' speaking competence as they might simply read from a prepared script.

Many other individual and sociocultural factors are also believed to interfere with the PoBL learning process, for instance, students' prior experience, cognitive, learning styles, and instructional strategies (Lockee, 2001). The availability of computer and Internet can also be another factor influencing the learning efficacy (Aliweh, 2011). Indeed, Chinese EFL learners in Wang and Jeffrey (2017) were concerned about the fairness in PoBL courses as they believed students with better digital skills could enjoy an advantage over those with lower technical ability. The aforementioned variables are, however, thought to be the least controllable ones (Felix, 2001).

A Conceptual Framework for Portfolio-Based Learning

Based on previously adopted theoretical frameworks and empirical findings, a conceptual framework for PoBL research and implementation is presented in Figure 2.

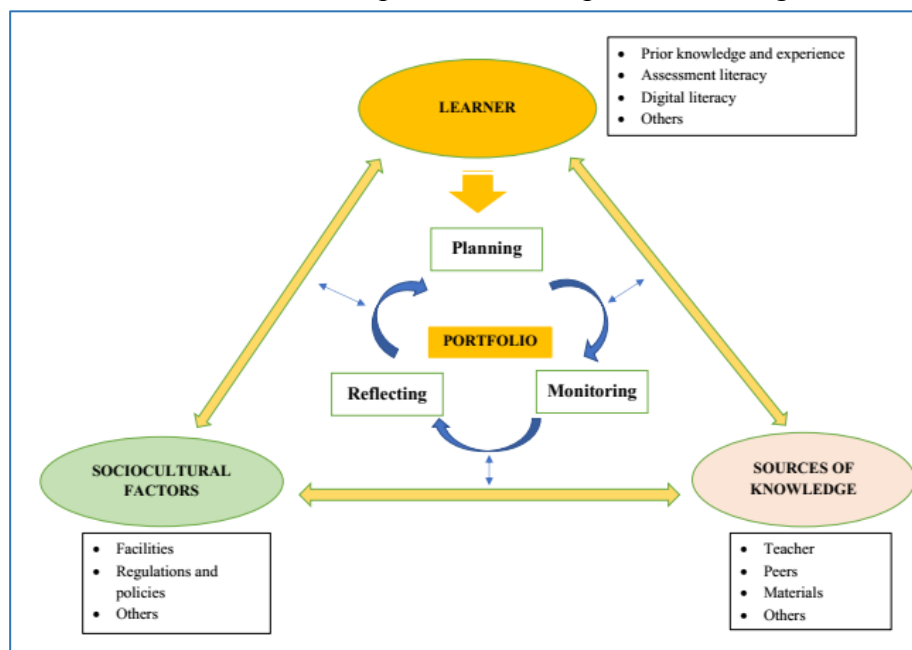


Figure 2. The Conceptual Model for Learning Process in a Portfolio-Based Program

The conceptual model in Figure 2 helps explain PoBL process, which involves three main components: (1) the learners, (2) sources of knowledge and (3) other sociocultural factors. Regarding the first component, learner-related factors, i.e., prior knowledge/experience, assessment literacy, and digital literacy, have been pointed out as being crucial for PoBL (e.g., Kabilan & Khan, 2012; Thang et al., 2012). According to constructivism approach, new knowledge is built upon prior knowledge and experience. Next, EFL learners should be able to self-assess their own work as well as peer-assessing their friends'. As e-portfolio has become commonplace, digital literacy is thus essential for effective learning in PoBL environment.

The second component of the model deals with various knowledge sources, i.e., where learners can interact with to construct their new knowledge. Specifically, EFL learners are expected to interact with the course instructor and peers to acquire themselves new knowledge. For example, peer feedback and teacher feedback can be effectively utilized to improve the students' revised work (e.g., Kabilan & Khan, 2012; Nicolaidou, 2013). Nevertheless, interactions in PoBL should not be understood as being limited to human interactions. It can also refer to the interaction between learners and their learning materials, e.g., with portfolio artifacts. The process of creating such learning objects helps enhance language and digital skills.

The third major component of the conceptual model is related to sociocultural factors. According to sociocultural theory, learning should not be considered separate from other sociocultural factors. Subcategories of the sociocultural component can include facilities, regulations and policies. The availability of technological devices and the type of technology can determine the success of PoBL implementation. Regulation and grading policies should necessarily impact the level of learners' engagement and motivation.

The three major components of the conceptual model in Figure 2 have reciprocal relationships, i.e., they can influence one another. At the heart of the conceptual model is the students' self-regulated learning (SRL) process, featured with planning, monitoring and self-reflecting activities. This can be considered as the main force for students' development of knowledge and skills. Students are given opportunities to reflect upon their learning strengths and weakness (e.g., Lam, 2013; Nicolaidou, 2013; Thang et al., 2012) and such awareness of the learning progress helps learners to make well-informed decision to allocate their time and learning effort.

The inner and outer components of the conceptual model have close relationships with one another. Indeed, the outer elements, i.e., learners' characteristics, sources of knowledge and sociocultural factors, can impact the inner SRL process of the learners. For example, coaching from the teacher can have an impact on the learners' SRL, e.g., modifying learning goals and other monitoring/self-reflecting behaviors. Also, adopting web-based technology, which can be considered as a sociocultural factor (i.e., facilities), can further enhance students' learning autonomy for its ubiquitous learning affordance.

Despite variations in theoretical frameworks, few researchers have attempted to combine them to explain PoBL activities in a more logical and systematic manner. Furthermore, existing conceptual frameworks oftentimes fail to take into considerations different learner-related and sociocultural factors. For instance, Tigelaar, Dolmans, Wolhagen, and van der Vleuten (2004) proposed a conceptual framework for portfolio use, based up the previous work of Zeichner and Wray (2001). They examined four different dimensions of portfolio, i.e., portfolio purpose, portfolio organization, social interaction and portfolio assessment. Tigelaar et al's model focuses more on the purposes of applying PoBL purposes and its social nature, whereas it is still unclear how the learning process operates and what relevant factors that may influence it. The new model proposed in this review explains students' learning and interactions in a more comprehensive way, taking into consideration sources of knowledge and other sociocultural factors. Furthermore, this model illustrates more clearly SRL activities as a development force for the learners' knowledge and language skills (e.g., Sharifi et al., 2017; Wang & Jeffrey, 2017).

In sum, the proposed conceptual model in this review has combined factors considered to be inherent to PoBL education indicated in previous studies. It also explains more comprehensively the relationships between learners, sources of knowledge and other sociocultural factors. This conceptual model is proposed based on previously adopted theoretical frameworks and empirical findings and thus may serve as a reference conceptual framework for future PoBL studies.

Methodological Issues

While prior research has contributed significantly to our understanding of PoBL approach, there still exist certain methodological issues. Variations in the implementation procedures can be another factor influencing the empirical results. For example, previous researchers may require different type of learning artifacts in their study, depending on the language skill and learning context (e.g., Huang & Hung, 2010b; Hung, 2012; Wang & Jeffrey, 2017). Furthermore, students' engagement during the learning process can differ across studies. For instance, Chau and Cheng (2010) reported that their participants hardly provided peer feedback as it was not a mandatory part of the PoBL program. This stands in contrast to other studies where peer assessment is an active component of the PoBL session (e.g., Aydin, 2010; Charvade et al., 2012; Hung, 2012).

Next, it is important to differentiate between the real linguistic improvement and the improvement simply due to revision incorporating teachers' feedback (e.g., Baturay & Daloğlu, 2010; Nezakatgoo, 2011). For instance, Turkish EFL learners in Baturay and Daloğlu's study (2010) revised their first draft based on teachers' feedback, which was repeated for two times before their final submission. This makes it challenging to determine whether students' higher scores were the result of actual development of writing skills. Another concern is related to the limited number of participants as it may diminish the reliability of quantitative analysis (e.g., Nicolaidou, 2013; Wang & Jeffrey, 2017).

In a nutshell, the variations in implementation procedures and proficiency assessment methods in previous PoBL studies should merit more research to further refine our understanding of the innovative pedagogical and assessment approach.

Pedagogical Implications

As discussed above, PoBL has been found to afford great educational benefits and thus, should be implemented to enhance EFL learners' language skills and motivation. Since the success of a PoBL program is certainly influenced by many extraneous factors (Aliweh, 2011), researchers and educators are advised to follow necessary steps presented in [Figure 1](#). The planning stage plays a particularly crucial role to ensure EFL learners are not overloaded with work, which may negatively affect their learning attitude and motivation (Sharifi et al., 2017).

Secondly, training activities are also of critical values to PoBL implementation. Learners have oftentimes complained about their lack of digital skills when studying in e-portfolio courses (Hung, 2012; Thang et al., 2012). Additionally, Turkish learners in Aydin's study (2010) found peer feedback provision a challenging task as it was difficult for them "to use checklists and to analyze errors" (p.199). Thus, assessment literacy (self and peer assessment) requires learners to receive sufficient training, particularly those who are inexperienced, before being able to perform them independently.

The process-oriented nature makes PoBL commonly utilized as a learning-support tool rather than an alternative assessment. Huang and Hung (2010b) acknowledge the advantage of traditional assessment with respect to assessing EFL learners' language proficiency compared to PoBL assessment and suggest a combination of the two methods to benefit EFL learners.

Conclusion

This paper reviewed a selection of papers reporting on empirical studies that investigate the educational affordances of PoBL in EFL learning context. With respect to purposes of employment, PoBL is commonly utilized for learning support rather than as an alternative assessment tool. PoBL merits involve facilitating the development of language skills, metacognitive skills, learning autonomy, motivation, assessment literacy, community of practice and digital competence. Specifically, self- and peer assessment stand out as effective methods to support participants' self-regulated learning process. Challenges when implementing portfolio include students' learning anxiety, a lack of assessment literacy and insufficient digital skills. Concerns for the validity and reliability of portfolio as an assessment measure has not been reliably overcome and thus, would warrant further research.

After reviewing the theoretical frameworks employed in many of prior PoBL studies as well as relevant empirical findings, the review paper proposed a conceptual model for explaining PoBL process. The conceptual framework consists of three main components, i.e., learners, sources of knowledge and sociocultural factors, at the outer

layer. The self-regulated learning behaviors of the learners, i.e., planning, monitoring and reflecting, serves as the force for students' development in portfolio-based programs. The implementation procedures for PoBL in previous studies commonly follow seven steps. The first two steps, i.e., planning and training participants, are particularly critical for the success of portfolio-based classroom. Setting unrealistic goals will burden students with heavy workload, leading to learning anxiety and demotivation. As learners have different prior background knowledge and experience with technology, they should be well-prepared before being able to self-regulate their learning successfully.

In summary, PoBL has been favorably reported in prior studies as innovative teaching and language-assessment tools. Since the educational benefits of utilizing PoBL approach are still commonly reported with qualitative data (e.g., Huang & Hung, 2010b; Kabilan & Khan, 2012; Lam, 2013), it would merit more research to address PoBL educational affordances quantitatively (Hashemian & Fadaei, 2013).

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