The Effect of a CLIL-Based Online Training Course on EFL InService Teachers' Knowledge, Performance and Self Efficacy

A Research Paper

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Abstract

The current research aimed to investigate the effect of an online training course in content and language-integrated learning (CLIL) on EFL in-service teachers' teaching knowledge, performance and self-efficacy as a venue for their professional development. A pre-post one-group quasi-experimental design was adopted, with twenty EFL in-service teachers as the research participants. Instruments included a semi-structured interview to specify target participants, a teaching knowledge test, a teaching performance observation checklist, and a self-efficacy scale. A professional development Small Private online course (SPOC) in CLIL was designed and uploaded to an online platform (Canvas) to be available for the targeted participants. Results of the study indicated that the teachers demonstrated enhanced teaching competence in both knowledge and performance (cognitive and psychomotor dimensions) according to the statistical analysis of the data obtained through the knowledge test and the teaching performance observation checklist. They also demonstrated enhanced self-efficacy in teaching as indicated by the statistical difference between the pre- and post- administrations of the self-efficacy scale. Such practices are strongly recommended, especially after the COVID-19 pandemic and the constraints of time allowed for those teachers to seek professional development opportunities.

Key words: *In-service teachers, CLIL, online course, SPOC, teaching competence, self- efficacy, EFL*

أثر مقرر تدريبي عبر الانترنت (SPOC) في التعلم المتكامل للمحتوى واللغة (CLIL) على المعرفة والأداء والكفاءة الذاتية لدى معلمي اللغة الإنجليزية كلغة أجنبية أثناء الخدمة

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المستخلص

استهدف البحث الحالي دراسة أثر مقرر تدريبي عبر الانترنت في التعلم المتكامل للمحتوى واللغة على المعرفة والأداء التدريسي والكفاءة الذاتية لدى معلمي اللغة الإنجليزية كلغة اجنبية أثناء الخدمة كمسار للتنمية المهنية. تم استخدام التصميم شبه التجريبي ذو المجموعة الواحدة وقياس قبلي- بعدي، وكان المشاركون عشرين معلما للغة الإنجليزية اثناء الخدمة كعينة للبحث. اشتملت الأدوات على مقابلة شخصية شبه مقننة لتحديد عينة البحث، اختبار معرفي للتدريس، بطاقة ملاحظة الأداء التدريسي، ومقياس للكفاءة الذاتية. تم تصميم ورفع مقرر للمجموعات الصغيرة للتنمية المهنية الى منصة عبر الانترنت (Canvas) لإتاحته للمشاركين المستهدفين. أشارت النتائج الى أن المعلمين أظهروا كفاءة تدريسية أكثر تحسنا في كل من المعرفة والأداء (الجانبين المعرفي والمهاري) وفقا للتحليل الاحصائي للبيانات التي تم الحصول عليها من خلال الاختبار المعرفي وبطاقة ملاحظة الأداء التدريسي. وقد تبين لديهم أيضا تحسن في الكفاءة الذاتية في التدريس والذي أشار إليه الفرق الدال احصائيا بين التطبيقين القبلي والبعدي لمقياس الكفاءة الذاتية. مثل تلك الممارسات التدريبية ينصح بها بشدة وخاصة بعد جائحة كورونا، وقيود الوقت المتاح لهؤلاء المعلمين للسعي وراء فرص التنمية المهنية.

الكلمات الدالة: *المعلمين أثناء الخدمة، التعلم المتكامل للمحتوى واللغة، مقرر عبر الانترنت، المعرفة والأداء التدريسي، الكفاءة الذاتية، اللغة الإنجليزية كلغة اجنبية*

Introduction:

In the realm of language education, the relationship between CLIL (Content and Language Integrated Learning), teacher competence, and teacher self-efficacy is a topic of great interest and importance. CLIL is an approach that combines the instruction of a subject in a second or a foreign language, allowing students to acquire both content knowledge and language skills simultaneously. Within this specific context, teaching competence refers to the knowledge, skills, and abilities required to implement the CLIL approach effectively, while teacher self-efficacy relates to a teacher's belief in their ability to achieve anticipated goals in the classroom.

Content and Language Integrated Learning (CLIL) has undoubtedly gained widespread popularity as schools and educational systems adopt it to foster synthesis and promote holistic learning (Banegas, 2019). A defining characteristic of CLIL is its dual focus on the simultaneous development of both content and language. As Wolff (2009) indicated, "experience (of CLIL) shows that both linguistic competence and content learning can be promoted within this integrated concept more effectively than when content and language are taught in isolation" (p. 560). Cummins (2013) suggests that a properly implemented CLIL program can effectively support simultaneous content learning and language skill development while also fostering advanced proficiency in the target language.

As illustrated by Pavón-Vázquez and Ellison (2013), "CLIL is demanding for teachers in terms of adjusting practice and developing competences, and that prior training is essential" (p. 69). However, Morton (2016) points out that a significant challenge across all types of content-based instruction is the teachers' perceived inadequacy in pedagogical content knowledge essential for successfully integrating content and language. This issue stems from insufficient teacher preparation in such programs (Banegas, 2012, 2015; Coyle, Hood, & Marsh, 2010; Lancaster, 2016; Pavón-Vázquez & Ellison, 2013), where linguistic competence is typically regarded as the sole criterion for accrediting teachers to deliver CLIL. Consequently, to provide adequate education and training for CLIL teachers, it is essential to understand their specific needs in practical terms, aligned with the competences required to integrate language and content within a single lesson

(Brüning & Purrman, 2014). That implies that continuous training and professional development are necessary requirements for in-service teachers who teach within the CLIL approach framework.

The cognitive and linguistic challenges CLIL poses for both students and teachers require a deep knowledge of essential methodological principles that must be embedded in all CLIL lesson plans. These principles should be known to all CLIL educators and act as a reference when designing and delivering lessons (Custodio-Espinar, 2019). Recurrent key concepts such as authenticity, functional grammar, cognitive skills, scaffolding language learning, materials development, and motivation form the foundation of CLIL architecture (Ball et al., 2015; Coyle, Hood, & Marsh, 2010; Llinares & Morton, 2017). However, the CLIL literature is clear about the necessity of offering teachers careful, context-aware support through continuous professional development courses to help them effectively manage these concepts (Pérez-Cañado, 2018). PD is a mandatory component for both novice and experienced teachers, rather than an optional one. Nevertheless, offering professional development for CLIL teachers and practitioners remains challenging, given the extensive range of topics that must be covered (Frigols-Martin, 2011; Vilkancienė & Rozgienė, 2017).

In-service teacher training is a global practice to advance teachers' professional growth. The training is mainly focused on driving the continuous development of teaching staff, addressing disparities in teachers' prior preparation, ensuring the profession stays current with new knowledge, encouraging the adoption of innovative practices, and preparing teachers to take on the responsibilities linked to the evolving educational landscape (Osamwonyi, 2016; Sheth, 2004). Bramley (1991) defines in-service training as the organized development of the attitudes, knowledge, skills, and behaviors required by teachers to execute their responsibilities effectively.

Defined as a cornerstone of teacher professional development, in-service training is employed by education departments and policymakers to empower teachers with the necessary skills to elevate the standard of education. Meanwhile, professional development represents a continuous process shaped by changes in knowledge, perceptions, and attitudes of teachers and other education stakeholders, all geared towards fostering better learning outcomes (Cooper, 2004).

Teacher efficacy, a specific form of self-efficacy, is a strong indicator of teaching performance. It holds significant value as teachers must possess a sense of competence and confidence in their ability to educate and connect with all students. In the field of education, self-efficacy has emerged as a crucial framework for understanding and predicting the perceptions and judgments that shape teachers' classroom decisions and behaviors (Withy, 2019).

According to some researchers, the psychological factor of self-efficacy affects teachers' classroom performance. For example, Tschannen-Moran and Barr (2004) reported that teachers' sense of self-efficacy influences the effort they put into teaching, the objectives they establish, and their level of motivation. Bong and Skaalvik (2003) described self-efficacy as the cognitive perception of competency and effectiveness in accomplishing goals and duties. Bandura (2006) reported that self-efficacy was not what teachers possessed or executed but what they could do.

Recognized as a pivotal determinant of teacher effectiveness, teacher self-efficacy must be integrated as a primary element in professional development initiatives. In-service training programs should aim to cultivate positive efficacy beliefs through targeted activities and measure these beliefs as a critical indicator of the training's effectiveness (i.e., a meaningful outcome of the development process). For many teachers, professional development remains a series of disconnected, one-time workshops led by external "experts," which often fail to meaningfully enhance their understanding of the subject matter or refine their teaching techniques. Such efforts have been insufficient in establishing a consistent approach to developing effective teaching practices, have not created meaningful opportunities for teachers to reflect collaboratively with experienced colleagues, and have remained disconnected from the content, activities, and challenges essential for teachers to meet their students' needs (Bray-Clark & Bates, 2003).

Enhancing teachers' knowledge and skills through education and training has made professional development a primary focus. As a result, numerous nations have prioritized continuous teacher learning as a fundamental strategy for improving teaching proficiency and student academic outcomes (Darling-Hammond, Chung Wei, & Andree, 2010). As Jensen and Rasmussen (2019) noted, professional development (PD) seeks to strengthen the skills and knowledge of teachers and other

educational professionals. Quality PD is tailored to the specific requirements of teachers based on their experience and expertise, ensuring it aligns with curricular expectations and school standards while addressing their professional needs (Bautista et al., 2015; Karlberg & Bezzina, 2020).

Wong (2011) mentioned some reasons teachers should engage in PD activities. Firstly, PD would raise teachers' awareness of their strengths and weaknesses. It is essential for teachers to articulate their strengths and to work on their weaknesses to develop professionally. Secondly, engaging in PD helps language educators acquire new language through attending conferences e.g. the Teaching English to Speakers of Other Languages (TESOL) or getting an advanced degree. Although some PD activities require special funding, other activities like reading professional journals available online or engaging with experienced educators and gaining insights from them during the process is a far less expensive approach. Moreover, advocating participation in teacher professional development activities, such as attending workshops in a desired area, upgrades teachers' teaching skills to respond more effectively to societal and field changes. Teachers should be able to learn much on their own by going online or training using these tools. Finally, engaging in PD activities, such as organizing a local conference or volunteering in an organization, motivates teachers to work and avoid burnout (Richards & Farrell, 2005).

Professional development (PD) can be delivered through various approaches, spanning both formal and informal methods. It may involve formal courses, workshops, or programs led by external experts, collaborative efforts within schools where teachers work together, or partnerships between schools or teachers across institutions, such as observational visits to other schools. Selecting the right approach to delivering professional development (PD) for a particular participant, institution, or context is essential for ensuring that PD is both meaningful and beneficial to individuals across the system (Owens et al., 2016). However, traditional forms of professional development rarely provide teachers with the knowledge and skills needed to implement new curricula successfully (Sparks, 2002).

Teachers can engage in PD through various forms, such as presenting papers, attending conferences or workshops, reading scholarly articles,

maintaining a teaching journal, or participating in online professional development programs. Despite the availability of professional development opportunities, many English teachers may not participate due to a lack of sufficient and accurate information about these programs. Another challenge lies in the fact that teachers often spend extensive hours teaching in the classroom and are overwhelmed with administrative and documentation tasks (Banegas, 2019).

Uluc (2012) asserted that the influence of the internet has extended to all areas of our lives, including educational environments. Many studies confirmed the effectiveness of using the web and the internet in teaching and learning systems. E-learning has become one of the alternatives to spread education to a wide spectrum of learners, activating training, overcoming the obstacles of space, time and risk, and leveraging modern communication technologies to support the learning process and improve its quality (Hussein, 2011).

Online courses contribute to the professional development of teachers by fostering continuous self-improvement and learning, offering flexibility in enhancing teaching abilities. They deliver key informational and methodological assistance, which is vital for teachers to adjust to the ever-changing needs of today's educational systems (Wang, Liu& Tong, 2023; Alqarawi, 2024; Dey& Panda, 2024). A form of online courses, namely a Small Private Online Course (SPOC), was created as a training tool to give in-service teachers a chance to develop their teaching competence and their self-efficacy.

Small Private Online Courses (SPOCs) is a term that was mentioned for the first time by Armando Fox in 2013. He is the head of the Massive Open Online Courses (MOOC) Lab and the head of online education at UC Berkeley. He referred to the term SPOCs as a modified version of MOOC. A SPOC is a type of MOOC, but while MOOCs are large-scale and accessible to virtually anyone, SPOCs are more limited in size and private, supplementing traditional classroom instruction rather than replacing it (Fox, 2013). Fox used SPOCs to offer solutions for learners, such as limiting the number of participants and ensuring their satisfaction with specific admission requirements for the course (Milman, 2017). SPOCs enabled educational institutions to adopt a "blended and flipped learning" model, integrating traditional classroom instruction with online learning. SPOC is a tool for changing the

pedagogical perspective. In a SPOC, the goal is for teachers to encourage learners to take an active role in their learning process:

"…if MOOCs are used as a supplement to classroom teaching rather than being viewed as a replacement for it, they can increase instructor leverage, learner throughput, learner mastery, and learner engagement. I call this model the SPOC…" (Fox, 2013, p. 39).

SPOCs (Fox, 2013; Goral, 2013) were introduced to adapt the MOOC philosophy for private courses with a limited number of students. The use of MOOC technologies in these settings provides a variety of benefits. No matter the number of learners, the method employed, or the delivery medium, it is important to design learning experiences using effective instructional design principles, media, and teaching models. SPOCs could be this type of model.

To conclude, it is important to note that in-service teacher professional development is not a choice, yet it is a necessity, especially in cases where new approaches are being adopted in the educational system. Teachers need to polish their cognitive, psychomotor, and affective domains of teaching competence using an up-to-date training design. This is what the current research attempted to accomplish.

Pilot study:

To substantiate the research problem, a semi-structured interview was held with a group of primary EFL teachers (n=10) at three primary schools in Mansoura City. They were asked about the suitability of the curriculum content, objectives, activities, and assessment procedures. Moreover, they were asked about the nature of the training they had received, if there had been any, and its sufficiency and usefulness in dealing with the textbook in the light of the CLIL approach which the Egyptian Ministry of Education adopted in the new educational matrix aligning with Egypt's 2030 agenda. CLIL, as an innovative educational approach, has been implemented in the primary stage since 2018.

Teachers who were interviewed expressed their concerns about the textbook with all its objectives, activities, assessment procedures, and even suitability for pupils at the primary stage. They also were dissatisfied with the training they had received from the supervisors of the directorates, as it was not sufficient for them to perceive the CLIL approach and the appropriate strategies and techniques to apply inside the classroom. Finally, they expressed their need and interest in having

comprehensive training in CLIL as they felt incompetent in teaching primary-stage pupils. However, their heavy schedules, responsibilities, and minimal free time that they might exploit for training were their most prominent obstacles in seeking professional development opportunities.

Statement of the problem:

Based on the literature review, previous studies, and the pilot study results, the problem of the current research was identified as the need for primary stage EFL in-service teachers to be well-trained in the CLIL approach and its principles, strategies, and assessment techniques in order to be competent in teaching and consequently have higher self-efficacy in teaching.

Questions of the research:

The present research aimed to address the following main research question: What is the effect of a CLIL-based online training course on EFL in-service teachers' knowledge, performance, and self-efficacy?

In addition, the following sub-questions were explored:

> 1- What are the features of a CLIL- based online training course (SPOC) for EFL in-service teachers for developing their teaching knowledge, performance and self- efficacy?
> 2- What is the effect of a CLIL- based online training course (SPOC) on developing EFL in- service teachers' teaching knowledge?
> 3- What is the effect of a CLIL- based online training course (SPOC) on developing EFL in- service teachers' performance?
> 4- What is the effect of a CLIL- based online training course (SPOC) on developing EFL in- service teachers' self- efficacy?
> 5- Is there a positive correlation between teaching knowledge and performance and teachers' self- efficacy?

Hypotheses:

The current research attempted to verify the following hypotheses:

> 1- There is a statistically significant difference between the mean ranks of the experimental group on the pre- and post-administrations of the teaching knowledge test in favor of the post- administration.

2-   There is a statistically significant difference between the mean ranks of the experimental group on the pre- and post-administrations of the teaching performance observation checklist in favor of the post- administration.

3-   There is a statistically significant difference between the mean ranks of the experimental group on the pre- and post-administrations of the self- efficacy scale in favor of the post-administration.

4-   There is no correlation between EFL in- service teachers' teaching knowledge and performance and their self- efficacy.

Instruments:

For the purpose of gathering data to achieve the aims of the research, the following instruments were designed and employed:

1-   A semi-structured interview form to specify and categorize participants of the research.

2-   A teaching knowledge test to assess teachers' cognitive dimension of teaching competence in CLIL.

3-   A teaching performance observation checklist to assess teachers' psychomotor domain of teaching competence in CLIL.

4-   A self- efficacy scale to assess teachers' affective domain of teaching competence in CLIL.

Purpose of the research:

The current research aimed at:

1-   Developing a professional development SPOC in CLIL for in- service EFL teachers.

2-   Identifying the impact of the professional development SPOC in CLIL on developing in- service EFL teachers' teaching competence.

3-   Identifying the impact of the professional development SPOC in CLIL on developing in- service EFL teachers' self-efficacy.

Significance of the research:

It is hoped that the current research would contribute to:

1. Directing the attention of stakeholders towards the importance of integrating SPOCs as a recent venue for professional development for EFL teachers.

2. Directing the attention of curriculum planners towards the crucial role of professional development and training provided for in- service teachers in achieving the intended outcomes of curricula.

3. Helping EFL in- service teachers develop their teaching competence and self- efficacy in such a way that is flexible and feasible for them to have anytime and anywhere.

4. Attracting the attention of researchers in the field of teachers' professional development for applying new approaches for training in- service teachers; as this field is currently, although very important, still under- researched.

5. Highlighting the need for more training in CLIL for teachers; and thus providing a training program in CLIL that may help in achieving professional development purposes.

Delimitations:

The current research was delimited to the following:

1- A sample of EFL in- service teachers who accepted to participate in the research.
2- Teaching competence dimensions of knowledge and skills related to CLIL principles.
3- Self- efficacy dimensions related to CLIL teaching practices.

Definition of terms:

Content and Language Integrated Learning (CLIL):

The term Content-and-Language-Integrated-Learning (CLIL) refers to "educational settings where a language other than the students' mother tongue is used as medium of instruction" (Dalton-Puffer, 2007, p. 1). Coyle (2007: 545) defines CLIL as "an integrated approach where both language and content are conceptualized on a continuum without an implied preference for either."

CLIL is operationally defined as an educational approach that integrates language learning and disciplinary content learning. Consequently, it

requires EFL in-service teachers to master certain teaching competencies in planning, managing, teaching, assessing, and adapting materials while implementing them in the EFL classroom.

Self-efficacy:

In an early definition, Bandura (1994) proposed that perceived self-efficacy is defined as "people's beliefs about their capabilities to produce designated levels of performance that exercise influence over events that affect their lives". Therefore, self-efficacy beliefs influence individuals' emotions, thought processes, motivation, and behaviors.

Bandura (1997) defines self-efficacy as "beliefs in one's capabilities to organize and execute the courses of action required to produce given attainments" (p. 3). Bandura has also defined self-efficacy (1997, p. 21) as "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performance". Rather than representing an individual's actual abilities, self-efficacy is the belief in one's personal capacity to carry out a particular task.

Teacher self-efficacy is a vital psychological construct that influences teachers' beliefs in their capacities to impact student learning.

In the context of CLIL teaching, self-efficacy is operationally defined as: teacher's belief in their competence to successfully implement the CLIL approach, integrate content and language instruction effectively, and facilitate students' language and content learning simultaneously. These beliefs are illustrated through the score obtained by teachers on the teaching self-efficacy scale with its component dimensions that relate to the CLIL approach.

Online courses:

Defined as a type of electronic learning, online courses follow an organized and purpose-driven educational framework implemented using modern communication and information technologies (Mitrukhina, 2021).

Online courses are structured programs that utilize digital platforms to deliver educational content, interactive activities, and assessment tools via the Internet. Designed to support remote learning, these courses enable learners to access resources, interact with instructors, and collaborate with peers irrespective of geographic or time constraints

(Martin et al., 2020). They often incorporate multimedia, such as videos, quizzes, and discussion forums, to enhance participant engagement and address diverse learning styles (Bozkurt et al., 2021).

Online courses may be synchronous, requiring real-time engagement, or asynchronous, where learners can complete tasks according to their own schedule. The flexibility and broad reach of online courses have made them a widely used platform for professional development, especially among teachers seeking to enhance their knowledge and skills in response to changing educational needs (Trust & Prestridge, 2021).

Small Private Online Courses (SPOCs):
Pomerol, Epelboin, and Thoury (2015, p.63) defined SPOC as a MOOC designed for a class of learners who are registered at a university conventionally. With SPOC, the teachers hope that the learners will become active participants in their learning formation. Furthermore, Porter (2015, p.11) defined SPOC as a particular type of MOOC, a Small, Private Online Course (SPOC), but which at the time was an experimental institution-specific venture.
Thus, the current study operationally defines SPOC as a version of a MOOC (Massive Open Online Course) used locally to provide a professional development course in CLIL for EFL in-service teachers, allowing them to develop their teaching knowledge, performance, and self-efficacy and interact with others throughout the online learning process.

Review of literature and related studies:

The following section sheds more light on the main variables of the current research which are teaching knowledge and performance (competence), teachers' self-efficacy, the CLIL Approach, professional development, and SPOCs as a venue for professional development.

Teaching competence (knowledge and performance):

The terms skill and competence have always been difficult to define. However, in the past, their meanings were considered simpler than they are today. Currently, the interpretation of these terms is more complex, encompassing categories such as soft and hard skills, generic and transferable skills, as well as interpersonal, emotional, and aesthetic skills. According to the European education and training policy (European Centre for the Development of Vocational Training, 2008),

"skill" is described as the ability to apply knowledge and expertise to accomplish tasks and solve problems. Meanwhile, "competence" refers to the capacity to apply learning outcomes adequately in a specific context (such as education, work, or personal development), incorporating knowledge, skills, and personal, social, and methodological abilities in work, study, and developmental situations (Dervenis, Fitsilis& Iatrellis, 2022).

Training programs for teaching staff, both initial and continuous, are developed, implemented, and evaluated based on the competence approach model, which provides a method for defining and assessing training results. Competences are conceptualized as integrated collections of knowledge, skills, motivations, and attitudes that mediate professional conduct and ensure proficiency in specific fields and contexts relevant to the teaching profession (Mara et al., 2023).

Teacher competence plays a pivotal role in the successful implementation of CLIL methodologies. It encompasses a range of knowledge, skills, and abilities that enable teachers to effectively deliver content and language instruction in a bilingual setting. CLIL teachers need to possess subject-specific knowledge, pedagogical expertise, and language proficiency in both the content area and the target language. First and foremost, CLIL teachers need a strong foundation in the content area they are teaching. They must be knowledgeable about the subject matter and capable of integrating language instruction seamlessly into their lessons. Additionally, CLIL teachers must possess pedagogical skills that enable them to design and employ effective instructional methods, adapt teaching to address the diverse needs of learners and evaluate student progress accurately (Custodio- Espinar, 2019; Gabillon, 2020).

Language proficiency is another crucial component of CLIL teacher competence. Teachers need to have a high level of proficiency in both the content and target languages to effectively convey information and facilitate language learning. This proficiency enables CLIL teachers to scaffold language development while simultaneously teaching subject-specific concepts, ensuring that students are acquiring content knowledge and expanding their language skills. Enhancing CLIL teacher competence requires ongoing professional development opportunities that focus on subject-specific content knowledge, language proficiency, and pedagogical skills. By continuously improving their competence,

CLIL teachers can provide high-quality instruction that maximizes student learning outcomes (Reitbauer et al., 2018). According to the 4Cs framework (Coyle, 1999 & 2008), the key elements of a successful CLIL lesson   are:
• **Content** – a structured progression of knowledge, skills, and understanding   within   a   defined   curriculum.
• **Communication** – the process of using language as a tool for learning while   simultaneously   learning   the   language.
• **Cognition** – the development of cognitive skills that link conceptual understanding (both abstract and concrete) with language proficiency.
• **Culture** – the exploration of different viewpoints and collective knowledge, which enhances self-awareness and understanding of others.

Effective CLIL teaching practice demands multi-skilled educators. Both content and language teachers involved in CLIL lessons must demonstrate a diverse range of competencies, including pedagogical expertise (such as content and language knowledge, CLIL principles and management, and the use of learning resources and environments) as well as personal and professional skills (including self-reflection, interpersonal and collaborative abilities, and competence in development and research) (Custodio-Espinar, 2019).

Self- efficacy in teaching:

Any person's behaviors are guided by their perceptions of self-efficacy instead of their capabilities. Self-efficacy also involves the different phases in which an individual's belief system shapes their approach to performing a task (Jain, Bruce, Stellern& Srivastava, 2007). They assumed self-efficacy as what an individual person possesses as skills, knowledge and efficacy perceptions that influences person's decision regarding time and effort s/he would invest in coping with stressful situations. This task-specific belief influences decisions, effort, and persistence in the face of difficulties, while being influenced by the individual's emotional condition (Bray-Clark & Bates, 2003).

Self-efficacy beliefs are domain-specific, taking on different forms based on the particular activity domain and the situational conditions (Bandura, 2012). Within the teaching field, teachers' self-efficacy is defined as their belief in their ability to teach their subject effectively and attain the desired levels of student engagement and learning (Tschannen-Moran & Hoy, 2001). Teacher self-efficacy is also about "teachers' beliefs that

they are capable of carrying out good teaching in the classroom" (Christophersen et al., 2016, p. 241).

The development of teacher efficacy is influenced by a blend of enactive or mastery experiences, vicarious experiences, social persuasion, and emotional and physiological states. Mastery experiences, which stem from previous achievements, serve as the strongest contributor to self-efficacy. For a primary school English teacher, relevant accomplishments could include positive experiences with English both inside and outside of school during their own schooling, as well as the chance to conduct workshops and present on the subject during their teaching career. The second most powerful source of teacher efficacy, vicarious experience, is derived from what teachers see, hear, and read. Teacher efficacy is reinforced when teachers observe their peers demonstrating effective instructional methods. Social persuasion further contributes to shaping teachers' self-efficacy. Forms of social persuasion, such as honest feedback from supportive colleagues and school leaders, parental acknowledgment of teachers' performance, and students' eagerness in their learning, all contribute to teacher efficacy. Additionally, positive interpretations of emotional and physiological states help to strengthen it. For instance, when teachers experience excitement before presenting a new topic or derive joy and fulfillment from a well-delivered lesson, their self-efficacy is reinforced (Bandura, 1997; Withy, 2019).

Research has consistently shown that teacher self-efficacy significantly influences instructional practices and student outcomes. Teacher's self-efficacy has an effective role in improving students' self-efficacy; teachers with a high sense of efficacy can cultivate a learning environment in which all students are empowered to learn. These teachers typically allocate more time for planning, stay well-organized, remain open to new ideas and methodologies, and exhibit greater enthusiasm for teaching. They are more inclined to learn and implement fresh teaching strategies, apply positive classroom management techniques, and demonstrate greater persistence in assisting students who face challenges (Tschannen-Moran & Hoy, 2001; Mannila et al., 2018; Menon, 2020). Self-efficacy of teachers is associated with multiple indicators of their performance, including student achievement, students'

motivational attitudes, and the quality of their instructional practices (Klassen & Tze, 2014).

For teachers to enhance their efficacy, they must believe that they can positively impact their students' education and that they possess the capacity to make decisions that shape their role and students' achievements (Enderlin-Lampe, 2002). Studies have demonstrated that professional development, which includes mastery experiences and verbal encouragement, leads to an increase in teacher self-efficacy (Yoo, 2016).

Also, a number of studies suggested that PD positively affects teacher efficacy (Ross, Ertmer, & Johnson, 2001; Tschannen-Moran& McMaster, 2009). Liu (2008) investigated the impact of PD among 377 in-service K-12 teachers and agreed to the positive relationship of self-efficacy with the integration of technology in classroom instructions. Additionally, Orhan Göksun (2016) examined the essential skills for teachers, including classroom and self-management, cooperation and communication skills, which are crucial in teacher-student interactions throughout the teaching process. He highlighted the importance of teaching technology skills, the ability to apply pedagogical knowledge, and the capacity to conduct teaching processes flexibly as key aspects.

Anagün (2018) found a positive correlation between teachers' perceptions of their efficacy in 21st-century skills and their ability to create effective learning environments. The study also revealed that when teachers have strong beliefs in their problem-solving, critical thinking, cooperation, and communication skills, they are better equipped to offer inquiry-based learning environments for their students.

To sum up, the relationship between CLIL teacher competence and teacher self-efficacy is reciprocal. Enhancing teacher competence through ongoing professional development can positively influence teacher self-efficacy, as teachers gain the necessary skills and knowledge to implement CLIL methodologies successfully. Similarly, promoting teacher self-efficacy can motivate teachers to continuously improve their competence, seeking out professional development opportunities to enhance their teaching practices. By investing in both teacher competence and teacher self-efficacy, educational institutions can foster an environment that supports high-quality CLIL instruction and maximizes student learning outcomes.

Focusing on the development of teacher self-efficacy represents an important advancement in the design of teacher in-service training, aimed at improving teaching effectiveness and ultimately fostering greater student achievement. However, there is a gap in the literature regarding how in-service teacher training programs can be reoriented to integrate self-efficacy as a core organizing principle (Bray-Clark & Bates, 2003).

Teacher professional development (TPD)

Nowadays, teachers play different roles in schools that require professional and personal competencies (Darling-Hammond et al., 2009). They should create opportunities for students to engage in deep learning, support their overall development, and actively seek learning experiences both inside and outside the classroom. Also, they should act as leaders of social change. Therefore, they need to be equipped with key competencies, such as expertise in professional practice, collaboration, leadership, and dedication to education, to ensure the effectiveness of educational reform (Garet, Porter, Desimone, Birman, & Kwang, 2001). According to Darling-Hammond, Hyler, and Gardner (2017), professional development (PD) is "a structured professional learning that results in changes in teacher practices and improvements in student learning outcomes." PD encompasses various definitions, all of which focus on fostering positive transformations in participants' beliefs, knowledge, skills, or behaviors. Professional development (PD) achieves the desired changes in participants' abilities by employing a purposeful learning process designed to meet specific objectives (Lauer, Christopher, Firpo-Triplett, & Buchting, 2014). Effective PD prioritizes equipping teachers with a deeper understanding of the content they teach (content knowledge), practical strategies for teaching that content (pedagogical knowledge), and insights into how students learn the material (knowledge of student thinking) (Penuel, Fishman, Yamaguchi, & Gallagher, 2007).

The benefits of professional development include preparing strategic plans, providing feedback, and writing follow-up reports to track students' progress and achievement (Hourani & Stringer, 2015). PD becomes more effective when it integrates theory, practical application, feedback, cognitive peer coaching, and follow-up support (Zepeda et al., 2014). According to Bautista et al. (2015), Owens, Pogodzinski, and Hill (2016), and Darling-Hammond et al. (2017), effective professional

development should focus on content, integrate active learning, foster collaboration, utilize models of best practices, offer coaching and expert guidance, deliver meaningful feedback, and be implemented over a sustained period.

Models of professional development

Gaible and Burns (2005) proposed three models of TPD. The first model is standardized TPD, or the centralized approach, which includes workshops and training sessions delivered in a scaled way. While it can be effective to train a small group of teachers intensively and have them return to their institutions to train their peers, this approach often applies a "one-size-fits-all" strategy that overlooks contextual differences. Furthermore, workshops are usually held at a specific time and place without continuous support, reducing their potential to improve teaching and learning practices significantly. Site-based TPD is the second type in which Teachers collaborate with local facilitators or master teachers to participate in a gradual learning process. This model helps solve situational problems that individual teachers face while implementing new classroom techniques. It permits more flexible, sustained, and intensive TPD to happen and provides ongoing opportunities for professional learning among specific groups of teachers. However, this model requires much time, labor, expertise, and skills in instruction, content, curriculum, assessment, and technology. The third model is self-directed TPD, in which teachers design their own PD, share materials and ideas, and discuss challenges and solutions. This model helps teachers become lifelong learners, benefit from experienced colleagues' advice or search for lesson plans online.

PD is offered through diverse delivery methods, such as face-to-face and online courses, group settings, classroom sessions, or individualized support (Owens et al., 2016). Its scope includes traditional approaches-formal courses, workshops, and postgraduate programs- and innovative methods like informal sharing, action research, school-university partnerships, and peer observation (Bautista et al., 2015). To put it differently, "professional development can take different forms, for example, formal and informal training, workshops, consultation and coaching, reflective supervision, or collaborative group work between educators". (Jensen & Rasmussen, 2019, p. 935).

While traditional PD approaches often focus on classroom-based training, several alternative strategies are available for educators, school

principals, and teachers. These include mentoring, peer coaching, professional portfolios, dialogue journals, study groups, and participatory practitioner research (Dayoub & Bashiruddin, 2012). Abu-Tineh and Sadiq (2018, p. 314) also identify multiple advantages of online professional development: "It saves time, travel, and paper, allows for possible cost savings, and offers exposure to technology learning".

ODL (Open and Distance Learning) and ICT (Information and Communication Technologies) are recognized as crucial tools to replace conventional methods in PD programs. By utilizing online methods, teachers can access numerous resources and communication options, making it an effective strategy for TPD and supporting the development of new educator competencies. With the increased adoption of ICT in education, an increasing number of courses are now delivered in online or blended formats, leading to a greater demand for professional development (PD) focused on online teaching (Salmon, 2011). While various general teacher professional development (TPD) models exist (e.g., Consuegra & Engels, 2016), surprisingly few address the specific needs of online and blended learning environments.

According to Baran, Correia, and Thompson (2011), when teachers shift from traditional face-to-face teaching to online instruction, their transformational learning journey encompasses three distinct dimensions: "(a) empowering online teachers, (b) promoting critical reflection, and (c) integrating technology into pedagogical inquiry" (p. 430). Kraft et al. (2020) also found that teachers who receive professional development involving virtual instruction and collaborative opportunities with fellow teachers experience a heightened sense of success.

Thus, many studies on teaching skills have been conducted using different approaches and venues to develop EFL teachers' teaching skills. For instance, Abdallah (2001) created an in-service teacher training program focused on improving two essential teaching skills for primary school EFL teachers: classroom management and vocabulary instruction. The findings revealed that the program effectively enhanced these skills in primary school English teachers.

In addition, Attia (2018) proposed a flipped teacher training program to develop the EFL teaching skills of in-service teachers. The participants were 48 EFL in-service teachers. According to the results,

the proposed flipped teacher training program effectively developed the EFL teaching skills of in-service teachers. Moreover, El-Shazly (2020) examined the effect of a WebQuest-based training program on enhancing the teaching skills of in-service preparatory EFL teachers. Results indicated that the WebQuest-based training program effectively developed teachers' knowledge and performance of the specified teaching skills.

SPOC, as described by Wu (2017), is a web-based course that aligns with current educational ideologies and philosophies. It focuses on a select audience and enhances in-person classes rather than substituting traditional teaching methods. Furthermore, it displays the teaching content and activities of a subject through online channels, forming a holistic structure that combines technical support, teaching objectives, content, and strategies. Key features include interactivity, openness, collaboration, sharing, and autonomy (Zhou & Zhang, 2017). SPOC courses are delivered and assessed by actual instructors, with the computer acting as a mediator rather than the sole content provider (Alario-Hoyos et al., 2017). These courses are usually structured around enrollment figures and include videos and additional formative activities, leading to increased motivation (Kaplan & Haenlein, 2016).

A varied but limited number of SPOC studies have been conducted to investigate its effectiveness on English language learning and learning in general. All these studies confirmed the importance of SPOC and how it could be helpful in the learning process. Wang, Wang, Wen, Wang, & Tao (2016) mentioned that SPOC is characterized by improving teaching effectiveness. Cui, Zhang and Sun (2015) mentioned that there are three teaching modes which are the traditional teaching model, the MOOC, and the professional SPOC teaching mode. Small Private Online Courses (SPOCs) have evolved from traditional MOOC concepts to address the target of designing adequate online courses. SPOCs usually follow the xMOOC model, yet it is offered exclusively to a limited group of participants. This allows for better instructor support, peer interaction, and collaborative problem-solving (Piersig et al., 2017). The Professional SPOC teaching mode is the most suitable for the learners. It puts learners in a special education mood as it applies professional skills in education. SPOC elevates the quality of the residential courses because it reinforces and enriches the course content (Jordan, 2014; Voss, 2013).

SPOC provides learners with the advantages of video-based learning experiences; as a result, both instructors and learners have increased opportunities to enrich their learning experiences through group discussions, teacher-learner interactions, project-based learning, and problem-based learning (Alario-Hoyos, Estévez-Ayres, Kloos & Villena-Román, 2017). The video lectures provide learners with greater flexibility. Learners can watch content at their own pace and revisit it as often as they wish, as these videos are available 24 hours. While MOOCs offer broader content, SPOCs focus on micro-videos oriented towards specific knowledge (Wu, 2017). The emphasis on short video resources ensures that content is highly targeted, enhancing learners' adaptability to the case (Burge, Fox, Grossman, Roth, & Warren, 2015).

The use of SPOCs in the field of professional development offers several advantages to learners. Firstly, it gives greater flexibility concerning time of enrollment and choice of related courses. Secondly, SPOC can consolidate knowledge and increase the degree of participation as a result of increased interest in learning and increased good study habits (Zhan, Sun, & Xu, 2016; Wang, Shannon & Ross, 2013). Thirdly, SPOC increased engagement, satisfaction, and final performance while lowering dropout rates compared to conventional face-to-face education (Martínez-Muñoz, 2015). Fourth, SPOC promotes communication and discussion between learners; it supports learner engagement and promotes digital competency (Piersig et al., 2017). Finally, it effectively developed language skills and self-regulation among ESP instructors (Hussein, 2021).

The advantages of SPOCs for teachers include affording better teaching services, carrying out teaching management, increasing the importance of the teacher, and collaborating among teachers. Additionally, by integrating teaching content and technology with diverse teacher-led activities, SPOCs aim to achieve effective teaching outcomes and content coverage and cater to learner characteristics (Watson et al., 2016). Also, SPOC for classroom teaching can enhance teachers' guiding role (Zhou, 2015). The importance of teachers is not diminished; in fact, their role may become even more crucial. Teachers can better understand their learners and provide enhanced teaching services. Fox (2013) and Piccioni et al. (2014) noted that teachers assess learners' achievements and provide timely feedback. Finally, collaboration is an essential advantage for teachers when using SPOC. By collaborating,

many teachers can co-create a course, enriching the content, diversifying the teaching methods, and offering different perspectives on the course material.

On the other hand, the use of SPOCs in education showed several disadvantages to both the learners and the instructors. According to Gielen (2016) and Tamm (2020), the absence of personal interaction with students limits the lecturer's ability to explain things in the same way as in traditional classes, as they do not get direct feedback on their teaching. Unlike traditional courses where students can ask questions and get instant feedback, online courses often involve delays as lecturers reply on discussion boards. Additionally, written responses are more challenging to convey effectively than spoken ones. Trainees must also possess ICT skills, be comfortable using the internet, and have fast and reliable internet access.

However, this is the case for all digital learning and instruction means. Nevertheless, these disadvantages can be overcome by employing interactive platforms and supporting them with tools that allow asynchronous communication between teachers and their students almost all the time. In general, technology enables students to collaborate, compete with peers, develop strategies, think creatively, share knowledge, learn from others and their mistakes, work in a less stressful environment, and have fun (Imran & Sulviana, 2022). Canvas, for example, can provide this continuous contact.

Canvas is a comprehensive online learning platform that functions as a learning management system, providing teachers and students with access to course content and interactive tools. It includes features like grade tracking, assignments, discussions, course calendars, video lectures, messaging, analytics, educational apps, reports, group work, and peer review assignments (Pujasari & Ruslan, 2021).   With Canvas, teachers can develop interactive learning modules. The platform offers tools to help instructors create visually attractive course content. It also allows teachers to effortlessly embed materials, such as YouTube videos, web pages, and other web objects, by selecting the HTML option in the post. This functionality allows teachers to integrate interactive components into the course and offer students course materials from external sources via links within the class (Mc Naught, Lam & Cheng, 2012). Canvas provides various communication tools, including discussion boards for asynchronous discussions, live chat rooms, Canvas

Conversations for email exchanges with instructors and peers, and features for submitting assignments and completing exams. Canvas represents a modern approach to learning, offering a range of features that help both teachers and students access learning resources quickly and effectively through assignments, discussions, quizzes, short tasks, and studios. By leveraging technologies like Canvas, students can engage in learning based on their personal interests (Tuyền, 2023).

All these features would enable instructors to design interactive and effective SPOCs and deliver training that contributes to achieving the intended outcomes. Moreover, through such SPOCs, teachers can achieve effective professional development and feel a high sense of self-efficacy when the training positively impacts their teaching competence.

Methodology:

Participants:

The research participants were twenty in-service primary EFL teachers working in Mansoura city (n= 20). They constituted the treatment group of the research. Participants were chosen according to their entire agreement to participate in the current research. Thirty-five primary EFL in-service teachers were interviewed using a semi-structured interview to select a homogenous group of teachers who would agree to participate in the research. Twenty teachers were finally selected as the treatment group who would receive the professional development SPOC in CLIL. Table (1) mentions the description of participants, illustrating their gender, age group, years of experience, and the context where they work.

Table 1: Description of participants in the research

Description	Data presented	Percentage
Gender	males: 4	20%
	females: 16	80%
Age group	30- 40: (9)	45%
	40- 50: (11)	55%
Years of teaching experience:	5- 10 years: 6	30%
	10-15 years: 8	40%

	15- 20 years: 6	30%
School	Public: 15	75%
	Private: 5	25%
qualifications	License: 8	40%
	diploma: 8	40%
	M.A.: 4	20%
Approximate number of pupils in class	25- 35: 5	25%
	35- 45: 5	25%
	45- 55: 7	35%
	55- 70: 3	15%

Based on the data presented in Table (1), participants in the current study represented a homogeneous group of in-service EFL teachers who work in similar contexts, fall within almost the same age group, and have the same number of years of experience.

Design of the research:

The quasi-experimental approach using a pre-post administration to one treatment group design was adopted to investigate the effectiveness of using a CLIL-based SPOC as a venue for professional development in enhancing EFL in-service teachers' teaching knowledge, performance (competence) and self-efficacy.

Instruments and materials:

The following instruments and materials were designed and administered in the current research (available with the researcher upon request):

(a) A Teaching Knowledge Test

The teaching knowledge test was used as a pre-posttest to measure the cognitive dimension of EFL teaching competence. By comparing teachers' scores on the test before and after implementing the proposed professional development SPOC, the test revealed how far their knowledge about teaching had improved in light of the CLIL approach.

The test was designed to assess the actual level of teachers' knowledge related to the CLIL approach before and after applying the CLIL-based

SPOC, thus determining the effectiveness of the treatment in developing EFL in-service teachers' teaching knowledge.

The test included two types of questions: matching and multiple-choice questions distributed to the five content modules of the SPOC with a total number of fifty questions in the test. First, matching questions aligned with a highly standardized international teaching knowledge test (TKT) used worldwide for licensing newly qualified teachers. The second type of question was a multiple-choice question in which teachers chose the most suitable answer where they practiced higher-order thinking skills of Bloom's taxonomy. The total score of the test was 100 marks; 2 marks were assigned to each question. The test specifications are illustrated in Table (2).

Table (2): Table of specifications of teaching knowledge test

Modules	Questions no.	Types of questions	No. of questions
Module 1: **CLIL definition and Principles**	41-42-43-44-45	mcq	5
Module 2: **CLIL learning strategies**	1-2-3-4 / 25-26-27-28-29-30	matching	10
Module 3: **CLIL lesson planning Principles**	5-6-7 / 16-17-18-19	Mcq	7
Module 4: **CLIL lesson planning examples**	8-9-10-11- 12- 50	Matching Mcq	6
Module 5: **CLIL materials and scaffolding techniques**	13 -15 / 20-21-22-24	Matching	6
Module 6: **CLIL and technology**	١٤- ٢٣- 46- 47- 48- 49	Matching Mcq	6
Module 7: **CLIL assessment**	31-32-33-34-35-36-37-38-39-40	Matching	10

Test validity

To determine the test's content validity, the first version was reviewed by TEFL professors (N=4), who evaluated the questions in terms of their relevance, clarity, and difficulty. The test was validated after the experts gave their approval.

Piloting the test:

To estimate test reliability and duration, a pilot sample, separate from the main study group (n=10), was used to administer the teaching knowledge test.

First: Reliability of the test using the Alpha- Cronbach equation:

Cronbach's alpha was used to calculate the test's reliability and internal consistency. This method evaluates the variance of the test items, revealing the degree to which the items are interrelated and how each item correlates with the overall test score. The formula for calculating Cronbach's alpha coefficient is $\alpha = n(n-1)(\sigma X2 - \sum i = 1 n \sigma i 2)/\sigma X2$, where n represents the number of items, σX^2 denotes the total variance of the test scores, and σi^2 refers to the variance of each item. The results were as illustrated in Table (3):

Table 3: Value of internal consistency coefficient of the Teaching Knowledge test

The whole test	No. of items	Alpha reliability coefficient
	50	0.748

Results in table (3) indicate that the reliability of the test was acceptable, as its reliability coefficient was about 0.74, and reliability coefficients for its categories ranged between 0.7 and 0.8, which means that the test can be used in the study for measuring the cognitive dimension of the teaching competence.

Timing of the test was determined at the same time by identifying the sum of time spent by all the teachers of the pilot study to complete the test and dividing it by their number (10). Thus, 70 minutes would provide an appropriate duration for the teachers to answer all the questions.

Piloting the test proved that its language was clear to the participants and that there were no difficulties related to the language of the test. Consequently, the test was considered ready to be administered to the main study participants.

(b)   A Teaching Performance Observation Checklist

The observation checklist aimed at assessing the performance of EFL in-service teachers before and after attending the professional development SPOC in CLIL as a way for estimating the development in their teaching performance- if any- and thus attributing the difference to the effect of the SPOC.

The checklist consisted of 40 indicators, distributed to five dimensions, namely, planning (7), classroom management (8), instruction (14), adapting materials and strategies (6), and assessment (5). Moreover, the checklist included a 4- rating Likert scale: 4- Distinguished, 3- Satisfactory, 2- Needs Improvement, and 1- Unacceptable.
 The checklist was designed in its initial form and submitted to a group of EFL specialists (N= 4) for validation. The jurors were requested to evaluate the checklist based on the following criteria: (a) suitability of indicators to the item/dimension to which they belong, (b) accuracy of the wording, and (c) measurability and/or observability of these indicators. Jurors were also asked to give their comments and suggestions. Jurors agreed that the checklist was valid since the criteria mentioned above were mostly met. They also mentioned that the checklist covered the identified dimensions and indicators comprehensively.

To calculate the reliability coefficient of the observation checklist, the inter-rater reliability method was applied, involving multiple observers/raters assessing a single individual's performance. The level of agreement between their assessments was measured using Cooper's equation.

Percentage of agreement = (number of times of agreement/(number of times of agreement + number of times of disagreement))×100

The researcher sought the help of a colleague after showing her the observation checklist and clarifying its content and instructions. They observed the performance of three teachers. Agreement coefficients were computed for each teacher, and the corresponding table displays the results for the performance evaluations of all three teachers.

Table (4): Percentages of agreement among the two observers on the checklist

First teacher	Second teacher	Third teacher	Average
٪٨٧.٥	٪٩٢.٥	٪٩٠	90%

Results in Table (4) illustrate that the average percentage of agreement between the two raters was 90%, which is considered a high percentage. Cooper determined the level of reliability as indicated by percentage of agreement as follows:

- An agreement percentage that is less than 70% reflects poor reliability of the observation tool.

- An agreement percentage that is 85% or more reflects high reliability.

Consequently, the teaching performance assessment checklist proved to be reliable and ready for administration to the main sample of the study.

(c) Self- Efficacy in teaching Scale

The self-efficacy in teaching scale aimed to measure in-service EFL teachers' self-efficacy levels regarding their teaching performance concerning the CLIL approach before and after implementing the proposed SPOC. It consisted of 41 statements organized across the exact five dimensions outlined in the teaching performance checklist, using a 5-point Likert scale as follows: 1= Never, 2= Rarely, 3= Occasionally, 4= Frequently, and 5= Always.

To ensure the content validity of the scale, it was reviewed by a panel of jurors who evaluated its accuracy and suggested any necessary modifications. Construct validity was assessed by piloting the scale with a sample of 10 in-service EFL teachers who were not part of the main study. The self-efficacy scale's internal consistency was assessed by correlating the scores of individual dimensions with the total score of the scale. The following table shows the values of the correlation coefficients and their significance levels.

Table (5): Internal Consistency Coefficients for the Self-Efficacy in Teaching Scale

Dimensions	Correlation coefficient	Sig.
Planning	٠.٧٨	0.01
Classroom management	٠.٨	0.01

Instruction	٠.٩١	0.01
Adapting materials and strategies	٠.٨٩٨	0.01
Assessment	٠.٩٠٦	0.01

The statistics in Table (5) indicate that correlation coefficients were positive and statistically significant at the 0.01 level of significance, which indicates the internal consistency of the scale.

To measure the reliability of the scale, the Cronbach's alpha method was employed. This method calculates the variance of the items to evaluate the internal consistency of the scale, highlighting the relationship between individual items and the total scale score. The results are displayed in the table below:

Table (6): Reliability coefficient of the Self-Efficacy in Teaching scale

The whole scale	No. of items	α
	41	٠.٨٧٨

The reliability coefficient of the scale, calculated using Cronbach's Alpha, was found to be 0.878, which indicates good reliability ($0.9 > \alpha \geq 0.8$). This confirms that the scale is dependable and suitable for the research objectives. Consequently, the self-efficacy in teaching scale was deemed highly valid and reliable, making it ready for final administration.

A SPOC in Content and Language Integrated Learning (CLIL)

As the cornerstone of the educational process, teachers hold a critical role, with communities counting on them to refine and advance their teaching skills. Recognizing the profound effect teachers have on students' behavior and academic outcomes, education experts stress the necessity of regularly renewing their pedagogical knowledge and practices.
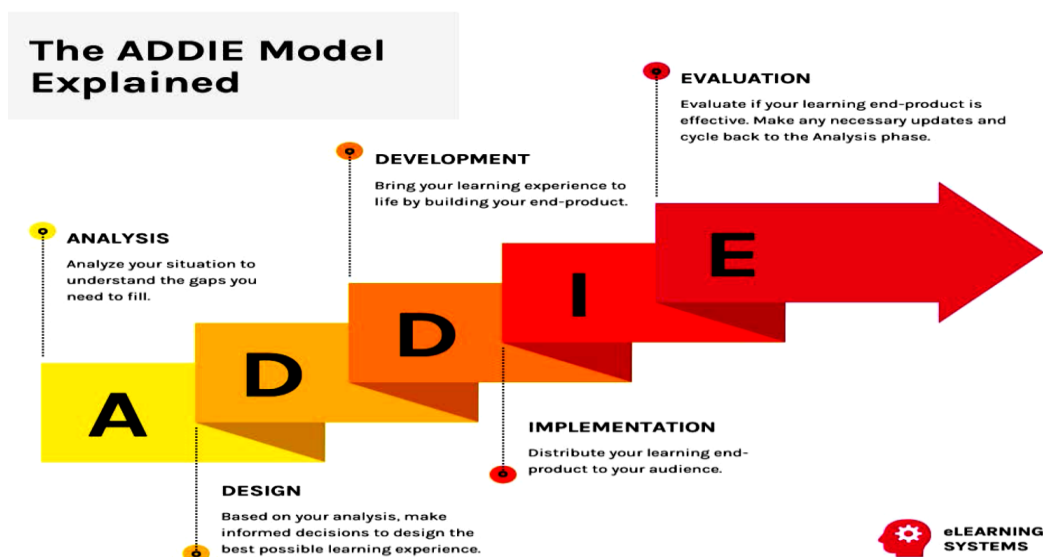
Hence, the rationale behind designing such a training course was the belief that utilizing suitable SPOC for training EFL in-service teachers could enhance their teaching performance. Moreover, SPOC enhances

the component aspects of teaching competence, i.e., skills, knowledge, and attitudes, and that would be proved through the research instruments. **The treatment:**

Designing the professional development SPOC in CLIL:

The ADDIE Instructional Model was adopted to design the professional development SPOC in CLIL. It is a comprehensive framework encompassing five key stages: Analysis, Design, Development, Implementation, and Evaluation. The ADDIE model is a foundational framework that outlines the essential processes employed by instructional designers and training developers (Allen, 2011). It provides structured guidelines for constructing effective training programs and performance support tools. These five stages are delineated in Figure (1), which visually represents the ADDIE model.


Source:https://th.venngage.com/templates/infographics/addiemodel-steps-infographic-72d7a77e-bb12-401a-b6fe-e952809bbf01)

First, the analysis stage identifies the characteristics and needs of the participants, the intended outcomes, types of learning constraints exist, the delivery options, and the timeline for course completion. Reviewing literature related to professional development, SPOCS and CLIL. Second, the design phase is a systematic selection of learning objectives, assessment instruments, activities, content, planning modules, and media selection. In designing the proposed SPOC, two dimensions were considered; the content and the form that training would be applied. The basic design

and tools of the course development were validated by presenting them to a group of specialists in instructional technology. Few recommendations were suggested by the jurors, and they were taken into consideration.

Third, in the development phase, technology is integrated, and developers and programmers assemble content produced during the design phase. The interface of the course's website was developed, as shown in the screenshot (1). The interface includes a very brief description of the major tools of the program, a welcome note for participants, home, announcements, syllabus, modules, assignments, discussions, quizzes, pages, files and additional materials, people, accounts, dashboards, calendars, and inboxes. As for the training course menu, it leads to the Canvas Learning Management System (LMS), with some modifications made to the original version to be suitable for the objectives and design of the course. The Course Management System (CMS) is a software application designed to enable educators to create practical online courses and monitor learners' progress. These platforms, also known as Learning Management Systems (LMS), Virtual Learning Environments (VLE), or Learning Content Management Systems (LCMS), require students to have only a web browser- such as Chrome, Edge, or Safari- to participate in a SPOC delivered via the Canvas platform (Williams, Riordan & Dougiamas, 2005).

Screenshot (1): the interface of Canvas platform
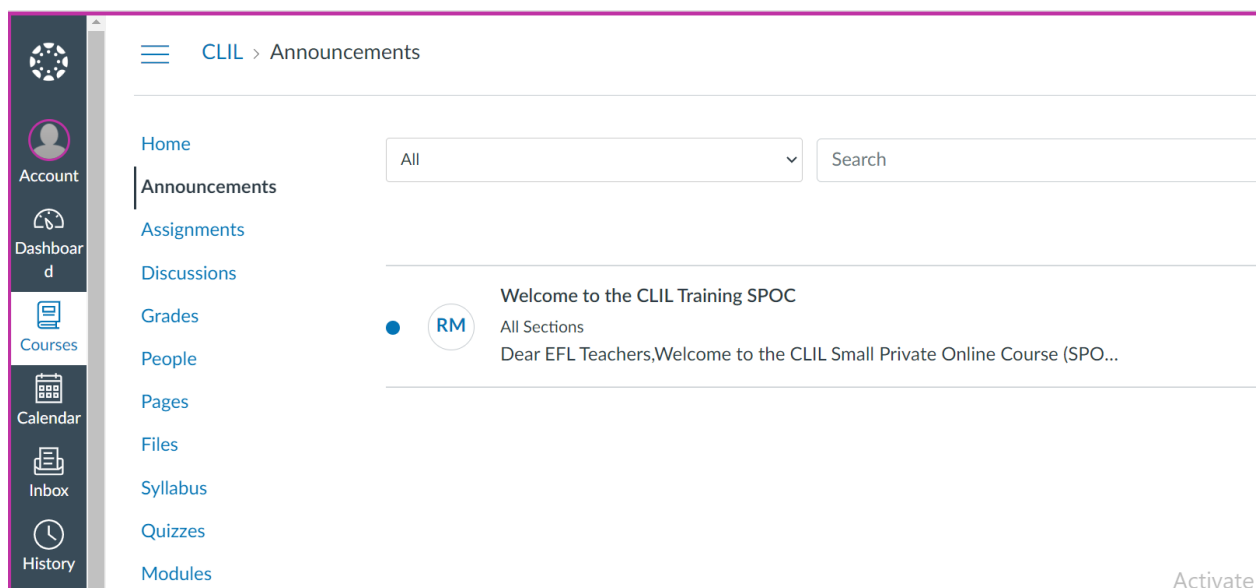
Fourth, in the implementation phase, the participants were provided with the training modules. The sources, hands-on equipment, tools, and software are ensured to be in place, and the website is ensured to be functional. Implementation dealt with delivering the proposed SPOC to the in-service EFL teachers. This phase started with pre-assessment of the target participant through **pre-administering the research instruments** (the teaching knowledge test, the self-efficacy in teaching scale, and the teaching performance observation checklist) by the end of the first term of the academic year 2023/ 2024 to assess the teachers' actual levels concerning the target variables. The proposed professional development SPOC in CLIL was then implemented throughout the mid-year holiday of the academic year 2023/2024 through the following procedures:

- An orientation session was conducted for the target treatment group to raise their awareness concerning the CLIL-based professional development SPOC, its objectives, features, and the content of each module. Teachers were required to install the Canvas app on their mobiles or laptops and then join the SPOC through the given link. This orientation session was conducted through the Zoom meeting application.

- The participants studied the main SPOC modules. The SPOC included seven modules: 1- CLIL definition and principles, 2- Learning Strategies, 3- Lesson planning principles, 4- Lesson planning examples, 5- Materials and Scaffolding Techniques, 6- CLIL and Technology, and 7- CLIL Assessment. These modules facilitated teachers' interaction with either the content, their peers or the instructor. Throughout the modules, EFL teachers practiced multiple assignments and were exposed to various materials such as YouTube videos, PowerPoint presentations, internet links, Pdf articles and other resources. They received constructive feedback on their work and could track their progress through a What's App group, facilitating asynchronous communication among the participants and the researcher. The following figure presents a screenshot of the modules of the SPOC:

Screenshot (2): modules of the SPOC

Finally, the evaluation phase includes both summative and formative evaluation. Formative evaluation was present in each stage of the ADDIE in the form of activities and short quizzes. Summative evaluation consisted of a final test and reflection logs that provide user feedback (Branch, 2009; Molenda, 2003).

Screenshot (3): quizzes on the modules of the SPOC

Finally, the study instruments were post-administered to the participants at the beginning of the second term of the same academic year. Data were collected and statistically analyzed. Results are presented in the following section.

Results and Discussion:

Results:

A non-parametric Wilcoxon signed-rank test for dependent samples was used to test the hypotheses of the study as the participants were twenty EFL in-service teachers (n< 25). The results of the research are presented in terms of the research hypotheses as follows:

Verifying the first hypothesis:

A Wilcoxon signed-rank test, a non-parametric test for dependent samples, was applied to assess the first hypothesis. This hypothesis proposes that "there is a statistically significant difference at the (≤ 0.05) level between the mean ranks of the treatment group participants on the pre- and post-administrations of the knowledge of teaching test, with the post-administration yielding higher results." Table (7) presents the findings.

Table 7: *Comparison between the treatment group's pre- and post- administrations of the knowledge of teaching test*

	Ranks	N	Mean Rank	Sum of Ranks	Z Value	Sig
Total	Negative Ranks	0	0	0	3.922	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	––	––		

As shown in Table (7), the Z-value calculated for the total test score is significant at the 0.01 level. This demonstrates a statistically significant difference in the mean ranks of the experimental group teachers between the pre- and post-administrations of the knowledge of teaching test, favoring the post-administration. Hence, the first hypothesis is verified and accepted.

The effectiveness level of the CLIL-based professional development SPOC in improving EFL in-service teachers' teaching knowledge was also assessed using MacGogian's equation. Results are presented in Table (8).

Table 8: *Effectiveness of the proposed SPOC in developing teaching knowledge*

Skills	Measurement	Mean	SD.	Total Mark	Effectiveness
Total	Pre	13.9	2.404	100	94.55%
	Post	95.31	1.443		

Statistics in Table (8) show that the CLIL-based professional development SPOC's effectiveness level in developing EFL in-service teachers' teaching knowledge was high as it equals (94.55%).

Verifying the second hypothesis

A non-parametric Wilcoxon signed-rank test for dependent samples was used to verify the second hypothesis, which is "There is a statistically significant difference at (≤ 0.05) level between the mean ranks of the treatment group participants on the pre- and post-administrations of the teaching performance observation checklist in favor of the post- administration". The Z values and their statistical significance level are illustrated as follows:

Table 9: *Comparing the treatment group's pre- and post- administrations of the teaching performance observation checklist*

Domains	Ranks	N	Mean Rank	Sum of Ranks	Z Value	Sig
Planning	Negative Ranks	0	0	0		
	Positive Ranks	20	10.5	210	3.948	0.01
	Ties	0	--	--		
Classroom management	Negative Ranks	0	0	0		
	Positive Ranks	20	10.5	210	3.93	0.01
	Ties	0	--	--		
Instruction	Negative Ranks	0	0	0		
	Positive Ranks	20	10.5	210	3.937	0.01
	Ties	0	--	--		
Adapting materials and strategies	Negative Ranks	0	0	0		
	Positive Ranks	20	10.5	210	3.942	0.01
	Ties	0	--	--		
Assessment	Negative Ranks	0	0	0		
	Positive Ranks	20	10.5	210	3.942	0.01
	Ties	0	--	--		
Total	Negative Ranks	0	0	0		
	Positive Ranks	20	10.5	210	3.923	0.01
	Ties	0	--	--		

Table (9) shows that the Z-value is significant at the 0.01 level for all individual domains and the total score. This signifies a statistically significant difference in the mean ranks of the experimental group's pre- and post-administrations of the teaching performance observation checklist, with the post-administration showing improved results from implementing the proposed SPOC. Consequently, the second hypothesis is proved and accepted.

Moreover, the effectiveness level of the CLIL-based professional development SPOC in improving teaching performance was also measured using MacGogian's equation. The following table presents these results.

Table 10: *The effectiveness levels of SPOC in enha ncing the teaching performance*

Domains	Measurement	Mean	SD.	Total Mark	Effectiveness
Planning	Pre	10.75	1.943	28	84.93%
	Post	25.40	1.095		
Classroom management	Pre	11.55	1.701	32	87.04%
	Post	29.35	0.988		
Instruction	Pre	15.85	0.813	56	89.41%
	Post	51.75	1.682		
Adapting materials and strategies	Pre	9.55	1.432	24	87.89%
	Post	22.25	0.91		
Assessment	Pre	6.10	0.912	20	87.05%
	Post	18.20	0.768		
Total	Pre	53.80	4.819	160	87.71%
	Post	146.95	2.685		

Table (10) illustrates that the effect levels range between 84.9% to 89.4% and is 87.71% for the total, which supports the high effectiveness of the SPOC in enhancing EFL in-service teachers' teaching performance.

Verifying the third hypothesis

Non-parametric Wilcoxon signed-rank test for dependent samples was used to verify the third hypothesis, which is "There is a statistically significant difference at (≤ 0.05) level between the mean ranks of the treatment group participants on the pre- and post-administrations of the self-efficacy in teaching scale in favor of the post- administration". The Z values and their statistical significance level are illustrated as follows:

Table 11: *Comparison between the treatment group's pre- and post-administrations of the self-efficacy in teaching scale*

Domains	Ranks	N	Mean Rank	Sum of Ranks	Z Value	Sig
Planning	Negative Ranks	0	0	0	3.937	0.01
	Positive Ranks	20	10.5	210		

Domains	Ranks	N	Mean Rank	Sum of Ranks	Z Value	Sig
	Ties	0	--	--		
Classroom management	Negative Ranks	0	0	0	3.941	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	--	--		
Instruction	Negative Ranks	0	0	0	3.929	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	--	--		
Adapting materials and strategies	Negative Ranks	0	0	0	3.928	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	--	--		
Assessment	Negative Ranks	0	0	0	3.942	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	--	--		
Total	Negative Ranks	0	0	0	3.924	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	--	--		

Table (11) presents that the Z-value is significant at the 0.01 level for all domains and the overall score. This reflects a statistically significant difference between the experimental group's pre- and post-administrations of the self-efficacy scale, favoring the post-administration as a result of implementing the proposed SPOC. Consequently, the third hypothesis is confirmed and accepted.

Moreover, the effectiveness level of the professional development SPOC in developing the teachers' self- efficacy was also measured through using Mac Gogian's equation. The following table presents these results.

Table 12: The effectiveness levels of SPOC in enhancing the in-service teachers' self- efficacy

Domains	Measurement	Mean	Std. Deviation	Total Mark	Effectiveness
Planning	Pre	8.95	0.605	30	88.6%
	Post	27.6	1.984		

Domains	Measurement	Mean	Std. Deviation	Total Mark	Effectiveness
Classroom management	Pre	8.65	0.745	30	89%
	Post	27.65	1.226		
Instruction	Pre	20.15	2.498	70	87.76%
	Post	63.9	3.74		
Adapting materials and strategies	Pre	14.65	2.207	45	88.8%
	Post	41.6	2.78		
Assessment	Pre	9.35	1.182	30	87.17%
	Post	27.35	2.059		
Total	Pre	61.3	2.958	205	88.86%
	Post	188.1	3.878		

Table (12) illustrates that the effectiveness levels range between 87.17% and 89% and are 88.86% for the total, which supports the high effectiveness of the SPOC in enhancing EFL in-service teachers' self-efficacy.

Verifying the fourth hypothesis

To verify the fourth hypothesis, which states that "There is a positive correlation between EFL in-service teachers' teaching competence and their self-efficacy," the researcher used a simple Pearson correlation coefficient to determine the correlation coefficient between the treatment group's post-administration scores on the teaching knowledge test, teaching performance observation checklist, and self-efficacy in teaching scale.

The following table illustrates the value of the correlation coefficient of Pearson and its statistical significance:

Table 13: Pearson's correlation coefficients between cognitive and performance dimensions of teaching competence and self-efficacy

Pearson's Corr. Coeff.	Teaching knowledge test	Teaching performance observation checklist	Self-efficacy in teaching scale
Teaching knowledge test			

Teaching performance observation checklist	**٠.٦٩**		
Self-efficacy in teaching scale	**٠.٧٢٣**	**٠.٨٨٨**	

** means that the correlation is significant at 0.01 level.

Statistics in Table (13) indicate that there is a positive direct correlation between the experimental group's scores in the post- administrations of teaching knowledge test, teaching performance observation checklist, and the self- efficacy scale as values of r were statistically significant at 0.01 level. Consequently, the fourth hypothesis was rejected as there proved to be a positive correlation between teaching competence and self-efficacy.

Discussion:

The current research attempted to investigate the effect of implementing a CLIL-based professional development SPOC on teaching knowledge and performance (competence) and self-efficacy among in-service EFL teachers. The results revealed a statistically significant difference at (0.01) level between the mean ranks of the treatment group on the pre-and post- administrations of both the teaching knowledge test and teaching performance observation checklist in favor of the post-administration. This means that in-service EFL teachers' teaching competence with its cognitive and behavioral dimensions improved as a result of applying the professional development SPOC in CLIL. Moreover, there was a statistically significant difference between the mean ranks of the treatment group on the pre- and post- administrations of the self-efficacy in teaching scale in favor of the post-administration. Consequently, this indicates that in-service EFL teachers' self-efficacy was enhanced as a result of implementing the PD SPOC in CLIL. Finally, the study highlighted a positive correlation between self-efficacy and teaching competence and that increased teaching competence can contribute much to enhancing self-efficacy and vice versa.

This research provides proof of the effectiveness of implementing SPOCs as a professional development venue in developing teaching competence and self-efficacy. The findings of the current study corroborate the previous relevant studies that investigated the effect of using SPOCs on

developing various skills and learning dimensions, such as developing language skills and self-autonomy of ESP instructors (Hussein, 2021), improving teaching effectiveness (Wang, Wang, Wen, Wang, & Tao, 2016), providing instructor support as well as peer interaction and collaborative problem-solving (Piersig et al, 2017), improving involvement, satisfaction, and final marks, and reducing the dropout rate concerning face-to-face education **(**Martínez-Muñoz, 2015), promoting communication, discussion and engagement among learners and promoting digital competency (Piersig et al, 2017).

The achieved results could be attributed to the benefits of incorporating the SPOC as an up-to-date venue for teacher professional development, especially with the aid of Canvas. Canvas is, in fact, an advanced electronic platform that allows for more interactive and engaging training. It has beneficial features that aid teachers in achieving high performance levels in the targeted competence.

Generally speaking, EFL teachers who participated in the research expressed their satisfaction with the professional development SPOC and its features; they found it different, encouraging, engaging, and comprehensive, which enabled them to upgrade their knowledge of CLIL and how it can be best implemented. In addition, it enhanced their perception of their self-efficacy in teaching after they experienced a tough time when they could not deal with the newly upgraded CLIL-based curriculum.

The CLIL-based professional development SPOC was convenient and accessible anytime and anywhere. The interactive modules offered a unique attraction for the participants who used such a virtual platform as a substitute for face-to-face training. The SPOC media facilitated teachers' interaction with the different reading materials in an organized manner through, for example, the "files" menu which grouped the files task files and material files. Through SPOC, the researcher as well as the teachers can send and share files, graphs and videos; in addition, all assignments, Sheets, and slides can be easily accessed.

The feedback and comments given to the participants in a formative style positively affected their performance and greatly motivated them. Asking participants to carry out peer- observation in a formative and constructive manner, had a significant impact on their teaching competence and their self- efficacy in teaching. In addition, the

reflection log helped them polish their teaching skills by reflecting upon their learning process and progress in the course. These reflections, hand-in-hand with discussions among teachers and the researcher, lead to more interactive, profound learning. Thus, the professional development SPOC in CLIL facilitated a more purposeful and effective training process by simplifying instruction delivery and assessment, increasing collaboration, and fostering self-efficacy.

Conclusions:

CLIL teachers need to possess a high level of competence in subject-specific content knowledge, language proficiency, and pedagogical skills. Additionally, fostering teacher self-efficacy is essential, as it influences instructional practices and student outcomes. By providing targeted professional development, promoting collaboration, and supporting teacher well-being, educational institutions can enhance both CLIL teacher competence and teacher self-efficacy, ultimately leading to improved teaching and learning in bilingual contexts. The future of CLIL teaching relies on continuous investment in teacher development and creating an environment that supports high-quality CLIL instruction.

Recommendations:

Based on the results of the present study, the following recommendations are proposed:

1- Educational institutions and policymakers should provide a range of strategies and support, such as offering targeted professional development programs that focus on subject-specific content knowledge, language proficiency, and pedagogical skills. These programs should be designed to meet the specific needs of CLIL teachers and provide opportunities for collaboration and reflection.

2- Providing ongoing support and mentorship for CLIL teachers is crucial. Experienced CLIL teachers can mentor new teachers, offering guidance, support, and opportunities for professional growth. Mentorship programs can foster a sense of belonging, encourage reflective practice, and provide a platform for sharing expertise and experiences.

3- Educational institutions can enhance CLIL teacher competence by equipping educators with critical skills and

knowledge to integrate technology effectively into their teaching practices

4- Fostering a culture of collaboration and professional learning communities can enhance CLIL teacher competence. By creating opportunities for teachers to share best practices, engage in peer observation and feedback, and collaborate on instructional design, educational institutions can support the continuous growth and development of CLIL teachers.

Suggestions for further research:

Given the results and recommendations of this research, the following research topics are put forward:

1- Developing a SPOC in digital literacy to enhance digital teaching competence among EFL in- service teachers.

2- Transforming the proposed SPOC into a MOOC for EFL in-service teachers worldwide and studying its effect on additional variables such as teachers' autonomy.

3- Investigating the effect of an interactive platform, such as Canvas or Google Classroom, on teachers' professional development in various dimensions.

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