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**The Effect of a Professional Development SPOC in  
Content and Language Integrated Learning  
(CLIL) on Developing EFL In-Service Teachers'  
Teaching Competence and Self- Efficacy**

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## The Effect of a Professional Development SPOC in Content and Language Integrated Learning (CLIL) on Developing EFL In-Service Teachers' Teaching Competence and Self- Efficacy

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### **Abstract:**

The current research aimed at developing teaching competence and self-efficacy among EFL in-service teachers through using a Small Private online course (SPOC) in content and language integrated learning (CLIL) as a venue for their professional development. A pre- post one group quasi- experimental design was adopted, with twenty EFL in-service teachers as participants of the research. 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 SPOC in CLIL was 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 the cognitive and psychomotor dimensions according to the statistical analysis of the data obtained through the test and the teaching performance observation checklist. They also demonstrated an enhanced self- efficacy in teaching as indicated by the statistical difference between the pre- and post- administrations of the self- efficacy scale. Such professional development practices are strongly recommended, especially after the Covid-19 Pandemic and the constraints of time allowed for those teachers for seeking professional development.

**Key words:** in-service teachers, SPOC, professional development, teaching competence, self- efficacy, CLIL, EFL.

### **المستخلص**

استهدف البحث الحالي تطوير كفاءة التدريس والكفاءة الذاتية لدى معلمي اللغة الإنجليزية كلفة اجنبية أثناء الخدمة عبر استخدام مقرر للمجموعات الخاصة الصغيرة عبر الانترنت في التعلم المتكامل للمحتوى واللغة 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 الجانب المعرفي

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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 اتضح لديهم تحسن في الكفاءة التدريسية في كل من الجانبين المعرفي والمهاري وفقا للتحليل الاحصائي للبيانات التي تم الحصول عليها من خلال الاختبار وبطاقة ملاحظة الأداء التدريسي. وقد تبين لديهم أيضا تحسن في الكفاءة الذاتية في التدريس والذي أظهره الفرق الدال احصائيا بين التطبيقين القبلي والبعدي لمقياس الكفاءة الذاتية. مثل تلك الممارسات الخاصة بالتنمية المهنية ينصح بها بشدة وخاصة بعد جائحة كورونا، وقيود الوقت المتاح لهؤلاء المعلمين للسعي وراء فرص التنمية المهنية.

*الكلمات الدالة: المعلمين أثناء الخدمة، مقرر للمجموعات الخاصة الصغيرة عبر الانترنت، التنمية المهنية، الكفاءة التدريسية، الكفاءة الذاتية، التعلم المتكامل للمحتوى واللغة، 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 teaching of a subject in a second 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 effectively implement the CLIL approach, while teacher self-efficacy relates to a teacher's belief in their ability to achieve desired outcomes in the classroom.

It is undeniable that Content and Language Integrated Learning (CLIL) is flourishing as it is embraced by schools and educational systems around the world in an intensive effort to create opportunities for synthesis and holistic learning (Banegas, 2019). The key feature of CLIL is its emphasis on developing content and language simultaneously. As Wolff (2009) pointed out, “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). According to Cummins (2013), a well-implemented CLIL program might be effective for learning content and developing language proficiency at the same time, as well as for acquiring strong abilities 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

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(2016) points out that teachers' perceived lack of pedagogical content knowledge necessary for effective content and language integration is one of the most challenging issues in all types of content-based instruction. This situation is the result of a deficient provision for teacher preparation in these programs (Banegas, 2012, 2015; Coyle, Hood, & Marsh, 2010; Lancaster, 2016; Pavón-Vázquez & Ellison, 2013), which generally consider linguistic competence as the only criterion to accredit teachers to teach CLIL. Consequently, in order to offer adequate education and training to CLIL teachers, it is necessary to interpret their specific needs in practical terms, based on the competences required to integrate language and content in a single lesson (Brüning & Purrman, 2014). That's what 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 demand that CLIL implies, not only for students but also for teachers, requires the mastery of basic methodological principles that must be present in all types of CLIL lesson plans. These principles should be known by all CLIL teachers and serve them as a reference for the design and delivery of their lesson plans (Custodio-Espinar, 2019). While key concepts such as authenticity, functional grammar, cognitive skills, scaffolding language learning, materials development, and motivation are recurrent key pillars in CLIL architecture (Ball et al., 2015; Coyle, Hood, & Marsh, 2010; Llinares & Morton, 2017), CLIL literature has been unequivocal about the need to provide teachers with careful and context-responsive support in the shape of continuing professional development courses to manage such key concepts (Pérez-Cañado, 2018). PD is a requirement, not an option, for both novice and experienced teachers. Yet, professional development for CLIL teachers and practitioners continues to be a challenge for many, considering the diverse ground that needs to be covered (Frigols-Martin, 2011; Vilkanienė & Rozgienė, 2017).

In-service teacher training is globally practiced with the belief that it fosters professional development of teachers. Specifically, the training has been adopted to promote continuous improvement of teaching staff, eliminate differences within the background preparation of teachers, keep the teaching profession abreast of new knowledge, enable realization of creative innovations, and facilitate teachers to tackle responsibilities associated with the changing learning environment (Osamwonyi, 2016; Sheth, 2004). According to Bramley (1991), in-service training is the

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systematic development of attitudes, knowledge, skills, and behavior patterns required by teachers to perform adequately at their given task or job.

In-service teacher training is thus defined as a central component of professional development of teachers that has been adopted by policy makers and education departments to orient teachers and equip them with skills aimed at enhancing the quality of education. On the other hand, professional development is a recurring process activated by changes in knowledge, beliefs, and attitudes among teachers and other education service sector workers towards improving learning outcomes (Cooper, 2004).

Teacher efficacy is a form of self-efficacy and is a powerful predictor of teaching performance. A teacher's sense of efficacy is important because teachers need to feel competent and confident in their ability to teach and reach all students. Self-efficacy has become an important framework in education to predict and explain the perceptions and judgements that influence teachers' decisions and actions in the classroom (Withy, 2019).

According to some researchers, teachers' classroom performance is affected by the "self-efficacy" psychological factor. For example, Tschannen-Moran & Barr (2004) reported that teacher's sense of self-efficacy influenced the effort they put into teaching, the goals they set, and their level of motivation. Bong and Skaalvik (2003) described self-efficacy as the cognitive perception of competency and effectiveness in carrying out goals and duties. Bandura (2006) reported that self-efficacy was not what teachers possess or what they actually executed, but what they could do.

Teacher self-efficacy is a key driver of teacher effectiveness and should be explicitly included as a central focus in the professional development of teachers. Actually, teacher in-service training should not only develop and implement professional development activities aimed at building positive efficacy beliefs but should also use such beliefs as an indicator of training success (i.e., a valuable outcome of training). Indeed, the state of professional development for many teachers consists of disconnected, packaged prescription one-shot workshops in which teachers passively attend to outside "experts" instructing them on topics that do little to deepen their subject matter knowledge or teaching skills. These efforts have offered little continuity in building effective teaching practice, have not provided adequate opportunities for teachers to reflect on practice with knowledgeable colleagues, and have not been closely linked to the content,

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activities, or challenges of what teachers need to know and be able to do for their students (Bray-Clark & Bates, 2003).

The professional development of teachers, namely education and training to enhance teachers' knowledge and skills, has thus become a top priority. So many nations invested in the continuous learning of teachers as an engine for improving teacher competency and student academic success (Darling-Hammond, Chung Wei, & Andree, 2010). According to Jensen and Rasmussen (2019), PD aims to increase knowledge and skills of teachers, educational practitioners and professionals. High-quality PD is tailored to teachers depending on their knowledge and experience, responding to their needs, and aligning with the curricular requirements and school standards. PD brings teachers together and provides them with learning opportunities so that they can learn from each other through more school-based initiatives to meet their needs and responsive to their personal motivations and goals (Bautista et al., 2015; Karlberg & Bezzina, 2020).

Traditional forms of professional development are rarely effective in providing teachers with the needed knowledge and skills to implement new curriculum successfully (Sparks, 2002). According to Darling-Hammond et al. (2009), PD becomes a driving force for improving teachers' instructional practices that creates positive impact on student learning. It also plays an important role in increasing the effectiveness of teaching and learning.

Wong (2011) mentioned some reasons why 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 collaborating with more experienced educators and learn from them in the process cost much less. 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 the changes in society and the field. Teachers should be able to learn much on ones' own by going online or getting training in using these tools. Finally, engaging in PD activities as organizing a local conference, or volunteering in an organization, motivate teachers to work and avoid burnout (Richards & Farrell, 2005).

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Obviously, PD could be provided in many approaches, ranging from the formal to the informal and be conducted with the support of external experts in the form of formal courses, workshops or programs, within the schools in which teachers work together, or through collaboration between schools or teachers across schools (such as observational visits to other schools). Choosing an appropriate approach of providing PD for a specific participant, institution or situation has been regarded as an integral part of supporting meaningful and useful PD to each individual across the system (Owens et al., 2016). There are a lot of forms that teachers can join PD such as presenting a paper or attending a conference or workshop, reading scholarly academic articles, keeping a teaching journal, and engaging in online professional development.

However, there may be still many English teachers who do not take part in professional development because they do not have adequate and well information about the programs. Another problem is teachers often spend too many hours teaching in the classroom and they are too busy with other administration or documentation things (Banegas, 2019).

Uluc (2012) argued that the internet influence has permeated all aspects of our lives, including educational settings. Many studies showed the effectiveness of using web and 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 and time and risk and employing modern communication mechanisms to support the educational process and improve the quality (Hussein, 2011). Thus, 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 own teaching competence and their self-efficacy.

Small Private online courses (SPOCs) term 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 both massive and open to (potentially) anyone, a SPOC is small and private, and is used as a supplement to classroom teaching rather than being a replacement for it (Fox, 2013). Fox used SPOCs as it offered solutions for learners such as limiting the number of participants and ensuring their satisfaction with some entry requirements for the course (Milman, 2017). SPOCs allowed educational establishments to use them in a "blended and flipped learning" approach that combines classroom teaching with online learning. SPOC is a

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tool for changing the pedagogical perspective. With a SPOC, the teachers hope that the learners will become active participants in their learning formation:

“...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).

Small Private Online Courses (SPOCs) (Fox, 2013; Goral, 2013) emerged as an opportunity to use MOOC philosophy for private courses with a reduced number of students. A lot of benefits can be obtained with the incorporation of MOOC technologies in these environments. No matter what the number of learners is, the method employed, the delivery medium, it is important to design learning experiences using effective instructional design principles, media, and teaching models. SPOC could be this type of model.

To conclude, it is important to note that in-service teacher's 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 their teaching competence using an up-to-date training design. This is what the current research attempted to accomplish.

**Pilot study:**

To substantiate the problem of the research, 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 was adopted by the Egyptian Ministry of Education in the new educational matrix aligning with Egypt's 2030 agenda. CLIL as an educational innovative 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 a comprehensive training in

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CLIL as they felt incompetent in teaching primary stage pupils. However, their heavy schedules, responsibilities, and very limited free time that they might exploit for training were the most prominent obstacles for them to seek professional development opportunities.

**Statement of the problem:**

Based on the literature review, the previous studies, the results of the pilot study, the problem of the current research was identified in the need of 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 current research sought to answer the following main question: What is the effect of a professional development SPOC in CLIL on developing in-service EFL teachers' teaching competence and self- efficacy?

The following sub-questions were also answered:

- 1- What are the features of a professional development SPOC in CLIL for EFL in-service teachers for developing their teaching competence and self- efficacy?
- 2- What is the effect of a professional development SPOC in CLIL on developing EFL in- service teachers' teaching competence?
- 3- What is the effect of a professional development SPOC in CLIL on developing EFL in- service teachers' self- efficacy?
- 4- Is there a positive correlation between teaching competence 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.

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

**Instruments:**

The following instruments were designed and used for the purpose of collecting data to achieve the purposes of the current study:

- 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.

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**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:****Professional Development:**

Professional development (PD) was described as a continuous process, in which individuals are trained to practice a profession (Martinet et al, 2001). Desimone et al. (2002) also described TPD as an essential mechanism for enhancing teachers' knowledge and instructional practices and changing teachers' attitudes (Guskey, 2002).

The OECD (2009) explained PD as the "activities that develop an individual's skills, knowledge, expertise and other characteristics as a teacher" (p. 49). For Darling-Hammond, Hyler, and Gardner (2017), PD is structured professional learning that seeks to improve teacher practices and student learning. It is also defined as a comprehensive, sustained and intensive process of enhancing the effectiveness of teachers and principals in order to raise student achievement (Brown & Militello, 2016). Some of the descriptors used for PD include in-service training, continuing education, staff development and self-improvement (Bredeson, 2002) intended to deepen teachers' mastery of content, critical thinking and problem-solving in order to develop 21st century student competencies (Darling-Hammond et al., 2017).

**Small Private Online Course (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 with the purpose of providing a professional development course in CLIL for EFL in- service teachers to develop their teaching knowledge, performance and self-

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efficacy allowing them to interact with others throughout the online learning process.

**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 competences in planning, managing, teaching, assessing and adapting materials while implementing it 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 determine how people feel, think, motivate themselves and behave.

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". Thus, self-efficacy is one's belief in individual capacities and abilities of conducting a certain task rather than the real abilities the individual has.

Teacher self-efficacy is a vital psychological construct that influences teachers' beliefs in their abilities 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 CLIL approach.

**Review of literature and related studies:**

The following section sheds more light on the main variables of the current research which are teaching competence, teachers' self-efficacy, the

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CLIL Approach, professional development, and SPOCs as a venue for professional development.

**Teaching competence:**

Skill and competence have always been concepts difficult to define. In the past, however, their definition seemed a much simpler matter than it is today. Today, the semantics of these terms is as complex as ever. There are soft and hard skills, generic and transferable skills, interpersonal skills, emotional and aesthetic skills. According to the European education and training policy (European Centre for the Development of Vocational Training, 2008), “skill” is defined as the ability to apply knowledge and use know-how to complete tasks and solve problems, while “competence” is the ability to apply learning outcomes adequately in a defined context (education, work, personal or professional development), to use knowledge, skills and personal, social and/or methodological abilities, in work or study situations and in professional and personal development (Dervenis, Fitsilis, & Iatrellis, 2022).

The design, implementation, and evaluation of the initial and continuous training programs for teaching staff are based on the competence approach model, as a way of defining and recognizing training results. Competences are defined as integrative sets of knowledge, skills, motivations, and attitudes that mediate professional behavior and guarantee expert action in specific fields and contexts of activity for 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 implement effective instructional strategies, differentiate instruction to meet the diverse needs of students, and assess 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 language and the target language to effectively convey information

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and facilitate language learning. This proficiency enables CLIL teachers to scaffold language development while simultaneously teaching subject-specific concepts, ensuring that students are not only acquiring content knowledge but also 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). The elements of a successful CLIL lesson based on 4Cs curriculum (Coyle 1999 & Coyle 2008) are:

- **Content** – progression in knowledge, skills and understanding related to specific elements of a defined curriculum.
- **Communication** – using language to learn whilst learning to use language.
- **Cognition** – developing thinking skills which link concept formation (abstract and concrete), understanding and language.
- **Culture** – exposure to alternative perspectives and shared understandings, which deepen awareness of others and self.

Quality CLIL teaching practice requires multi-skilled practitioners. Content teachers and language teachers who deliver CLIL lessons have to put into practice a wide variety of competencies ranging from pedagogical demands (content and language knowledge and awareness, CLIL fundamentals and management, and learning resources and environments) to personal and professional skills (personal reflection, interpersonal and collaborative competence, developmental and research competence) (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 includes the diverse stages to which individual belief system determined how a person performs 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. It is a task-specific belief that regulates choice, effort, and persistence in the face of obstacles and in concert with the emotional state of the individual (Bray-Clark & Bates, 2003).

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Self-efficacy beliefs are domain-specific, displaying itself in different forms depending on the activity domain and situational condition (Bandura, 2012). In the teaching domain, teachers' self-efficacy could be defined as teachers' beliefs in their capabilities to teach their subject matter and to accomplish desired outcomes 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).

Teacher efficacy develops from a combination of enactive or mastery experience, vicarious experience, social persuasion, and physiological and emotional states. Mastery experience, the most powerful source of self-efficacy, develops through past successful accomplishments. For a primary school teacher of English, for example, these accomplishments might include positive out-of-school and in-school English-related experiences during their own school years as well as opportunities during their teaching career to conduct workshops and deliver presentations about their subject. Vicarious experience, the second most powerful source of efficacy, is attained through what teachers observe, hear and read. Teacher efficacy is strengthened when teachers observe effective instruction by their peers. Social persuasion also has a strong influence on teacher self-efficacy. Sincere and genuine feedback from supportive school leaders and colleagues, parental acknowledgement of teacher performance, and student displays of enthusiasm in their learning are all forms of social persuasion. Teacher efficacy also develops through positive interpretations of physiological and emotional states. For example, when teachers experience feelings of excitement prior to introducing a new topic, or feelings of pleasure and satisfaction from the delivery of a successful lesson, their self-efficacy is boosted (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 strong efficacy could create a learning environment where all students are capable of learning. Moreover, teachers with a strong sense of efficacy invest more time in planning, are better organized, are more open to new ideas and methods, show greater enthusiasm for teaching, are more likely to learn and implement new teaching approaches and strategies, use positive classroom management strategies and tend to be more persistent in working with struggling students (Tschannen-Moran & Hoy, 2001; Mannila et al., 2018; Menon, 2020). Indeed, teachers' self-

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efficacy is related to various indicators of teacher performance, such as student academic achievement and student motivational beliefs, as well as teacher instructional quality (Klassen & Tze, 2014).

To enhance efficacy, teachers should believe that they could affect the education of students; they have the capacity and the power to make decisions affecting their role and what students produce (Enderlin-Lampe, 2002). Several studies found professional development that includes mastery experiences and verbal persuasion aspects have led 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. Further, Orhan Göksun (2016) analyzed the necessary skills for teachers such as classroom management and self-management skills, cooperation and communication skills are applied in the learner-teacher interaction within teaching processes, teaching technologies skills, skills of putting their pedagogical knowledge to use, and skills of flexibly conducting all teaching processes be the prominent aspects (Melvin, 2011).

Anagün (2018) concluded that there is a positive correlation between 21st century skills efficacy perceptions of teachers and their ability to organize constructive learning environments. The research further demonstrated that teachers could provide inquiry-based learning environments to the students when they have strong perceptions about their problem-solving, critical thinking, cooperation and communication skills.

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.

Incorporating a focus on the development of teacher self-efficacy represents an important evolution in the design of teacher in-service training

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that can improve teacher effectiveness and ultimately enhance student achievement. However, little has been written about how teacher professional development, particularly in-service training, can be reoriented to include self-efficacy as an organizing construct or framework (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 provide students with opportunities for deep learning fostering their holistic development, seeking out opportunities for learning in and outside the school. Also, they should act as leaders of social change. Therefore, they should be equipped with competencies (e.g., knowledge and skills related to professional practice, collaboration and leadership and commitment to education, etc.) that are essential to guarantee the educational reforms success (Garet, Porter, Desimone, Birman, & Kwang, 2001).

Darling-Hammond, Hylar and Gardner (2017) defined PD as "a structured professional learning that results in changes in teacher practices and improvements in student learning outcomes". It could be seen that there are various definitions of PD; they are designed to produce positive change in beliefs, knowledge, skills or behaviors of participants. By implementing an intentional learning process that addresses specific learning objectives, PD results in the intended change in participants' capabilities (Lauer, Christopher, Firpo-Triplett & Buchtig, 2014). High-quality PD focuses on providing the teacher with deeper understanding of the subject that the teacher teach in class (content knowledge), of pedagogical strategies to teach that content (pedagogical knowledge), and of how students learn the content (knowledge of student thinking) (Penuel, Fishman, Yamaguchi, & Gallagher, 2007).

Professional development benefits were related to preparing strategic plans, engaging in feedback and writing follow-up reports on students' progress and achievement (Hourani & Stringer, 2015). The effectiveness of PD increased when it combines theory, practical application, feedback and cognitive peer coaching with follow-up (Zepeda et al., 2014). Bautista et al. (2015), Owens, Pogodzinski and Hill (2016), and Darling Hammond et al. (2017) briefly identified features of effective PD as it should: be content focused, incorporate active learning, support collaboration, use models of effective practice, provide coaching and expert support, offer feedback, and be of sustained duration.

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### **Models of professional development**

Gaible and Burns (2005) proposed three models of TPD. The first model is Standardized TPD or the centralized approach, including workshops and training sessions delivered in a scaled way. It helps when a small group of teachers are selected to receive intensive training before returning to their own institutions to provide training for their peers, but this model adopts the principle ‘one fits for all’ to deepen teachers’ knowledge regardless of context. Workshops take place at one time and in one location without on-going support, which will not bring about effective changes for teaching and learning. Site-based TPD is the second type in which teachers work with local facilitators or master teachers to engage in a gradual process of learning. This model helps in solving situational problems that individual teachers face while implementing new techniques in classrooms. It permits more flexible, sustained, and intensive TPD to happen and provides ongoing opportunities for professional learning among certain group of teachers. But, this model requires much time, labor and expertise skilled in instruction, content, curriculum, assessment and technology. The third model is self-directed TPD in which teachers take part in designing their own PD and sharing materials and ideas as well as discussing challenges and solutions. This model helps teachers to become lifelong learners and benefit from experienced colleagues’ advice or search for lesson plans on the Internet.

There are various means of delivering PD: face-to-face or online courses, in group settings, in the classroom, or one-on-one (Owens et al., 2016). PD could range from traditional forms (such as formal courses, workshop, and postgraduate programs) to reform-based initiatives (such as informal sharing sessions, action research, school-university partnerships, or peer observations) (Bautista et al., 2015). In other words, "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).

Besides the traditional PD approaches that relate directly to classroom training, there are also several alternative PD strategies for teachers, school principals and educators, including peer coaching, mentoring, PD portfolios, dialogue journals, study groups, and participatory practitioner research (Dayoub & Bashiruddin, 2012). According to Abu-Tineh and Sadiq (2018, p. 314) online PD has several advantages, “it saves time, travel and paper, allows for possible cost savings and offers exposure to technology learning”.

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Open and Distance Learning (ODL) and Information and Communication Technologies (ICT) are considered essential to replace the existing conventional approaches in PD programs. Using online methods could be considered as an effective way for TPD, by enabling them to have access to many resources and communication facilities, and thus developing new competencies in teacher. With the increased adoption of ICT in education, a number of courses are being taught in an online or blended environment. As a result, more teachers are in need of PD for online teaching (Salmon, 2011). While many general TPD models exist (e.g., Consuegra & Engels, 2016), surprisingly few target online and blended learning.

Baran, Correia, and Thompson (2011) argued that when teachers move from face-to-face to online teaching their transformational learning processes entail three dimensions: "(a) empowering online teachers, (b) promoting critical reflection, and (c) integrating technology into pedagogical inquiry" (p. 430). Additionally, teachers who receive professional development that utilizes virtual instruction and have opportunities to collaborate with other teachers have a stronger sense of success (Kraft et al., 2020).

Thus, many studies on teaching skills have been conducted to develop EFL teachers' teaching skills using different approaches and venues. Abdallah (2001), for example, designed an in-service teacher training program to develop two major teaching skills of primary school EFL teachers; namely, maintaining effective classroom management and using techniques to teach vocabulary. Results concluded that the proposed training program was effective in developing the primary school teachers of English teaching skills.

In addition, Attia (2018) proposed a flipped teacher training program to develop the in-service teachers' EFL teaching skills. The participants were 48 EFL in-service teachers. Results indicated that the proposed flipped teacher training program was effective in developing the in-service teachers' EFL teaching skills. Moreover, El-Shazly (2020) investigated the impact of a WebQuest-based training program on developing the teaching Skills of in-service Preparatory EFL Teachers. Results indicated that the WebQuest-based training program was effective in developing teachers' knowledge and performance of the specified teaching skills.

SPOC is a type of web-based course constructed under modern educational ideologies and philosophies (Wu, 2017). It focuses on a private audience and aiming to complement regular face-to- face classes instead of

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substituting the traditional way of teaching. Besides, it shows the teaching content and teaching activities of a subject through the network, and is a comprehensive whole of technical support environment, teaching objectives, teaching content, and teaching strategies, featuring interactivity, openness, collaboration, sharing, and autonomy (Zhou, & Zhang, 2017). SPOC is taught and assessed by real people mediated by the computer; not just programmed into the computer (Alario-Hoyos et al., 2017). SPOC is usually resourced based on the number of enrollments. It includes both videos and complementary formative activities, and an increase in 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, but only for a limited group of participants. This allows for a better instructor support as well as 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, while the instructors and learners, for that reason, gain more opportunities to deepen learning experiences through group discussion, teacher- learner interaction, 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 them as many times as they wish as these videos are available 24 hours. Unlike MOOC, SPOC is a micro video-oriented to knowledge (Wu, 2017). Its emphasis on the short video resources emphasizes the targeted contents to the case, and learners' adaptability (Burge, Fox, Grossman, Roth, & Warren, 2015).

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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 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 can improve involvement, satisfaction, and final marks, and reduce the dropout rate concerning face-to-face education (Martínez-Muñoz, 2015). Fourth, SPOC promotes communication and discussion between learners; it supports learner engagement and promote digital competency (Piersig et al, 2017). Finally, it proved effective in developing 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, SPOC teaching content and technology are combined with a variety of teacher-led activities to achieve an effective teaching objective, teaching content, and learner characteristics (Watson et al., 2016). Also, SPOC for classroom teaching can enhance teachers' guiding role (Zhou, 2015). Teachers' importance is not reduced, on the contrary, the role of teachers may be more important. Teachers can know the learners better and afford better teaching services. Fox (2013) and Piccioni et al. (2014) marked that a teacher assesses learner's achievements and provides timely feedback. Finally, collaboration is a basic advantage of teachers while using SPOC. Many teachers can work together to build one course, which would enrich the course content, diversify the teaching methods, and characterize course content interpretations.

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), personal contact with the students is missing for the lecturer. Teachers cannot explain everything in the same way as in real classes because they do not have any feedback on the things they teach. Moreover, during real courses, students can immediately ask questions and get direct feedback. This is not the case through the online course: it takes some time before the lecturer can answer in the discussion board and it is more difficult to answer with a written text than with life-spoken words. Further, trainees should possess ICT skills and should be able to get along with the internet anyway and have good and fast internet access.

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However, this is the case for all digital means of learning and instruction. Yet, these disadvantages can be overcome through employing interactive platforms and supporting them with tools that allow asynchronous communication between teachers and their students almost all the time. In general, technology can allow the students to work cooperatively, to compete with their friends, to have strategy, to think in a different way, to share knowledge, to learn from others and from mistakes, to work in a less stressful and to allow the students to have fun (Imran& Sulviana, 2022). Canvas, for example, can provide this continuous contact.

Canvas is an online learning platform, a learning management system that enables teachers and students to access content and engage during a course. Canvas makes it possible to have convenient access to grade, assignment, discussion, course calendars, video lectures, messaging analytics, educational application, reports, groups, peer review assignment and much more (Pujasari & Ruslan, 2021). Canvas helps teachers to create learning modules. The features offered allows users to create visually stimulating learning modules in the course as an instructional designer. The teacher can embed the materials. Youtube videos, web pages and other web objects can be embedded easily by clicking on the HTML option in the post. This allows the users (teachers) to add interactive features to the course as well as provide students with course materials from external links within the class (Mc Naught, Lam & Cheng, 2012). Canvas provides discussion boards for asynchronous discussions, chat rooms for live discussions, consolidated emails (Canvas Conversations) for students to keep in touch with their instructors and connect with other students, and even a means for students to submit assignments and take exams. Canvas is considered a new type of learning. It has a variety of functions that can help teachers and students access to learn easily and effectively through assignments, discussions, quizzes, short-assignments, and studios. The use of technologies such as Canvas allows students to learn based on their own interests (Tuyên, 2023).

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

**Methodology:**

**Participants:**

Participants of the research 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 full agreement to participate in the current research. Thirty-five primary EFL in-service teachers were interviewed using a semi-structured interview in order 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) mentioned the description of participants illustrating the gender, age group, years of experience, and the context where they work.

**Table 1: Description of participants of 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 and fall within almost the same age group and the same number of years of experience.

**Design of the research:**

The current research adopted the quasi-experimental approach using a pre- post administration to one treatment group design to investigate the effectiveness of using a professional development SPOC in CLIL in enhancing the teaching competence and self- efficacy of EFL in-service teachers.

**Instruments and materials:**

The following instruments and materials were used in the current study: (available with the researcher upon request)

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**(a) A Teaching Knowledge Test**

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

The purpose of the test was to measure the actual level of teachers' knowledge related to CLIL approach before and after applying the professional development SPOC in CLIL, and 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 total number of fifty questions in the test. First, matching questions were used to match a highly standardized international teaching knowledge test (TKT) used all over the world for licensing newly qualified teachers. The second type of questions was multiple-choice questions in which teachers choose the most suitable answer, where they practice 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
<b>Module 1: CLIL definition and Principles</b>	41-42-43-44-45	mcq	5
<b>Module 2: CLIL learning strategies</b>	1-2-3-4 / 25-26-27-28-29-30	matching	10
<b>Module 3: CLIL lesson planning Principles</b>	5-6-7 / 16-17-18-19	Mcq	7
<b>Module 4: CLIL lesson planning examples</b>	8-9-10-11- 12- 50	Matching Mcq	6
<b>Module 5: CLIL materials and scaffolding techniques</b>	13 -15 / 20-21-22-24	Matching	6
<b>Module 6: CLIL and technology</b>	14- 23- 46- 47- 48- 49	Matching Mcq	6
<b>Module 7: CLIL assessment</b>	31-32-33-34-35-36- 37-38-39-40	Matching	10

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**Test validity**

To measure content validity of the test, the first version of the test was presented to TEFL professors (N= 4) to evaluate it in terms of suitability of the questions, clarity and difficulty level. The test proved to be valid as the jurors approved it.

**Piloting the test:**

In order to estimate test reliability and duration, the teaching knowledge test was administered to a pilot sample other than the sample of the main study (n= 10).

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

The reliability or internal consistency of the test was calculated using the Cronbach's alpha method, as this method is based on calculating the variance of the test items, through which the extent to which the test items are related to each other, and the correlation of each item with the total score of the test. The formula for Cronbach's alpha coefficient is  $\alpha = \frac{n-1}{n} \left( \frac{\sigma_X^2 - \sum_{i=1}^n \sigma_i^2}{\sigma_X^2} \right)$ , where n is the number of items,  $\sigma_X^2$  is the total test score variance, and  $\sigma_i^2$  is the item variance.

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 participants of the main study.

**(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 asked to assess the checklist in terms of 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 for use since the above-mentioned criteria were mostly met. They also mentioned that the checklist was comprehensive in covering the identified dimensions and indicators.

The observation checklist reliability coefficient was calculated using the method of multiple observers/ raters on the performance of one individual (inter- rater reliability coefficient). The coefficient of agreement between their estimates was calculated 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 clarified its content and instructions. This was done by observing the performance of three teachers. The coefficient of agreement was calculated for each teacher, and the following table shows the coefficient of agreement on the performance of the three teachers.

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

First teacher	Second teacher	Third teacher	Average
%87,0	%92,0	%90	90%

Results in table (4) illustrate that the average percentage of agreement between the two observers 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) A Self- Efficacy Scale**

The self-efficacy in teaching scale aimed at assessing in- service EFL teachers' self-efficacy level related to their teaching performance in relation to the CLIL approach before and after implementing the proposed SPOC. It consisted of forty- one statements distributed to the same five dimensions included in the teaching performance checklist using a 5-point Likert type scale as follows: 1= Never, 2= Rarely, 3= Occasionally, 4= Frequently, and 5= Always.

In order to check the content validity of the scale, it was presented to a group of jurors for validation and to suggest any recommended changes. To estimate the construct validity of the scale, it was piloted to a sample of (10) in- service EFL teachers other than participants in the main study. The internal consistency of the self-efficacy scale was estimated through calculating the correlation coefficient of the score of each dimension of the scale with the total score of the scale. The following table shows the values of the correlation coefficients and their significance levels. Results are illustrated in the following table:

**Table (5): Cronbach's Alpha Reliability Coefficient for the Self-Efficacy Scale**

<b>Dimensions</b>	<b>Correlation coefficient</b>	<b>Sig.</b>
Planning	0.78	0.01
Classroom management	0.8	0.01
Instruction	0.91	0.01
Adapting materials and strategies	0.898	0.01
Assessment	0.906	0.01

Statistics in table (5) indicate that correlation coefficients were positive and statistically significant at 0.01 level of significance; and this indicates internal consistency of the scale.

The reliability of the scale was calculated using the Cronbach alpha method. This method is based on calculating the variance of the scale items, through which the extent to which the scale items are related to each other, and the correlation of each item with the total score of the scale, is shown. The results were as shown in the following table:

**Table (6): Alpha reliability coefficient of the self- efficacy scale**

<b>The whole scale</b>	<b>No. of items</b>	<b><math>\alpha</math></b>
	41	0.878

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Cronbach's Alpha Reliability coefficient for the scale was (0.878) which is a good value ( $0.9 > \alpha \geq 0.8$ ). This implies that the scale is reliable and suits the purposes of the research. The self- efficacy in teaching scale proved to be highly valid and reliable and thus it was ready for administration in its final form.

**(d) A SPOC in Content and Language Integrated Learning (CLIL)**

Teachers are the main gear of the educational process and communities depend on them to continue to improve teaching skills. Since teachers have an obvious impact on their students in terms of their behavior and academic achievement, many education experts have called for teachers to be aware of the need to regularly update their knowledge and pedagogical practice.

Professional development (PD) is one of the issues that teachers are most concerned about as it requires ongoing learning for in-service teachers. In addition, technology has improved over the last two decades and has been successfully used in many areas, such as business, industry, and the military. Education is another field that has sought to benefit from technology. Since the 1960s, educators have made use of various technologies to assist them in the educational process (Wu, 2006).

Hence, the rationale behind designing such a training course was the belief that through utilizing suitable SPOC for training EFL in-service teachers, their teaching performance could be enhanced. Moreover, the component aspects of teaching competence, i.e., skills, knowledge, and attitudes are being enhanced through SPOC and that would be proved through the instruments of the research.

**The treatment:**

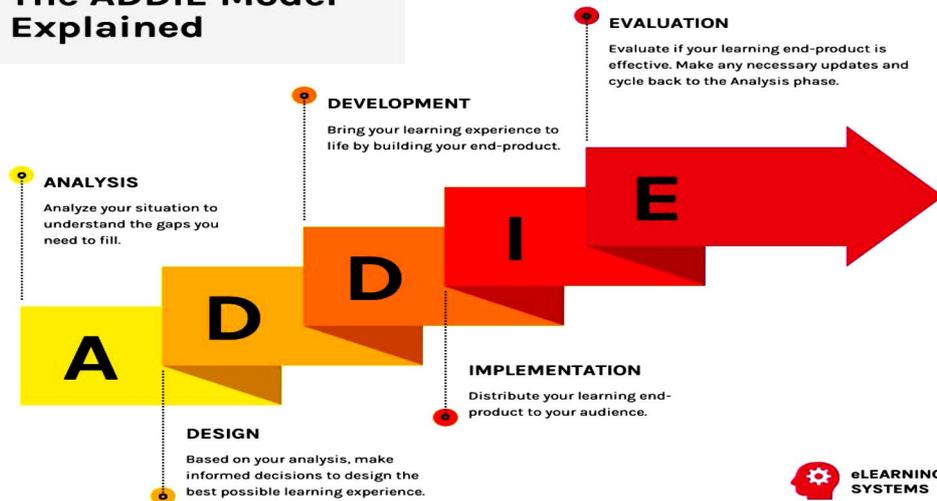
**Designing the professional development SPOC in CLIL:**

The ADDIE Instructional Model was adopted in the design of the professional development SPOC in CLIL. It is a comprehensive framework encompassing five key stages: Analysis, Design, Development, Implementation, and Evaluation. The ADDIE model serves as 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.

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## The ADDIE Model Explained



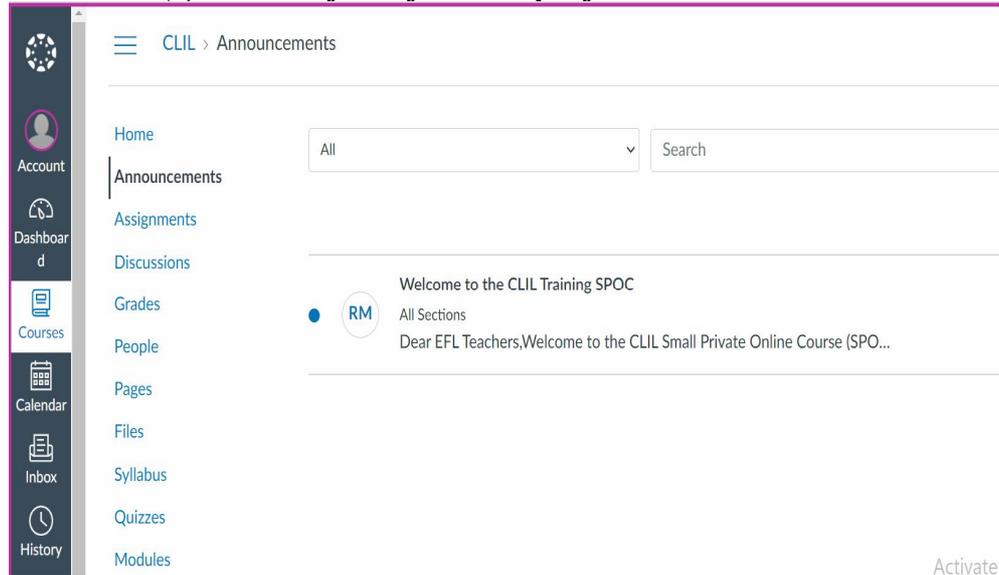
Source: <https://th.venngage.com/templates/infographics/addiemodel-steps-infographic-72d7a77e-bb12-401a-b6fe-e952809bbf01> )

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 content that is produced in the design phase is to be assembled by developers and programmers. Concerning the website of the program, the interface of the site was developed as shown in 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, account, dashboard, calendar, and inbox. As for the training program 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 program. It is a course management system (CMS) – a

software package designed to help educators create quality online courses and manage learner outcomes. Such e-learning systems are sometimes also called Learning Management Systems (LMS), Virtual Learning Environments (VLE), and Learning Content Management Systems (LCMS). Students need only a browser (e.g., Chrome, Edge, Safari) to participate in a SPOC uploaded to Canvas platform (Williams, Riordan & Dougiamas, 2005).

**Snapshot (1): the interface of Canvas platform**



Fourth, in the implementation phase, the participants are 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 the actual delivery of 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 2022/ 2023 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 2022/2023, through the following procedures:

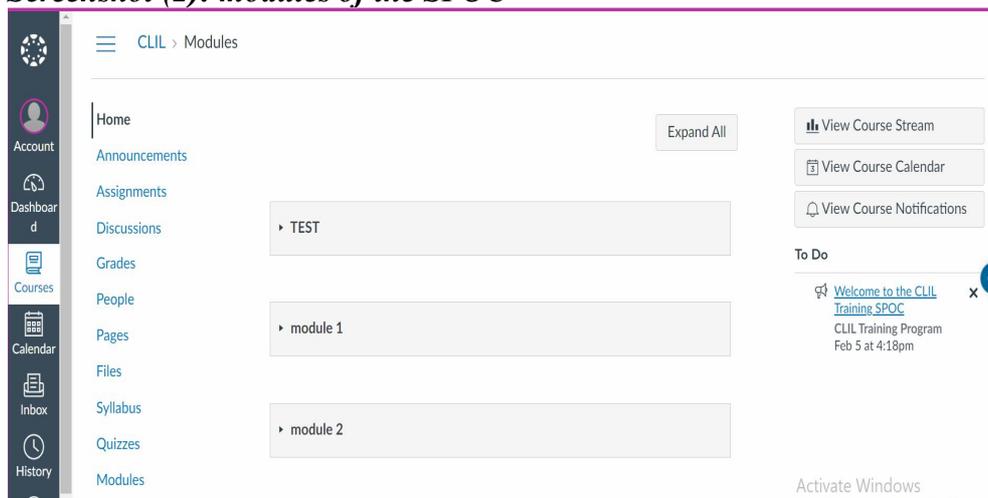
- An orientation session was conducted to the target treatment group to raise their awareness concerning the professional development SPOC in CLIL; its objectives, features and content of each module. Teachers

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were required to install the Canvas app to their mobiles or laptops and then join the SPOC through the given link. This orientation session was conducted through 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 direct constructive feedback on their work and were able to track their progress through a What's App group that facilitated 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***

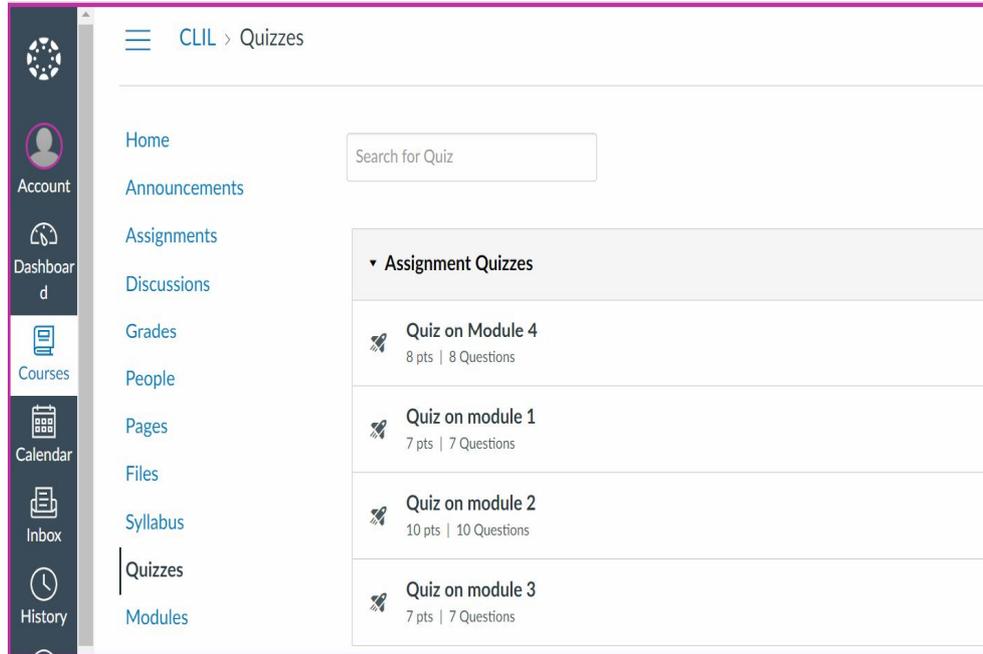


Finally, the evaluation phase includes both summative and formative evaluation. Formative evaluation is present in each stage of the ADDIE in the form of activities and short quizzes. Summative evaluation consists of final test and reflection logs that provide feedback from the users (Branch, 2009; Molenda,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

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

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Finally, the instruments of the study 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:**

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:

#### **Testing the first hypothesis:**

Non-parametric Wilcoxon signed-rank test for dependent samples was used to test the first hypothesis which is "There is a statistically significant difference at ( $\leq 0.05$ ) level between the mean ranks of the treatment group participants on the pre- and post-administrations of the knowledge of teaching test in favor of the post-administration". The following table illustrates the results.

**Table 7: Comparison between the treatment group's pre-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	--	--		

Results shown in table (7) illustrate that the estimated Z-value is significant at 0.01 level for the total score of the test. This reflects the statistically significant difference between the mean ranks of the experimental group teachers on the pre- and post-administrations of the knowledge of teaching test in favor of the post- administration. Consequently, the first hypothesis is accepted.

The effectiveness level of the professional development SPOC in improving EFL in-service teachers' knowledge of teaching was also assessed through using Mac Gogian's equation. Results are presented in the following table.

**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 effectiveness level of the professional development SPOC in developing teaching knowledge of EFL in- service teachers was high as it equals (94.55%).

#### **Testing the second hypothesis**

Non-parametric Wilcoxon signed-rank test for dependent samples was used to test the second hypothesis which is "There is a statistically significant difference at ( $\leq 0.05$ ) 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: Comparison between the treatment group's pre-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	3.948	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	--	--		
Classroom management	Negative Ranks	0	0	0	3.93	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	--	--		
Instruction	Negative Ranks	0	0	0	3.937	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	--	--		
Adapting materials and strategies	Negative Ranks	0	0	0	3.942	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	3.923	0.01
	Positive Ranks	20	10.5	210		
	Ties	0	--	--		

Results in table (9) illustrate that Z-value is significant at 0.01 level for each particular domain and for the total score. This reflects the statistically significant difference between the mean ranks of the experimental group's pre- and post-administrations of the teaching performance observation checklist in favor of the post-administration due to implementing the proposed SPOC. Consequently, the second hypothesis is proved and accepted.

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

**Table 10: The effectiveness levels of SPOC in enhancing 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.

#### Testing the third hypothesis

Non-parametric Wilcoxon signed-rank test for dependent samples was used to test the third hypothesis which is "There is a statistically significant difference at ( $\leq 0.05$ ) 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-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		
	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	Negative Ranks	0	0	0	3.928	0.01
	Positive Ranks	20	10.5	210		

Domains	Ranks	N	Mean Rank	Sum of Ranks	Z Value	Sig
materials and strategies	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	--	--		

Results in table (11) illustrate that Z-value is significant at 0.01 level for each particular domain and for the total score. This reflects the statistically significant difference between the mean ranks of the experimental group's pre- and post-administrations of the self- efficacy scale in favor of the post-administration due to implementing the proposed SPOC. Consequently, the third hypothesis is proved 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		
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 effect levels range between 87.17% to 89% and is 88.86% for the total, which supports the high effectiveness of the SPOC in enhancing EFL in-service teachers' self- efficacy.

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### Testing 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 simple Pearson correlation coefficient to estimate the correlation coefficient between the scores of the experimental group on the post- administrations of the teaching knowledge test, the teaching performance observation checklist, and the self- efficacy scale. The following table illustrates value of 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 scale
Teaching knowledge test			
Teaching performance observation checklist	0.69**		
Self- efficacy scale	0.723**	0.888**	

**\*\* 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 refused 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 professional development SPOC in CLIL on teaching 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,

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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.

The present study provides evidence for the effectiveness of using 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 professional development for teachers, especially with the aid of Canvas which is in fact an advanced electronic platform that allows for more interactive and engaging training. It has very useful features that aid teachers to achieve high levels of performance 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, interesting, and comprehensive that enabled them to upgrade their knowledge of CLIL and how it can be best implemented. In addition, it enhanced their conception of their self- efficacy in teaching after experiencing tough time where they were unable to deal with the newly upgraded CLIL- based curriculum.

The professional development SPOC in CLIL was convenient and easy to access anytime and anywhere. The interactive modules offered a special 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

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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 in polishing their teaching skills through reflecting upon their learning process and progress in the course. These reflections hand- in- hand with discussions among teachers and the researcher lead to a 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:**

In the light of the results of the current study the following recommendations are suggested:

- 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 serve as mentors to new teachers, offering guidance, support, and opportunities for professional growth. Mentorship programs can foster a sense of

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belonging, encourage reflective practice, and provide a platform for sharing expertise and experiences.

- 3- By equipping teachers with the necessary skills and knowledge to effectively integrate technology into their instruction, educational institutions can enhance CLIL teacher competence.
- 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:**

In the light of results and recommendations proposed by the current research, the following research topics are suggested:

- Developing a SPOC in digital literacy to enhance digital teaching competence among EFL in- service teachers.
- Transforming the proposed SPOC into a MOOC for EFL in-service teachers all over the world and studying its effect on additional variables such as teacher's autonomy.
- Investigating the effect of an interactive platform, such as Canvas or Google Classroom on teachers' professional development in various dimensions.

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