Investigating the process of implementation of Inquiry-Based Learning in a

University- Certificated Professional Development Program for EFL

In-Service Teachers in Egypt

by

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ABSTRACT

The current interpretive qualitative study explores the process of implementation of inquiry-based learning (IBL) in English as a Foreign Language (EFL) teachers' certificated professional development programs at a higher education institution (HEI) in Egypt. The victories and barriers seen in the process of implementation are articulated through the perceptions of junior high graduate students/in-service teachers, their HEI instructors, and the HEI administrators. The design of the semi-structured interviews emerged from a literature review about IBL and reports from the Egyptian government's mandates on the quality of professional development curricula. Through the lens of the theory of social constructivism, the study explores how using IBL in professional development programs might enrich an inquiry stance and critical thinking among graduate students/in-service teachers. Moreover, study results might help professional development instructors and administrators bridge the gap between the theoretical knowledge exchanged in the program and the practices of inquiry-based approaches to learning.

Key words: Inquiry-based learning, professional development, social constructivism, teacher education, Interpretive qualitative research.

PREFACE

This thesis is an original work by Lobna Khalil. The research project, of which this thesis is a part, received research ethics approval from the University of Alberta Research Ethics Board, Project Name "Investigating the process of implementation of Inquiry-Based Learning in a University- Certificated Professional Development Program for EFL In-Service Teachers in Egypt," No. Pro00114295, November 10th, 2021.

DEDICATION

Dedicated to the land that nurtured my aspirations,

to my home country, Egypt!

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willingness to engage in this research enriched the data and allowed for a comprehensive understanding of the study's context.

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LIST OF ABBREVIATIONS

CDIST	The Central Department for In-Service Training
EDC	Education Development Center
EFL	English as a Foreign Language
ELT	English Language Teaching
GCSE	The General Certificate of Secondary Education
HEI	Higher Education Institution
IBL	Inquiry Based Learning
IELTS	International English Language Testing System
MENA	Middle East and North Africa
MOE	Ministry of Education
NAQAAE	The National Authority for Quality Assurance and Accreditation of Education
OBG	Oxford Business Group
OECD	Organization for Economic Co-operation and Development
PD	Professional Development
PDiE	Professional Development in Egypt
TA	Thematic Analysis
TEFL	Teaching English as a Foreign Language
TIMSS	Trends in International Mathematics and Science Study
TOEFL	Test of English as a Foreign Language

UNESCO	The United Nations Educational, Scientific and Cultural Organization
USAID	United States Agency for International Development
WES	World Education Services

CHAPTER ONE: INTRODUCTION

1.1. Introduction

The Egyptian Ministry of Education (MOE) exerts serious efforts to improve the quality

of teaching. These attempts are guided by the global trends of developing high skills like

problem solving, analytical thinking and lifelong learning that should be implemented in teacher

education. In addition, the current educational reform adopts recommendations from

international bodies such as The United Nations Educational, Scientific and Cultural

Organization (UNESCO) and the World Education Forum on Education for All. In terms of

graduate students/in-service teachers professional development programs in Egypt (PDiE), the

fundamental legitimate aim of the MOE (2014) is to move to a more knowledge-based education

system that becomes a source of highly skilled teachers who are capable of applying active

learning, research skills and analytical thinking. In the strategic plan for education development,

the MOE (2014) mandates "Developing curricula in a manner that increases the ability of

students to resort to critical thinking techniques, research skills, analytical and soft abilities" (p.

57.) Reports from UNESCO (2014) recommend improving teaching quality and professionalism:

> Improving the quality of teaching and learning by training teachers and mentors on how
>
> to employ technology to improve educational performance, as well as the activation of
>
> the active teaching methods and technology to raise the cognitive abilities and critical
>
> thinking skills and problem-solving among students (p. 159.)

In certain Egyptian universities, Inquiry-based Learning (IBL) is mandated in the course

descriptions of PD programs in order to correspond to MOE strategic aims. In light of this

mandate, the purpose of this study is to explore how IBL has been taken up within one Egyptian

university. To do so I draw upon and triangulate the perceptions of IBL in action among three actors in the institution: institutional administrators, program instructors, and graduate students/in-service teachers who are simultaneously junior high English as a Foreign Language (EFL) teachers. Their perspectives offer the reader a view of how and to what degree, IBL has been or is being implemented in this one certificated professional development program in one of the higher educational institutions (HEI) in Egypt.

In the first chapter, I define IBL and PD. Attention is given to the rationale of the study with special focus on gaps in research about Egypt's IBL and PD programs. I describe the study's educational context and the status of EFL in Egypt. I then locate myself in this research by providing the reader with the personal experience that triggered the research inquiry. Finally, I state the research question, and the significance and relevance of the study for the PD of Egyptian EFL graduate students/in-service teachers. As will also be revealed, this original research study fills a critical gap in the existing scholarship on application or adaptation of IBL in the Egyptian education system.

1.2. Inquiry-based learning definition

In the research literature, the term "IBL" is often used synonymously with other terms that describe learning through inquiry, for instance, problem-based learning (Coombs & Elden, 2004; Duffy & Raymer, 2010; Wood, 2003), guided-inquiry (Allen el al., 1986; Kuhlthau et al., 2015), undergraduate research (Brew, 2003; Healey & Jenkins, 2009), and research-based teaching (Healey, 2005; Jenkins & Healey, 2015). Although the terminology varies, there is consensus on the fundamental components of IBL. These core elements of IBL are widely accepted by many researchers and include:

1. Questions or problems act as a stimulation for learning through inquiry,

2. The process of learning involves the active construction of knowledge and the development of new understanding,

3. IBL is a dynamic learning approach that emphasizes hands-on experience as a means of learning,

4. In IBL, teaching revolves around the student, and the teacher's role is that of a facilitator, and

5. IBL encourages students to engage in self-directed learning, taking on the responsibility for their own educational progress (Brew, 2003; Healey, 2005; Jenkins, et al., 2007; Justice et al., 2007; Kahn & O'Rourke, 2004; Ramsden, 2003; Spronken-Smith & Walker, 2010.)

Inquiry-Based Learning (IBL) aims to foster deeper understanding of subject matter through active exploration, investigation, and problem-solving. IBL promotes the development of critical thinking skills, including problem-solving, analysis, evaluation, and reflection. IBL encourages students to be curious, self-directed learners, capable of asking thoughtful questions, gathering and analyzing information, and making informed decisions. IBL also emphasizes the development of communication, collaboration, and research skills, as well as fostering a sense of ownership and responsibility for one's learning (Badley 2002; Lee et al., 2004; Rowland, 1996; Spronken-Smith & Walker, 2010.) Overall, IBL seeks to cultivate lifelong learners who are equipped with the skills and mindset needed to thrive in an ever-changing world.

1.3. Professional Development

Among educational researchers, PD for in-service teachers is an arena of unending attention. The notion of Wilhelm von Humboldt – the common pursuit of knowledge by teacher and student – is still an imperative symbol of what a university and schools should be; it is where

theory and practice are supposed to integrate (Simons, 2006; Visser-Wijnveen, et al., 2010.) In 21st century schools, students are encouraged to actively engage in activities that involve critical analysis of information, making connections between existing and new knowledge, and applying that knowledge in real-world contexts in order to generate new content (Castillo, 2012; Neufeld & Roper, 2003.) "What students learn has to do fundamentally with how they learn it" (Neufeld & Roper, 2003, p. 2) To establish a classroom that is both highly interactive and intellectually challenging, it is important for in-service teachers to first undergo a similar learning experience themselves (Castillo, 2012.) If they did not experience such an approach in their own public schooling, doing so through PD is a viable option.

PD programs often emphasize the practice of reflection, drawing on the concepts introduced by John Dewey (1933) and Donald Schön (1983).. As an empirical component of PD programs, reflection as a concept was first introduced by Dewey who explained it as an "active, persistent, and careful consideration of any belief or supposed form of knowledge in the light of the grounds that support it and further conclusions to which it tends" (p. 9). This was a reaction against the instrumental view of teachers as mere transmitters of others' knowledge. Dewey believed that student teachers should develop experiential practices, such as reflection, to examine the quality of their own teaching performance (c.f., Kolb, 2003; Olteanu, 2017; Pitsoe & Maila, 2013). Later, Schön classified the reflective practice into two processes. The first is reflection-in-action, which occurs during the actual act of teaching, and reflection-on-action, which transpires after the teaching situation. Reflection-for-action was developed as an additional process that describes what aspects in-service teachers anticipate changing in future teaching experiences (Farrell, 2018; Killion & Todnem, 1991; Grushka et al., 2005). Basically,

the three processes of reflective practices are founded on the understandings professionals gain from experience instead of theoretical knowledge (Pitsoe & Maila, 2013).

Reflection-in-action is a mode of active evaluation of professional thoughts, beliefs, and practices in action during the instructional situation. It starts with critical enquiry of the underlying assumptions that might affect teachers' performances, and responses to one's own needs in the context where they work (Pitsoe & Maila, 2013; Zeichner & Liston, 2013). In the same vein, reflection-on-action is considered a meta-cognitive practice that typically follows the teaching situation (Zeichner & Liston, 2013). It is the way teachers listen to, explore, and analyze the "back talk" that the earlier experiences produce in their minds (Schön, 1987, p. 31). In the third part of the reflective practice, reflection-for-action, teachers anticipate the future teaching situation, and the factors that might affect students' learning. This is a compromise between the "intended object of learning", the "enacted object of learning" and the "lived object of learning" (Olteanu, 2017, p. 350). In the context of PD programs, instructors often commit to embrace reflective practices, such as group discussions and peer feedback, to educate in-service teachers on how to learn from their own experiences (Leinhardt, 2001; Pitsoe & Maila, 2013; Zeichner, 2008.)

As for the Egyptian context, planning and making decisions about PD in HEIs are mostly the responsibilities of policy makers, with less dependence on the thoughts of relevant stakeholders' (i.e., teacher educators and graduate students/in-service teachers). In contrast, studies about effective PD programs recommend that all stakeholders should work collaboratively. These collaborations aim to fulfill learners' needs and enhance self-reflection skills and decision making for the challenges they face inside classrooms during their teaching practice. Accordingly, in addition to the core subject knowledge, emphasis on "reflection-on-

action" skills will promote the use of new teaching strategies among graduate students/in-service teachers. Effective PD programs in Egypt will help graduate students/in-service teachers master the skills of collaborative observation, reflection and problem solving depending on knowledge generated from personal experience.

1.3.1. Professional development offerings at universities for graduate students/in-service teachers

In Egypt, in-service teachers can enroll in post-graduate studies as part of their PD programs and obtain Diplomas, Master and PhD degrees in Education. In the Egyptian context, the attainment of post-graduate certificates, such as MA and PhD, is highly recognized by the society, and helps in-service teachers improve their social status. In the same vein, the MOE offers salary incentives for in-service teachers who obtain Diplomas and Certificates in Education. Therefore, in-service teachers are motivated to continue with post-graduate studies as a means for improving the quality of their teaching practice and instructional skills to gain the accompanying social and financial benefits (Eltemamy, 2017; Mohamed et al., 2016). Once in-service teachers have registered in a post graduate program, they are called graduate students/in-service teachers in this study.

Typically, EFL graduate students/in-service teachers start with the Vocational Diploma which requires 36 credit hours of course work. By completing the course requirements in one academic year, a graduate student teacher can obtain a Vocational Diploma in Curriculum Development and is qualified to continue for the next certificate of the Special Diploma in Education. See Appendices A and E for details.

In the Special Diploma, graduate students/in-service teachers are supposed to gain an in-depth understanding of the teaching subjects and are introduced to research knowledge to

become prepared for Master and PhD studies. A teacher can enroll in the Special Diploma Degree after successfully passing two tests; one is in English Language and one is in computer skills. The requirements of the degree study involve 16 credit hours of compulsory courses and four credit hours through two optional courses. By the end of one academic year, a teacher can obtain a Special Diploma in Education, and is qualified to continue for the study of the degree of Master in Education. The course called New Trends in Curricula is an example of a course that is applicable in the Vocational and the Special Diplomas. See Appendices B and F for details.

To study for a Master or PhD degree, a teacher must successfully meet standards through a test in Arabic Language, a personal interview, and an international certificate in English Language such as TOEFL or IELTS. Completing a Master of Education requires 30 credit hours of course and thesis work over five academic years. Teachers enrolled in a doctoral program are required to complete 36 credit hours of coursework and a thesis over a five year period. Courses such as Readings in Curriculum and Instruction of TEFL are applicable to both graduate degrees. See Appendices C, D, G and H for details.

1.4. Rationale for the study

The purpose of this section is to provide a clear and well-justified explanation of why the research is being conducted. It aims to present the background and context of the study, highlight the gap in the existing literature or knowledge, and outline the specific research questions or objectives. The rational of the current study is discussed in the light of the Egyptian government mandates, the researcher's background, gaps in research about PD in Egypt, and gaps in IBL research.

1.4.1. Egyptian government mandates.

The Egyptian Ministry of Education invests almost $15.9 US million in education (Abu Zaid, 2021). After announcing that 2019 was the year of education in Egypt, the Egyptian government introduced a number of initiatives to create a radical shift in the educational context, including improving the quality of in-service teachers' preparation programs (Leila, 2019). By 2018/2019, investments in education in Egypt rose by 8% (equals US $7.1 billion). Aspects like training teachers, raising teachers' salaries, and enhancing vocational and technical accessibility were targeted in these new strategic plans (OBG, 2020; Saavedra, 2019, 2020). The MOE, for example, announced the policies of professional incentives for in-service teachers who are enrolled in PD programs. They could gain professional upgrades to enhance the educational outcomes (OECD, 2009). Global initiatives, like the United States Agency for International Development (USAID) funded Teach for Tomorrow project in Egypt, are implemented to improve the quality of primary instruction with total costs of US $15.8 million (EDC, 2020).

1.4.2. Researcher's background.

In situating myself in this research, I focus on my Canadian education experience, and how it opened my eyes to research and its place in my professional learning. I reflect on the differences between studying abroad versus studying in Egypt, specifically, in graduate studies. The aim of this section is to draw the readers' focus on how this experience has triggered my research question.

As a teacher of EFL in Egypt for almost three years, then a teacher instructor at a large urban university in Cairo for five years, I have noticed and personally experienced that the process of PD is highly impacted by social, cultural, and political factors (Abdelhafez, 2010; Rezk, 2016). Based on my general experience, professional development often involves one-time

workshops that focus on a specific theory-based subject or topic and do not give time for the interaction of participants and personal reflection. During my teaching practice, I noticed the gap between what I had learned at the university, in undergraduate or graduate studies, and my actual practice of teaching. For example, if I had a problem during my classroom teaching, I would seek alternative resources on practice for solving it rather than referring to the content addressed in PD programs. Some of these resources would include consulting a colleague, searching the internet, or using the trial and error method. There were few chances to employ the theoretical knowledge I learned as a graduate student / in service teacher in actual teaching practice. Minimal opportunities were available for integration between graduate students/in-service teachers' experiences and their problems and challenges of teaching diverse learners. I was not satisfied with the quality of PD programs I experienced and did not feel they helped me grow as an individual or as a professional teacher.

I have studied in three different Egyptian universities in various stages of undergraduate and post-graduate studies. I expected to improve my accumulated PD stance; however, the links between the theoretical preparation in the university, besides the field of practice, were missing. I remember my expectation of a one-hour class designed to increase my knowledge of classroom management skills and reflective practice. Unfortunately, there were no practical tips offered, no discussion with colleagues, and only a high stakes final exam. Needless to say, without any research opportunities after the final exam, I could not recall much of the course content. Although I remembered some of the topics that were presented, I was not confident that I could apply such knowledge in my classroom teaching.

In my experience, the objectives of pre-service teacher education and in-service PD programs did not fulfill the progressively anticipated professional requirements of in-service

teachers in Egypt. I had not practiced problem-solving skills or reflection in any course-related work or exams and did not engage in decision-making or improve any teaching strategies. I left the PD courses with the impression that I should follow a "one size fits all" approach to classroom teaching at any level and disregard individual abilities, potentials or needs for improvements. Further, as I worked in various contexts, such as public schools, private language centers and adult education institutions, I was not able to connect my teacher training to the different contexts and to the needs of diverse learners.

In-service teachers' efforts for self-improvement are individual and not always connected to PD programs. I enhanced my experiences via observing and consulting my colleagues who were exposed to advanced teacher training programs outside of Egypt. We frequently exchanged ideas and had discussions on how to integrate such progressive trends of teaching in our classrooms. Online sources were another option for teacher self-improvement. Watching videos and following blogs of experienced teachers around the world exposed me to unique instructional decisions that were missing in the content of Egypt's PD programs. Even though this is evidence of my ability to conduct personal research and solve professional problems, none of this was encouraged or stimulated by work at the university. I was not able to unite the worlds of academics and practice.

I worked as a PD instructor for five years in one of the leading Egyptian universities with pre- and graduate students/in-service teachers at different stages of their studies. Since there was little preparation offered to PD instructors, I never felt adequately prepared. The selection of instructors was based primarily on grades obtained in undergraduate study and personal interviews to decide the suitability of the applicants. After the appointment offer, administrators and colleagues offered little to no teaching or practice mentorship despite the opportunities for

continuous growth in research knowledge. There were weekly seminars and group meetings to evaluate Master and PhD students' research work.

These seminars were part of the programs allocated for in-service teachers who were willing to continue writing their Master of Art (MA) and Doctor of Philosophy (PhD) thesis. Every week during the academic year, staff members of each department with in-service teachers enrolled in MA and PhD programs met to discuss the graduate students/in-service teachers' research proposals. The non-presenting graduate students/in-service teachers were allowed to assess and criticize the research work proposed by their colleagues in terms of their rationale for the study, the suitability of the chosen approach, and the applicability of the ideas. Depending on public assessment, graduate student teachers' proposals were valid for further research and accepted by the department staff members or rejected as invalid for investigation (Hanna, 2016; Essa, 2022).

This part of the program is not obligatory for all in-service teachers enrolled in PD programs. It is mandatory for those who have completed one or two years of education as MA or PhD candidates. It is a requirement for their final defense step. However, in-service teachers in various PD programs showed interest in regularly attending those seminars as they saw them as a means for professional growth and an opportunity for improving their research knowledge. They considered it a precious opportunity for practicing contemplative research, academic writing basics, and presentation skills. In one way or another, graduate students/in-service teachers enrich the content of PD programs by being committed to such seminars. They actively participated in the discussions held during the meetings and were keen to take notes for further possible discussions with the instructors. It was viewed as a means of scaffolding the theoretical instruction in PD programs and reflecting on the possible practical implications of the acquired

research knowledge. Unfortunately, due to the constraints of time and place, not all graduate students/in-service teachers were able to regularly join the weekly seminars. For those who did attend on a regular basis, there was a notable increase in their interest in research, and reflective and critical thinking potential (Eltemamy, 2012, 2017; Ibrahim, 2003).

Junior instructors are required to engage in research skills acquisition but are not offered training on how to teach and train graduate students/in-service teachers in such skills, which, in turn, creates a gap between the lecture-based type of teaching and the higher-order thinking skills anticipated from PDiE programs. In addition, because the content of PDiE programs is decided independently by the professors, without the approval or knowledge of other staff members of the department, the lack of a harmonious group approach to the program creates a disconnected experience for in-service students.

I expected the main goal of the PDiE program to be helping graduate students/in-service teachers to prepare to conduct their own research and, accordingly, the focus would be on improving analytical and higher order thinking skills. Instead, the content stressed theoretical knowledge of pedagogical concepts, teaching methodologies, and classroom management. Little attention was paid to the actual practice of skills in teaching and the reflection of this knowledge in our PD. In the same vein, the types of assessment did not reflect the improvement of graduate students/in-service teachers' attitudes toward the teaching profession, and how PD programs contributed to the acquisition of higher order skills recommended in the course description. Therefore, after learning about IBL in Canada, I realized why I and other stakeholders felt a gap in knowledge about approaches like IBL in Egyptian PD contexts.

When I began my PhD studies in Edmonton, Canada five years ago, I heavily experienced academic culture shock, not the socio-cultural shock as is more common among

foreigners. In Egypt, my process of studying was what I call retrospective. Since studying in Egypt, at all ages and stages, is test-based and exam-oriented, students plan their study time according to final exam dates. If the exams are in January, students distribute their efforts along the semester. They usually start slowly in September and then gradually increase focus on reviewing textbook content and lecture notes by December. Accordingly, the first question I posed when I started studying in Canada was "when will the final exams be?" I was surprised that there were no final exams in any of my PhD courses! Instead, the course assessments were based on research and written reports in one form or another. I was not used to Canada's formative type of assessment in contrast to Egypt's summative approach to assessment.

In Canada, research-based graduate students are required to write at least three papers in each course, varying from reflections to reports and reviews. In Egypt, even in graduate studies, knowledge about research is merely theoretical and hypothetical. Although graduate students/in-service teachers in Egypt technically can describe how to write a research question and explain the elements of a valid research question, we are rarely evaluated according to our research papers. The first real trial of writing a research proposal often occurs when a student is submitting a candidacy paper for a MA Degree. This is actually when the research experience starts. In contrast, in two academic years of studying in Canada, I have submitted almost 20 papers. These papers include reports on data gathering instruments such as interviews and observation and data analysis such as thematic analysis and somatic resonance. In Egypt, those last two examples of papers are being tried for the first time in an advanced level of thesis writing.

After this rich experience in Canada, I feel more confident to write about my research, to understand my research problem and connect it to the actual teaching practice I will be doing

when I return to Egypt. Am I alone in my perceptions of the elements missing in Egyptian PD programs? My lack of IBL experiences within my studies in Egypt? This is the core focus of my proposed study inquiry: how do Egyptian graduate students/in-service teachers, instructors, and institutional administrators perceive the process of implementation of IBL in their university certificated professional development programs?

As the main aim of qualitative research is the interpretation of the phenomena under investigation, the researcher is compelled to engage in an intensive and continuous process of sharing experiences with participants. It is important that the researcher explicitly describe the personal background and experiences that triggered the research inquiry. Attention should be given to the ethical issues that could arise when the researcher enters the research site. These are factors that will shape the researcher's interpretation and help understand the researcher's role in the study. In this study, the researcher is an insider within Egypt's education system but also an outsider to the participants who are part of the institutional structure.

1.4.3. Gap in research about PD in Egypt.

In Egypt, the trend of research on PD programs is characterized by experimental studies investigating the effectiveness of specific teaching methods. Primarily, studies are concerned with program design and implementation, with less focus on graduate students/in-service teachers' perspectives (Gahin, 2001; Rezk, 2016). Although the MOE mandates that graduate students/in-service teachers should improve higher-level skills such as reflection, critical thinking, and research, there is little research on graduate students/in-service teachers' experiences and qualities as learners.

In a review and analysis of 143 research papers on English Language Teaching (ELT) published in Egypt between 2006 and 2015, Abdel Latif (2018) found that experimentation was

the most commonly used methodology, accounting for over half of the studies (n = 84, 59%), while non-experimental methods were used in 41% of the studies (n = 59). The non-experimental studies employed various research design methods, including descriptive, correlational, causative, mixed-methods, and action research. Quantitative approaches for data gathering and analysis were predominant, with 82% of the studies (n = 117) using quantitative methods, while pure qualitative data was used in only 8% of the studies (n = 11) and mixed methods in 10 studies. The most commonly used data collection tools in quantitative studies were language tests, questionnaires, observation checklists, scales, rubrics, and error analysis, while qualitative studies relied on interviews, observational notes, and participant reflective written reports as the dominant data sources.

In the realm of experimental language research, the predominant focus tends to be on quantitative data analysis (Abdel Latif, 2018). It has been observed that even the limited use of qualitative approaches in certain studies is often characterized by a positivistic orientation, suggesting that qualitative methods are not yet fully integrated into English language education research in Egypt. Investigating stakeholders' perceptions about the implementation of change in PD constitutes a gap in research in Egypt.

The review also focused on the educational contexts (i.e., stages in teacher preparation of the participants) in the studies reviewed. The findings revealed that a significant proportion of the studies (n = 81, 57%) were carried out in university undergraduate English language education programs, with a notable number of studies (n = 21, 15%) focusing on high school English language education. Other educational contexts, such as university postgraduate students, were found to have received limited attention in the studies conducted. Therefore, this

study attempts to reveal PD stakeholders' involvement in research as well as postgraduate in-service teacher perspectives.

1.4.4. Gap in IBL research.

Although investigating IBL in the context of graduate students/in-service teachers' PD has been consistently emphasized by a long line of research (Aditomo et al., 2013; El-Amin Muhammad, 2011; Grangeat, 2013; Hofer & Lembens, 2019; Kazempour, 2009; Meijer et al., 2016), little is discussed about graduate students/in-service teachers' and their instructors' perceptions about the integration of IBL in PD program curriculum. Global organizations, such as UNESCO (2014) has published reports about the standards of IBL as content to be learned and as a way of learning. These standards encourage students to experience active learning by posing questions, developing hypotheses, collecting relevant data and validating results. Graduate students/in-service teachers are expected to develop inquiry-based instructional strategies that pay attention to students' previous understanding and experience. They also guide and facilitate the way students construct their own knowledge. Therefore, recommendations include improving teaching quality by training graduate students/in-service teachers to employ analytical and critical thinking as a habit of mind first for themselves, and then among students (Kazempour, 2009; UNESCO, 2014).

IBL pedagogical implications in higher education enjoys a worldwide research discussion. It is recommended that research-based universities employ IBL as a standard approach of education (The Boyer Commission, 1998). Other scientists go further to emphasize the importance of standardizing IBL in all universities (Aditomo et al., 2013; Brew 2003; Grangeat, 2013; Healey, 2005; Hofer and Lembens, 2019; Meijer et al., 2016; Spronken-Smith et al., 2007). Despite these attempts to develop a conceptual framework of IBL (Darling-

Hammond, 1999; Gholam, 2019; Justice et al., 2007; Levy et al., 2010; McCarthy, 2007; Richardson, 2003; Spronken-Smith, et al., 2011), there is minimal research on graduate students/in-service teachers' understanding of IBL in teaching.

In terms of the Egyptian context, IBL is a relatively recent focus of research that emerged in response to the governmental education reform. Several studies investigated the effect of IBL in improving writing skills among EFL graduate students/in-service teachers and preparatory stage students (Abu Rezeq, 2018; Gindya, 2022; Hanna, 2016; Hussein, 2019; Khalifa, 2016). The results showed that IBL is effective in developing graduate students/in-service teachers' research writing skills and recommended that instructors of PD programs effectively incorporate IBL in training courses for prospective graduate students/in-service teachers (Khalifa, 2016; Hanna, 2016). Other researchers explored the role of IBL in improving critical thinking skills and creativity (Abdurraheem, 2015; El Sayed, 2017). It was concluded that through IBL programs, students could significantly improve critical thinking abilities, creative reading and writing skills, and poetry appreciation (Abdurraheem, 2015). Thus, there is a need to listen to graduate students/in-service teachers' voices about how they perceive IBL implementation in PD programs and compare their responses to those of their instructors and program administrators. Put another way, how do the perceptions of key stakeholders in the implementation process compare?

1.5. Study context: Education in Egypt

The following sections include geographic and demographic information about Egypt, the study context, and a description of Egypt's general education system with specific details about the EFL education milieu.

1.5.1. Egypt Profile.

Egypt, which has the highest population in the Middle East ranks as the third largest in Africa. It had nearly 95% of its 100 million people residing in the areas along the Nile River and in the Nile Delta, situated north of Cairo and adjacent to the Suez Canal, in February 2020 (See Figure 1).

Figure 1

Map of Egypt

Egypt is administratively divided into 27 governorates, each with a governor appointed by the President. These governorates hold the responsibility for governing various areas including education. While the MOE is responsible for legislating and supervising national policies and strategic plans, the governorates are tasked with the administration and execution of these policies at the local level.

1.5.2. The educational context.

The following sections provide a brief background about education in Egypt, especially after the anti-government protests of the Arab Spring (2011); the structure of the education system; standards for teacher quality and professionalism; and the characteristics of initiatives calling for professional development specifically among EFL graduate students/in-service teachers.

1.5.2.1. Pre-university education structure. The government offers free public education to all citizens. Education is in the form of three stages: primary, preparatory, and secondary. The primary stage begins at the age of six and consists of six grades, focusing on basic literary, numeracy, and English language skills. Upon completing the primary stage, pupils can move on to preparatory schools where they spend three years (i.e., grades seven to nine) concentrating on emotional, social, physical, and intellectual preparation for citizenship and advanced education. English language instruction continues throughout all three grades of the preparatory stage. Upon completion of preparatory school, students then progress to the secondary stage, which primarily emphases on preparing youth for practical life as well as higher and university education (Abdelhafez, 2010). Students who achieve higher final exam scores are given the opportunity to join the general secondary school, which provides more options for pursuing university education. The general secondary school spans three grades (i.e., grades 10 to 12), and students are required to pass a final exam at the end of each year. English language instruction is also provided throughout the three levels of the secondary stage.

1.5.2.2. Undergraduate EFL teacher education. The initial phase of teacher education in Egypt occurs at one of the 27 faculties of Education within universities. Admission to a specific department at the Faculty of Education is based on the student's total marks in the General Certificate of Secondary Education (GCSE), which is the third stage of pre-university education. The program encompasses educational and methodological preparation, as well as subject knowledge. Admission is contingent on the student's grades in the GCSE subject that aligns with their chosen specialization. Additionally, prospective students are required to pass a personal interview conducted by the Faculty of Education staff to evaluate their aptitude for the teaching profession, in addition to meeting general mark requirements.

Figure 2

The distribution of curriculum components in the Undergraduate EFL teacher education

program. Adopted from Abdelhafez (2010).
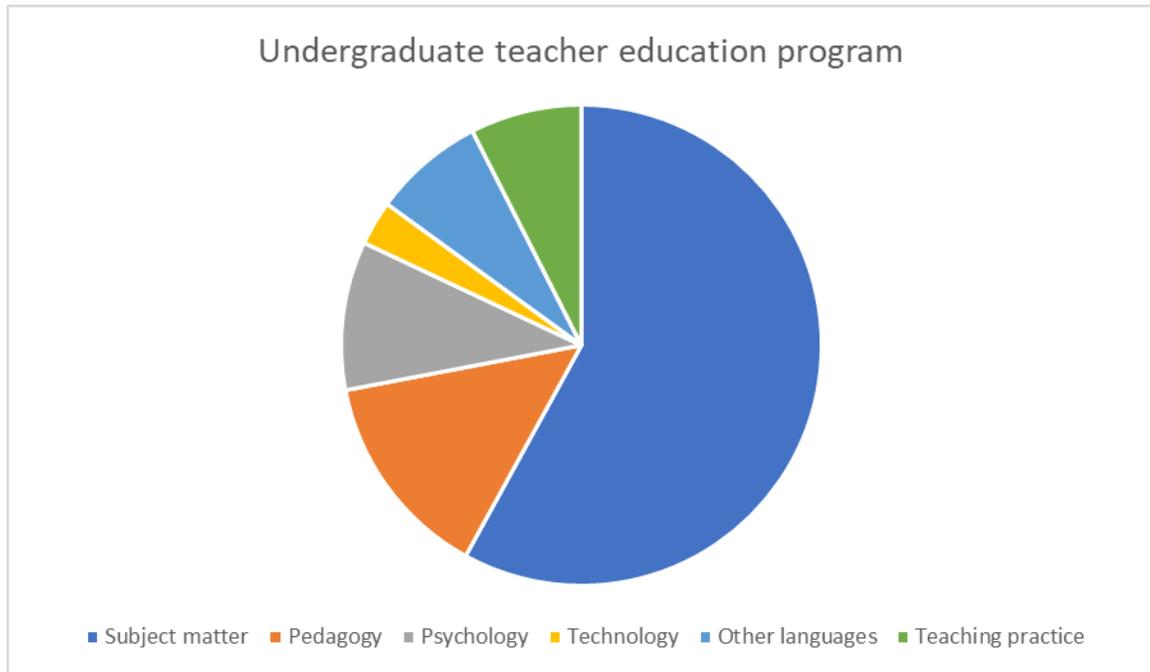
Figure 2 describes the distribution of the subjects for EFL pre-service teacher education programs of preparatory and secondary school student teachers. According to this curriculum, the program schedule for student teachers includes a 58% focus on learning the subject matter, 14% on pedagogy, 10% on psychology, 3% on technology, and 7.5 % on other languages. A small quantity of time (7.5%) is devoted to training and practicing teaching (i.e., a practicum). For the trainee student teachers to experience and apply professional knowledge that is relevant to their teaching practice, this portion of time is believed to be inadequate (El-Ashry, 2009; EL-Deghaidy, 2006). The mode of instruction in these courses is essentially test based and depends on lecturing as a delivery format. After successfully completing the program, graduating students

are awarded a Bachelor of Arts degree in English and Education, which qualifies them to become EFL teachers.

1.5.2.3. In-service EFL graduate student / in service teacher education. The in-service teacher program offered by the EFL preparatory and secondary school focuses on enhancing teachers' professional practice and ensuring their training remains up-to-date. These training activities include workshops and conferences conducted by educational organizations like the Central Department for In-Service Training (CDIST) or in collaboration with university education faculties. For in-service teachers, attending PD programs is optional. Attendance is not a requirement to be appointed to teach in a school. However, in-service teachers tend to enroll in such programs for social engagement, professional advancement and financial benefits, in addition to being able to join the Teachers Syndicate (Abdelhafez, 2010; Eltemamy, 2019; OECD, 2009). Although PD programs are neither free nor inexpensive in the Egyptian context, as announced by MOE (2021), almost 60,000 (equals almost 50%) of the in-service teachers have enrolled in PD programs since 2014.

Teachers who are graduates of a Faculty of Education should complete a Bachelor of Science or a Bachelor of Arts (BA) in education in a specific subject specialty (OECD, 2009). For EFL teachers who hold only a Bachelor's degree in English language without prior educational preparation to work as teachers, they are required to successfully complete a part-time educational preparation course at the Faculty of Education. Upon completion, they will be awarded a general diploma in education. EFL in-service teachers are allowed to join the same diploma program for two years on a part time basis. Graduates of the general diploma in education can continue with post-graduate studies in education if they achieve good grades in the general diploma course. Generally, in Egypt, 68% of in-service teachers obtain a Bachelor's

degree or higher and 78% of those are graduates of educational faculties with 22% as graduates of other faculties (OECD, 2009). Almost 84% of those without a degree qualification have attended educational training programs, in contrast to 16% who do not have any training (MOE, 2014).

Overall, Egyptian teachers suffer from challenges that affect their motivation, self-esteem, and sense of professional recognition (Eltemamy, 2017). Many Egyptian teachers believe that the textbook material for schools is outdated (Eltemamy, 2017; Loveluck, 2012). Accordingly, one of the motives behind improving the quality of PD programs for in-service teachers is their thirst for the disposition of higher order skills, so that they can make up for the deficiency in the study materials. In Egypt, there are financial incentives for teachers who attend and pass the test-based assessment at the end of PD programs. Teachers do not feel adequately recognized within Egyptian society because teaching is associated with lower social and financial advantages (Eltemamy, 2012; 2017). Therefore, in-service teachers consider pursuing post-graduate studies as a compensation for the undervalued academic status of the bachelor degree (OECD, 2009).

MOE collaborates with Faculties of Education to offer an EFL in-service international professional development program. Since 1993, this program has sent in-service teachers to countries such as the United Kingdom and the United States for advanced training in teaching fields, including modern teaching methods and the use of advanced technology in education. The programs, organized by overseas universities, are designed to update in-service teachers' skills, expose them to different education systems and schools, foster discussions about their teaching practices, introduce new classroom technologies, and provide them with a cultural experience of

the host country (Abdelhafez, 2010). Selection for these overseas training courses is based on teachers' professional records and English language proficiency.

1.5.3. The significance of English language study in Egypt.

English language holds a significant position in Egyptian culture, particularly among the educated population. As per Schaub (2000), although Egypt is not considered part of the "Expanding Circle" countries where English is a commonly spoken second language, there are specific domains in Egypt, such as medicine, higher education, and tourism, where English serves as the primary means of communication among native speakers. The status of English in Egyptian history has undergone five distinct stages, as noted by Abdelhafez (2010), Ibrahim (2003), and Schaub (2000).

1.5.3.1. Historical stages of EFL development. During the reign of Khedive Ismail in the 1870s, foreign language instruction was incorporated into the Egyptian educational system, with English being offered as one of the options alongside French, Turkish, and German (Schaub, 2000). Despite English being introduced to Egyptian schools by the British colonizers (1882-1922) during the leadership of British Colonel Cromer, who assumed control over educational affairs in Egypt in 1882, the educational policies implemented during the British occupation do not fully account for the spread of English in the country. According to Ibrahim (2003), the English language gained a higher level of prestige during the period of British colonial rule. However, it became less popular after the end of the occupation in 1956. It regained popularity due to the "open door" policy of former Egyptian President Sadat, which recommended English to be obligatory in public schools. Since this time, English is a mandatory school subject in the pre-university grades of the public school system (Abdelhafez, 2010; Abouelhassan & Meyer, 2016; Ibrahim, 2003).

1.5.3.2. Motivation. Motivation for learning English has increased together with its increase in social status. English has been perceived by Egyptians as a pathway to secure better employment opportunities since the 1970s, whether in fields such as teaching, multinational companies, or tourism. The open door policy in Egypt, which sought to boost the economy by attracting foreign investment, led to a rise in the number of private schools established by European and American investors. In the job market, graduates from private schools established by foreign investors were often given preferential treatment over graduates from public schools (Abouelhassan & Meyer, 2016). English language education in Egypt is commonly pursued as a school subject or through enrollment in accessible English language institutes. Enrolling in these institutes is seen as a means to enhance job prospects, particularly in well-paid positions within the numerous foreign firms or banks operating in Egypt. The aim is higher standards of employment opportunities. Applicants to these institutions are typically required to possess a proficient level of English language skills as a common prerequisite. The eagerness to acquire English language skills among Egyptians reflects not only their recognition of the significance and prevalence of English globally, but also their favorable attitudes towards the language itself.

In Egypt, English language instruction is integrated into the pre-university curriculum with students typically receiving six 45-minute lessons per week. Furthermore, in higher education, English is commonly mandated as a required course for obtaining a university degree in nearly all academic departments. Depending on the policy of the university, English proficiency may be a prerequisite for enrolling in or successfully completing post-graduate courses. It is common for PhD theses to include a general chapter in English, even if the thesis is not written entirely in English. In many private schools and universities, English serves as the

primary medium of instruction and communication among students (Abdelhafez, 2010; Abouelhassan & Meyer, 2016).

1.5.3.3. EFL Teaching in Schools. The Ministry of Education's Book Sector has the duty of creating and dispersing educational materials, such as textbooks and teachers' guides, for students in the three levels of pre-university education. The curricula for public schools are standardized. The MOE recently released a book for the English language curriculum called, "Connect for English" (Mohamed, 2018). The English language curriculum in Egypt begins at the kindergarten level and persists throughout primary school. The goal is to promote communication skills and foster critical thinking abilities among students. The curriculum is structured around a communicative approach. Each grade level features a corresponding set of materials including students' books, teachers' books, and CDs. The students' book comprises the primary teaching resource for each grade. Complementary to the students' books, the workbooks consolidate the lessons taught and practiced in the classroom, and also include test preparation exercises. Additionally, the teachers' book offers valuable guidance and resources to aid in lesson planning and preparation. Lastly, the CDs feature audio materials that provide students with models for oral work, listening and dictation exercises, and reading passages from the students' book (Abdelhafez, 2010; Ibrahim & Ibrahim, 2017). However, there is a notable shortage in reflective learning and critical thinking activities. The content is mainly teacher-centered and does not encourage students' self- learning.

1.5.3.3.a. Approaches of the EFL curriculum. According to the MOE's (UNESCO, 2014) Strategic Plan for Pre-university Education Reform (2014-2030), the overall objectives of English language instruction as a foreign language in Egypt are to foster critical thinking skill. A lifelong learning mindset among learners through inquiry-based approaches, which enhance their

communication abilities, and facilitate active learning in accordance adhere to the standards set by the National Authority for Quality Assurance and Accreditation of Education (NAQAAE). According to the standards, students are required to employ English for socializing with their peers and teachers and for their personal pleasure. The primary objective of language teaching is to develop practical, effective communication skills in English, with an emphasis on all four language proficiencies: listening, speaking, reading, and writing (El-Bilawi & Nasser, 2017).

1.5.3.3.b. Challenges to ELT system. The ELT system faces various challenges in aligning with the goals set in the recent MOE Strategic Plan and meeting the standards established by NAQAAE. Despite efforts in creating suitable textbooks, challenges persist in areas such as teacher quality and professionalism, emphasis on student outcomes, and limited development of skills related to IBL, among others (El-Bilawi & Nasser, 2017; Mohamed, 2018).

1.5.3.3.c. Teacher quality and professionalism. The subpar quality of education in public schools and certain language schools in Egypt poses a significant obstacle to economic and political progress, as noted by Khouzam and Aziz (2005). A key hindrance is the lack of adequate preparation among schools and teachers in employing contemporary educational methods to promote positive learning outcomes for students. According to Khouzam and Aziz (2005), numerous EFL teachers lack sufficient training to effectively teach the subject (El-Bilawi & Nasser, 2017). Another problem that influences the quality of education is the low economic and social status of teachers often due to inadequate teachers' wages (Khouzam & Aziz, 2005). This can result in teachers intentionally refraining from using modern or effective teaching methods in their classrooms because they may rely on private tutoring to earn additional income, which can compromise their role as educators (Naguib, 2006, p. 71).

1.5.3.4. EFL teachers' challenges. In Egypt, PD programs are primarily geared towards enhancing student outcomes, rather than improving the quality of teaching (Gahin, 2001; Rezk, 2016). Typically, PD programs are concerned with the means of knowledge transfer from teachers to students. This goes to EFL teachers' preparation as well. A long line of research in Egypt suggests that language teachers' education lacks awareness of the linguistic, cross-cultural, and professional skills, and deficiencies in approaches of teaching language that promote critical thinking (Rezk, 2016). There is a notable gap between theory and practice, which results in the inadequacy and ineffectiveness of PD programs offered to language in-service teachers (Hanna, 2016). Courses are described as heavily lecture-based, which negatively affects in-service teachers' practical experiences.

Language in-service teachers' PD does not encourage graduate students/in-service teachers to analyze their sources of knowledge and use the new information in making decisions (Gahin, 2001). There is little training devoted to individual learning and problem-solving skills despite these being major objectives of the teacher qualifications mandated by the MOE. In terms of assessment, PD is essentially test-based with little attention to formative types of assessment such as writing reports, and self-reflections. A research culture is not yet properly implemented in teacher education, which, in turn, eliminates the opportunity to practice observation skills, problem identification, self-assessment, and life-long learning.

1.6. Research Questions

As this chapter has demonstrated, there has been limited qualitative research conducted about the impact, if any, of adopting or implementing IBL in post-secondary education institutions in Egypt. There is also a scholarship gap in the systematic research regarding how administrators, instructors, and graduate students/in-service teachers experience and perceive

IBL in PD programs. Thus, the overarching question of this study is: How has IBL been implemented in one university-certificated PD program for EFL graduate students/in-service teachers in Egypt?

To respond to this study's main question, specific sub-questions are derived as follows:

1. In what ways do administrators contribute to the process of implementation of IBL in one university's PDiE program?

2. How do instructors integrate IBL in designing and implementing the curriculum for courses in one university's PDiE program?

3. What are EFL graduate students/in-service teachers' perceptions of how IBL has been implemented in this university's PDiE program?

1.7. Significance of the Study

This study aims to address the gap in research about IBL implementation in PD programs from the perspectives of graduate students/in-service teachers, PD instructors, and administrators in Egypt. Investigating the implementation of IBL will be beneficial for the general discipline of Egypt's teacher education. Over the past decade, Egypt has come to be a progressively important international education hub in the Middle East and the number of international degree-seeking students in Egypt has doubled (WES, 2019). The position of Egypt as a study destination necessitates reform in the educational system to be more inquiry oriented and to cope with the requirements of universal competence (WES, 2019).

Although Egypt is the fourth largest country in the Arab world, it is sending students abroad to study and have international experiences (WES, 2019). The number of Egyptian students in Canada increased by 112 % between 2009 and 2017. It is a common problem that the Egyptian students studying abroad are challenged by the totally different system of learning.

Instead of being test-based theoretical education, Canadian education, for example, promotes higher skills with an emphasis on analysis and critical thinking abilities. Studies on IBL in Egyptian education could support students and increase their opportunities for a successful transition to an international study experience.

CHAPTER TWO: LITERATURE REVIEW

The purpose of the review of literature is to share with readers the findings of previous research in the area of study, gaps that might have emerged, and the contribution that the proposed study might make. A comprehensive literature review helps to shape the study frame and rationale and shows the added value of the problem under investigation (Creswell, 2014).

In this chapter, I review definitions of IBL and the relation of IBL to in-service teachers' PD programs. I state the theoretical support for the approach and describe its different types. I then address research about graduate students/in-service teachers' PD programs in Egypt.

2.1. Inquiry-based Approach to Learning

If there is to be a closer alignment between the needs of staff and the benefits for students, a new pedagogy for the twenty-first century may be required. The rediscovery of a curriculum devised around inquiry-based learning would be a strong contender (Healey, 2005, p. 197).

This quote highlights two emerging trends in higher education: the increasing focus on student-centered learning (Biggs, 2003; Brush & Saye, 2000; Ramsden, 2003; Wright, 2011), and the call for stronger connections between teaching and inquiry (e.g., Badley 2002; Brew, 2003, 2006; Healey& Jenkins, 2009; Jenkins, et al., 2007). In this context, IBL is advocated as a pedagogical approach that prioritizes students' active engagement and can enhance their learning outcomes, particularly in the development of higher-order skills (Spronken-Smith & Walker, 2010). IBL encourages students to actively engage in the learning process by asking questions, investigating, and constructing their own knowledge. Justice et al., (2007) commented that "inquiry-based learning refers to both a process of seeking knowledge and new understanding, as well as a method of teaching" (p. 202).

Although inquiry has long been recognized as a fundamental skill in academia, the emergence of IBL as a pedagogical approach is relatively recent. John Dewey (1933) is credited with pioneering the concept of learning by doing and was one of the early proponents of investigating the role of inquiry in education through his exploration of experience, interaction, and reflection. According to Dewey, reflection involves actively and consistently contemplating relevant experiences and practices to make them more meaningful and effective. Researchers like Kurt Lewin and Jean Piaget advocated for IBL as an experiential approach, which started gaining prominence in tertiary education during the 1970s (Spronken-Smith & Walker, 2010). Despite calls for its integration into curriculum design, particularly for teacher professional development, the utilization of IBL in higher education has been inconsistent. Healey (2005) references Griffith's (2004) classification of the research-teaching nexus and suggests that curricula can be designed to develop this nexus by incorporating one of four approaches based on their connections to teaching:

1. Research-led: In this approach, research is at the forefront and drives the curriculum. Students are exposed to cutting-edge research and engage in activities that involve them in the research process. The goal is to immerse students in the latest research findings and encourage them to develop critical thinking skills through inquiry and problem-solving.

2. Research-oriented: This approach focuses on cultivating a research-oriented mindset among students. While not directly involving them in ongoing research, the curriculum is designed to instill research skills, methodologies, and attitudes, which students can apply in various contexts. Students may engage in simulated research activities or case studies that emphasize research principles and practices.

3. Research-informed: In this approach, the curriculum is designed to reflect current research and findings, making connections between theory and practice. Students are exposed to relevant research literature and evidence-based practices, which inform their learning experiences. The goal is to help students develop a deep understanding of research-based knowledge and its application in real-world contexts.

4. Research-embedded: This approach integrates research as an integral part of the curriculum across various stages and levels. Students engage in authentic research experiences, conduct their own research projects, or collaborate with faculty and researchers on ongoing research endeavors. The goal is to immerse students in research activities that align with their interests and career aspirations, fostering a research-oriented culture (Healey, 2005).

Healey (2005) advocates for increased utilization of research-based teaching, particularly through inquiry-based learning, and has developed a model that highlights the connection between curriculum design and the research-teaching nexus (Figure 3). According to this model, the traditional approach to university teaching is often centered in the bottom left quadrant, where research-led instruction is dominant, although Healey acknowledges that some disciplines may exhibit more activity in other quadrants. He calls for prioritizing pedagogies in the top half of the model, which include research tutored or research-based approaches, such as inquiry-based learning, as they have been proven to enhance student learning. He suggests that higher education institutions should prioritize these effective pedagogical approaches in their curriculum design and instructional practices (Ahmad et al., 2017; Spronken-Smith & Walker, 2010).

Figure 3

Healey's Model of research-teaching nexus (Healey, 2005. p. 3)
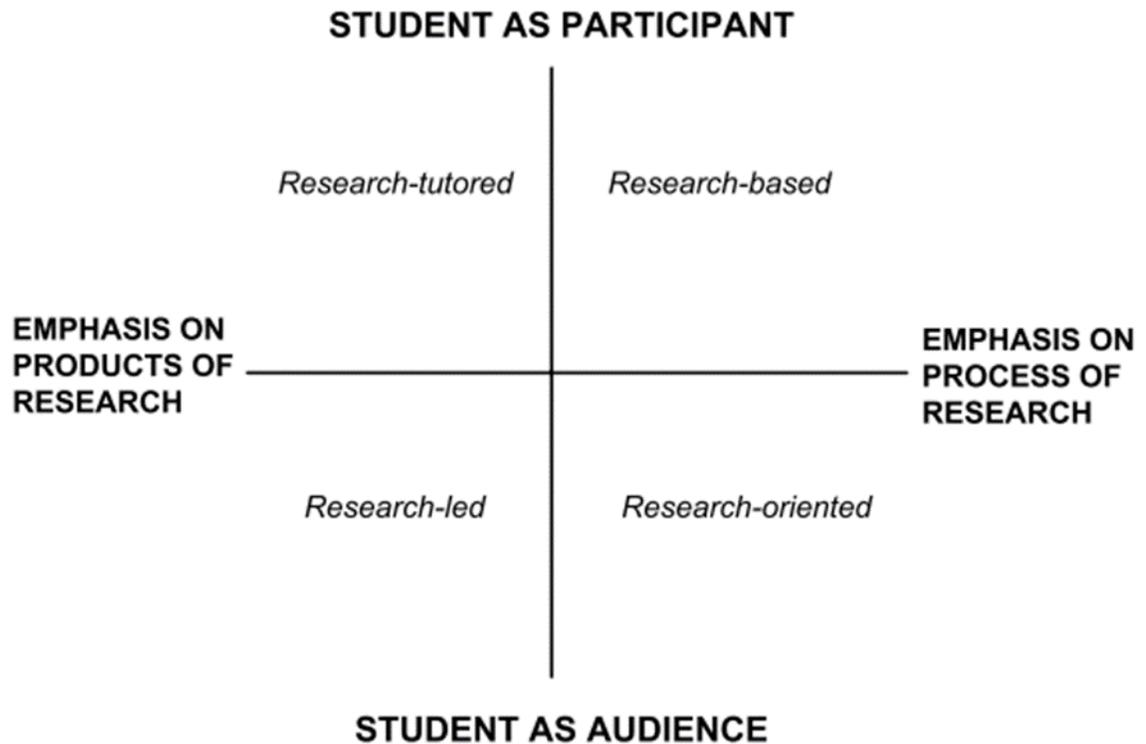
Healey (2005) developed a widely recognized model that builds on Griffiths' (2004) approach. Both models describe variations along two dimensions: a focus on research products versus research process and problems, and students as participants versus audience. In a research-led approach, instruction centers on research content within a research-oriented framework, helping students to learn about knowledge construction within the discipline. Research-based tasks involve students in inquiry-based learning. In contrast, research-tutored engagement emphasizes writing and discussing papers within the curriculum (Elsen et al., 2009). Overall, research-based is preferred over other quadrants (Jiang & Roberts, 2011).

2.1.1. Theoretical Support for IBL

This section explores the theoretical foundations that provide support and justification for the integration of IBL in the education of graduate students/in-service teachers. IBL is built upon several theoretical foundations including: the Constructivist framework of IBL, IBL and learners' motivation, IBL as a paradigm shift, promoting learners' advanced thinking skills, experiential learning, and surface versus deep learning approaches in IBL, and research-teaching nexus.

2.1.1.1. The constructivist framework of IBL. Constructivism is an educational philosophy that emphasizes the active role of the learner in constructing knowledge and skills. It posits that individuals, through their experiences and interactions with the environment, actively construct their own reality, regardless of whether there is an objective reality or not (Spronken-Smith, 2012). Throughout the learning process, learners assimilate new information and integrate it with their existing mental structures (schemata), which include prior knowledge, beliefs, and preconceptions, to construct meaning (Prince & Felder, 2006). The theoretical foundation of constructivism draws upon the pioneering works of influential researchers including John Dewey (1933), Jerome Bruner (1990), Lev Vygotsky (1978), and Jean Piaget (1972). Their contributions have paved the way for the widespread integration of constructivism in contemporary teaching and learning practices.

Dewey (1859-1952) is considered the philosophical founder of constructivism. Through the transactional constructivism framework, he analyzed the construction processes that underlie all human activities based upon the coordination between the organism and the environment (Dewey, 1896). In *How We Think*, Dewey (1910) discussed how teachers can direct students' thought processes and personal reflection to improve learning outcomes, which created the

foundations of IBL. He argued that learning does not happen spontaneously, instead, it is how students' natural curiosity could be directed. Teachers encourage the growth of this curiosity in a systematic productive way to help students master the art of thinking. In a state of uncertainty and perplexity is the standing point where the art of critical thinking begins, "Demand for the solution of a perplexity is the steadying and guiding factor in the entire process of reflection… This need of straightening out a perplexity also controls the kind of inquiry undertaken" (Dewey, 1910, p. 11).

The principles of IBL have been promoted by significant thinkers such as Piaget (1896-1980) and Bruner (1915-2016). Piaget (1972) believed that the learner's cognitive development essentially occurs through schematic development. Herman and Pinard (2015) refined this observation to state that it is a teacher's responsibility to help frame and direct the learners' inherent values and thoughts to capture students' interest through IBL tasks. Learners share facts or "truths" and start their journey of collecting scientific evidence in a recurrent state of reorganizing and reconstructing experiences. This reconstruction process of thoughts adds to the meaning of personal experiences and prepares the learners' mind for new consequent experiences.

Piaget's theory of cognitive development is the foundation for cognitive constructivism, which proposes that individuals create their own knowledge through their experiences (Lutz & Huitt, 2004). This results in the creation of schemas or mental models that lead to learning. Social constructivists, on the other hand, emphasize the role of the social environment in learning. Social constructivism, as advocated by Vygotsky, highlights the role of cultural history, social context, and language in shaping the development of children (Buchanan et al., 2016; Spronken-Smith, 2012). Vygotsky's (1978) theory of the "zone of proximal development"

suggests that individuals can learn and comprehend concepts beyond their independent capacity with the assistance of a more experienced peer.

As per the constructivist theory of learning, effective teaching should encompass experiences that build upon students' prior knowledge, promote autonomy and active engagement, provide authentic real-world learning opportunities, and encourage collaborative or cooperative learning in small groups (Spronken-Smith, 2012). This approach emphasizes the importance of connecting new information with existing cognitive structures and fostering student agency in the learning process. Relevance to real-world contexts and social interaction to support meaningful learning experiences are also emphasized.

Instead of adopting the traditional role in a transmission mode of teaching, constructivist teachers act as a facilitator and create opportunities for students to test and reflect on their current understandings (Hoover, 1996). Constructivist learning emphasizes the active construction of knowledge, which takes time, and requires students to reflect on new experiences and how they fit, or do not fit, with their existing understanding. This highlights the importance of allowing sufficient time for students' reflection and sense-making in any constructivist approach to learning.

2.1.1.2. IBL and learners' motivation. Studies have shown that providing students with increased autonomy through IBL not only fosters the development of knowledge and process skills, but also boosts their self-confidence as they engage in questioning and problem solving (Buchanan et al., 2016; Núñez & León, 2015). According to Bransford et al. (2000), in their extensive review of cognition research, motivation plays a significant role in determining the amount of time and effort individuals are willing to invest in learning. Additionally, the authors propose that learning activities should be appropriately challenging in order to maintain

motivation, striking a balance between difficulty and engagement. Within this learning framework, students are given the opportunity to experiment, fail, reflect, revise their thinking, and try again, promoting creativity and innovation. This approach embraces a broader perspective of education, aiming to support the growth of individuals who are active, engaged members of their communities and who can thrive as productive students and lifelong learners (Barron & Darling Hammond, 2008; Buchanan et al., 2016). Ciardello (2003) maintains that learners are more likely to be motivated to learn when their natural curiosity is triggered. When students are confronted with a state of perplexity and are challenged to find solutions, it prompts them to inquire, ask questions, and seek evidence in order to resolve the problem. As a result, the implications of inquiry-based learning become more apparent since learners are able to recognize the practicality and relevance of what they are learning, particularly within their local context (Barron &Darling Hammond, 2008; Bransford et al., 2000; Spronken-Smith, 2012.)

  2.1.1.3. IBL as a paradigm shift. A paradigm shift refers to a fundamental change in the way a particular field or domain is understood, approached, and practiced (Jacobs & Farrell, 2018; Roslan et al., 2023). In the context of education, IBL represents a paradigm shift from traditional, teacher-centered approaches to learner-centered, active, and inquiry-based approaches. The transition from content-based learning to process-based learning, from memorization to critical thinking, and from individual learning to collaborative learning in IBL signifies a paradigm shift in how education is understood and implemented. This shift is consistent with the theoretical foundations of IBL, which emphasize the significance of active engagement, learner autonomy, and knowledge construction through inquiry (Al Mamun et al., 2020; Garrison & Akyol, 2013). Additionally, the concept of a paradigm shift is frequently referenced in discussions about educational reform, innovation, and transformation. IBL can be

viewed as a pedagogical approach that disrupts traditional educational paradigms, promotes innovative teaching practices, and facilitates a transformative learning experience for students. Thus, in order for institutional change to take place, actors in an organization also have to experience a paradigm shift.

2.1.1.4. Promoting learners' advanced thinking skills. IBL provides a pedagogical framework that encourages students to engage in reflective and critical thinking. Learners are not only tasked with problem-solving, but also are prompted to apply their "creativity and innovation, resilience, teamwork, design thinking, and socially just education" (Summerlee, 2018, p. 414). This goes back to Perry's (1970) dualistic model that outlines a series of nine stages of intellectual development for students in higher education, starting from basic duality to complex duality, and ultimately to a commitment to relativism. His research showed that as students advance through the stages of intellectual development, they transition from a perspective where knowledge is believed to be certain and unquestionable, to a point where they recognize that knowledge is uncertain and subject to debate. It is at this stage that they are prepared to initiate the process of inquiry (Aqeel &Shah, 2020). IBL is a valuable tool to facilitate students' progression from a dualistic perspective to one of contextual relativism, which contradicts the traditional teaching approaches where knowledge is often presented as fixed facts that students are expected to accept and memorize for assessments. Through engaging with real-world problems in IBL process, students are expected to investigate, gather evidence, and critically evaluate information from diverse sources. Consequently, students are allowed to develop skills of evaluating the validity and credibility of information (Aqeel & Shah, 2020; Buongiorno et al., 2022; Spronken-Smith, 2012).

2.1.1.5. Experiential learning in IBL. Kolb and Kolb (2012) advocated for the theory of experiential learning, which consists of four key components: concrete experience, reflection, conceptualization, and active experimentation (see Figure 4). The integration of the four modes of experiential learning (i.e., experiencing, reflecting, thinking, and acting) leads to deep learning wherein learners effectively respond to the learning situation by actively engaging in these components (Archer-Kuhn et al., 2020; Kolb & Kolb, 2012). While learners can start at any point in the cycle, it is important that they follow the remaining stages in a sequence. Kolb emphasizes that reflection plays a crucial role in the creation of new knowledge (Köylü, 2019; Spronken-Smith, 2012).

According to Kolb's theory, learners possess different styles, such as divergers, assimilators, convergers, or accommodators, each with distinct characteristics associated with their preferred approach to learning (Campos et al., 2022). Although elements of inquiry-based learning can be identified in each group, the accommodators are often considered the group most receptive to experiential approaches (Healey, 2005; Spronken-Smith, 2012). Teachers employing IBL should be aware of the diverse learning styles among their students and tailor their instructional strategies to help them move from their comfort zone and develop a variety of different learning styles. This awareness can enhance student engagement, motivation, and overall learning outcomes.

Figure 4

Experiential Learning Model by Kolb (1984)
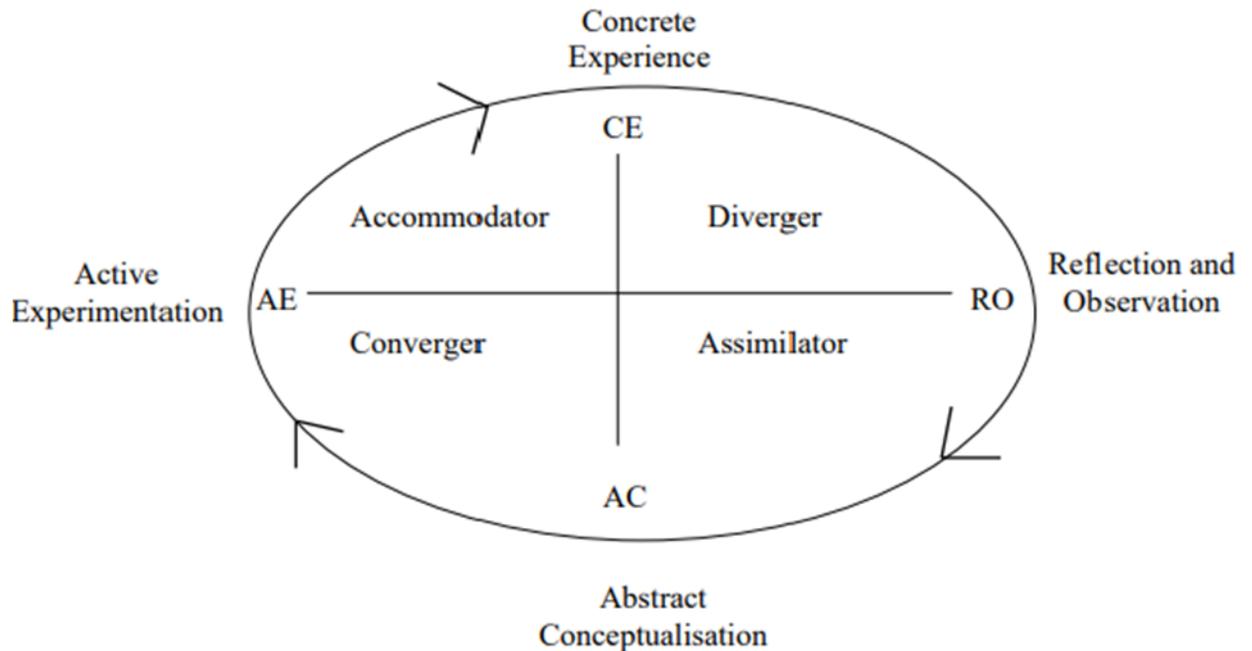
2.1.1.6. **Surface VS deep learning approaches in IBL.** Marton and Säljö (1976) explored learning strategies and outcomes in higher education with a focus on understanding and retention of knowledge, rather than just the quantity of knowledge learned, and categorized learning into six hierarchical types (Figure 5). The lower end of Marton and Säljö's phenomenographic work identified three "surface approaches" to learning: 1) viewing learning as a quantitative increase in knowledge, 2) memorizing information for reproduction, and 3) acquiring facts, skills, and methods that can be retained and used when needed. The opposite end of the spectrum consisted of three categories referred to as "deep approaches": 4) learning as deriving meaning or comprehending abstract concepts (relating components of the subject matter to each other and to reality), 5) learning as interpreting and perceiving reality in an alternative

way, and 6) enhancing personal worldviews and creating new insights (Lister, 2021; Liu et al., 2022; Spronken-Smith, 2012.)

Teachers can promote a deep approach to learning by employing techniques such as active questioning, problem-solving, and leveraging students' prior knowledge to facilitate their understanding of the underlying structure of the topic. This approach goes beyond presenting a fixed set of facts and encourages students to engage critically and meaningfully with the subject matter (Archer-Kuhn et al., 2020; Spronken-Smith, 2012). The successful construction and implementation of IBL offers a compelling opportunity for promoting deep approaches to learning.

Figure 5

Surface Learning versus Deep Learning (Marton and Säljö Hierarchical Categories Model, 1976.)

The Six Conceptions of Learning

Deep — More Knowledge Gained

6 Developing as a person

5 Understanding Reality in a Different Way

4 The Abstraction of Meaning (Making Sense)

3 The Acquisition of Facts for Subsequent Use

2 For Memorisation and Storing

1 A Quantitative Increase in Knowledge

Surface — Less Knowledge Gained
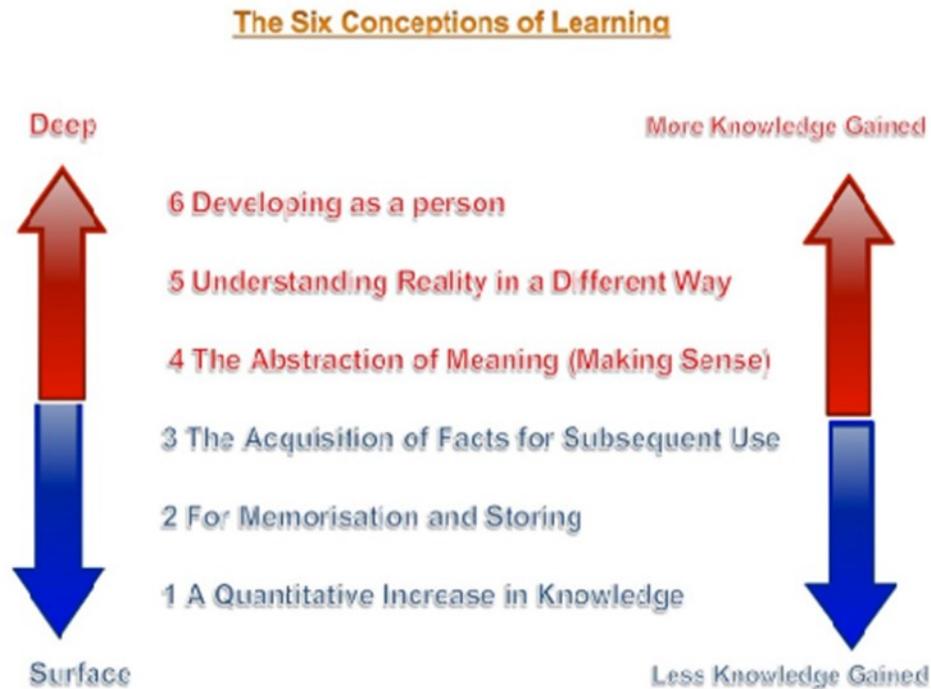
2.1.1.7. Research-teaching nexus. Research and teaching dualism has been investigated by many researchers. Previous studies have lamented the lack of research on genuine and meaningful experiences for undergraduate and graduate teachers (Boyer, 1999). Since the work of Boyer, there has been emergent literature more concerned with the teaching-research nexus. Following Boyer's initial work, a growing body of literature focuses on the relationship between teaching and research. Some scholars have suggested redefining scholarship (as Boyer did in 1999), while others have proposed integrating research more explicitly and implicitly into teaching (Brew, 2003; Jenkins, 2003). It is within this context that inquiry-based approaches

have been promoted as a means to bridge the gap between teaching and research to foster a more holistic approach to learning (Abdel Latif, 2020; Boyer Commission 1998; Badley, 2002; Brew, 2003; Healey, 2005; Jenkins et al., 2007; Jenkins, 2003; Spronken-Smith, 2012). Expanding upon Boyer's seminal work, Justice et al. (2007a) suggest that inquiry-based learning encompasses a process of actively seeking knowledge and new understanding, as well as a teaching method that is grounded in this process (Jenkins et al., 2007; Spronken-Smith, 2012). Inquiry-based learning is seen as part of the research process. It is an approach that combines research skills with teaching practice since students and teachers are "compatriots in the search for knowledge" (Justice et al., 2007, p. 202).

2.1.2. Types of IBL

This section identifies different types of inquiry-based learning, categorized according to three key factors: the scaffolding level, the focus of learning (e.g., existing knowledge or building new experiences), and the scale of implementation (e.g., classroom-based, course-based, program-based, or degree-based.)

2.1.2.1. The scaffolding level. The concept of scaffolding, pioneered by Lev Vygotsky (1978), involves the notion of the "zone of proximal development," which pertains to the range in which learning takes place with assistance from a more knowledgeable peer (see Figure 6.)

Figure 6

Vygotsky's Model of Zone of Proximal Development (1978) (Khan, 2018)
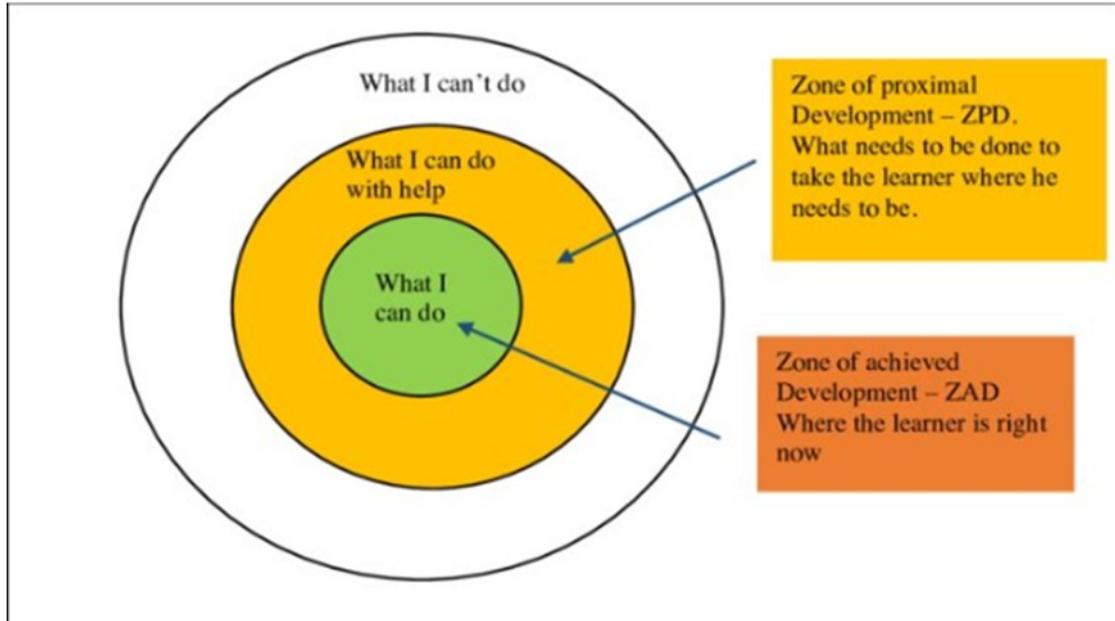
'Scaffolding' refers to the gradual transition of the learner towards independent completion of a learning activity (Roslan et al., 2023; Wood et al., 1976). Teachers act as scaffolders by providing guidance during challenging activities, which includes explaining what needs to be done and how to do it. Teachers adapt instructional strategies to facilitate the learner's actions by providing structure or simplifying tasks. In the context of developing inquiry skills, scaffolding in the introductory levels often involves teachers providing a predefined issue or question, along with an outline for addressing it. However, at more advanced levels, scaffolding may be less pronounced with students generating their own questions and determining how to address them independently (Li, 2021; Spronken-Smith & Walker, 2010).

Thus, the more scaffolding decreases, the more student independence should increase. IBL has three main types of instructors' scaffolding levels:

1. Structured inquiry: instructors offer an issue or problem along with a predefined framework for addressing it.

2. Guided inquiry: instructors stimulate inquiry by providing questions, but students take on a self-directed approach in exploring and investigating these questions.

3. Open inquiry: students take on the responsibility of formulating their own questions and engaging in the entire inquiry cycle independently (Conradty & Bogner, 2019).

2.1.2.2. The focus of learning. A crucial aspect of IBL is the question of whether the emphasis is on existing disciplinary knowledge or the construction of new disciplinary experiences. IBL encompasses various approaches with problem-based learning being one subset. Problem-based learning typically focuses on students acquiring existing knowledge, whereas other forms of IBL may prioritize the construction of new knowledge to enhance critical thinking and embedded problem-solving skills (Cairns, 2019; Spronken-Smith & Walker, 2010).

2.1.2.3. IBL scale of implementation. IBL can be implemented in various levels, ranging from being a single learning activity to the approach of a complete degree program. This flexibility allows for a wide range of approaches, from short-term, focused inquiry experiences to more comprehensive and integrated inquiry-based curricula that permeate the entire educational journey. Research argues that while smaller scale inquiry-based learning activities are valuable for developing research skills incrementally, the greatest benefits in terms of learning outcomes are often realized through inquiry courses or comprehensive degree programs (Ibrahim et al., 2020; Li, 2021; Roslan et al., 2023; Spronken-Smith & Walker, 2010).

2.2. Teachers' Professional Development

Most PD programs are meant to be a lifelong learning process and help in-service teachers to be able to meet 21st century expectations (DeMonte, 2013; Hunzicker, 2011). Rodrigues (2005) mentions that "professional development has no fixed route and real end if it is viewed as lifelong learning and providing the professional continues to work in the profession and is keen to be the best professional they can be" (p. 4). Teachers who adopt professional development resources will successfully learn and implement instructional strategies that match the general cognitive and social/emotional characteristics of their learners. These strategies offer various techniques for tapping the unique strengths of each student. They encourage teachers to use knowledge of their students' interests and backgrounds to assist them in planning meaningful and relevant lessons (National Staff Development Council, 2001).

2.2.1. PD Realities

Research on PD has identified three factors that influence the learning and professional growth of in-service teachers: their beliefs, the challenges during implementation, and the duration of the PD program.

2.2.1.1. Teachers' beliefs. Teachers' beliefs and dispositions play a crucial role in their decision to experiment, adapt or implement a new instructional approach, such as IBL (Prawat, 1992). Literature discusses the link between in-service teachers' prior learning experiences during PD programs, beliefs about teaching, and their decisions and practices as educators (Agbayahoun, 2017; Guskey, 2000; Hofer & Lembens; 2019). To achieve a genuine paradigmatic shift towards inquiry-based approaches, teachers must be provided with opportunities to reflect on their beliefs about teaching and learning, engage in inquiry-based practices themselves, and receive ongoing support and feedback in implementing these practices

in their classrooms. Additionally, fostering the belief that students have the capacity to construct their own knowledge and that the teacher's role is to support and facilitate this process is essential for successful implementation. Thus, effective PD programs should not only focus on enhancing teachers' knowledge and skills, but also address their beliefs and dispositions. To this end, teachers need a solid foundation of science content knowledge, a clear understanding of the principles of inquiry, and hands-on experience in conducting scientific inquiries and utilizing inquiry-based approaches in their teaching practices (Darling-Hammond et al., 2009; Hofer & Lembens; 2019).

2.2.1.2. The challenges during implementation. An additional factor impacting the professional growth of in-service teachers is what is known as "the implementation dip" (Fullan, 2001, p. 71). Research has shown that the actual implementation of a new teaching approach is often more challenging than simply learning about it. It is suggested that, on average, in-service teachers require at least 20 opportunities to practice and refine a skill to attain mastery (Joyce & Showers, 2002; Melnyk, 2020; Sparks & Loucks-Horsley, 1989). Therefore, to be successful, PD programs should provide sufficient assistance to in-service teachers during the implementation phase, particularly when they are being introduced to a new teaching approach resulting from a reform.

> Professional development must clearly align with the instructional program, including its research base, as well as with academic and performance standards and include adequate time for in-service teachers to learn new concepts and to practice what they have learned. Professional development must be an ongoing, continuous activity, and not consist of "one-shot" workshops or lectures (The U.S. Department of Education, 2002, p. 26).

PD programs should be designed to be comprehensive, systematic, and sustained. Adopting IBL as a teacher and implementing it throughout a system involves a significant departure from traditional approaches of thinking and learning and requires a sustained effort to promote lasting change. To create long-lasting and widespread change in education, PD programs must be designed to address the individual needs of teachers within their educational context and the broader reform agenda. Such programs must be sustainable over time to ensure continuous improvement. Only such a large scale and deep rooted change, or paradigmatic shift will move the country's educational system away from its traditional training approaches towards alignment with national education reform goals (Cortese, 2003; Wells, 2007). In addition, the content of PD courses for in-service teachers should align with the demands that research on in-service teachers describe for classroom practice, such as high engagement opportunities, real-life (classroom) problem solving, development of self-reflexivity, employment of their previous knowledge, collaboration with peers to share ideas, and continuous improvement through feedback to support learning new skills (Abdel Halim, 2008; Agbayahoun, 2017; Lieberman, 1995; Neufeld & Roper, 2003).

2.2.1.3. PD program duration. The third reality of teacher education development is the length of the PD program. The majority of programs are passive "sit and get" courses. Usually, in-service teachers choose to attend specific topics related to their interests then try to implement some of the ideas tackled in those courses into their classroom teaching. This model does not accommodate sweeping improvements expected in teaching and learning. Findings of previous studies also confirm that the one-shot teacher development workshops do not influence either teaching practice or student learning (Darling-Hammond et al., 2009; Fareh & Saeed, 2011; Yoon et al., 2007). Those workshops are meant to fill in the theoretical gap with less attention to

the practical application of the knowledge presented in the courses. It is often assumed that once in-service teachers get the knowledge, they will be able to improve their teaching. However, previous research indicates that only intensive PD programs with an appropriate time frame will influence teacher professionalism and, as a result, student achievement (Soliman et al., 2013; Yoon et al., 2007).

2.2.2. Effective PD Programs

For decades, in alignment with the behaviorist paradigm, PD programs in Egypt overemphasized the role of content in stimulating responses from in-service teachers to certain concepts previously determined by administrators and educators (Cochran-Smith & Lytle, 1999; El-Amin Muhammad, 2011; Lundin, 2006; McCarthy, 2007; Schwab, 2013). Less focus was on incorporating hands-on methods that strengthen a teacher at the individual level. Accordingly, all learners are treated equally as learning starts with external ignition that is determined, not by the gin-service teachers' needs but rather by the administrators' and policy makers' perspectives of the curriculum content (Fosnot, 1996; Lundin, 2006; Skinner, 1958). This was believed to help administrators and curriculum developers save time and money, but it did not fulfill the actual needs of in-service teachers.

By synthesizing the findings of research, the most effective PD programs:

1. are continuous, intensive, and closely linked to teaching practical application,

2. prioritize student learning outcomes and specifically target the teaching of curriculum content,

3. are in alignment with the priorities and goals of school improvement efforts,

4. are often measured by their ability to foster strong collaborative relationships among in-service teachers,

5. help in-service teachers to reflect on what is known and unknown,

6. develop in-service teachers' meta-cognitive skills,

7. integrate in-service teachers' opinions about the PD programs design, and

8. improve the guided inquiry relationship between PD programs instructors and in-service teachers,

9. help administrators and instructors improve mentorship skills (Brown, 2000; Darling-Hammond, 1999; El-Amin Muhammad, 2011; Fullan & Hargreaves, 2012; Kazempour, 2009; Keys & Bryan, 2001).

2.2.3. Professional Development Approaches

Previous literature proposes that PD in ELT has been shaped by three distinct approaches: the individual approach, the institutional approach, and the teacher-led approach. While these approaches may share some similarities, their impacts on educational institutions and the PD experiences of in-service teachers differ.

2.2.3.1. The Individual Approach. In this approach, in-service teachers' PD is essentially driven by their intrinsic motivation and is exclusively undertaken by in-service teachers with career ambitions (Craft, 2000). According to Edge (2002), this perspective is strongly connected to individual growth and therefore can be highly fulfilling for in-service teachers who are dedicated to the field of foreign language teaching. Edge's viewpoint highlights that this approach enables in-service teachers to progress in a "coherent" manner because their

professional development is rooted in their own authenticity and drives each decision they make (Mora et al., 2014).

However, this approach is criticized since it sees in-service teachers as isolated entities and disregards the fact that they are part of a "micro-cosmos" called school which is immersed in a more complex "cosmos," named society (Mora et al., 2014). Therefore, as Fullan & Hargreaves (2012) discuss, decisions made by an individual teacher would inevitably affect the big cosmos. Furthermore, in-service teachers might experience various feelings of frustration and burnout in their careers, which is detrimental for the PD practice (Bowen & Marks, 1994; Caena & Redecker, 2019; Kohonen, 2002; Mishra & Koehler, 2006; Roberts, 1998). Finally, individualizing the PD process overlooks the cultural specifications of different learning contexts (Craft, 2000).

2.2.3.2. Institutional Professional Development. PD, in this view, is planned and implemented by people with high authority in an educational hierarchy. Typically, it starts with policy makers providing opportunities for in-service teachers to participate in activities that would improve their professionalism (Mora et al., 2014). This policy results in observable and measurable changes over a short time. Yet, this approach is believed to have certain shortcomings as changes are done to in-service teachers not by them (Craft, 2000; Day, 1999; Eltemamy, 2017; Fullan & Hargreaves, 2012). It also overemphasizes superficial changes at the institutional level and merely targets technical skills, which leads to high levels of stress among in-service teachers (Craft, 2000; Mora et al., 2014; Myers & Clark, 2002.)

A representative example of this approach is the many attempts of the Egyptian educational systems to adopt foreign policies regardless of the fact that each country stands in different social, cultural, and political contexts (Eltemamy, 2017; Simkins, 2005). MOE in Egypt

restricts graduate students/in-service teachers into a centralized system that states not only the curriculum specifications, but also the resources and precise dates by which each lesson should be covered (Eltemamy, 2017; Eltemamy, 2012; Loveluck, 2012).

    2.2.3.3. Teacher-Led Professional Development. In this approach, in-service teachers are at the heart of their own educational journey. They take an active role in shaping their own professional development based on their preferences, beliefs, and perceived needs (Mora et al., 2014). Typically, they are supported to decide the paths of their professional development and their efforts are appreciated (Day, 1999; Pennington, 1989; Richards, 2002). There still is a balance between "collegiality and individuality" (p. 2) as explained by Fullan and Hargreaves (2012) to pursue professional development aims and institutional objectives.

    The advantages of this approach are that it values in-service teachers' experiences and contributions to their educational contexts. It further helps in-service teachers to rediscover their moral purposes, as through experimentation, in-service teachers are able to reflect on their own performance, not wait for outsiders to tell them what to do. Changes emerging from these experiences are deeper because they fulfill and align with in-service teachers' interests (Kohonen, 2002).

    2.2.3.4. IBL Implementation. The implementation of IBL in PD programs is essentially about empowering in-service teachers to solve real life problems by employing their previous knowledge and improving their higher order thinking skills (Hofer & Lembens; 2019; McCarthy, 2007; Richardson, 2003). There are certain key components of an inquiry-based educational program recommended by National Research Council (2000). It should start with an inquiry stance of what and/or why, followed by a systematic process of data collection. Simultaneously, the new knowledge gained is utilized for the analysis of the outcomes, which reflects the

understanding of new concepts (El-Amin Muhammad, 2011; National Research Council, 2000).

By the end of inquiry-oriented PD programs, in-service teachers are expected to develop their

analytical skills, and be able to make decisions regarding which strategies are suitable for their

students.

In the context of this study, the implementation of IBL in PD programs is investigated

through the perceptions of three main stakeholders: administrators, instructors, and graduate

students/in-service teachers. First, the study seeks to understand what knowledge of IBL

administrators use to make decisions in the current programs as well as how they procedurally

mentor the changes that might happen to the structures of PD courses. Second, the study focuses

on how instructors implement IBL, in particular to what extent they adopt the inquiry-oriented

instruction in their classes. Furthermore, questions will be asked about how they procedurally

mentor the changes that might happen to the structures of PD courses. For the instructors, IBL

implementation will be explored in terms of the actual teaching inside classrooms and to what

extent they adopt inquiry-oriented instruction. The purpose is to learn how key features of IBL --

-the content, activities, and means of assessment of PD courses - are designed. Third, the study

seeks to record the actual experiences the graduate students/in-service teachers gained during

their study in PD programs, especially how they learn and experienced the IBL implementation

process.

2.2.4. Professional Development Models

Teacher development can be conducted in various ways, such as through sessions in

formal training programs, peer collaboration, classroom research, and reflection to help them

improve their practices. Once the administrators and educators study the standards for designing

effective professional development programs, different models of PD should be considered to

help decide the most appropriate approach (Agbayahoun, 2017; Guskey, 2000; Sparks & Loucks-Horsley, 1989). Different PD models include the transmission model, the top-down and bottom-up model, and the inquiry-based model.

      2.2.4.1. The transmission model. This model is aligned with the behaviorist paradigm. It presents the same stimuli for all teachers to experience that aim for particular responses. In this model, the main focus is on learning the content with less emphasis on the individual needs of in-service teachers, or their prior knowledge (El-Amin Muhammad, 2011; Richardson, 2003). Typically, they do not contribute to the implementation of PD design with other stakeholders because they are meant to engage in repetitious activities taught by their educators. One weakness of this model is that it seeks specific changes and responses. Accordingly, teaching strategies and assessment tools are predetermined to develop sequential knowledge factors (Bloom, 1956; El-Amin Muhammad, 2011; Fosnot, 1996; Loucks-Horsley & Matsumoto, 1999.)

      PD programs in Egypt adopt the transmission model, which neglects the implementation of IBL's core pillars of active learning and reflective practices among in-service teachers. Instead, programs basically employ the "chalk and talk" method that relies heavily on direct teaching, short sessions, summative assessment, and an emphasis on foundational theoretical knowledge (Rezk, 2016). Although this model is believed to improve in-service teachers' rote learning of pedagogies, it neglects the consideration of what and how they learn. After completing the programs, in-service teachers have difficulties relating the content with the real problems they face inside their classrooms. It is believed that the PD programs in the transmission models do not help in-service teachers improve critical thinking skills and make decisions regarding what strategies best suit the learners.

2.2.4.2. Top-down and bottom-up model. Previous literature differentiates ways of designing PD programs -- whether they are top-down or bottom-up (Agbayahoun, 2017; El-Amin Muhammad, 2011; Eltemamy, 2012, 2017; Mazon et al., 2020; Richards, 2008; Richards & Farrell, 2005; Roux & Mendoza Valladares, 2014). While the former implies the transmission of knowledge with predetermined responses from in-service teachers, the latter gives more opportunities for s to reflect and relate to their actual needs. The top-down model provides in-service teachers with essential pedagogical knowledge; however, it is often irrelevant to their classroom practices. On the other hand, the bottom-up model enhances in-service teachers' continuous reflective practices and inquiry learning, and how they relate to students' learning (Burns, 2000; Geyer, 2008).

In Egypt, there is a notable gap between in-service teachers and the other stakeholders of PD programs in terms of decision-making. Most of the changes are imposed on in-service teachers without taking into consideration their abilities, financial status, the way they learn, or their previous knowledge. By encouraging reflection, IBL could help in-service teachers turn away from teaching as impulsive routines to actions guided by inquiry (El-Amin Muhammad, 2011; Dewey, 1933).

2.2.4.3. Inquiry-based model. Research indicates that teacher quality relies on how in-service teachers are willing to engage in ongoing inquiry-based professional development to improve their inquiry and develop what Earl and Katz (2006) calls "inquiry as a habit of mind" (p. 101). This habit implies that in-service teachers possess a set of predispositions that enable them to reflect on certain teaching situations (Hattie, 2009; Kreijns et al., 2019). Inquiry-based professional development programs for in-service teachers are identified as the in-service teachers' constant process of reflection-on-action on teaching to find solutions to practical

classroom problems. This continuous reflection on action and habit of mind helps improve and renew in-service teachers' knowledge and professional skills (Agbayahoun, 2017; Richards & Farell, 2005). In this model, in-service teachers are trained to effectively employ inquiry-based instructional methods in their classrooms (Kazempour, 2009). Inquiry-based PD programs are directed by the active participation of in-service teachers and are based on in-service teachers' reflection on their own understandings and practice (Bazler, 1991; Wallace & Kang, 2004).

Borg (2010) discusses how in-service teachers can adopt an inquisitive stance during their learning and teaching. Research suggests that in-service teachers observe classroom practices, identify the problems, and validate the solutions through ongoing reflection on their teaching (Agbayahoun, 2017; Borg, 2010; Cabaroglu, 2014; Cochran-Smith & Lytle, 1999). This active role of in-service teachers in the learning process shapes the direction of instruction. Therefore, assessment is vital in this model to evaluate in-service teachers' prior knowledge and compare it to their concepts, knowledge and understanding after the PD programs.

2.2.5. PD in Egypt

The Egyptian Government, in collaboration with different organizations like the United Nations Development Program (UNDP) and World Bank, has started many initiatives for improving the state of the teaching profession (Eltemamy, 2017). The focus is mainly on improving the knowledge and skills of graduate students/in-service teachers through continuous PD programs (Ibrahim, 2010; MENA-OECD, 2010). In addition, continuous monitoring and evaluation of graduate students/in-service teachers' performance against professional criteria are employed to identify teacher effectiveness. This is followed by a process of feedback, coaching, and further opportunities for professional development.

Post Arab Spring, when the Egyptian people protested against their oppressive government, in-service teachers had hopes of a better quality education system and higher salaries. Most importantly, in Egypt, in-service teachers seek quality of training that is relevant to their actual classroom problems (Emery, 2012; Mohamed et al., 2016). However, instead of adopting teacher-driven approaches, the Egyptian government initiatives for improving teaching quality mainly use top-down strategies where changes happen to in-service teachers, not by in-service teachers (Eltemamy, 2017). In-service teachers become resistant to change when they believe their voices are not heard. The distinctive nature of each educational context is not taken into consideration and most of the PD programs assume that one size fits all. Previous studies characterize the Egyptian educational system as inappropriately adopting foreign transfer credits (Eltemamy, 2017; Ibrahim, 2010).

The current PD programs are mainly standardized, test based, and rely heavily on accountability measures. In such a culture, graduate students/in-service teachers do not have an opportunity to increase their professional independence or experience the paradigmatic shift required for the adoption of IBL. Instead of becoming proactive and innovative, they become reactive to change. Studies report the influence of current PD programs on graduate students/in-service teachers' roles as they became technicians rather than professionals (El-Amin Muhammad, 2011; Eltemamy, 2017; McCarthy, 2007; Mehta, 2013). Typically, reform is planned by administrators and undertaken by graduate students/in-service teachers, which contradicts the nature of the teaching profession in which multiple elements should work together in decision-making and execution. Clearly there is a need to link graduate students/in-service teachers' perceptions of PD programs on the one hand with the administrators' and instructors' strategies for planning PD programs on the other.

Furthermore, many of the government initiatives are failing to achieve graduate students/in-service teachers' goals in terms of improving their higher order thinking skills and learning through cognitive engagement. Sparks and Loucks-Horsley (1989) states that "The goal of professional development focusing on teachers is to improve student learning through enhanced student performance" (p. 41). To increase students' performance, graduate students/in-service teachers need to master critical thinking, problem solving, and inquiry-based skills rather than merely transmit knowledge to their learners. However, current PD programs are believed to focus only on knowledge of the subject matter. Research findings report that graduate students/in-service teachers voiced concerns about the amount of time allocated to lecturing and not addressing individual graduate students/in-service teachers' needs (Abdelhafez, 2010; El-Bilawi & Nasser, 2017; Eltemamy, 2017; Hanna, 2016; Ibrahim, 2003, 2010). This surely contributes to the poor rate and quality of improvement in the Egyptian educational infrastructure and the absence of a paradigm shift.

CHAPTER THREE: METHODOLOGY

A chapter on research methodology indicates to the reader the proposed steps to be taken in approaching the problem of the study. This implies defining the design, the researcher's role, and type of data sources and analysis (Creswell, 2014). This chapter presents the research design to respond to the question of the study: How has IBL been implemented in one university-certificated PD program for EFL graduate students/in-service teachers in Egypt? In this chapter, I provide an overview of the research design and research methodology with justification for choosing the interpretive qualitative approach to research. I further discuss the research methodology, ontology, epistemology, theoretical framework, study design, ethical considerations, trustworthiness of the data, data analysis, limitations and delimitations, and the timelines of the doctoral research endeavor.

3.1. Research Design

The research design is a strategy of action that guides the researcher's "choice and use of particular methods and links them to the desired outcomes" (Crotty, 1998, p. 7). Grounded in the social constructivist paradigm, this study employs an interpretive qualitative research approach to investigate the implementation of IBL in graduate students/in-service teachers' PD programs. Since the central tenet of interpretivism is that learners are continuously involved in interpreting their ever changing behaviors, interpretivist researchers believe that the social world is constructed by people's perspectives. It is different from the world of nature (i.e., facts) as expressed in positivism. The choice of a qualitative approach for this investigation is resonant with a holistic worldview based on the beliefs that "[t]here is not a single reality. Reality is based upon perceptions that are different from each person and change over time. What we know has meaning only within a given situation or context" (Joubish, et al., 2011, p. 282).

"Qualitative research is difficult to define clearly. It has no theory or paradigm that is distinctively its own … Nor does qualitative research have a distinct set of methods or practices that are entirely its own" (Denzin & Lincoln, 2011, p. 6). In other words, qualitative research is a broad field of inquiry that includes a wide range of approaches and methods, which are identified in different research disciplines (Ormston, et al., 2014). For Creswell (1994, 2014) the qualitative researcher explores a social or human problem by conducting a study in a natural setting and analyzing, interpreting and reporting a complex and holistic picture of the results.

In this research project, I studied the perceptions of EFL graduate students/in-service teachers, their instructors and their institutional administrators regarding the implementation of IBL in professional development programs in Egypt. Considering that developing graduate students/in-service teachers' skills of reflection and critical thinking has been mandated by the Egyptian MOE, I discussed my approach to the gathering and analysis of the data focusing on how graduate students/in-service teachers, instructors, and administrators understand IBL implementation in PD programs. Once the study was completed and based on the data from participants' and the literature review, I proposed suggestions for changes and redesign as English language education moves forward in Egypt. In this way, this study contributes to addressing the scholarship gap of minimal literature about IBL in the Egyptian education system.

3.2. Research Approach

In this section, I describe the qualitative approach to the phenomena under investigation. A research approach implies the intersection between the philosophy, design, and methods of data collection. This study adopts a qualitative approach to research under the philosophy of interpretive social constructivism.

3.2.1 Qualitative Approach

Being situational and community based, this study adopts a qualitative approach to research because the main aim is to understand contextualized complex issues in real world settings, that is, graduate students/in-service teachers', their instructors' and administrators' perspectives of IBL implementation in professional development programs. Van Maanen (1979) defined qualitative research as "an umbrella term covering an array of interpretive techniques which seek to describe, decode, translate, and otherwise come to terms with the meaning, not the frequency, of certain more or less naturally occurring phenomena in the social world" (p. 520). Building upon the ideas of Lincoln and Guba (1985), qualitative research emerged as an intersection between theoretical frameworks and practical strategies to inductively generate theories. The significance of a qualitative study lies in the use of words rather than numbers derived from statistically analyzed data. It is an approach that is essentially concerned with investigating and answering the research problem from the perspectives of the participants in their real contexts. Qualitative research generates themes emerging in the participants' setting and stresses inductive data interpretation building from particulars to general ideas. The aim of incorporating diverse viewpoints is to offer a comprehensive and in-depth depiction and examination of a singular, constrained entity within a specific context, with the goal of gaining valuable insights into real-world scenarios (Merriam, 2009).

3.2.2 The Ontological perspective

Ontology is the study of knowledge as it is. "The study of being. It is concerned with 'what is', with the nature of existence, with the structure of reality as such" (Crotty, 2003, p. 10). In the current study, my ontological assumption is that reality is a woven net of the participants' experiences, knowledge, and interaction within their contexts. Merriam and Tisdell (2015) state

that "Qualitative researchers are interested in understanding how people interpret their experiences, how they construct their worlds, and what meaning they attribute to their experiences" (p. 6). In the same vein, Crotty (1998) suggests that "such research invites us to approach the object in a radical spirit of openness to its potential for new or richer meaning. It is an invitation for reinterpretation" (p. 51). This research seeks to study the unique version of reality understood by the participants themselves instead of the facts that are considered definitive.

For every theoretical perspective, there is a way of understanding what is (ontology) and what we can/hope to know about it (epistemology). The relation between ontology (the sought reality) and epistemology (what we can know about it) is illustrated in (Figure 7) adopted from Hay (2002, p. 64).

Figure 7

Ontology, epistemology and methodology: a directional dependence (adapted from Hay, 2002, p. 64)
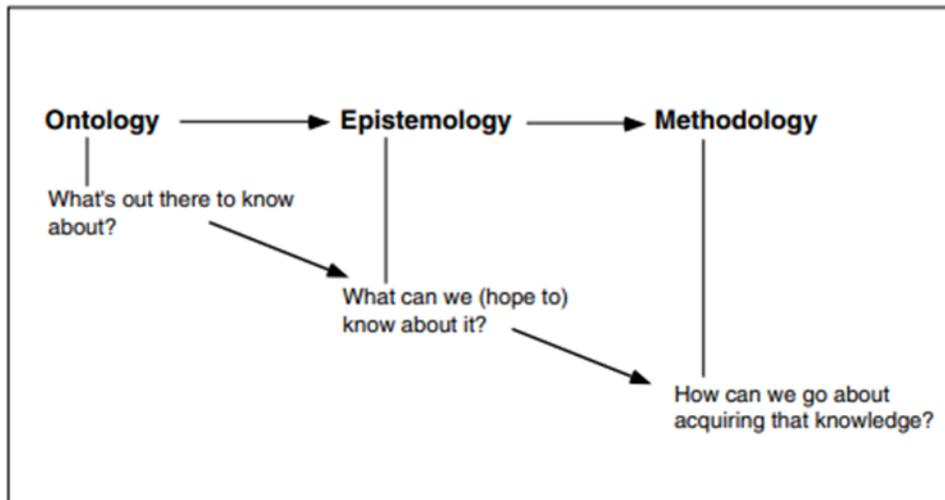
3.2.3 The epistemological perspective

As this study seeks to uncover teachers' perceptions of IBL implementation in PD programs, I adopt the epistemology of constructivism which is part of the philosophy of interpretivism. Interpretivist researchers assert that learners are actively engaged in interpreting their constantly evolving behaviors, and that the social world is shaped by individuals' perspectives. This stands in contrast to the positivist view, which focuses on objective facts in the natural world.

3.2.3.1. Constructivism. Behind every chosen philosophical framework, inevitably, there are certain assumptions that are reflected in the research methodology. Constructivism underlies interpretivist research (Creswell, 2014) and rises as an alternative to positivism. Interpretivist philosophy, where constructivism fits, views reality in a different way because its ontology is that knowledge is constructed, not found (Williamson, 2006). The origins of constructivism go

back to Mannheim's (1952) belief that "different social groups vary greatly in their capacity to transcend their own narrow position" (Berger & Luckmann, 1967, p. 22). Research informed by constructivism explores those people's (i.e., participants of a study milieu) perspectives.

Crotty (1998) defines constructivism as "all knowledge, and therefore all meaningful reality as such, is contingent upon human practices, being constructed in and out of interaction between human beings and their world and developed and transmitted within an essentially social context" (p. 42). In this sense, Crotty stresses the intentionality of meaning embedded in constructivism, which rejects objectivism in positivists and subjectivism. It is the interaction between subject and object. Social constructivists view the social world as "interpretive nets woven by individuals and groups" (Marshall, 1994, p. 484).

Teachers' perspectives are often constructed through education and influenced by their experiences. Within a socio-cultural context, constructivism helps in the social transformation of teachers' education. This idea is highlighted in the work of John Dewey on the theories of practical epistemologies (Dewey, 1933). Dewey's approach to the inquiry of knowledge is within an action-theoretical framework (Biesta, 2007). He concludes that experience is not only about the consciousness of meaning; it is the way individuals are connected with, are part of, and are involved in the world. In relation to this study, Dewey's (1933) ideas shape how teachers might think of the integration between reflection-on-action skills and a PD curriculum. In other words, I investigate graduate students/in-service teachers' socially and experientially based realities as they are considered active constructors of their own learning environment. Similarly, I explore the sociocultural context of instructors and administrators as they strive to shape graduate students/in-service teachers' PD experiences.

In language teaching, constructivism is believed to present an appropriate framework to explore the intervention between the personal and social dimensions of teacher development. The social constructivist view recognizes the individual's knowledge construction and the context in which knowledge is constructed. Vygotsky (1978) highlights this meaning in his proposal of the dual nature of constructivist learning. That is, learners interact with sources of knowledge in social settings as well as actively reconstructing developed understanding of meanings (Yang & Wilson, 2006).

3.3 Theoretical Framework

The philosophical stance of this study arises from the importance of graduate students/in-service teachers' perspectives of the implementation of IBL in PD programs. It pays more attention to their experiences and the contexts in which they work. In this way, this study falls under the Post-Modern Interpretive paradigm. This positioning allows me as a researcher to view the implementation of IBL in PD instruction through the perceptions and experiences of the graduate students/in-service teachers (participants) themselves in their real contexts in relation to their instructors and institutional administrators. The flexibility of the interpretivist ontology is highly suitable to the nature of this study. Under this ontology, there is no right or wrong response. Unlike Post-Positivism, interpretivism is much more inclusive because it accepts, and even seeks, multiple viewpoints of different individuals from various groups.

As Eisenhardt (1989) states, it is impossible for researchers to start with a clean theoretical stance, and it is "impossible to embark upon research without some idea of what one is looking for" (Wolcott, 1994, p. 157). Setting a research project within a paradigmatic outline is a valuable task that will lead researchers to reflect upon the wider philosophical and epistemological implications of their research. The importance of linking research to a

philosophical stance is illustrated by Byrne (2001) who states, "The research stance needs to be illustrated with a philosophy because the philosophy includes the assumptions of the current study" (p. 2). This is believed to be "influential in providing the researchers with stability and direction as they are moving towards understanding the research process" (Crotty, 2003, p.6).

The researcher's focus is to purposefully select the research context, setting and participants to reflect the complexity of the phenomena being investigated. Factors like personal experience and values are brought to the study as the researcher collaborates with the participants to establish the meaning of the multifaceted and contextually bound "reality". Henceforth, the employment of interpretive qualitative approach is further justified as the inquiry of the study has emerged from a lived experience I had as an international student and teacher. I also reflect on and relate to my personal background of studying and teaching in Egypt. In this sense, I see myself as a witness of the phenomena under investigation. Including the perspectives of PD instructors and administrators adds to the view of reality because they are regarded as social actors in the same context. This is explained by Crotty (1998): "different people may construct meanings in different ways, even in relation to the same phenomenon" (pp. 8-9).

The variability of the external reality leads to several perspectives of the truth. Willis (2007) suggests that the concept of multiple perspectives stems from the understanding that external reality is fluid and subject to variation. Willis further points out that diverse individuals and groups may hold distinct perceptions of the world. This multiplicity does not mean that the graduate students/in-service teachers' understandings are different; rather, it constitutes the "reality". This variability is attributed to the interpretive framework through which individuals filter their responses, as well as their distinct approaches to classroom settings, shaped by their personal, professional, and institutional understanding. Embracing the notion of multiple

perspectives in interpretivism can result in a more comprehensive understanding of a situation, which can greatly benefit educational researchers seeking in-depth insights from a population, rather than relying solely on statistical data. From an epistemological perspective, the interpretivist paradigm posits that our understanding of reality is shaped by social constructs created by human actors (Burrell & Morgan, 1979).

3.4 The Study Design

In this section, I describe in detail the overall strategy that I use to integrate the different components of the study in a coherent and logical way. I discuss participants, data collection and analysis methods.

3.4.1 Participants

In this qualitative study, participants were selected through the purposeful sampling process, which is a strategy used to choose "particular settings, persons, or activities … deliberately in order to provide information that can't be gotten as well from other choices" (Maxwell, 2005, p. 88). The study participants were recruited from within my professional network as an instructor at an Egyptian university. Given the relatively small number of faculty members, I decided to interview two administrators, two instructors, and six graduate students/in-service teachers who expressed a willingness to participate voluntarily in the research process.

Based on my research questions, I explored the different viewpoints on the implementation of IBL within an educational institution. The perspectives of these three key actors—institutional administrators, program instructors, and graduate students/in-service teachers, who also serve as junior high EFL teachers—provide insights into the extent to which IBL has been incorporated or is currently being integrated into a specific certified PD program at

a HEI in Egypt. I targeted graduate students/in-service teachers who are enrolled in a meaningful research experience such as post-graduate studies as part of their PD programs. Six volunteer EFL junior high in-service graduate students/in-service teachers became the study participants. These individuals are enrolled in various courses of post-graduate studies. Through interviews I learned how they experienced IBL implementation in PD and, in particular, how beneficial they perceived it to be.

Given the scope of the current research and the importance of experience in shaping the views of the graduate students/in-service teachers, years of professional experience are used as one of the factors to select the participants. The more experience they have, the more knowledge could be anticipated from a teacher. Reynolds (1995) emphasizes that, "expert teachers have established more procedural knowledge for solving discipline problems than do novices, experts can divert more of their attention to problem definition, representation and strategy evaluation" (p. 214). However, they may also be more set in their ways. In this study, graduate students/in-service teachers' experiences vary from four to seven years. I use this criterion as a way to consider their openness to the modernity of IBL. All graduate students/in-service teachers are Egyptians who are graduates of a Faculty of Education.

The study is concerned with junior high EFL Egyptian graduate students/in-service teachers who work in private Egyptian schools that follow national standards. This population was selected mainly because public schools have poorer facilities, larger class sizes, and teachers are less motivated to upgrade their skills. A large class size of over 50 students can lead to a lack of self-motivation among graduate students/in-service teachers to pursue PD programs. Moreover, private language schools with national standards in Egypt have achieved high scores in comparison to 60 participating countries in TIMSS* (El-Bilawi & Nasser, 2017, p. 151);

whereas, the results achieved by the total average of public and international schools in Egypt were below average.

Study participants include two PD program instructors. How they plan and offer IBL in their courses is compared and contrasted with how graduate students/in-service teachers experience IBL. Administrators and the head of the department are interviewed about their crucial role in mentoring the administration of IBL and the PD plans.

3.4.2 Data Collection Methods

Crotty (1998) asserts that research methodology is that part of "research design that shapes our choice and use of particular methods and links them to the desired outcomes" (p. 7). Deciding upon which methodology to follow helps the researcher justify the choice of research techniques and process of data collection and analysis. Typically, in a qualitative inquiry, a researcher uses multiple sources of data to generate themes or categories. Multiple sources of collected data provide opportunities to create trust in the credibility of the findings. In my study, the main tool of data collection is semi--structured interviews and university document analysis. In terms of data sources, I interviewed six EFL graduate students/in-service teachers enrolled in PD programs (see Appendix H), two PD instructors (see Appendix I) and two administrators (see Appendix J) about their perspectives on the implementation of IBL in their PD programs.

3.4.3 Setting

In qualitative research, data collection often takes place in the field, where researchers directly observe and engage with participants as they experience the issue or problem being studied. "Qualitative researchers tend to collect data in the field at the site where participants experience the issue or problem under study" (Creswell, 2014, p. 234). The context of this study

is Egyptian universities where graduate students/in-service teachers are enrolled in PD programs. The interviews were conducted online via the Zoom portal.

3.4.4. Data collection tools

This study drew data from semi-structured interviews, a review of PD course descriptions, reflections on my personal experience and a study of previous literature related to the implementation of IBL in PD programs for graduate students/in-service teachers.

3.4.4.1. Interview. In constructivism, one of the objectives of data collection is that "the researcher strives to see things from the perspective of the participants" (Crotty, 1998, p. 7). In the current research project, semi-structured interviews are used to learn the participants' perceptions about the implementation of IBL in PD programs. Interviews offer a space to collect data about the various facets of participants' past and current experiences from different angles. Combining the perceptions of the PD programs' stakeholders enhances the objectivity as well as the understanding of the influences that might affect IBL implementation in PD programs.

There are many reasons for using semi-structured interviews in this study. The main one is that the flexibility of changing and adding more questions during the interview provides opportunities for the researcher to gather more in-depth insights from the participants. Via semi-structured interviews, "the researcher can prompt and probe deeper into the given situation and can explain or rephrase the questions if respondents are unclear about the questions" (Kajornboon, 2005, p. 6). It gives great account for the wealth of emergent issues related to the participants' experiences, in addition to the previously determined themes in the researcher's mind. Unlike structured interviews, the semi-structured design explores the everchanging nature of reality (Rezk, 2016). This type of interview style allows for the inclusion of various verbal and non-verbal data, which, in turn, enriches the participants' perceptions. As indicated by Cohen,

Manion and Morrison (2000), "the semi-structured interview is not simply concerned with collecting data about life; it is part of life itself, its human embeddedness is inescapable" (p. 267).

There are several types of semi-structured interviews (Cohen, et al., 2000; Read, 2018; Rezk, 2016). In this research, interviews are serial, individual, and oral. Using serial interviews is an alternative approach that requires interviewing the participants multiple times. This approach is frequently used when a topic under study is complex and participants can benefit from time to reflect between meetings (Grinyer & Thomas, 2012; Read, 2018).

Serial interviews are used to compare the data obtained from graduate students/in-service teachers, instructors, and administrators. Using a serial interview approach is appropriate in the context of this research as graduate students/in-service teachers might not be familiar with the idea of IBL. Multiple interviews are anticipated to help motivate the participants to express their actual perceptions. As one of the expected challenges was the familiarity between the researcher and the participant graduate students/in-service teachers, a one-session interview would not have assured confidence for graduate students/in-service teachers to reveal their own thinking in the Egyptian cultural context.

In the cultural context of this study, one session interviews might not have supported instructors' and administrators' candor to express reality as it is for them. To reduce the possibilities of biased and typical answers to the questions, serial interviews are anticipated to invite instructors and administrators to share information (Read, 2018). Crosschecking is one technique to control biases in serial interviews. For example, instructors might be gently introduced to graduate students/in-service teachers' responses in previous interviews and,

accordingly, they rethink the ideas they are sharing. This is believed to minimize contradictions in data and enrich in-depth insights of the study.

Eighteen interviews were held twice for approximately 60 minutes each. The questions primarily focused on the ways the administrators contribute to the process of implementation of IBL, the instructors integrate IBL in designing and implementing the curriculum for PD courses, and the graduate students/in-service teachers perceive IBL implementation in PD programs. One anticipated challenge was the lack of awareness among graduate students/in-service teachers of how to express their understandings of the inquiry-based learning approach in professional development programs. Since some participants were not familiar with the terminologies, interviews were designed to give participants an opportunity to articulate their perceptions as much as possible after hearing relevant examples from the interviewer.

There are significant issues with research traditions in Egyptian culture. Conducting an accurate qualitative interview in the context of this study was not an easy task for a number of reasons. Basically, the interviewees, who are the study participants, and the major source of data information, were not adequately familiar with the qualitative interview as a research tradition. The order of the interview questions played a vital role in retrieving experiences that participants themselves would be fully aware of. For example, instead of starting with a granular introductory question about what they think about PD programs in general, questions were analytical and detailed to probe graduate students/in-service teachers' key ideas. Probing for more comprehension and clarification occurred frequently during the interview to motivate the participants to provide further detailed information. Given the study context, it was important that the researcher and the participants established a good rapport and displayed a mutual sense of familiarity. The interview did not test the participants' knowledge. My own understanding of

the topic was not to be competing with what they shared and expressed as a personal point of view. Hence, following research about a successful qualitative interview, I sought to be a good listener, and show curiosity for further knowledge (Abdelhafez, 2010; Legard et al., 2003).

I translated the interview questions into the participants' mother tongue, which is Arabic. This translation happened for a variety of reasons. First, since the target participants are Egyptians and non-native speakers of English, translating the interview questions into the graduate students/in-service teachers' native language made it easier for them to respond to and saved much time and effort. Further, translation reduced ambiguity resulting from unfamiliar terminology of some items. However, I am also aware of certain challenges in using translation in qualitative research, such as the loss of meaning, the cultural differences, and subjectivity (Van Nes et al., 2010). Meanings were interpreted and expressed through the participants' experience. The relation between language and experience is bilateral. Although language is used to express ideas, the construction of meaning is also influenced by language (Van Nes et al., 2010). In the case of this study, translation from Arabic to English was a part of the interpretation process. During the process of translation, attention was paid to subtle meaning differences to avoid the loss of meaning. It was important to maintain the cultural context of certain concepts while translating quotations from participants' responses (see Appendices L & M).

To reduce the influence of challenges on the validity of the research results, previous studies offer some recommendations (Van Nes et al., 2010). First, while interpreting data, researchers are recommended to think in the native language as much as possible since how we think influences how we express our understanding. Moreover, in interpreting quotes, the help of a professional translator is advised in collaboration with the researcher. This action implies

explaining the meaning of quotes in relation to their cultural context. Similarly, when discussing transcripts with other research members, such as the study supervisor, it is better to have a thick description of meanings and avoid fixed wordings. The descriptions should be fluid and in various language formulations (Van Nes et al., 2010). In the case of the current study, the researcher and participants are fluent in the same language, and there are no language differences or communication barriers. Additionally, the researcher is a member of the study context and has a deep understanding of the culture, which was a valuable asset in the data collection phase.

Insider researchers who share the same language as the participants enjoy certain advantages when accessing primary data sources during analysis. They can bypass challenges related to translation. Being able to fully immerse themselves in the original data and potentially mediate between different language sets, especially if they are bilingual or multilingual, can provide valuable additional insights and enhance the interpretative process with greater clarity. According to Baker (2007), researchers who are bilingual or multilingual possess metalinguistic awareness, which enhances their sensitivity to language and heightened awareness of its meaning and structure. This proficiency allows them to discern subtle nuances in participants' speech and align the concepts derived from the data, ultimately leading to improved quality and accuracy of the research results. On the other hand, insider researchers may struggle with the assumption that certain cultural nuances are universally understood, which could result in misinterpretations or oversimplifications of the data. Therefore, it is crucial for insider researchers to maintain a reflexive stance throughout the research process.

For the instructors, four interviews were held in English for 60 minutes. Questions mainly evolved around the viewpoints of three important stakeholders - institutional administrators, program instructors, and graduate students/in-service teachers - provided insights into the degree

to which IBL has been implemented or is being integrated into a certified PD program at a HEI in Egypt. Responses of the instructors and administrators were compared to those of the graduate students/in-service teachers to highlight similarities and differences. Similarly, administrators were asked about the procedures of mentoring and integrating IBL in PD course descriptions.

       3.4.4.2. Saturation. Saturation is one criterion that determines the sufficiency of purposive sampling size. As Morse and Field (1995) pointed out, saturation can be an "elastic" concept and depends on the researcher's qualities and the degree of research complexity (Guest et al., 2006). In this study, I interviewed six EFL graduate students/in-service teachers to make sure I gained an in-depth insight about the study question as well as two PD program instructors and two administrators.

       3.4.4.3. Document collection. As a means of understanding the participants' experiences of the process of the implementation of IBL in their PDiE programs, I reviewed and analyzed samples of institutional documents. Documents included the Master Degree and the Doctor of Philosophy programs in one of the Egyptian post-graduate institutions (see Appendices C & D). The inclusion of such documents was essential for analyzing how the institution expresses its implementation of IBL and interpreting how the participants identify their experiences of the process of IBL implementation in the institutional context. The analysis of PD course outlines provided a framework of IBL implementation through the lens of collaborative initiatives of administrators and instructors. Typically, including institutional documents such as course outlines enables the researcher to identify the hidden connections among participants' perceptions within the larger culture and their educational milieu (Patton, 2015).

       The course outlines were approved by the institution's administrators committee in 2015 (see appendices A, B, C & D) and were translated from Arabic to English. They highlighted the

program's general objectives in terms of the outcomes graduates could anticipate as academic

and professional skills including aspects of collegial work and higher order thinking skills.

3.5 Data Analysis

In previous research, various approaches for analyzing data from serial interviews are

identified (Sheard & Marsh, 2019). A group of studies uses a thematic and/or constant

comparison analysis (Lewis, 2007; Morse & Field, 1996; Patel et al., 2016; Thomson, 2007),

while others opt for a narrative approach to participants' stories of life history (Whiffin et al.,

2014). The data collected from the serial-interviews in this study were qualitatively analyzed

using the Thematic Analysis (TA) approach. In the context of this study, data analysis was a

successive process, starting from conducting the first interview with the participants and cross-

checking participants' responses for precoding themes. The target of these steps was to

"winnow" the gathered data (Guest et al., 2012). The researcher focused only on relevant details

to generate a number of themes in the data. Afterwards, the second interviews were conducted

and the emergent themes were recoded for complex description and interpretation (see Table 1.)

Table 1

Serial-interview steps in the study.

	Questions	First interview	Second interview
Graduate students/in-service teachers	In addition to specific questions to each group, there were similar questions to help crosscheck participants'	Initial codes were generated to highlight the common ideas among participants as well as the differences.	Questions were added/ changed/ modified according to responses from the first interview to gain as much
Instructors	responses.		

Administrators			comparable data as possible.
		Precoding	Recoding

Traditionally, qualitative data analysis follows two major processes. The first one namely implies the granular steps of analysis such as transcribing interviews and organizing and sorting data into categories. The purpose of this step is to provide a general sense of the information to help the researcher understand the tone of the idea and reflect on its overall implications (Creswell, 2014). It also provides an insight about the specific steps of analysis that will be embedded according to the study type. Eventually, the researcher's interpretation of the findings is presented in different categories in alignment with the inquirer's objective. As with other studies, my analysis led to further questions or connections to previous literature. Findings will be presented in the final chapter.

The second layer of the process of analysis is influenced by the design of the qualitative research study. In the type of research that targets the interpretation of meanings in a certain context, I aimed at "the discerning of themes" and followed Tesch's (1990) hierarchical approach for data analysis. This approach includes eight steps typically building from the bottom to the top; however, in some steps, stages become interrelated. These steps start with reviewing raw data, a careful reading of meaning units, grouping similar meanings into themes, clustering similar themes into codes, initially describing the data through codes, identifying the structure of the phenomena, analyzing data, and recoding (see Figure 8). The eight steps should be preceded by "bracketing" or when a researcher conceptualizes his/her preconceptions of the phenomena

under study. The purpose of this initial step is to gradually move from the researcher's own

meanings to those in the world of the participants (Hycner, 1985).

Figure 8

Tesch's (1990) model for data analysis
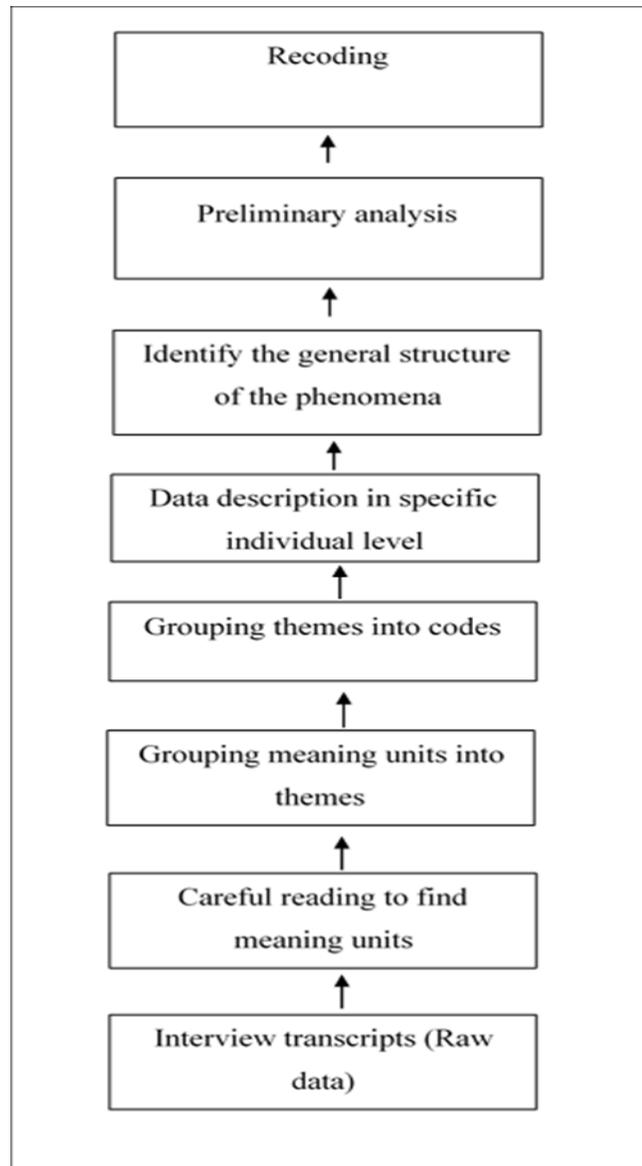
TA is one approach for identifying the patterns and themes within qualitative data (Maguire & Delahunt, 2017). Going beyond merely summarizing the data or doing a qualitative content analysis, TA contributes to "thematizing meanings" so that a researcher provides a deep interpretation of data. It is considered a flexible tool that could be utilized under diverse epistemologies and theoretical perspectives (Braun & Clarke, 2006; Clarke & Braun, 2013; Maguire & Delahunt, 2017). In accordance with Tesch's (1990) model, Braun and Clarke (2006) suggest a six-step framework for TA that I also followed. It begins with getting familiar with data, generating initial codes, searching for themes, reviewing themes, defining themes, and finally writing up (Braun & Clarke, 2006; Clarke & Braun, 2013). Being clear and specific, this model is considered a comprehensive outline of the process of TA in social sciences (Maguire & Delahunt, 2017; Meier et al., 2008).

Qualitative analysis starts with the researcher deeply immersed in the raw data to get a sense of the whole meaning. A researcher goes through transcriptions looking for ideas that pertain to the study phenomenon and then finding out the meaning units that contain them. Wertz (1985) defines meaning units as "a part of the description whose phrases require each other to stand as a distinguishable moment" (p. 165). Themes emerge as clusters of meaning units and are arranged according to their importance to general, specific, and miscellaneous categories. A researcher goes back and forth between data and themes to create coded themes with attached descriptive statements from transcription. This repetitive process allowed me to check for new emerging codes. This latter step is concerned with "the concreteness of the one person's experience" (Tesch, 2013, p. 93). In other words, the general description is obtained through the collection of particular experiences to identify the fundamental structure of the phenomenon. Preliminary analysis is concluded according to the constructed thematic map. This happens when

data are assembled into codes to help a researcher find commonalities, uniquenesses, confusions and contradictions, and missing information regarding the research questions. Finally, recode the existing data, if necessary, as it should guide through the next round of data collection (Braun & Clarke, 2006; Clarke & Braun, 2013; Colaizzi, 1978; Creswell, 2014; Hycner, 1985; Tesch, 1990; Wertz, 1985).

Analysis was done manually following a color-coding technique. This aligns well with my experience with TA in a previous research project. Basically, one colour signifies a coded theme which makes it easy to match themes with quotations from participants' transcription (Linneberg & Korsgaard, 2020; Saldaña, 2013). Color coding is a common technique that "involves generating pithy labels for important features of the data of relevance to the (broad) research question" (Clarke & Braun, 2013, p. 3). It was in this step that I allocated the relevant pattern of data to constitute coherent themes (Braun & Clarke, 2012; Clarke & Braun, 2013).

For example, the thematic analysis on the challenges of IBL implementation began with an extensive literature review to establish foundational knowledge. Then, semi-structured interviews with administrators, instructors, and graduate students/in-service teachers were conducted, in order to gain qualitative data. I manually highlighted all of these transcripts in different colours with each colour signifying a coded theme for clarity. Recurring patterns of transcript segments, such as limited access to technology resources, were identified with one colour. These patterns were then synthesized to form general themes related to challenges in IBL implementation. The themes were consequently interpreted within the context of the study's objectives, contributing to the comprehensive findings.

3.6. Ethical Considerations

It is specifically in qualitative studies that researchers are often compelled to clarify their role during the research process. In qualitative study procedures, the researcher participates in all stages from identifying an idea to designing interviews, transcribing, analyzing, confirming and reporting the concepts and derived themes. Therefore, researchers should always be aware of the exact justification for taking part in any study step to avoid unfavorable personal issues with the participants. Since the relationship that is constructed between the researcher and participants can raise a range of different ethical concerns that might lead to dilemmas for confidentiality, establishment of honest and open communication, and misguiding responses, I did not begin the study until I had received approval from the Research Ethics Board of the University of Alberta. Since the HEI in Egypt does not currently have a research ethics protocol, I received written permission from the participating institution to conduct the study. Other important ethical precautions that were taken into consideration when carrying out this qualitative research study were anonymity, confidentiality and informed consent. There are several recommended strategies to protect personal information, for instance, protected data storage methods, deletion of identifier elements, biographical details modifications and pseudonyms of individuals, places and organizations.

3.7. Trustworthiness of the data

Validity and reliability have different meanings in qualitative and quantitative research. Qualitative validity implies the accuracy of findings and qualitative reliability connotes the consistency of the researcher's approach with other scientists in various projects (Creswell, 2014). However, the definition of validity and reliability is variable according to the philosophical assumption underlying the qualitative research paradigm. In literature, the issue of

ethically addressing trustworthiness has undergone different views. Terms like objectivity, reliability, internal and external validity were widely used until 1990. At this juncture, credibility, transferability, dependability, and confirmability were substituted as more suitable criteria for assessing trustworthiness in qualitative studies (Merriam& Tisdell , 2015.)

3.7.1. Credibility

Credibility in qualitative research is an assurance that the study investigates the topic that was basically intended for research (Lincoln & Guba, 1985). It fits the reader's understanding and the researcher's representation of the study problem (Tobin & Begley, 2004). There are certain strategies recommended for establishing the study's authenticity and trustworthiness, one of which is the credibility of data collection and analysis. The selection of each strategy varies according to the type of qualitative research. Wolcott (2005) suggests that employing various strategies increases "the correspondence between research and the real world" (p. 160). To support the argument of this study, strategies such as triangulation of data sources and methods of collection in addition to member checks were adopted for addressing credibility and will be discussed later in this chapter.

3.7.2. Transferability

Transferability implies the generalizability of the study findings (Lincoln & Guba, 1985; Merriam, 2009; Tobin & Begley, 2004). It is important that a researcher introduces a detailed description of the study background and context to help readers transfer, if appropriate, the data outcomes to different contexts. The involvement of the three groups of participants in this dissertation research enriches the study's transferability since hopefully readers will be able to relate this to their own context.

3.7.3. Dependability

Dependability is the extent to which a reader can trace and examine the research process (Tobin & Begley, 2004; Nowell et al., 2017). In qualitative research, dependability corresponds to reliability in quantitative research (Lincoln & Guba, 1985). One technique to achieve dependability is to have an audit trail of the choices, decisions, and changes that the researcher makes throughout the research process followed by a legible rationale for each step (Koch, 1994; Nowell et al., 2017). In this study, reflexivity was employed to reveal the changes that took place in the researcher's ideas and insights along the research journey to support the dependability of the study. The researcher's field notes were available to her supervisor for discussion.

3.8. Triangulation

Triangulation implies comparing and corroborating the findings so as to have a deeper understanding of the object under study. Patton (2015) explains, "triangulation, in whatever form, increases credibility and quality by countering the concern (or accusation) that a study's findings are simply an artifact of a single method, a single source, or a single investigator's blinders" (p. 674). Denzin (1978) lists three strategies for triangulation: the use of multiple methods, multiple sources of data, and multiple investigators. Merriam and Tisdell (2015) adds a fourth: using multiple theories to confirm emerging findings. For the purpose of this study, data have been triangulated at two levels. The first triangulation between the government mandates, the presence of IBL criteria in the course outlines at one university in Egypt, and the perspectives of administration, instructors and graduate students/in-service teachers on the implementation of IBL confirmed the efforts of all parties in this study to comply with the government mandate (see Figure 9). Second, the individuals interviewed provided multiple perspectives on the same IBL

program: the administrators, instructors and graduate students/in-service teachers enrolled in PD

programs (see Figure 10.)

Figure 9

Triangulation of sources of data

The government mandates

Literature review and
document analysis of
IBL

Interviews with
participants of IBL in
Egypt
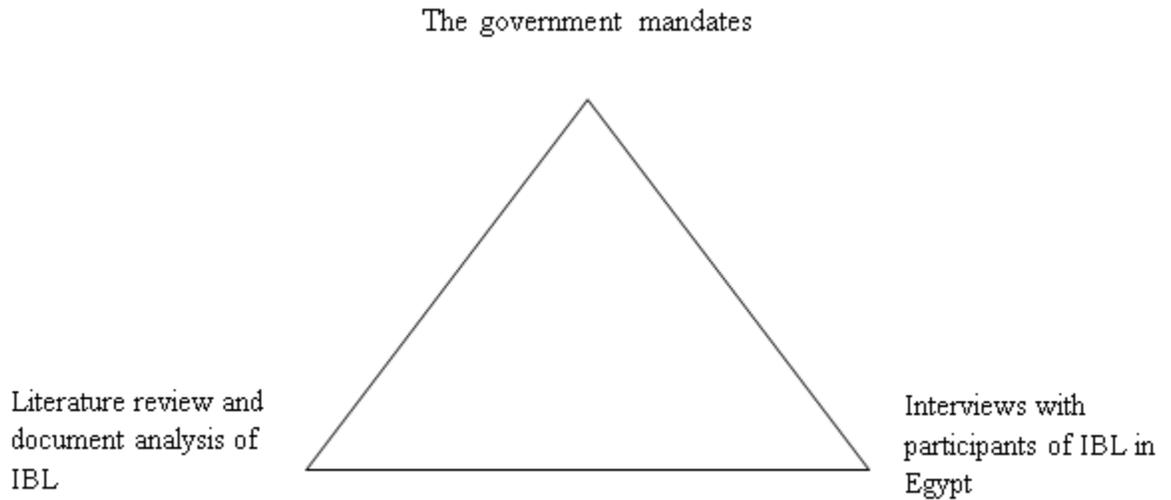
Figure 10

Triangulation of data from interviewees
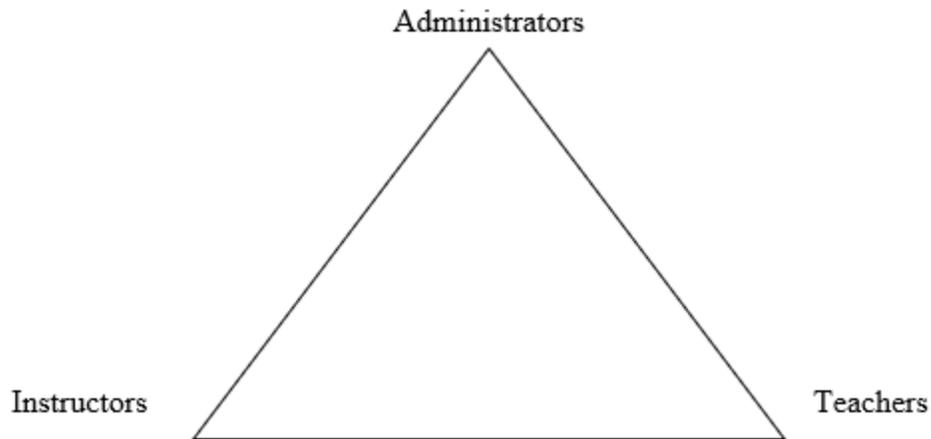
3.8.1. Member checks

Merriam and Tisdell (2015) highlights that member checking is a strategy for ensuring internal credibility. This process aims at confirming that the researcher's preliminary interpretation of the participants' responses "rings true". Although, as a researcher, I might use my own words in data analysis, it is important for the participants to be able to recognize their individual experiences. Creswell (2007) identifies the purpose of member checking as sending back the interview transcripts to the participants so that they can confirm the accuracy of responses. In this study, the interviews were transcribed into Arabic and were sent back to participants to confirm or change the information as desired. The revised transcripts were translated into English to help my supervisor read and evaluate the content. I then utilized the English transcript for coding but did not ignore the nuances that were embedded in the original Arabic version.

3.8.2. Thick description

The quality of qualitative data and reporting comes from the thick description or the richness of the narrative, examples and details provided by participants. Walcott (1994) differentiates between three terms that he believes are used interchangeably in research about description, descriptive analysis, and interpretation. Description is essentially concerned with telling the current status of the phenomena under investigation. It plays a vital role in conveying the research findings and gives readers a sense of a shared experience with the researcher. Descriptive analysis employs the identification of new connections and interrelationships among factors while interpretation targets the embedded meanings beyond the details.

There should be a balance in reporting the qualitative results. Patton (2015) describes such balance: "Description provides the skeletal frame for analysis that leads into interpretation" (p. 606). One of the concerns is that description might become endless and is why analysis helps to make thick descriptions manageable.

3.9. Researcher's reflexivity

The research inquiry was triggered by my personal experience as a graduate student / in service teacher and teacher instructor in Egypt, and a doctoral student in Canada. My role in the study and my experiences are reflected in the interpretation of the findings. As a constructivist researcher, I create a balance between my conventional meanings and experiences, and the radical spirit of openness to reinterpretation of potentially new meanings of the phenomena. My personal biases and assumptions, background and enthusiasm for IBL were made transparent in chapter one to help the reader understand how I arrived at a particular interpretation. My view is definitely only one of the qualitative research strengths (Creswell, 2014).

3.9.1. Field notes journal

When conducting a qualitative research study, it is recommended that the researcher document necessary contextual information and personal observations, surprises and responses through a field notes journal. This helped me as the researcher express personal thoughts, queries, and observation notes during the phase of data collection and offered me an additional touchstone during data analysis. As many specialists state, recording field notes serve as an aid for rich and thick description of the data context and prompts the researcher to closely observe the study environment (Elo & Kyngas, 2008; Emerson, et al., 2011; Phillippi & Lauderdale, 2017). I also sought to align my approach to field note collection to be congruent with my theoretical framework and methodological approach adopted for the study. More specifically, I took notes related to the theoretical foundations of IBL and observed the probable links between the participants' perspectives of IBL implementation and literature review. The approach should direct the researcher to the appropriate nature of knowledge, and the value placed on different information sources (Mulhall, 2003; Phillippi & Lauderdale, 2017).

I started with a comprehensive description of the overall setting of the participants as a useful background when analyzing participants' perspectives. I tried to merge between the instant field notes that were prompted during the interviews, and the general contextualization of the study to highlight the relevant information in participants' comments. Field notes are supposed to be in written form, include observations taken during the interviews, and dedicate a space for additional critical reflections that emerge. I paid particular attention to the changes over time, noting my thinking at the beginning of the study, while preparing for candidacy, during the data collection and analysis, and at the close of the study. An overview of some of these personal shifts in thinking will be presented in chapter five.

3.10. Limitations and delimitations

Limitations:

This research focused on a specific group of participants, namely 6 EFL graduate students/in-service teachers in private national-based junior high schools in Egypt. Consequently, the findings might not be directly applicable to the broader context of Egyptian public schools or other types of private schools. The study was conducted over 6 months. This limited timeframe might not have allowed for the exploration of insights and changes that could occur over a more extended duration of the implementation of IBL. An expected challenge during the research process was the potential lack of awareness among graduate students/in-service teachers regarding how to articulate their perceptions of the inquiry-based learning approach in professional development programs. Some participants may not have been familiar with the terminologies used, necessitating the provision of relevant examples to facilitate their expression.

Delimitations:

The research intentionally focused on a small number of participants, specifically EFL graduate students/in-service teachers, who were graduates of a Faculty of Education. This focus was designed to explore experiences gained through a comprehensive undergraduate degree program that emphasizes methodological and curriculum studies in education.

The study concentrated mainly on EFL graduate students/in-service teachers' perspectives, omitting perspectives from graduate students/in-service teachers of other subjects and the viewpoints of school principals. The rationale for this omission was to maintain a clear and specific focus on the experiences of EFL graduate students/in-service teachers.

The study specifically targeted junior high school graduate students/in-service teachers. This choice was made because these participants were believed to have more experience with IBL. Consequently, the study does not encompass the perspectives of graduate students/in-service teachers at the primary level or other educational levels.

CHAPTER FOUR: DATA ANALYSIS AND FINDINGS

In chapter one, I established that the Egyptian government has mandated the implementation of IBL throughout its education system. This leads to the overarching research question: How has IBL been implemented in one university-certificated PD program for EFL graduate students/in-service teachers in Egypt? Three sub-research questions support this inquiry:

1. In what ways do administrators contribute to the process of implementation of IBL in one university's PDiE program?

2. How do instructors integrate IBL in designing and implementing the curriculum for courses in one university's PDiE program?

3. What are EFL graduate students/in-service teachers' perceptions of how IBL has been implemented in the university's PDiE program?

Chapter two presented relevant literature that serves as a foundation for the Egyptian government's mandate, namely, the need for the graduate students/in-service teachers to graduate with critical thinking and research skills.

In this robust chapter four, I present the data from the document analysis and the interviews. These data have been triangulated at two levels, which was described in chapter three. The first triangulation between the government mandate, the presence of IBL criteria in the course outlines at one university in Egypt, and the perspectives of administrators, instructors and graduate students/in-service teachers on the implementation of IBL confirmed the efforts of the study university to comply with the government mandate. The second level of triangulation, finding the similarities and differences between the perspectives of administrators, instructors and students on the implementation process, teases out more details of the steps toward

implementation and the challenges faced at this institution. I also merged the field notes taken immediately after each interview with the above to provide a deeper understanding of the data and facilitated the identification of key themes and insights from the participants' perspectives. These data respond to the research questions and contribute to the recommendations presented in the final chapters of this dissertation.

The data analysis chapter is where a researcher discusses the interpretation of the findings of a qualitative study. In the context of the present study, questions about the extent to which IBL has been incorporated in one university-certificated PD program for EFL graduate students/in-service teachers in Egypt, the data were shaped and collected from three sources: literature review, university document analysis, and serial interviews. The present study incorporates a constructivist framework to examine its findings with consideration for the social and cultural context in Egypt and recognition that paradigmatic change takes a considerable amount of time.

The current chapter presents an analysis of the data collected from the course outlines of the PhD and Master degrees and discusses the serial interview procedure as conducted with the three categories of participants: the administrators, the instructors, and the graduate students/in-service teachers in PD programs in one university-certificated PD program for EFL graduate students/in-service teachers in Egypt. The literature review was used to construct the questions for the interviews.

4.1. The course outlines analysis:

The current study aims at uncovering the participants' experiences of IBL implementation in their institutional context. Accordingly, this section points out the aspects

where IBL implementation exists in the course outlines in one university-certificated PD

program for EFL graduate students/in-service teachers in Egypt as follows (see Tables 2 and 3.)

Table 2 illustrates the match between the aspects of IBL noted in the literature review and

those stated in the outlines of six PD courses as a part of a PhD program in one university-

certificated PD program for EFL graduate students/in-service teachers in Egypt. See Appendices

C and D for sample course outlines. Table 2 reveals which of the IBL criteria appear in the

course outlines as program general objectives, teaching and learning styles, or forms of

assessment. The general objectives of the program include student mastery of the foundations

and methodologies of scientific research that leads to the continuous addition to the field of

TEFL. Improving graduate students/in-service teachers' advanced thinking skills, strengthening

the research-teaching nexus, and enhancing graduate students/in-service teachers' ability of

using technology are the key criteria that demonstrate how the components of IBL are

incorporated in the course outlines.

Table 2

Aspects of IBL implementation in courses outlines of a PhD program in one university-

certificated PD program for EFL graduate students/in-service teachers in Egypt.

Legend:
✘ (not included)
✓ (included)

IBL Criteria	Courses outlines (PhD)					
	Curriculum Planning	Curriculum Evaluation	New Trends in Curriculum and Methods of Teaching	Advanced Statistics	Research in Teaching Methodology	Educational Activities

Mandate	✓	✓	✗	✓	✓	✓
Research skills	✓	✓	✓	✓	✓	✗
Technology	✗	✗	✓	✓	✓	✓
Graduate students/in-service teachers' advanced thinking skills	✓	✓	✓	✓	✓	✓
Writing	✗	✓	✓	✗	✓	✗
Teaching and learning approaches						
traditional lecturing	✓	✓	✓	✓	✓	✓
group discussion	✓	✓	✓	✓	✓	✓
research activities	✓	✓	✓	✓	✓	✓
cooperative learning	✓	✓	✓	✓	✓	✓
searching for information resources	✓	✓	✓	✓	✓	✓
self-learning skills	✓	✓	✓	✓	✓	✓
Assessment						
In class activities	**10** marks		**10** marks	**10** marks	**10** marks	**10** marks
Attendance	**5** marks	**50%**	**5** marks	**5** marks	**5** marks	**5** marks
Mid term	**15** marks		**15** marks	**15** marks	**15** marks	**15** marks
Final exam	**70** marks	**50%**	**70** marks	**70** marks	**70** marks	**70** marks

Being explicitly stated in five of six courses, IBL skills seem to be a principal objective of the PhD program. Developing research skills and advanced thinking skills are predominantly stated in all course outlines, which is further supported by the recommendation of various teaching and learning approaches from traditional lecturing to self-learning through searching for information resources. The improvement of the analytical and critical approaches to learning TEFL methodologies are also among the program objectives. This is relevant to the aims of the IBL approach that typically include enhancing the learner's ability to do independent inquiry and take the responsibility for constructing new knowledge. Likewise, stressing the technical literacy in five courses aligns with characteristics of IBL. The implementation of certain meaningful activities and projects, which are based on the use of technology, helps improve in-service teachers' inquisitive and self-learning potential.

On the other hand, writing is a marginally emphasized skill within the course outlines. Although academic writing is a skill required in three courses where students are assigned the composition of research proposals and reports of group discussions, other forms of writing, such as reflection reports and critiques are not mentioned in any of the course outlines. In the other three courses, academic writing is not clearly targeted as either an objective nor as an in class activity. This may lead to inadequate preparation of graduate students/in-service teachers as academic writers, which shows a weakness in preparing them as researchers. Bean (1996) states that "the writing process itself provides one of the best ways to help students learn the active, dialogic thinking skills valued in academic life" (p. 19). There is a deficiency in improving graduate students/in-service teachers' written language skills, especially in the English language, which is a mandatory skill for each researcher who would inevitably need to refer to English resources of research.

There is a considerable discrepancy between the program's targeted skills as stated in the course outlines and the heavy dependence on final exams as the principal form of assessment. Except for the course on Curriculum Evaluation, 70% of assessment relies on final written exams with questions that merely evaluate students' lower thinking skills such as remembering and understanding. Only 10% of the final grades is allocated for in class activities that could enhance students' critical and reflective thinking skills. In IBL oriented courses, El-Amin Muhammad (2011) recommends a variety of assessment tools and approaches. If students are assessed through teamwork projects and presentations, the instructors would have the opportunity to closely observe and probe students' progress in thinking skills.

Table 3

Aspects of IBL implementation in courses outlines of a Master program in one university-certificated PD program for EFL graduate students/in-service teachers in Egypt.

IBL Criteria	Courses outlines (Master)					
	Arabic Language	**English Language**	**Current Issues in Education and Culture**	**New Trends in Teaching Methodology**	**Research Methodology**	**Weekly Seminar**
Mandates	✗	✓	✓	✓	✓	✓
Research skills	✗	✓	✗	✗	✓	✓
Technology	✗	✓	✓	✓	✓	✓
Graduate students/in-service teachers' advanced thinking skills	✓	✓	✓	✓	✓	✓

Writing	✓	✓	✓	✓	✓	✓
Teaching and learning approaches						
traditional lecturing	✓	✓	✓	✓	✓	✗
group discussion	✓	✓	✓	✓	✓	✓
research activities	✓	✓	✓	✓	✓	✓
cooperative learning	✓	✓	✓	✓	✓	✓
searching for informatio n resources	✓	✓	✓	✓	✓	✓
self-learning skills	✓	✓	✓	✓	✓	✓
Assessment						
In class activities	**10** marks	**10** marks	**10** marks	**10** marks	**10** marks	**100** marks on regular attendan ce and the active participat ion
Attendance	**5** marks	**5** marks	**5** marks	**5** marks	**5** marks	
Mid term	**15** marks	**15** marks	**15** marks	**15** marks	**15** marks	
Final exam	**70** marks	**70** marks	**70** marks	**70** marks	**70** marks	

Table 3 shows the course outlines in the Master's degree in relation to the principal

criteria of IBL as a part of a PhD program in one university-certificated PD program for EFL

graduate students/in-service teachers in Egypt. Similar to what is seen in Table 2, the Master's

program aims at preparing graduate students/in-service teachers as researchers in the field of

TEFL methodologies. Therefore, this table follows the same analysis of the incorporation of

IBL's main criteria of graduate students/in-service teachers' advanced thinking skills,

strengthening research-teaching nexus, and enhancing graduate students/in-service teachers'

ability of using technology in the course outlines.

IBL skills are mandated in the majority of the courses, as well. Unlike in the PhD courses, the integration of research skills is not stressed in the Master's courses; rather, emphasis is placed on the use of technology in teaching and improving graduate students/in-service teachers' thinking skills. With the employment of various teaching and learning styles, enhancing graduate students/in-service teachers' critical and analytical thinking skills is a shared goal in all courses. This aligns with the emphasis on writing as both an in-class activity and a form of assessment. In terms of assessment, a final exam is still the principal source of evaluation of students' performance, which is in the PhD program. This places too much emphasis on memorization rather than critical thinking skills and does not adequately measure students' ability to apply knowledge in real-world settings or to collaborate effectively with others.

Overall, the analysis of course outlines reflects a number of characteristics of IBL and accordingly provides evidence of efforts to adhere to the Egyptian government's calls for IBL to be mandated in teacher education. However, the attention to only some aspects of IBL may not be sufficient for participants to experience a paradigm shift in their pedagogic understandings and educational practices. In the next section of this analysis, I turn to the voices of administrators, instructors, and graduate students/in-service teachers to look at how these same characteristics of IBL are reflected in their experience of the courses in practice.

4.2. Analysis of the interviews

This section presents first-hand information gathered from the study participants, that is, the graduate students/in-service teachers, the instructors, and the administrators of university-certificated PD programs for EFL graduate students/in-service teachers in Egypt. To respond to the study questions, the participants were asked about their perceptions of the process of IBL

implementation in their PD programs through a series of semi-structured interviews. In alignment with the literature review regarding the theoretical foundations of IBL, as discussed earlier in chapter two, and the analysis of course outlines of the PD courses, the participants' responses were analyzed according to six main themes as follows:

1) IBL for graduate students/in-service teachers' advanced thinking skills,

2) IBL challenges,

3) IBL and research skills,

4) Writing skills in PD programs,

5) The university mandates, and

6) The teaching and learning approaches in PD programs.

4.2.1. IBL for graduate students/in-service teachers' advanced thinking skills:

In accordance with the study research questions which explore the participants' perspectives of IBL implementation, the interview investigated how IBL might or might not influence graduate students/in-service teachers' advanced thinking skills. Certain subthemes emerged within this main theme, including the participants' understanding of IBL, and the relation between IBL and graduate students/in-service teachers' advanced thinking skills. The analysis of each sub-theme is presented according to the three categories of the participants: the administrators, the instructors, and the graduate students/in-service teachers.

4.2.1.1. The participants' understanding of IBL.

The three categories of participants discussed their understanding of IBL in the university context. The participants' responses included topics related to the administrators' understanding of IBL, the instructors' employment of the structured, guided, and open types of IBL, and the graduate students/in-service teachers' experiences of IBL.

4.2.1.1.a. The administrators' understanding of IBL. The administrators explained IBL

as being mandated in the university with a specific focus on the instructors' and learners' roles in

inquiry-based activities. Moreover, they mentioned the instructors' experience as a requirement

for implementing IBL.

Both the administrators agreed that IBL skills are fundamental learning objectives that

are specifically mentioned in the university calendar. That was confirmed by administrator 1

(A1) who declared: "IBL, in the current calendar, is clearly stated as a learner is expected to

positively comply with the recurrent cultural changes and improve the technological techniques

and methods that serve in the individual's and the whole society's prosperity" (A1, December 4,

2021).

When asked about what IBL means in the university context, A1 answered: "The

operational definition of IBL is the acquisition of knowledge, information, and skills by the

learner who is passionate for learning, as it is derived from the concept of autonomous learning"

(A1, December 4, 2021).

Administrator 2 (A2) stated that IBL activity is typically designed with reference to the

roles of both the instructor and the learner and offered the following example:

> I believe we depend on the graduate students/in-service teachers attempting to gather the
>
> material by themselves and discover the information. Then, students discuss the material
>
> with their colleagues under the supervision of the instructors. Such a process leads to the
>
> students exchanging their experiences during a group discussion held in classes and new
>
> information is generated as a result (A2, November 19, 2021).

In the same vein, A1 confirmed the importance of the instructor's experience in implementing IBL by emphasizing: "That is why IBL requires an expert teacher, it is hard to do IBL with a beginner or inexperienced teacher. IBL requires a teacher with teaching competencies and awareness" (A1, December 4, 2021).

Furthermore, A1 stressed that having teaching awareness is one essential requirement for IBL, as follows:

> the teacher has a high level of cultural, educational, and scientific awareness, beside the general teaching competencies, which gives the teacher a complete agency for supporting the learners' highest possible level of self- perfectibility which means the learner's highest capabilities, i.e. that the teacher becomes able to enhance the learning of the best of the learners. IBL is one of the inevitable outcomes of a teacher's teaching-awareness. The more developed a teacher's teaching awareness, the more likely IBL is implemented in the teaching practice (A1, December 4, 2021).

The administrators were familiar with the concept of IBL and confirmed that the policy makers prioritized it as an important aspect of the faculty calendar. They also defined the skills and roles required by instructors in IBL practice. As constructivism emphasizes the active role of learners in constructing their own knowledge, a skilled instructor is essential in guiding and facilitating this process effectively. The instructor's experience brings forth teaching competencies and a heightened awareness of the principles and practices associated with IBL. This expertise enables the instructor to create a supportive and engaging learning environment where students are encouraged to ask questions, explore concepts, and construct their understanding through inquiry-based tasks (Buchanan et al., 2016; Vygotsky, 1978).

The following section explores the perspectives of the instructors as they apply IBL in PD classes.

4.2.1.1.b. The instructors' employment of IBL. This section responds to the second research question about the instructors' efforts for integrating IBL into teaching in PD programs. The instructors' comments reveal that they differentiate the structured and guided types of IBL, justify the selection of these types to design topic-based and problem-based activities in teaching, and give examples of IBL in practice.

Instructor 2 (I2) described the implementation of IBL with an example of topic-based inquiry activities. This is a type of IBL in which the instructor specifies the possible topics to investigate. Typically, such topics are within the curriculum, so the students do not drift away in the inquiry process. I2 offers an example as follows:

> I might specify certain topics for the students within the curriculum textbook, so they do not have any confusion regarding the curriculum outline. Then, embedded in the classes, I design for them an activity that does not directly depend on the curriculum or the textbook content, rather it is inquiry-based where they are asked to do their own research, and find the data by themselves (I2, December 14, 2021).

I2 explained more by giving an example from one course as follows: "In the Culture Study course, I ask them to choose one country and research its cultural elements and draw a comparison between its traditions and the Arab culture. These are not explicitly mentioned in the textbook" (I2, December 14, 2021).

The instructors stated that they are inclined to implement guided inquiry. They believed that the students are not ready yet to have full control of their own learning process, in particular the learners' low level of English language. Instructor 1 (I1) elaborated as follows:

> I am with the guided type of IBL that gives them some guidance, starting from giving them clear objectives, identifying the topics that they should focus on, providing resources from time to time for them to have this kind of guidance that they need … sometimes I ask them to put the objectives or to choose the topics and they drift away from the main objectives of the course … the free one is very difficult to implement because it gives the learners too much agency and sometimes when I ask them to start from the beginning and to put some objectives, I find it very difficult to give them this much agency because some students' level, especially of English, does not allow them to choose a topic and define its objectives (I1, December 2, 2021).

Additionally, the instructors referred to problem-based activities in which graduate students/in-service teachers conduct research on certain difficulties they have in their teaching practice. I1 explained implementing such types of activities, specifically: "I would ask them from time to time to do presentations that are totally made on their own based on the problems they personally experience during their teaching practice, they would have total control over these projects and presentations." (I1, April 6, 2022). This suggests that the graduate students/in-service teachers take an active role in their learning by posing questions, gathering information, and presenting their findings to others. This participatory approach aligns with the constructivist view that learners are active agents in constructing meaning and knowledge through their interactions with the learning environment (Hoover, 1996). This participatory approach also highlights questions regarding whether this approach is suitable for all graduate students/in-

service teachers. Some graduate students/in-service teachers may lack the confidence, skills, or experience to create meaningful presentations on their own. As a result, some of them may feel excluded or disengaged from the learning process. This participatory approach suggests that some graduate students/in-service teachers may need more structured learning experiences within their zone of proximal development.

The aforementioned administrators' and instructors' explanations of IBL align with the current international understanding of how IBL could be implemented in higher education and is at the core of constructivism (Brew, 2003; Moseley & Connolly, 2021; Spronken-Smith et al., 2007; Spronken-Smith & Walker, 2010). The forms of IBL activities adopted, as explained by both the administrators and the instructors, varied from the literature and discussion-based inquiries to simplified research activities. The instructors suggested activities in which the graduate students/in-service teachers conduct a review of literature pertaining to a scientific topic decided by the instructor with no focus on collecting empirical data. Graduate students/in-service teachers present the results of such activities either verbally, in the form of presentations, or in written reports. The instructors emphasized group discussions as one form of IBL activities in which the instructors organize the graduate students/in-service teachers into groups to allow an opportunity for further exchange of experiences among them.

Such an activity involves synthesizing and analyzing existing published research on the chosen topic, which is recommended in light of the novelty of IBL and the limited availability of technical resources. By conducting a literature review, the graduate students/in-service teachers can deepen their understanding of the chosen scientific topic and develop their critical thinking skills. This activity may be particularly beneficial for students who are not yet proficient in

English as it allows them to engage with the subject matter at a level that does not require advanced language skills.

In terms of research activities, both the administrators and the instructors clarified how the graduate students/in-service teachers practice the data collection and analysis processes. There are certain times when the instructors specify the activity questions, while at other times, graduate students/in-service teachers choose a problem related to their field of practice. The instructors referred to a suggested list of readings related to the topic under research for a more guided inquiry. However, it is important to gain a clearer understanding of the alignment between these activities on the one hand, and the course content and objectives on the other from the perspectives of the graduate students/in-service teachers, as is discussed in the following section.

4.2.1.1.c. The graduate students/in-service teachers' experiences of IBL. This section explores the graduate students/in-service teachers' perspectives of the implementation of IBL to respond to the third research question of the current study. The graduate students/in-service teachers described IBL in the context of their teaching performance in schools, referred to the instructors' role in PD programs, and reflected on the inquiry-based activities in the program's content.

Graduate student / in service teacher 1 (ST1) gave an example of how IBL is implemented in their own teaching practice as follows:

> In doing the harassment project, the student is asked to conduct research about the topic of the project and the reasons and the solutions for the problem. I and the students went to the social organizations such as "The Organization of Women and Children's Rights in Egypt" and we asked the president of the organization to give the students a symposium

about the harassment problem in Egypt, as a firsthand source of data for the students. Then we were able to design a brochure that briefly describes the types, reasons and solutions for harassment (ST1, PhD, December 1, 2021).

Most of the graduate students/in-service teachers defined IBL from their experience during teaching practice in classrooms. They mentioned that it is implemented in their teaching and specified their responsibilities in guiding the learners throughout the activity. However, few graduate students/in-service teachers were able to identify IBL in the context of PD programs.

The graduate students/in-service teachers understand the role of the instructor in inquiry-based activities as a guide and a facilitator. Graduate student / in service teacher 4 (ST4) explained that: "the instructor was essentially directing us not to drift away from the topic. For example, they provided us with specific questions, suggested certain sources of data, and, at the end, the instructor summarized the conclusions of our research" (ST4, PhD, December 10, 2021).

When asked about the extent to which they experienced IBL in PD programs, the graduate students/in-service teachers agreed that there were limited opportunities for a real inquiry process due to the large class size and the graduate students/in-service teachers' limited English language skills. They explained that a typical inquiry activity started with a topic chosen by the instructor followed by either an oral presentation or a group discussion. ST4 mentioned an example of inquiry-based activity in the PD program as follows:

 For example, I remember once we were asked to do research about ethics in teaching practice. Each one of us conducted our own study and collected data. Then, we made group discussions and presentations for our colleagues. Such an activity helped us enrich

our knowledge about ethics of teaching in various countries and reflect on what ethics we actually follow in our teaching practice (ST4, PhD, December 10, 2021).

In the context of Egyptian education and research, IBL is quite a new approach that has been investigated in various studies (Abdurraheem, 2015; El Sayed, 2017; Gindya, 2022; Hanna, 2016; Hussein, 2019; Khalifa, 2016;;). \ Graduate students/in-service teachers' perceptions of the meaning of IBL have not been explored in any of these studies, nor have the perspectives of the PD programs' administrators or instructors. In the current study, the participants' understanding of IBL varied. While the administrators and the instructors precisely explained IBL and recognized its advantages, implications, and challenges, the graduate students/in-service teachers had difficulty to show familiarity with the concept and its applications in PD programs.

This discrepancy may be attributed to a variety of factors, including the complexity of the IBL approach, limited prior exposure to the concept or practice, or a lack of opportunity to apply IBL principles in the graduate students/in-service teachers' previous educational experiences. This highlights a need to provide additional support and resources to the graduate students/in-service teachers, such as language support, hands-on training, and ongoing mentorship.

Although the administrators and instructors used different terminologies to describe their understanding of IBL, the fundamentals of IBL are captured as reflected in the literature (Aditomo et al., 2013; Levy et al., 2010; Spronken-Smith & Walker, 2010). They repeatedly stressed encouraging graduate students/in-service teachers to go beyond being merely passive recipients to the lecturer and indulge in more active learning practices. In addition, the administrators and the instructors mentioned the importance of designing activities that vary between topic-based and problem- based forms. The administrators and the instructors articulated their understanding of the IBL implementation process in relation to other aspects

such as improving learners' critical thinking skills, enhancing academic writing, and using technology in inquiry-based activities as will be discussed later in this chapter.

On the other hand, the graduate students/in-service teachers' experience with IBL in the context of PD programs was limited to specific activities guided by the instructors and followed a pattern of doing research about one topic specified by the instructor, and then sharing results in group discussions or presentations. This aligns with how the instructors described their practices of the guided IBL in PD programs. Graduate students/in-service teachers did not show deep understanding of what IBL actually means or its different types of application, although they were able to mention certain examples from their own teaching practice. Evidence in the literature suggests that if graduate students/in-service teachers did not adequately practice IBL in PD programs, they may refrain from implementing it in their classroom teaching (El-Amin Muhammad, 2011; Hofer & Lembens, 2019; Meijer et al., 2016; Silm, et al., 2017). The available evidence suggests that the current PD programs do not provide adequate instruction and support for IBL implementation. According to the constructivist framework, there may be a need for more opportunities for hands-on experience and reflection on IBL practice. This requires the development of more comprehensive and rigorous PD programs, as well as the provision of ongoing support and resources for graduate students/in-service teachers to promote effective implementation of IBL. Constructivist learning emphasizes the social and collaborative nature of knowledge construction, and graduate students/in-service teachers can greatly benefit from opportunities for dialogue, mentoring, and peer support, as echoed in Vygotsky's (1978) theory of the "zone of proximal development".

4.2.1.2. The relation between IBL and graduate students/in-service teachers' advanced thinking skills. The current study questions inquire about the administrators'

contribution to the implementation of IBL, and the instructors' integration of IBL in PD courses. This section focuses on the exploration of the administrators' and the instructors' perceptions of IBL benefits in terms of enhancing higher thinking skills. Notably, the administrators and the instructors explained the advantages of IBL in terms of improving higher order skills and, consequently, enhancing the students' motivation for learning.

4.2.1.2.a. The administrators. In this part of the interview, the administrators discussed how developing reflective thinking and problem-solving skills are at the center of any inquiry-based activity. They elaborated how this relates to the graduate students/in-service teachers' motivations for learning.

For instance, A1 highlighted reflective thinking as a foundational outcome of IBL as follows:

the balance between theory and practice because, as you might know, such a balance is a fundamental requirement of IBL which starts with a learner observing (practical aspect), understanding, analyzing, interpreting, and concluding with the theory, then observing again … Like a circle that starts with observation, understanding, analyzing, interpreting, and doing it again (A1, December 4, 2021).

A1 confirmed that problem solving is essential to the inquiry-based activity:

The intellectual skills like creativity, scientific thinking skills for problem solving in practice are examples of IBL objectives in the university calendar, and in this case, we do not aim at solving a problem specifically, rather, it is about mastering problem solving and scientific thinking skills, planning for performance improvement, regenerating new knowledge that is based on current information, and analyzing the available data (A1,

December 4, 2021). A2 stressed the effect of IBL on the students' motivation. A2 reported:

I really believe that IBL is beneficial as a teaching strategy and for learning outcomes. IBL improves learner's thinking and inquiry skills. It builds the student's personality as a learner, especially in higher education. IBL targets skills that are not listed in the curriculum content. The only way to achieve that is to enhance self-learning abilities, which is the objective of learning systems all over the world (A2, November 19, 2021).

The administrators highlighted the importance of reflective-thinking skills in improving graduate students/in-service teachers' abilities to overcome real-life problems in their communities of practice. They explained that IBL typically involves learning through discovery, which, in turn, aligns with the constructivist pedagogy where knowledge is constructed rather than transmitted (Preston et al., 2015). This is related to the graduate students/in-service teachers' motivations for learning as their experiences are shaped in the light of their practical challenges in classrooms and goes beyond traditional text-book learning.

4.2.1.2.b. The instructors. Building upon the administrators' previously discussed perceptions, the instructors views of IBL in relation to higher thinking skills are discussed in this section. The instructors argued that teaching skills in their communities of practice are essentially part of the reflective skills implied in inquiry-based activities. They highlighted graduate students/in-service teachers' experience as a factor for successful IBL.

I1 described inquiry-based activities in PD programs as an introduction to graduate students/in-service teachers' practical teaching skills:

With such a pool, you focus your aims on preparing them. You consider it an induction program that focuses on teaching skills, and the ways of dealing with the content and the students themselves; how to deliver the information and how to teach them to assess their students and develop their language skills (I1, December 2, 2021).

This situation described by the instructor highlights the need for a PD program that prepares graduate students/in-service teachers to effectively facilitate the learning process in an IBL environment. The overarching objective of this PD program, as mentioned by the instructor, is to provide graduate students/in-service teachers with opportunities to develop their knowledge of language learning theories, instructional strategies, and assessment methods. This incorporates practical components such as classroom observations, peer feedback, and reflective activities, to allow graduate students/in-service teachers to apply their knowledge and skills in a real-world teaching context.

I2 then stressed the role of graduate students/in-service teachers' experience in IBL as follows: "Experience is regarded as a vital factor for the successful implementation of IBL. It is the guarantee that the instructor would manage to enhance students' analytical and critical thinking skills, and adequately guide them through the inquiry process" (I2, December 14, 2021).

This aligns with literature about the relation between graduate students/in-service teachers' experience and their abilities to successfully implement active learning approaches such as IBL (Kuzhabekova, 2015; Silm et al., 2017). Within inquiry-based activities, specifically in the guided type of inquiry, a teacher plays a vital role in providing support to the learners. Therefore, the graduate students/in-service teachers who adopt IBL should have a sophisticated understanding of the subject, and adequate experience to provide learners with authentic inquiry-based endeavor (Kuzhabekova, 2015).

Similar to the views of the administrators, the instructors explained that IBL allows the learners to participate in both knowledge acquisition and construction through an experiential learning process. As the literature discussed, IBL is a cyclical process that starts with a learner building on previous experience (i.e., foundational knowledge), then collecting data and developing different understandings that lead to a new inquiry (Aparicio-Ting et al., 2019; Justice et al., 2007). Looking at the above comments in the light of my personal experience with PD programs in Egypt, I did not experience learning as applying my knowledge and skills in real-world situations, receiving feedback, and reflecting on their performance. The focus of the courses was mainly on theoretical knowledge and pedagogical methods with minimal opportunities for practical application or real-life teaching experience.

This section presents the graduate students/in-service teachers' perceptions of this process.

4.2.1.2.c. The graduate students/in-service teachers. In alignment with the opinions of the administrators and the instructors, most of the graduate students/in-service teachers confirmed that PD programs enhanced their analytical and critical thinking skills in many ways, varying from offering opportunities to read and summarize one another's research work, to making connections between theories and real-life situations in teaching.

For example, ST6 explained how PD programs influenced their analytical skills:

my critical thinking skills were highly improved, especially when we practiced how to critique research work. I believe improving the critical thinking is one of the mandated learning outcomes of the PD programs, that is why there were many critical thinking-based projects we did practically, in which we practiced how to give feedback, in turn,

creativity was also improved as a part of the presentation activities (ST6, PhD, November 27, 2021).

ST2 gave another example from the Psychology courses, in which they learned how to apply learning theories in teaching practice: the connection between theory and practice led to improving analysis skills. "We also used to think of alternatives which improved our critical thinking, just the same as the scientist did during the theory procedures" (ST2, Master, November 25, 2021).

The feedback provided by the graduate students/in-service teachers confirmed that PD programs introduced them to the process of reviewing existing research literature and establishing meaningful connections between theoretical frameworks and practical teaching scenarios. This, in turn, enhanced their analytical and critical thinking abilities (Moseley & Connolly, 2021). A long line of research has proven the strong influence of IBL on enhancing skills such as critical thinking, analytical thinking, and problem-solving skills (Eltemamy, 2012; Eltemamy, 2017; Desmond, 2015; Fine & Desmond, 2015Ibrahim, 2003; Prayogi, & Yuanita, 2018; Silm, et al., 2017). Previous research argued that the active role of learners in IBL increases the likelihood of deep learning in comparison to the surface-level learning in traditional teaching (Moseley & Connolly, 2021; Spronken-Smith & Walker, 2010). This is confirmed in the participants' responses about the benefits of IBL on enhancing graduate students/in-service teachers' deep learning that is directly reflected in their teaching practice (Table 4). Both the administrators and the instructors understood that, in IBL, learners take part in defining the problem and finding suitable solutions which increases their learning agency. Accordingly, the graduate students/in-service teachers' motivations for learning are enhanced because they are responsible for their own learning. In addition, the graduate students/in-service teachers gave

examples of activities that they believed contributed to enhancing their analytical thinking skills.
I turned to ask the participants about the challenges of implementing IBL in practice.

Table 4

The participants' perspectives of graduate students/in-service teachers' advanced thinking skills being enhanced through IBL.

	Administrators	Instructors	Student-teachers
1. IBL is mandated as a learning objective to improve graduate students/in-service teachers' critical thinking skills.	✕		
2. The instructors' experience and their teaching awareness are requirements to provoke learners' reflective thinking skills.	✕		
3. IBL empowers the graduate students/in-service teachers to reflect on their own teaching practice.	✕	✕	
4. IBL enhances learners' motivation for life-long learning.	✕	✕	
5. Through the guided type of IBL, instructors employ collaborative small group learning of graduate students/in-service teachers to share, reflect on, and evaluate their ideas.	✕	✕	✕

6. The instructors nurture a questioning context for graduate students/in-service teachers to engage in active learning practices.		✗	
7. The instructors prefer guided inquiry because they think the students aren't ready for independent learning.		✗	
8. The implementation of IBL is based on experiential learning.		✗	✗
9. Graduate students/in-service teachers are required to foster their learners' questioning skills in schools by adopting and implementing IBL in their classrooms.			✗
10. The graduate students/in-service teachers believe there is no alignment between IBL activities and the PD course content and objectives.			
11. The graduate students/in-service teachers believed there were limited opportunities for a real inquiry process in PD programs			

Table 4 summarizes the similarities and differences among the perspectives of the three groups of participants regarding the role of IBL in enhancing graduate students/in-service

teachers' advanced thinking skills. There appears to be agreement among administrators, instructors, and graduate students/in-service teachers that guided IBL is a valuable approach which offers benefits such as fostering critical thinking skills, promoting a culture of continuous learning, building strong relationships among graduate students/in-service teachers, and facilitating deeper understanding of the subject matter. Although the administrators and instructors clearly described the benefits, consequences, and difficulties of IBL, the graduate students/in-service teachers struggled to demonstrate their understanding of the concept and its implementation in PD courses. Even though the instructors confirmed that they create an environment of exploring and learning through inquiry, the graduate students/in-service teachers stressed that the inquiry-based activities in PD programs were limited.

When it comes to implementing IBL in education, it is essential to consider that simply focusing on certain aspects of IBL might not lead to a significant transformation in participants' pedagogic understandings and educational practices. To promote a paradigm shift, a more comprehensive approach is required.

A comprehensive approach to implementing IBL considers the ecosystem of the educational structure, encompassing the various interconnected actors involved and the dynamic interaction between individuals and their environment (Dewey, 1896). In this study, this includes the administrators, the instructors, and the graduate students/in-service teachers in the university community. By considering the ecosystem, the administrators can offer the necessary support and resources to foster a culture of IBL within the HEI. They can allocate funding, PD opportunities, and time for collaboration to empower teachers in effectively implementing IBL. Administrators can provide appropriate language resources, training, and support for both the

instructors and the graduate student / in service teacher. The comprehensive approach ensures that language proficiency does not become a barrier to engaging in IBL experiences.

The instructors play a central role in IBL implementation. They need support, training, and ongoing PD to understand the principles of IBL and incorporate them into their instructional practices. Collaborative planning and reflection among the instructors can also enhance the implementation of IBL across different subject areas and grade levels.

The graduate students/in-service teachers play an active role within the IBL ecosystem, where they are encouraged to assume responsibility for their learning and agency for constructing new knowledge (Prince & Felder, 2006), cultivating inquiry skills, and participating in meaningful investigations. By facilitating connections with subject matter specialists, community partners, and practical and real-life situations, the graduate students/in-service teachers engage in authentic learning opportunities that foster a deep comprehension of the subject matter.

Creating an environment that supports IBL is crucial. The physical and psychological classroom environment should be conducive to collaboration, inquiry, and exploration. It should foster a sense of curiosity, risk-taking, and a growth mindset. Social constructivists argue that learning is a social activity, and the classroom environment should encourage interaction and collaboration among students. By fostering a sense of community and creating opportunities for peer interaction, students can engage in dialogue, share perspectives, and construct knowledge collectively (Buchanan et al., 2016). Teachers can design learning spaces that encourage student autonomy, provide access to resources, and facilitate hands-on learning experiences in schools (Spronken-Smith, 2012).

4.2.2. IBL challenges

Research has categorized the challenges for IBL into cultural and technical clusters (Capps et al., 2012; Crawford, 2000; Dorier & Maab, 2012; Pedaste et al., 2015; Silm, et al., 2017). Cultural challenges include the teaching and assessment approaches as part of the process of IBL implementation. Technical obstacles connote the availability of knowledge resources like search engines and data bases and easy access to technology to locate them.

In the current study, the participants discussed the different teaching approaches and assessment techniques implemented in PD programs, in addition to the accessibility of technology as a major source of information in the 21st century.

4.2.2.1. The cultural challenges. This section explores the cultural challenges of IBL implementation in terms of the teaching approaches and assessment techniques from the participants' perspectives, as stated in the current study research questions. Most of the participants agreed upon certain factors that have a direct influence on IBL implementation. These factors included the students' resistance to activities that employ self-learning strategies, the financial costs, an imbalance between the time allotted and the workload in PD programs, and students' primary attention on final grades.

4.2.2.1.a. The administrators. In response to questions about how the administrators perceived the challenges for IBL implementation, the two administrators stated a number of factors that influence the teaching approaches and assessment techniques in PD programs. These factors included graduate students/in-service teachers' resistance to active learning approaches, time constraints, and students' focus on the final exam grades.

A2 discussed the students' inclination to favor a traditional teaching and learning style because of the short duration of PD programs and their own familiarity with this approach:

> Students do not have enough time to perform the process of inquiry. In addition, our students were not familiar with doing inquiry in their primary public education. In different education phases, starting from primary, through preparatory and high school, and even in university education, students are used to a teacher-centered style of learning. The teacher is the main source of information (A2, April 6, 2022).

The research literature discussed how the high-stakes examination calls for a more teacher-centered style of instruction with the consequence that students do not have adequate opportunities to experience IBL (Borg, 2013; Farrugia, 2015). The graduate students/in-service teachers' attention to the final exams was a cultural factor that hinders IBL implementation as A2 pointed out:

> Their main focus is not to improve their knowledge in specific topics; rather, their target is to pass the final exam and obtain a certificate of the degree. That's why the students are searching for information from their instructors in order to include it in the final exam and guarantee the highest grades. (A2, November 19, 2021).

The above statement agrees with my personal experience as a graduate student / in service teacher in PD programs in Egypt and accounts for some of the academic culture shock I experienced in studying in Canada where there are almost no graduate-level final exams. It was a notable observation during my PhD study that the courses did not incorporate final examinations as a mode of assessment. Rather, the evaluation methods were centered on research-based assignments and written reports in various formats. The administrator discussed how in

examination-oriented cultures, inquiry-based activities are time consuming, as mentioned earlier in chapter two. Accordingly, the instructors are not encouraged to implement them, except occasionally. This is confirmed by the instructors' responses in the following section.

4.2.2.1.b. The instructors. To respond to the second research question of the current study, the instructors were asked about the obstacles they observed in implementing IBL in PD programs. Both instructors believed that the workload, heavy curriculum, large class size, the students' traditional mindset, and the financial costs constituted the principal challenges facing IBL implementation.

For instance, I1 stated that only 50 percent of all instructors adopt active learning approaches: "I know some instructors would still resort to teacher-centered approaches … especially with the large amount of the curricula to be covered, you know, they would resort to leading the situation. I would say 50%" (I1, December 2, 2021).

The instructors described the graduate students/in-service teachers' resistance to inquiry-based activities. They attributed the resistance by the graduate students/in-service teachers to a lack of time for such an approach due to their many professional and social responsibilities and suggested that the expectations of the PD programs did not align with their desire for professional career advancement. I2 states:

> Students are resistant to such activities. That is because of many reasons, first, they are overloaded with responsibilities. They have their workload and their family commitments, and while they are enrolled in PD programs for a certain objective, such as to get a promotion in their jobs, or to find a better career, they consider that program as a means for different purposes, not as a means for PD (I2, December 14, 2021).

The instructors referred to the system of teaching in public schools as another reason for the students' resistance to active learning approaches. I1 discussed a heavy workload, a large number of students in class, and the comments from the school leaders who supervise them as among the constraints preventing any change: "Their argument is always; "how can I overcome this?", "the class is really crowded", "we are not used to this", "the supervisor [in my school system] always comes to the class and says we should stick to so and so" (I1, December 2, 2021).

The students' traditional mindset of learning and unfamiliarity with self-learning techniques were other cultural obstacles to implementing IBL. I2 clarified this observation with the comment that "students believe in the importance of the textbook, and do not have much confidence that they could do without it. They immediately feel confused if they are exposed to various topics [outside the textbook], and are attached to the complete guidance of the instructor" (I2, December 14, 2021). This statement again suggests that the instructors must offer clear guidance to graduate students/in-service teachers by providing guidelines and expectations for IBL activities to help them understand the purpose and goals of the learning experience. The instructors should be aware of their roles in modelling IBL techniques by demonstrating how to ask questions, gather information, and present findings to others, as well as creating a supportive learning environment, providing feedback, and encouraging reflection.

In addition to the factors related to the students, both the instructors highlighted other issues regarding the gap between what is mandated in the university calendar and the courses' content. That is, even if higher level thinking skills are mandated as a learning outcome, the PD content is not designed to achieve such a goal. However, changing the curriculum would be another financial load to the instructors as I2 stated: "any step for improvement or change might

financially cost the instructors as, in this case, they have to change the textbook … This is such a burden on the instructors, and most probably, they could not afford the costs" (I2, December 14, 2021).

In terms of assessment, the instructors confirmed that the heavy reliance on the final exams hinders the adequate implementation of IBL. However, they sometimes found alternatives to overcome this challenge by including questions that trigger students' reflective thinking skills in the final exams as I2 mentioned:

> I might ask the students to write an argumentative essay about a topic that was studied in the textbook, and try to present pros and cons and justification for each. In this case, the learner would have a chance to express their own understanding and reflect critically and analytically on their own learning (I2, December 14, 2021).

Assessment, in different ways, is a vital component of any inquiry-based classroom (Badley, 2002; El-Amin Muhammad, 2011; Kazempour, 2009; Spronken-Smith, 2012). It helps the instructor to identify the learners' prior knowledge, decide upon the instruction techniques, and measure their understanding by the completion of the educational endeavor (Agbayahoun, 2017; Kazempour, 2009). The administrators and the instructors seemed to be aware of the benefits of variable assessment strategies to encourage the graduate students/in-service teachers to indulge in deep learning experiences. However, this has not yet been normalized in the Egyptian PD programs which is further reflected in the graduate students/in-service teachers' responses.

4.2.2.1.c. The graduate students/in-service teachers. Many of the graduate students/in-service teachers confirmed that teaching in PD programs varied between traditional lecturing and

the active learning techniques depending upon the students' individual differences, the number of the students enrolled in the program, and the instructors' readiness for change.

The idea of the individual differences among graduate students/in-service teachers emerged as one important reason for the challenges of IBL implementation. Graduate student / in service teacher 5 (ST5) mentioned that:

> there were significant differences among the students' abilities and backgrounds. While some had advanced methodological knowledge, others still needed to learn about the foundations of teaching. For example, for the first time they might be learning about classroom management, or learner types, or lesson planning and learning objectives … etc. The instructors only taught (lectured) minimal information about topics I needed to know more about. That was frustrating! (ST5, PhD, November 30, 2021).

The graduate students/in-service teachers identified other challenges such as large class size and their busy and conflicting schedules. Graduate student / in service teacher 3 (ST3) stated: "In addition, there are also some challenges such as the high numbers of students and the limited time of the classes. Sometimes, PD class times conflict with our schools' work times" (ST3, Master, November 23, 2021). Here, the graduate students/in-service teachers discuss the conflict between their schoolwork schedule and their attendance in PD classes in the university. In this case, the graduate students/in-service teachers experience stress in trying to compromise between their work and study.

One more challenge is that elderly instructors were resistant to using IBL for several reasons, as ST3 mentioned: "the experienced instructors are not flexible, they feel offended if the student is presenting new material; "are you going to teach us our material! It is my role to teach

you!" This is their mode of thinking." (ST3, Master, November 23, 2021). This is one of the challenges that relates to the cultural context of the current study with special reference to its hierarchical system. This point is a part of the thick description of the study context, and it highlights a new connection that did not exist in the study literature review. The veteran instructors might be overwhelmed with the updates required, which leads to frequent frustrations for them. Therefore, the improvement plans should mitigate the veteran instructors' resistance to active learning. One aspect could be a more meaningful collaboration between later and early career instructors, which entails an exchange of experience and new knowledge at the same time.

All the participants stressed assessment as a major obstacle for active learning. This was confirmed in the responses of the graduate students/in-service teachers who reflected on the forms of assessment in PD programs in many ways. For example, ST1 explained:

> I liked the content of the PD programs, but not the assessment methods. For example, although we were asked to do research about new teaching techniques, I realized that we should do our research according to the techniques recommended by the professor. It was not free research; it was controlled by the instructors, and I did not like the idea (ST1, PhD, December 1, 2021).

There is a contradiction between how the instructors and the graduate students/in-service teachers perceive the guided type of inquiry-based assessment in PD programs. While the instructors aim at providing the graduate students/in-service teachers with a framework to help them take ownership of their own learning, the graduate students/in-service teachers, on the other hand, feel constrained and prefer a more open-ended approach to inquiry. This observation will be discussed later. This misalignment suggests a need for both instructors and graduate

students/in-service teachers to better understand IBL objectives and practices, and for graduate students/in-service teachers to become clearer about what to expect to learn in PD programs.

The influence of time and the examination system on IBL implementation is evident in the participants' responses, especially the graduate students/in-service teachers who confirmed that such barriers deprived them of trying new things and appreciating their inquiry journey. These barriers forced them to memorize for the exam and obtain high final grades on them rather than acquire new knowledge or construct their own learning. Therefore, changes should call for better alignment between the inquiry-based curricular activities and the assessment system of PD programs. The instructors' observations point to the importance of including a guided inquiry approach to IBL to help graduate students/in-service teachers practice conducting research during PD programs. The instructors confirmed that this will help them master fundamental research skills before they start their own free inquiry experience in Master and PhD studies. Such a paradigmatic shift towards a more research-oriented approach to education emphasizes practical applications and independent thinking. This also aligns with the broader goals of education reform in Egypt. Such reforms promote a more innovative and dynamic approach to teaching and learning. These reforms recognize that traditional teaching methods may not be sufficient to prepare learners for the challenges of the modern world and that a new approach is needed.

To the above comments I add some from my personal experiences. First, in my recollections as a graduate student / in service teacher in PD programs, I did not find the workload to be an obstacle to getting the benefits of PD content. I had hopes to practice new teaching strategies based on experiential learning and improving my reflective skills. Likewise, while the graduate students/in-service teachers agreed with the instructors that they experience

an imbalance between the workload of teaching in schools and studying in the PD programs, they valued active learning as the challenge of PD programs for other reasons. These reasons include individual differences and types of assessment, as will be discussed later, the understanding of IBL objectives and practices, and what to expect to learn in PD programs. The emphasis on written work when I started studying in Canada where the types of assignments ranged from reflective essays to research reports and literature reviews served to enhance my research and writing skills. Engaging with these assignments enabled me to apply critical thinking and analytical skills to a range of topics and issues within my experience.

4.2.2.2. The technological challenges. Using technology is an essential element of inquiry-based classrooms (Arthurs & Kreager, 2017; Avsec, & Kocijancic, 2016; Freeman et al., 2014). This is mainly because students are motivated to participate in meaningful tasks in which they are working collaboratively to solve a problem, improve thinking skills, or share experiences. Information resources such as those offered through technology are believed to enhance the learning outcomes anticipated in inquiry-based education (Avsec, & Kocijancic, 2016).

In this section, the participants were encouraged to discuss the role of technology in PD programs. The interview questions focused on topics regarding the instructors' and the learners' readiness for using technology in classrooms, and their recommendations or improvement plans.

4.2.2.2.a. The administrators. During the interviews, the administrators discussed the employment of technology as a knowledge resource in PD programs. Both administrators referred to the future plans of improvement and a greater reliance on technology in classrooms. For instance, A2 stated that preparing the instructors to properly use technology is a priority: "There are also frequent training sessions for the instructors, and assistance is available for

professors who have not mastered the technical skills or are not used to the use of technology"
(A2, April 6, 2022).

The administrators pointed out that it is essential to properly train and prepare instructors to use technology for the effective implementation of IBL. This suggests the adoption of learning management systems, online discussion forums, virtual classrooms, and multimedia content. Additionally, instructors should learn how to use technology to facilitate collaborative and cooperative learning experiences. They should also be trained to use technology to provide graduate students/in-service teachers with timely feedback on their progress and be aware of the ethical use of technology such as privacy, security, and intellectual property rights.

4.2.2.2.b. The graduate students/in-service teachers. In this part of the interview, the graduate students/in-service teachers discussed the technological support in PD programs as a part of the third study question. This included the role of technology in PD programs, and the possible obstacles for the use of technology, if any.

The majority of the students agreed that there was an absence of technology in PD programs. ST1 described how the deficiency in technology hindered their inquiry practice as follows:

> There was no technology implemented in PD programs at all. As a researcher, there are many restrictions on employing technology in our research proposals, therefore, we were not motivated to learn about technology during PD programs. Neither the instructors nor the supervisors are flexible in using technology in research (ST1, PhD, March 31, 2022).

The graduate students/in-service teachers referred to certain constraints in integrating technology in their research work. Such constraints included that their supervisors do not

encourage them to research topics about technology in education due to either the lack of technological facilities or the lack of the supervisors' familiarity with implementing technology in teaching. This reflects a need to enhance the integration of technology in PD programs, in addition to raising the instructors' awareness of the role of technology in IBL.

ST5 mentioned the content they wished was covered in the PD curriculum as well. She stated:

> It was not at all! Technology was not implemented in PD programs. For example, I wish there was an opportunity to integrate the use of technology, like EDMODO or MOODLE to help enhance our academic writing skills. Applications related to plagiarism checking such as Turnitin were not employed in the PD programs. There are also important programs that improve academic writing via technology such as Grammarly, we did not learn about them in PD programs. Other options such as Quizzes and Quizlet could be very beneficial to the researchers. I learnt about applications such as Kahoot only from programs outside the university (ST5, PhD, March 31, 2022).

In terms of the factors that negatively influenced the integration of technology with teaching in PD programs, ST4 mentioned that there were challenges related to the learners' readiness for technology as: "factors related to the facilities and the available resources, and the learners' abilities and needs. Some graduate students/in-service teachers are not well prepared for the PD programs and could not apply what they study in their teaching practice" (ST4, PhD, December 10, 2021).

ST4 also mentioned that some graduate students/in-service teachers are not ready for the PD programs in terms of their teaching experience and foreign language skills. Graduate

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students/in-service teachers who lack adequate practical experience would not be able to successfully integrate the content of PD curriculum into their teaching practice. The insufficient language skills would hinder graduate students/in-service teachers from conducting the proper inquiry process, including reading foreign language resources and mastering academic writing skills.

The graduate students/in-service teachers, like the other participants, confirmed the absence of technological support in PD programs (see Table 5). Although increasing their technological skills is one anticipated learning outcome, graduate students/in-service teachers stated that there was very little focus on the employment of technology in PD classes. This assertion aligned with literature that related students' motivation for IBL in educational cultures to accessible technology (Avsec & Kocijancic, 2016; Minner, et al., 2010). Research concluded that allowing learners to interact with various materials and explore different phenomena via technology improves their motivations for more inquiry practice (Alfieri et al., 2011; Avsec & Kocijancic, 2016).

IBL as a constructivist approach is defined as a life-long process of multifaceted activity of observations, developing questions, referring to sources of information, examining what is already known, and validating new assumptions in order to construct new knowledge through critical thinking skills (Linn et al., 2013; NRC, 1996). This typical definition of IBL in the western context encompasses factors related to the learners' advanced foreign language skills, the formative assessment system, and the availability of information resources through high technology devices. In contrast, there are systematic challenges for the process of IBL implementation in the Egyptian educational milieu. The variability in the learners' English language skills, the high-stakes examination style of assessment, and the limited skills for using

technology are among the major difficulties encountered for IBL and limit the instructors'

employment of more student-centered approaches to learning (Hanna, 2016; Hussein, 2019).

Social constructivism, as advocated by Vygotsky (1978), highlights the role of cultural

history, social context, and language in shaping the development of learners (c.f., Buchanan et

al., 2016; Spronken-Smith, 2012). Thus, moving toward an IBL approach to instruction and

learning in this HEI in Egypt will require actions that bring more instructors into an

understanding of IBL and how to use it in the classroom. Given the historical value placed on

exam-driven education in Egypt, it is not surprising that veteran instructors do not use their

agency to implement IBL, nor to invest in the use of technology. Further, given that

constructivist learning emphasizes that the active construction of knowledge takes

time and requires students to reflect on new experiences and how they fit, or do not fit, with their

existing understanding, the desire for paradigmatic change in this HEI must see instructors and

graduate students/in-service teachers as students/learners.

Table 5

The participants' perspectives of challenges of implementation of IBL.

	Administrators	Instructors	Student-teachers
1. There is a gap between IBL as mandated in the calendar and the current state of IBL in practice.	✗		

2. There is a need to continuously provide the instructors with training sessions to acquire proficiency in utilizing technology.	✗		
3. Some students do not have an adequate level of English to pursue IBL.	✗	✗	
4. High stakes exam system directs students' focus to the final grades of knowledge acquisition instead of improving their inquiry skills.	✗	✗	✗
5. Limited access to technology affects learners' motivation for inquiry.	✗		✗
6. Graduate students/in-service teachers are not capable of finding balance between their workload in schools and in PD programs.		✗	
7. Changing PD learning resources for IBL implementation might result in financial costs to the instructors.		✗	
8. The career development goals of teachers were not in accordance with the expectations set forth by PD programs.		✗	
9. The school leaders' feedback on graduate students/in-service teachers' performance is seen as a constraint to change.		✗	

10. Traditional graduate students/in-service teachers' mindset and lack of familiarity with self-learning hindered the implementation of IBL.		✗	
11. The instructors have difficulties orchestrating collaborative inquiry-based activities in large class size.		✗	✗
12. Graduate students/in-service teachers struggle to engage in inquiry-based activities due to the high variable abilities of individual		✗	✗
13. Graduate students/in-service teachers have difficulties participating in inquiry-based activities due to 4,5,11, and 12.			✗
14. Instructors need to be mindful of their responsibility to exemplify IBL techniques.			✗
15. The absence of technology in PD classes is a challenge for IBL.			✗
16. Graduate students/in-service teachers think elderly instructors resist the implementation of IBL.			✗

Table 5 illustrates the similarities and differences in perspectives among the three groups of participants regarding the challenges for implementing IBL in PD programs. The administrators, the instructors, and the graduate students/in-service teachers highlighted a common criticism of the high-stakes exams system as it often incentivizes students to focus only on achieving high grades rather than developing their inquiry skills. IBL necessitates a reevaluation of curriculum design and assessment practices. The curriculum should be flexible and allow for student inquiry and exploration while aligning with learning objectives. Assessment methods should focus on evaluating process skills, critical thinking abilities, and problem-solving capabilities, rather than solely relying on rote memorization or standardized testing. It requires a shift from summative assessments to formative assessments that provide feedback for students' ongoing learning and growth.

The administrators and the graduate students/in-service teachers stressed that the graduate students/in-service teachers' motivation for inquiry is negatively impacted by limited access to technology. They believed that it reduces the types of IBL activities that instructors can assign to the graduate students/in-service teachers. Neglecting the potential of technology in IBL implementation may limit the transformative impact it can have on the philosophy of education. The instructors discussed that the workload may be too overwhelming for the graduate students/in-service teachers to engage in IBL activities in PD programs. However, the graduate students/in-service teachers believed that, by demonstrating IBL techniques in their teaching methods, instructors can create a learning environment that promotes inquiry and engagement, which helps graduate students/in-service teachers manage their workload and develop their skills in PD programs. Another contrast emerges when the instructors argued that the graduate students/in-service teachers are accustomed to passive learning, while the graduate students/in-

service teachers addressed that the instructors do not adopt different strategies to manage collaborative learning groups in a large class size.

4.2.3. IBL and research skills:

In chapter two I described Healey's model of four learning activities in the research-teaching nexus: teacher-centered activities with a focus on learning about current research in the discipline (research-led), or on learning research skills and techniques (research-oriented); and student-centered engagement in research discussions (research-tutored), or students doing their own research projects (research-based.)

The questions of the current study explore the implementation of IBL, if any, in PD programs. Accordingly, the participants discussed the link between inquiry-based activities and enhancing the learners' research skills, supporting graduate students/in-service teachers' roles as researchers, and how they describe PD programs in the light of Healey's Model (2005).

4.2.3.1. The link between inquiry-based activities and enhancing research skills. In this section, the three groups of participants presented their ideas related to learning about research in PD programs. These ideas included the problem with the current forms of assessment in PD programs and their effect on the graduate students/in-service teachers' motives to do their own research, the anticipated solutions suggested in the improvement plans, in addition to the targeted research knowledge and skills in PD programs.

4.2.3.1.a. The administrators. This section presents the administrators' views of the effect of assessment on learners' research knowledge.

The administrators discussed their understanding of the connection between IBL and disciplinary research knowledge. A1 stated: "One more academic standard that is directly related to IBL is understanding research knowledge" (A1, December 4, 2021).

An IBL approach is quite inconsistent with a traditional system of assessment through exams. Put another way, tests tend to address memorization and understanding skills while IBL emphasizes self-discovery and application.

The administrators discussed this aspect as one of the objectives of the improvement plan. They both referred to their vision to direct students' focus to the formative grading system. A2 clarified that "They might get higher grades on the research activities than the final exam. We believe that the connection between the research activities and the grades would motivate students to participate in IBL and raise their interests in self-learning" (A2, April 6, 2022).

The administrators recognized a gap in IBL implementation and proposed some solutions for it in the suggested improvement plan. They concluded that the graduate students/in-service teachers' motivations for engaging in research are the starting point for any change and, in the study context, motivations are tightly connected to the grading system. Accordingly, there is not adequate attention to enhancing graduate students/in-service teachers' inquiry skills through research activities in the current situation of assessment.

This alignment between the constructivist principles underlying IBL and the assertions made by Herman and Pinard (2015) supports the essential role of the instructors in guiding and shaping the graduate students/in-service teachers' values and thoughts within the context of inquiry-based tasks, as previously discussed in the literature review in chapter two. This connection underscores the fundamental tenets of constructivism in IBL, emphasizing the

instructors' pivotal role in facilitating meaningful learning experiences and supporting the graduate students/in-service teachers' engagement in inquiry-based exploration.

4.2.3.1.b. The instructors. The instructors explained the research-oriented content in PD programs, in terms of research knowledge and skills. I1 stated:

Basically, it is about teaching them how to write a research proposal in English, how to document the references while they are writing using APA style, how to write a good introduction, research questions and hypotheses, and all other technicalities of the research methods because they are in the pre- master stage and the next step will be they write their own proposals and present it in the seminar (I1, April 6, 2022).

Both of the instructors asserted that they felt that the foundational knowledge about research is adequately included in the PD programs. They also observed that the graduate students/in-service teachers' skills do not completely change and this is due to the PD programs' duration. In support, I1 mentioned that "They do not change dramatically because it takes more than one semester for such change to take place. Therefore, it is important that they have language courses, in addition" (I1, December 2, 2021). Henceforth, this was a shortcoming detected by the instructors who stated that improving graduate students/in-service teachers' research skills should be a continuous process along the programs and not to be tackled in separate subjects. The graduate students/in-service teachers confirmed the same deficiency, which will be shown in the next section.

4.2.3.1.c. The graduate students/in-service teachers. This section presents the changes in the motivations and skills of graduate students/in-service teachers as practitioners, the challenges of learning about research, and the gap between theory and practice of research in PD programs.

The graduate students/in-service teachers reported enhancing their motivation to read academic research as an essential benefit. Many of them stressed that their research skills developed as, for example, ST5 commented that:

I believe PD programs even influenced my personality. I became a more critical and analytical thinker; these are skills developed through reading in research as we were asked to analyze and criticize others' research work. For example, we evaluated the accuracy of their research questions, and the way they wrote their objectives … etc., which helped me develop my personality as a researcher (ST5, PhD, March 31, 2022).

The graduate students/in-service teachers recognized the value of integrating research into their everyday practice. They found possible solutions for their teaching practice problems from the available academic resources. ST6 explained that:

It improved with more than 80%, now I am reading in the journals, periodicals, and various databases in order to learn the new techniques of research … I learnt to read in research in order to gain knowledge. I read many of the proposals and research studies, even the ones written in Arabic (ST6, PhD, November 27, 2021).

However, there were a few comments related to the theoretical teaching approach to research. Graduate students/in-service teachers reported a noticeable gap between theory and practice in learning about doing scientific research. ST3 noted this as:

I did not learn how to practically write good research … I was learning about research in a pure theoretical way and that ended up with me not knowing about research neither theoretically nor practically! (ST3, Master, March 30, 2022).

A long line of research stressed the connection between the graduate students/in-service teachers' research knowledge and their motivations for implementing research in their teaching practice (Bandura 2006; Campbell, 2004; Gros et al., 2020; Neary, 2014; Van der Linden et al., 2015). These studies concluded that conducting research in practice is a real challenge for graduate students/in-service teachers in spite of their positive motivations to learn about it. From the graduate students/in-service teachers' perspectives, the PD programs did not enhance the graduate students/in-service teachers' research skills. Even though many of them developed a positive motivation for learning about research, others were hesitant since they believed there was not enough practice on conducting research in PD classes, or that the main focus is on the guided types of inquiry.

4.2.3.2. The graduate students/in-service teachers as researchers. An important aspect of the current study is investigating how graduate students/in-service teachers conduct their own disciplinary research as a component of their higher education program. In this section, the administrators discuss the availability of resources in the university as a challenge for graduate students/in-service teachers as researchers; whereas, the graduate students/in-service teachers argue how the Egyptian government encourages the practice of research in schools.

4.2.3.2.a. The administrators. Both administrators agreed that IBL aims at integrating research into teaching practice, but their students were far from achieving this at the moment for a variety of reasons. One reason was the lack of resources at the university, which affects graduate students/in-service teachers' motivations for conducting research. As decision makers, they were concerned about encouraging the graduate students/in-service teachers to conduct their own research. A1 highlighted the efforts to encourage research publication: "Improvements have been done to enhance the impact factor of the faculty academic journal, and help the instructors

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become updated with easy access to new scientific topics. Efforts have been exerted to encourage graduate students/in-service teachers to publish scientific articles" (A1, December 4, 2021).

Literature stressed the effect of IBL on enhancing the research-teaching nexus (Badley 2002; Brew, 2003; Hofer & Lembens, 2019; Spronken-Smith & Walker, 2010). PD programs are meant to offer graduate students/in-service teachers the opportunity to develop research projects that are directly related to IBL implementation (Rodríguez et al., 2019). However, there is a discrepancy between the intended benefits of promoting a closer integration of research and teaching activities, and the actual conditions that shape the research culture within the university. Efforts to improve the research-teaching nexus may need to take into account the existing conditions and practices that shape research culture within the university. There is a need to promote the graduate students/in-service teachers' skills of conducting contextualized inquiry experiences that connect the graduate students/in-service teachers' historical cultural background to their teaching practices (Vygotsky, 1978; Buchanan et al., 2016). The graduate students/in-service teachers explained how this negatively affects their teaching practice which is required to be more research-oriented by the Egyptian government. This topic is discussed in the following section.

4.2.3.2.b. The graduate students/in-service teachers. In this section, the graduate students/in-service teachers pointed out how enhancing a research-teaching nexus is encouraged in schools. Most of them confirmed the calls for more integration of research in Egyptian public education. For example, ST6 explained the research activities implemented in schools: "my primary students discuss scientific research topics … as part of the English subject activity, they

are required to write a report about the stages of planting a sunflower, for example" (ST6, PhD, November 27, 2021).

The Egyptian government is looking to develop public schools to be communities for graduate students/in-service teachers as researchers, where they exchange their experiences of inquiry process (OECD, 2009). The improvement includes the implantation of inquiry-based activities in teaching; however, graduate students/in-service teachers themselves are still confused about how to guide their learners and facilitate IBL in teaching. PD programs should not only encourage graduate students/in-service teachers to consider IBL in classrooms, but also provide them with an adequate research-oriented environment where they can learn and practice inquiry themselves.

4.2.3.3. PD programs in the light of Healey's model (2005). Building upon the literature review of the current study, Healey's model (2005) is considered a foundational concept in understanding the research-teaching nexus (see Figure 3). Healey's model presents the four learning activities in the research-teaching nexus. Below the horizontal axis it describes such a nexus as teacher-centered with a focus on learning about current research in the discipline (research-led), or on learning research skills and techniques (research-oriented). Above the horizontal axis, the research-teaching nexus is student-centered with more engagement in research discussions (research-tutored), or students participating in doing their own research projects (research-based) (Healey, 2005.)

Thus, asking the participants to reflect on the PD programs in the light of Healey's model (2005) helped gain a more in-depth analysis of how research is employed in PD programs. The participants were asked to describe the focus of PD programs as either being on the research

content or on the research process, and to explain the extent to which students are participating in the inquiry-based activities.

4.2.3.3.a. The instructors. The instructors described teaching in PD programs as being located in the upper half of the model. They agreed that most of the time the students are allowed to participate in activities that include gathering data, group discussions, and reflective practice, as I1 illustrated:

> Personally, I believe they are engaged in activities most of the time … In my classes, they are engaged in research discussions and are doing their own research inquiry, which means we are located in the upper zone of the model (I1, April 6, 2022.)

The instructors described their teaching in PD programs as being mostly research-based. Literature identified research-based PD programs as being learner-centered including activities that are tailored to meet the learners' needs (Bransford et al., 2000; Duran & Dökme., 2016). In the context of the current study, the graduate students/in-service teachers' needs include preparing them to adopt IBL in their teaching practice through improving their knowledge about instructional skills and assessment methods as mentioned earlier in the first theme. This is consistent with the instructors' individual initiatives of enhancing IBL in PD content; however, the graduate students/in-service teachers did not describe PD programs the same way as will be discussed next.

4.2.3.3.b. The graduate students/in-service teachers. Most of the graduate students/in-service teachers viewed PD programs as research-led content which focuses on the knowledge about research with less focus on the students' engagement. For example, ST5 pointed out: "I believe we focus more on the research-led teaching in PD programs. That is mainly because we

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have a traditional lecturing style with few activities. We did not properly practice inquiry skills and how to choose suitable resources" (ST5, PhD, March 31, 2022).

On the other hand, and in agreement with the comments of the instructors, a few graduate students/in-service teachers stated that the type of activities in PD programs would fall into the category of research-based as ST6 mentioned:

> To some extent, we were participating in the study. We used to prepare the presentation, write research proposals, and engage in group discussions with colleagues. Accordingly, I believe PD programs integrated between the research-tutored and the research-based quadrants. Generally speaking, the focus was on the research content, and technically we learned about the research process (ST6, PhD, March 29, 2022).

The influence of inquiry on enhancing the connection between research and teaching has been the focus of research since the 1990s (Badley, 2002; Boyer, 1999; Healey, 2005; ; Spronken-Smith, 2012). The three groups of participants agreed that there is a misalignment of research knowledge and forms of assessment in PD programs (Table 6). Research concluded that the implementation of inquiry activities facilitates the shift to more student-centered approaches to learning. This encompasses a more profound exploration of the synergies between the triad of research, teaching and learning nexus (Spronken-Smith, 2012). Accordingly, the gap between the perspectives of both the instructors and the graduate students/in-service teachers needs attention. The latter perceived PD programs as being traditional and mainly located in the lower zone of the model and the former believe that teaching in PD programs essentially involves more active learning with considerable participation of the learners.

Table 6

The participants' perspectives of the relation between IBL and research skills.

	Administrators	Instructors	Student-teachers
1. IBL helps learners engage in meaningful research activities.	✕		
2. The administrators are planning to target the integration of formative assessment to encourage learners' motivation for research.	✕		
3. The graduate students/in-service teachers have difficulties integrating research into their teaching practice.	✕	✕	
4. There is a gap between the current forms of assessment in PD programs and the research knowledge anticipated through IBL implementation.	✕	✕	✕
5. PD programs integrate between both the research-tutored and research-based approaches to teaching.		✕	
6. PD programs aim at improving the graduate students/in-service teachers' research skills by implementing IBL.		✕	

7. Some of the instructors attempt to encourage the graduate students/in-service teachers to conduct their own research projects through inquiry-based activities.		✕	✕
8. PD programs are too short to improve teachers' research skills as a part of IBL implementation process.		✕	✕
9. PD courses do not adequately enhance the research-teaching nexus currently.			✕
10. IBL is mandated by the Egyptian government to foster the research-teaching nexus in schools.			✕
11. PD programs are mostly described as research-led and research-oriented.			✕

Table 6 shows the participants' perspectives on the connection between IBL and their research skills. There is an agreement among the three groups of participants that the current assessment methods employed in PD programs do not align with the research skills expected to be developed through the implementation of IBL. However, an obvious contrast appears when the administrators and the instructors believed that while PD programs aim at enhancing the graduate students/in-service teachers' research skills through IBL, the graduate students/in-service teachers argued that the current courses may not be fully effective in achieving this goal. This contrast is further confirmed when the instructors described PD programs as being generally

research-tutored and research-based with a comprehensive approach to teaching that is informed by both research and practical experience. The graduate students/in-service teachers described PD programs as both research-led and research-oriented with less participation in research as a process.

IBL can be enhanced by connecting students' inquiries to the broader community and strengthens the constructivist notion of the coordination between the organism and the environment (Dewey, 1896). Encouraging interactions with experts, community organizations, and real-world contexts provides graduate students/in-service teachers with authentic learning experiences. It helps them see the relevance and applicability of their inquiries beyond the classroom ideally fostering a deeper understanding of the subject matter. Connecting students' inquiries to the broader community in the context of IBL brings about a paradigm shift in graduate students/in-service teachers' research skills.

4.2.4. Writing skills in PD programs:

To further explore the current research questions, the participants discussed different activities that indirectly help enhance the implementation of IBL. In this section, the instructors and the graduate students/in-service teachers were asked to explain how PD programs targeted their academic writing as a major skill for inquiry-based activities. Their responses will be then compared to the learning outcomes anticipated from PD programs.

4.2.4.1. The instructors. The instructors discussed their perceptions of the skills targeted in PD programs to improve graduate students/in-service teachers' academic writing. They illustrated that PD classes offer graduate students/in-service teachers opportunities to practice the fundamentals of academic writing such as writing an introduction and a summary, constructing a correct research question, and explaining research design. I1 indicated:

Generally speaking, they acquire the basics and technicalities of good academic writing. For example, how to write a research proposal, a good introduction, and how to formulate a research question, and then they are able to explain the research methodology used and so on (I1, April 6, 2022).

4.2.4.2. the graduate students/in-service teachers. In this part of the interview, the graduate students/in-service teachers were asked to discuss whether PD programs enhanced academic writing and the possible connection between writing and their teaching experiences.

The graduate students/in-service teachers confirmed that there were almost no opportunities to practice different types of academic writing in PD programs although the instructors focused on the academic writing in the content of PD programs. ST1 described that learning about writing occurred only in the late stages of doing their research, not during the PD classes:

There was absolutely no focus on academic writing during PD programs. I only learnt about academic writing skills while I was doing my own research. At this time, my supervisor played the role of the instructors who should have taught me about academic writing in PD programs. Only skills such as writing references and citation were focused on in PD programs (ST1, PhD, March 31, 2022).

A few students mentioned activities that implemented writing. For instance, ST6 explained the tasks they used to do to practice academic writing:

We used to read others' research work, then criticize the citation, the use of punctuation marks, the in-text citation … etc. I remember we used to learn about different citation methods such as APA from the reading of other researchers' work. Sometimes

researchers might merge between two different styles such as APA and Chicago, so we learned about both of them through practice (ST6, PhD, November 27, 2021).

The majority of the graduate students/in-service teachers stated that writing helped improve their reflective thinking skills when successfully linked to their teaching practice, but that opportunity was not offered in the PD program. ST5 confirmed that their professional experiences have not been employed in enhancing their writing quality:

We were not asked to write about advanced strategies and their applications such as TBL or problem solving … etc. There were no questions about reflection on our own experiences or thinking. For example, I would like to have had a chance to write about how to manage individual differences inside the class, and relate to my own actual experience (ST5, PhD, March 31, 2022).

In the light of the participants' responses, what is mandated in the description of PD courses and the actual reality of teaching writing deserves attention (Table 7). Although the course outlines emphasize enhancing students' writing skills, this is not a focal point of the practice according to the graduate students/in-service teachers. Notably, reflective writing is not systematized as either a part of the inquiry-based activities or the assessment techniques. This highlights another program shortcoming in terms of preparing graduate students/in-service teachers as researchers (Graham, 2018; Graham & Alves, 2021). This necessitates a well-defined explanation of IBL principles and objectives in the university mandates and will be discussed later.

The literature has confirmed that researcher graduate students/in-service teachers need to master the complex skill of academic writing in order to synthesize their ideas, think

conceptually, and structure a coherent piece of writing (Graham, 2018; Graham & Alves, 2021).

Building upon the importance of qualifying graduate students/in-service teachers to be good

researchers, writing is a vital skill for graduate students/in-service teachers to master research in

practice (Graham, 2018; Graham & Alves, 2021). If graduate students/in-service teachers are not

properly exposed to practice writing during PD programs, they are less likely to take full

advantage of learning about doing academic research. Moreover, academic writing is a

fundamental component of the IBL process (Healey & Jenkins, 2009; Lee, 2012; Lee & Murray;

2015) since it aligns with the graduate students/in-service teachers' agency of their own

knowledge construction.

Table 7

The instructors' and graduate students/in-service teachers' perspectives of the

development of writing skills in PD programs.

	Instructors	Student-teachers
1. PD programs should include training in writing for research purposes.	✕	
2. PD programs include research writing skills such as designing research questions, methodologies .. etc.	✕	
3. In the early stages of PD programs, the graduate students/in-service teachers have only limited opportunities to practice the fundamentals of the	✕	✕

academic writing skills such as citation and reference list through inquiry-based activities.		
4. Graduate students/in-service teachers wanted and expected to have opportunities to engage in a variety of academic writing.		✗
5. Graduate students/in-service teachers had few opportunities to engage in academic writing.		✗

Table 7 discusses the instructors' and the graduate students/in-service teachers' perceptions of improving writing skills in PD programs. The two groups of participants agreed that the graduate students/in-service teachers do not have adequate opportunities to practice key academic writing skills such as citation and reference list through inquiry-based activities during the initial stages of the program. Although PD programs emphasize the importance of research writing skills as suggested by the instructors, the graduate students/in-service teachers discussed that there may be a lack of attention given to developing academic writing skills among graduate students/in-service teachers.

Focusing solely on certain aspects of IBL in PD programs such as pedagogical strategies and content knowledge may enhance teachers' instructional practices, it may not be sufficient to bring about a paradigm shift in their writing skills. To truly transform teachers' writing abilities, a more comprehensive approach is necessary.

Incorporating explicit instruction and support for writing within PD programs can enable teachers to develop a deep understanding of effective writing strategies, techniques, and genres. This includes providing guidance on how to scaffold writing tasks, provide constructive

feedback, and foster a writing-rich classroom environment. PD programs should also address the importance of writing as a tool for inquiry, critical thinking, and communication within the context of IBL.

4.2.5. The university mandates:

To answer the research question about ways that administrators contribute to the process of IBL implementation in PD programs, the interview included discussions about the university mandates. This approach aimed at drawing a comparison between how IBL is presented in the literature versus how the decision makers standardize it into the content, the learning strategies, and the assessment of PD courses and programs. Under this theme, the participants discussed various topics such as IBL in Egyptian education and the plans for improvement proposed by the administrators.

4.2.5.1. IBL in the Egyptian education. In the administrators' and the instructors' words, there is a large gap between the mandates and the actual reality or current state of IBL implementation in university education.

4.2.5.1.a. The administrators. The administrators' contribution to IBL implementation in the university is a part of how they perceive the Egyptian government's reform in education. They confirmed that IBL is an essential part of their educational improvement efforts, specifically in the primary and secondary stages of education. This was not the case in university education. A2 clarified this observation: "in university education, IBL skills are mandated in the university documents; however, in practice, it depends more on individual initiatives, it is not yet normalized as a part of the institutional system" (A2, November 19, 2021).

This statement showed the administrators' awareness of the governmental tendency to include more active learning strategies in education. University education is still struggling with the standardization of active learning approaches like IBL, although it is clearly mentioned in the university mandates. This is further confirmed in the participants' argument that the university instructors implement IBL through individual initiatives even though it is part of the objectives of courses in the university calendar.

The same administrator later justified this reality with the high number of students and the lack of facilities as factors that influence IBL implementation. This point was previously discussed in the section on IBL challenges. A2 explained that "in some universities in Egypt, especially the private ones, IBL is mandated and normalized as part of the institutional system. In public universities, due to the high numbers of students, it will be hard to have the improvements implemented immediately" (A2, April 6, 2022).

The interview included questions about the authority that instructors have in the slow-moving implementation of IBL in their courses in the program. This leads to the next section of the interview, in which the instructors describe their agency in applying IBL in PD programs as a part of their personal efforts for change.

4.2.5.1.b. The instructors. The second question in the current study examines the ways in which the instructors design and implement IBL in their teaching. Similar to the observations of the administrators, the instructors confirmed they partially implement IBL in their teaching in the PD program. In explaining their agency in the university context, I1 pointed out her independence and responsibilities in PD programs:

To a great extent I have the authority to choose the content and how to teach. In other

subject matters, when there is more than one instructor teaching the subject, they have to

also agree on the content. Choosing content and how to teach is not a decision made by

the dean or the head of the department, or the other stakeholders in the university (I1,

December 2, 2021).

This assertion aligns with the administrators' perception that IBL in the university is

practically employed in teaching by the instructors without the influence of organizational

management. Both instructors confirmed that the administrators' role is limited to directing

managerial tasks, such as organizing the final and mid-term exams, and changing plans

according to new situations like the COVID pandemic. I1 mentioned that:

The administrators' role would be to organize the mid and the final exam, for

example, to change the rules as a response to the situation of COVID pandemic,

to check what the exam is going to be like? Is it going to be in bubble sheets,

online or are the students going to come physically ... and so on (I1, December 2,

2021).

As previously discussed, IBL is implemented in PD programs through the instructors'

individual initiatives of including more inquiry-based activities. Yet, the system in the university

is exam-led as discussed in the analysis of the course outlines section (Table 8). There is a heavy

reliance on the final exams as the main form of assessment. There is a possibility that the types

of assessment mandated by the administrators are not aligned with the teaching approaches of the

instructors.

As the data reveal, much consideration needs to be paid to create alignment between the governmental efforts and the actual challenges facing IBL implementation in practice. PD programs should be designed and implemented to respond to the mandate of preparing graduate students/in-service teachers who are capable of implementing IBL in practice. This leads to the following section of questions about the improvement plans.

4.2.5.2. The improvement plans. In this part of the interview and building upon the aforementioned report of the practice of implementing IBL at the university, the administrators shared their plans for improvement. They confirmed that these plans are essentially meant to enhance the integration between the mandates, the management, and the teaching approaches with more focus on employing IBL.

In terms of the problem with the current forms of assessment, A2 recommended devoting a greater percentage of the grades to formative types of assessment, such as the research activities:

> We are considering doing some modifications to the faculty calendars for the next year. These modifications will include changing the assessment systems to increase students' motivations for conducting inquiry and research. For example, a part of the grades will be committed to research work students conduct during the academic year (A2, April 6, 2022).

The administrators believed they should pay attention to the learners' voices. Therefore, conducting surveys and holding meetings with learners were among the strategies proposed to bring about change. A1 discussed this idea:

In none of the educational systems in Egypt does a learner have a good opportunity to participate in decision making regarding the curriculum content or types of assessments ... the improvement plan involves the participation of graduate students/in-service teachers, staff members and professors, in addition to data collected from stakeholders in the field of teaching through surveys, such as school principals and students (A1, December 4, 2021).

A1 further stressed individualized learning as a fundamental component of IBL and discussed the expected changes to the calendar that would comply with learners' actual needs, such as:

We are planning to design the diploma language of teaching to be both in Arabic and in English to match the market requirements. I believe all these efforts are directly related to IBL as, in this case, learning is customized according to the learners' actual needs, such as the need for self-learning and connecting theory and practice, in addition to enhancing the research skills among the learners (A1, December 4, 2021).

The suggestions for improvement reflect the administrators' understanding of the actual gaps in IBL implementation in the university. They recognize that the traditional teaching methods may not be sufficient to meet the needs of diverse learners in the modern world, and that the paradigm of teaching and learning in Egypt needs to be changed. Notably, there will be efforts to address challenges such as the forms of assessment and meeting the needs of diverse learners. Other problems like the large class size and the lack of facilities are not yet among the decision makers' considerations. Henceforth, there are still specific factors that could influence the efficacy of the plans for change.

Table 8

The administrators' and instructors' perspectives of IBL in the university mandates.

	Administrators	Instructors
1. IBL is an essential element of the Egyptian educational reform.	✕	
2. The improvement plans call for the employment of the formative types of assessment to encourage IBL implementation process.	✕	
3. The Improvement plans focus on learners' voices and choices of IBL implementation.	✕	
4. The improvement plans suggest more strategies to handle the learners' individual differences through inquiry-based activities.	✕	
5. The government's IBL mandate is not implemented in the PD program.	✕	✕
6. IBL is implemented only by the instructors who choose to do so.		✕

Table 8 illustrates administrators' and the instructors' perspectives about IBL in the university mandates. They argue that IBL is a fundamental element of the educational reform in Egypt, but its implementation is left with the decisions of the individual instructors who choose

to adopt it. This suggests a potential inconsistency among staff members and a disconnection between the policy framework and the actual implementation of IBL in the PD programs.

IBL involves a fundamental shift in the philosophy of education. It challenges traditional teacher-centered approaches and emphasizes the role of the learner as an active participant in the learning process. Participants need to understand and embrace this shift in their pedagogical beliefs, moving away from a focus on content delivery to one that prioritizes inquiry, exploration, and student agency.

4.2.6. *The teaching and learning approaches in PD programs:*

Building upon the abovementioned discussion, the final theme of this analysis includes a general reflection on the characteristics of PD programs from the participants' perspectives. Topics such as the relation between PD content and teaching practices, the role of language, and the strengths and shortcomings of PD programs are further discussed.

4.2.6.1. The relation between PD content and teaching practices. In this section, the participants shared their views regarding the influence of PD programs on the graduate students/in-service teachers' professional practice in schools.

4.2.6.1.a. The administrators. One of the justifications for the improvement plans provided by the administrators is the disconnection between the content of PD programs and the actual reality in schools. This was explained by A1: "I believe there is a notable gap between the qualities of graduate graduate students/in-service teachers and the actual learners' needs in schools" (A1, December 4, 2021).

The above-mentioned statement responds to the current study's anticipated goal of paving the way for designing PD programs to encourage graduate students/in-service teachers to

design learning experiences in their classrooms based on the principles of active and authentic inquiry. PD programs are the communities of learning which offer graduate students/in-service teachers opportunities to improve their teaching practices and to respond to the governmental vision of developing education (El-Amin Muhammad, 2011; Cochran-Smith & Lytle, 1999). The administrators previously mentioned improvements such as introducing new diplomas in response to market needs, which suggests the decision makers' awareness of the deficiencies in the current PD programs.

4.2.6.1.b. The instructors. In this part of the interview, the instructors agreed with the administrators that there is a gap between the theory offered in PD programs and the practice graduate students/in-service teachers experience in schools. They hypothesized reasons for the graduate students/in-service teachers' resistance to adopting active learning strategies. These reasons included the large class size, specifically in public schools, and the traditional mindset of the graduate students/in-service teachers themselves.

The instructors then pointed out their role in motivating the graduate students/in-service teachers to move to a more student-centered teaching style, which I1 stated as:

I have these comments coming at the beginning of the academic year, and I keep telling them please put aside all these fears, try not to put them as obstacles that would keep you in the traditional way of teaching, you can overcome the context, do not always surrender to the current circumstances. I keep motivating them to challenge their comfort zone, try to make a difference (I1, April 6, 2022).

This instructor's constructivist statement suggests that change should not be forced upon the graduate students/in-service teachers, but rather be something that they experience, adapt to,

and embrace gradually. It implies that change may initially be uncomfortable or fearful, but as individuals shed their fears, they become more open to accepting new identities or ways of being and seeing the world.

I1's statement also implies that personal growth is an integral aspect of a paradigm shift. Individuals undergo a paradigm shift by developing new skills and beliefs that align with the experience of new ways of thinking (Al Mamun et al., 2020). This growth may involve letting go of old beliefs or behaviors that no longer serve their evolving paradigm and adopting new identities or ways of being and acting that are congruent with the new perspective.

The activities designed in PD classes were examples of the instructors' attempts to motivate graduate students/in-service teachers to enhance the link between PD and teaching in schools as I2 explained:

> We might ask the students to survey the internet for the current issues in education, or highlight a problem in their teaching practice, survey the graduate students/in-service teachers' and students' opinions of a specific current problem. Students also might administer tools for collecting data in research, or even highlight the gaps in a specific scope of research (I2, December 14, 2021).

This, again, confirms the ideas previously stated by the instructors about their personal efforts toward IBL implementation. It highlights their position that graduate students/in-service teachers lack motivation for applying PD content in their practice. This is a point that is further discussed in the following section.

4.2.6.1.c. The graduate students/in-service teachers. To respond to the third research question related to the graduate students/in-service teachers' perceptions of IBL implementation

in PD programs, the graduate students/in-service teachers were asked to comment on their participation in the selection of content of PD programs, the influence of PD curriculum on their teaching practice, and the role of the instructors in motivating them to apply IBL in their teaching.

In support of the instructors' statement that many of the graduate students/in-service teachers confirmed their contribution to deciding the content of the PD programs, ST6 stated: "at the beginning of the course, the instructor was asking us about our topics of interest and recommendations, and the instructor might add/change/modify these recommendations according to the objectives of the course" (ST6, PhD, November 27, 2021).

Yet most of the graduate students/in-service teachers expressed a concern that PD programs did not fulfill their practical needs. ST4 asserted that:

> In PD programs, there is a focus on the theoretical knowledge. For example, I could not apply the content about learning theories. Most of the PD content that is related to learning theories is far away from the actual teaching practice. Generally speaking, it depends on the teacher's abilities and experience to decide what to implement in teaching from PD programs (ST4, PhD, December 10, 2021).

These two opposite opinions still confirm one cultural challenge previously mentioned about IBL implementation, which is the graduate students/in-service teachers' readiness for change. Although the content of PD programs is largely theoretical, the wedding of theory and practice is beneficial to both practitioners and academics. Theory can inform graduate students/in-service teachers and help them reflect on their abilities and experiences. Further,

connections between course content and their teaching practice stimulate and motivate the graduate students/in-service teachers as revealed below.

Graduate students/in-service teachers mentioned many examples of the instructors' efforts to match PD curriculum to teaching in schools. ST2 identified one example as to how the instructors creatively presented the theoretical content to make it more realistic:

> I remember while we were learning about classroom management, the instructor included a scene from "Ghazal El Banaat" movie, when Naguib Elrihany had problems with controlling the class. We watched the scene, then the instructor involved us in a group discussion about its content and how to apply classroom management techniques to solve the problems highlighted in the scene. I remember we learnt the classroom management techniques and were amused at the same time … the whole class was asked to discuss some questions, such as what was the problem with this scene? What did the teacher do that was not right? To what extent was the teacher's technique traditional? And so on. A lot of discussions among the students followed up the activity (ST2, Master, November 25, 2021).

ST2 clarified that the instructors tried to choose topics that corresponded to the graduate students/in-service teachers' needs:

> Every student in the PD programs had the chance to employ their own personal experiences in teaching, we all built up on our shared experience. Almost 80% or 90% of my teaching practice in the school was related to the content of PD programs. Actually, it was a reciprocal relation, I use my teaching experience as an example in the PD

activities, while I employ the new techniques learnt in PD programs during my teaching practice in the school (ST2, Master, November 25, 2021).

4.2.6.2. The role of language in PD programs. For some participants, the use of the English language in PD content was seen as an obstacle. This brought forward suggestions as to how to enhance the graduate students/in-service teachers' English language proficiency.

4.2.6.2.1. The administrators. In this section, the administrators discussed the efforts exerted to address foreign language proficiency among graduate students/in-service teachers as a challenge for IBL implementation. Among the attempts were establishing centers for language learning as A2 pointed out:

> These are centers essentially presented by the teachers' professional development department and the educational services departments. There are various kinds of courses for all purposes, such as preparing math and science graduate students/in-service teachers who teach in English. These courses are taught by the university instructors and the numbers of courses presented are increasing every year (A2, April 6, 2022).

The administrators stressed the role of English language skills in IBL implementation. This is mainly because the learners are involved in meaningful activities that require research and consulting resources that are mostly available only in foreign languages. This contradicts the reality that most of the PD content is presented and taught in Arabic. Such a frequent shift between two languages is considered a burden on the graduate students/in-service teachers to fully benefit from their inquiry activity.

4.2.6.2.2. The instructors. It was important to explore the role of the English language in PD content from the instructors' perspectives. In this section, the instructors shared their

perceptions of students' English language proficiency and how it affects their learning. They also discussed their efforts in motivating the graduate students/in-service teachers to improve their language skills.

I1 ascribed the lack of language practice in PD classes to the students' unwillingness to express themselves in a foreign language. The instructor stated that the graduate students/in-service teachers either have not mastered the language, or are not confident to make public presentations:

> We can say they are intimidated, they do not have self-confidence, even those who are specialized in English. If they do not believe that their English is that good, they will not come and present in front of the class. And if their English is good, they are not used to doing such activities (I1, December 2, 2021).

This statement by an instructor refers to a need to overcome the graduate students/in-service teachers' sensitivity to using the English language confidently in public, which is an essential characteristic of the current study context. IBL can provide opportunities for graduate students/in-service teachers to engage in meaningful and purposeful language use that is based on their own cultural and linguistic backgrounds (Bruder & Prescott, 2013). To raise the graduate students/in-service teachers' awareness of the importance of improving their English language competencies, I1 highlighted the instructors' role:

> I always tell them: you need to read in English. All the good books are written in English, and if you are going to do your research, you need to be updated and see what is in the field in English. You should not restrict yourself to texts in Arabic. It is a plus for them

and not a luxury anymore to read in English the latest books written in Curricula and Methodology to see what is going on around the world (I1, April 6, 2022).

The three groups of participants confirmed the instructors' attempts to support the graduate students/in-service teachers in PD programs. However, certain factors impacted graduate students/in-service teachers' motivations for the inquiry- based activities. If the content of the programs is in Arabic, the chances to practice the foreign language are decreased. The graduate students/in-service teachers would be discouraged from participating in inquiry-based activities. This supports the need to bring the content, the teaching approaches, and the learners' needs into alignment in the PD programs. There may be a need for all stakeholders to discuss the availability of resources for the development of IBL skills.

4.2.6.2.c. The graduate students/in-service teachers. In this section, graduate students/in-service teachers reported that the language of PD content negatively influenced their learning. ST2 stated that only one course was taught in English, which influenced their motivation for learning:

> There was only one course in English in the Special diploma, which was very frustrating and boring in my opinion. I was overwhelmed with courses that were not in English. That was stressful; however, it was still useful in terms of research knowledge. I needed to study more about TEFL methodologies in English, I missed that! (ST2, Master, November 25, 2021).

ST2 continued to highlight another gap between PD content and teaching practice:

I was not annoyed by studying in Arabic. The problem was the shift I had to do in my thinking while I had to study in Arabic. I am used to English, and I teach in English. That

switch between languages was a burden to me, but, with time, I got used to it (ST2, Master, November 25, 2021).

In addition, the language of PD programs hindered graduate students/in-service teachers' skills as researchers as many graduate students/in-service teachers discussed. ST6 pointed out that "However, study about research was in Arabic, and that was a big challenge for us as researchers. I wished we could learn about research content and process in English, which might have helped me when conducting my own study" (ST6, PhD, March 29, 2022).

In terms of the university requirements, the graduate students/in-service teachers believed that the decision makers do not prioritize foreign language mastery. They confirmed that certificates of language proficiency are not required until just before the final defense for Master and PhD students. For instance, ST1 stated:

I was only required to submit a TOEFL certificate before the final defense. Ironically, I had to prove my language proficiency only after I had already completed three to four years of academic writing, while, actually, I needed to improve my language in the very early stages of research! (ST1, PhD, March 31, 2022).

This graduate student / in service teacher's expression of frustration over her low English language skills at the beginning of her PD program is also described by the instructors and confirms the administrators' concern about the PD content being offered in Arabic (Table 9). Foreign languages, and the English language specifically, are considered a challenge faced by non-native graduate students/in-service teachers who want to engage in academic activities (Geiger & Straesser, 2015). The global significance of the English language is undeniable for graduate students/in-service teachers who want to be continuously engaged in the process of

career development. Nowadays, graduate students/in-service teachers need to stay updated with resources that are, most probably, available in English. A long line of research states the role that the English language plays in any IBL process (Geiger & Straesser, 2015). It is fundamental for learners to master English language skills to successfully experience IBL, read recent resources, indulge in discussions with colleagues, and clearly express and reflect on their own arguments.

4.2.6.3. The strengths of PD programs. In this section, the graduate students/in-service teachers indicated the benefits of PD programs for their teaching practice. The graduate students/in-service teachers referred to the positive influence of English on their social recognition, their abilities to deal with different learners' needs, their identity as Arab graduate students/in-service teachers, and their motivations for autonomous learning.

ST2 stated the value of the university certificate both socially and professionally, and explained a difference in the graduate students/in-service teachers' professionality before and after PD:

> In terms of strengths, PD programs develop the teaching performance generally, and help graduate students/in-service teachers become more professional. Before PD programs, graduate students/in-service teachers might be teaching in an amateur way, but after PD programs, graduate students/in-service teachers become more knowledgeable and aware of what they are doing. There is value of the certificate itself. It is important that you become certified as a teacher in Egypt. In addition, PD programs are important for getting to know more people in your profession and enhancing your network (ST2, Master, November 25, 2021).

Improving graduate students/in-service teachers' abilities to handle learners with special needs was another strength mentioned by ST5: "the General diploma study was useful in getting me to know new topics related to how to teach younger learners, especially those with special needs" (ST5, PhD, November 30, 2021).

As confirmed by A1, the graduate students/in-service teachers also believed that the PD program's curriculum supported their Arab identity. This item was echoed in ST1's words:

> In courses such as "Old and Contemporary Educational Issues", I improved my understanding about the Arab contribution to the science of education. I used to think about education as predominantly developed by western scientists, which is not true. That is considered as one of the positive influences of PD programs on my self-confidence and Arab identity! (ST1, PhD, December 1, 2021).

In addition, the graduate students/in-service teachers stressed the role of the administrators and the instructors in orchestrating their learning journey in PD programs, as ST6 explained:

> I would never say the instructors or the administrators were careless; rather, they were so disciplined and organized. They paid much attention to the active roles of the students in the programs. They even enhanced our self-learning skills, as part of the presentations was to choose a topic of our interest and discuss it with our colleagues, which helped me choose the resources and justification for my material independently. They also supported our self-appreciation and confidence (ST6, PhD, November 27, 2021).

4.2.6.4. The shortcomings of PD programs. The participants were asked to reflect on the weaknesses of PD programs as they perceive them. In the following section, both the

administrators and the graduate students/in-service teachers discussed the shortcomings of the management and the learning experience of PD study.

4.2.6.4.a. The administrators. The availability of skilled human resources was highlighted as one of the challenges in PD management. A1 stated that "the number of the administration staff is few, and most of them need more training to improve their competencies" (A1, December 4, 2021).

4.2.6.4.b. The graduate students/in-service teachers. The graduate students/in-service teachers confirmed the challenges that were previously discussed such as the system being one of high-stakes exams, the difference between PD program content and the learners' needs, and the lack of resources for learning.

ST2 acknowledged that the instructors directed the students' attention to the final exam instead of motivating them for learning:

Moreover, the instructor, in a wrong way, was motivating the students by guaranteeing that we are not going to study all the material, most of it will be deleted! I felt that she does not even believe in what she is teaching us! (ST2, Master, November 25, 2021).

The discrepancy between the curriculum content and the anticipated learning objectives was often mentioned as a shortcoming in PD programs. Graduate students/in-service teachers believed that learning was not customized to meet their individualized needs. ST3 confirmed this experience with these words:

In terms of the students, there is a gap between their actual needs and interests on one side, and the PD content on the other. There should be interviews with the students before they enroll in the programs (ST3, Master, March 30, 2022).

Many graduate students/in-service teachers indicated a lack of resources for learning as an obstacle. ST6 expressed the shortage in language learning resources:

The only shortcoming I might mention is the resources available for language learning. For example, if I want to pass the IELTS exam, I cannot afford to buy its preparation material. It would be very useful if such materials are offered by the university. There should be more funds to improve the open access materials for language learning (ST6, PhD, March 29, 2022).

Improving the educational conditions is one of the fundamental requirements for successful implementation of IBL. The availability of learning resources is reported to enhance learners' motivation, especially in ESL classes where the learners are already burdened with foreign language barriers (Mugabo & Nsengimana, 2020). In the current study, the graduate students/in-service teachers stated the shortage in resources as a challenge for IBL in PD programs and referred to their personal efforts for self-improvement out of PD programs, such as language courses in private centers (Table 9).

Table 9

The participants' perspectives of the teaching and learning approaches in PD programs.

	Administrators	Instructors	Student-teachers
1. As a support for successful IBL implementation, there are attempts to improve students' language skills, like language learning centers.	✕		

2. A shortage of the sufficient skilled human resources in PD programs is an obstacle to IBL implementation.	✕		
3. Graduate students/in-service teachers' limited foreign language skills are obstacles to IBL implementation.	✕	✕	
4. Current IBL implementation doesn't fill the gap between PD theoretical content and the actual problems the graduate students/in-service teachers face in schools.	✕	✕	✕
5. PD programs enhance teachers' Arab identity through inquiry-based activities.	✕	✕	✕
6. Some graduate students/in-service teachers are hesitant to implement IBL in schools.		✕	
7. The instructors have agency to teach PD content through IBL.		✕	✕
8. Instructors encourage teachers to employ inquiry-based activities in teaching.		✕	✕
9. PD program content is mostly presented in Arabic, which conflicts with the language of up-to-date resources in education, and consequently hinders the IBL implementation process.			✕

10. The graduate students/in-service teachers are not well prepared for IBL as their foreign language skills are not prioritized in the pre-requisites of PD programs.			✕
11. limited access to resources (e.g, cost/availability of technology) restricts students' ability to engage in knowledge construction through inquiry-based activities.			✕

Table 9 summarizes reports of the participants' experiences of the teaching and learning approaches in PD programs. The three groups of participants agreed that despite the efforts to equip graduate students/in-service teachers with the necessary theoretical knowledge and skills to implement IBL, there may be a gap between this knowledge and the practice of IBL in their university courses and an explanation of the practical issues that arise in actual classroom settings in schools. The connection between graduate students/in-service teachers' inquiries and their real-world contexts is needed to cultivate a sense of content relevance and applicability. Only in this way will they begin to see how their classroom learning connects to authentic situations and challenges faced by individuals and communities in their teaching context in Egypt. For the emergence of a paradigm shift in education instructors must experiment with their pedagogical approach, have the supports they need to do so, and be validated by the system to do so. This will assist them in modelling and leading how to be facilitators and guide the graduate students/in-service teachers in navigating the complexities of the real world beyond the university classroom and support them in their inquiries.

The graduate students/in-service teachers also confirmed that PD programs not only aim to improve teachers' professional skills but promote their cultural and national identity. However, the participants' responses highlighted an important gap in the role of foreign languages in implementing IBL in PD programs. Even though both the administrators and the instructors confirmed that language proficiency is a crucial factor in implementing IBL, the graduate students/in-service teachers argued that their language skills are not given sufficient attention in the prerequisites of PD programs. Graduate students/in-service teachers further suggested that the use of the Arabic language to present content in PD programs creates a conflict with the language used in current educational resources thereby impeding the implementation of IBL.

By integrating more courses for the development of foreign language skills within the university PD programs, the graduate students/in-service teachers will be able to engage in the level of inquiry and critical thinking required in an IBL approach to learning and develop proficiency in a second language. There are more learning resources available in English than Arabic and since language learning entails use of authentic resources in the target language, participants may not be able to experience a shift in their second language pedagogic understandings and educational practices without growth in their English language skills. By incorporating language learning as an integral part of IBL, the graduate students/in-service teachers can develop their content knowledge and foreign language proficiency. This approach will develop skills and experiences to assist them in transforming the educational experiences for the students in their schools.

4.3. Summary

The current study explores IBL implementation in PD programs through the participants' voices. The personal interviews stimulated the participants to discuss the connections between IBL

and the graduate students/in-service teachers' higher thinking skills and research skills in addition to the challenges facing full IBL implementation within their program and into their classrooms. Tapping into how they constructed their understandings of IBL highlighted needs such as standardizing the use of IBL in university instruction, modifying the assessment techniques, motivating the graduate students/in-service teachers for learning, and overcoming cultural and technical obstacles.

The three groups of participants frequently confirmed the instructors' individual initiative to adopt IBL. However, being exam-driven, programs did not allow for much practice of inquiry-based activities. This also influenced the graduate students/in-service teachers' motivation for engaging with an IBL approach as their main focus was on getting high grades at the end of the program. In turn, this led to the graduate students/in-service teachers' resistance to active learning approaches. For example, A2, I1, and I2 expressed concern that using student-centered approaches to teaching would cause the graduate students/in-service teachers to be anxious and feel lost in the curriculum. The participants stated that the lack of learning supports (constructivist mediation) like the technology needed to access websites and download documents and the large number of students per class were among the fundamental challenges they experienced in IBL implementation. The limited amount of content available in English was another obstacle that discouraged the graduate students/in-service teachers from adopting IBL as a way for them to learn and experiment with this approach in their own classrooms.

Progress in shifting pedagogic understandings and educational practices through IBL will require a more comprehensive and system-level approach within and beyond the HEI. This awareness will require attention to developing stronger competency in English, embracing the philosophy of IBL that challenges traditional teacher-centered approaches, and emphasizing the

role of the learner as an active participant in the learning process. Such a holistic approach requires instructor training and support for using IBL in all courses in the Faculty, reevaluating curriculum and assessment methods, and creating an inquiry-friendly classroom environment with appropriate resources and supports. It is also vital to consider fostering community engagement by connecting the graduate students/in-service teachers' inquiries to the experts in the broader community out of the HEI. Addressing these interconnected system-level factors is crucial for a transformative impact. Whereas THE graduate students/in-service teachers confirmed the influence of PD programs in enhancing their motivation for doing their own academic research, which is reflected in the improvement plans proposed by the administrators, and in their identities as Arab teachers of English.

CHAPTER FIVE: RECOMMENDATIONS AND FUTURE RESEARCH

The final chapter of a dissertation aims to provide responses to the research questions, synthesize the key findings and insights obtained from the research conducted, identify implications of the findings and propose recommendations, suggest future research, and confirm the new contribution to knowledge that the dissertation offers. This chapter begins with brief responses to the research questions and concludes with a reflection on my own growth as a researcher engaged in IBL.

5.1. Research Questions

The current interpretive qualitative study explores the process of implementation of IBL in an EFL teachers' certificated PD program at a higher education institution in Egypt. The study focuses on the perceptions of institutional administrators, program instructors and junior high in-service student-teachers on how IBL has been implemented in their university-certificated PD program for English as a Foreign Language (EFL). The main research question directing this study is: How has IBL been implemented in one university-certificated PD program for EFL graduate students/in-service teachers in Egypt? To respond to this study's main question, specific sub-questions were derived as follows:

5.1.1. In what ways do administrators contribute to the process of implementation of IBL in one university's PDiE program?

The administrators' role in the process of the implementation of IBL in PD programs was the foundational inquiry along the serial personal interviews. The interviews revealed what they did and what they intended to do in the near future for IBL to be more successfully implemented within the Faculty. They stated that they:

1) Interpreted IBL as a way to meet the government's new mandate for education, emphasizing the acquisition of knowledge, information, and skills by motivated graduate students/in-service teachers.

2) Established a mandate for IBL within their institution.

3) Recognized the significance of the instructors' experience and teaching awareness in effectively implementing IBL as an integral part of constructivist thinking.

4) Identified challenges to PD programs in the university context, such as the need to explore:

   a. the graduate students/in-service teachers' resistance to active learning approaches,

   b. the amount of time that the graduate students/in-service teachers had for engagement in PD programs,

   c. how to support implementation through resource allocation, and

   d. how to equip the instructors with the necessary skills for effective IBL implementation.

In their future action, they

1) Aim to enhance IBL integration in PD programs by gathering input from graduate students/in-service teachers, allocating and directing resources for IBL support and implementation including providing PD for the instructors.

2) Intend to implement alternative assessment strategies that focus on evaluating process skills, critical thinking abilities, and problem-solving capabilities, rather than relying solely on rote memorization or standardized assessment since this is within their mandate.

3) Plan to train the instructors to effectively use technology to facilitate collaborative learning experiences and provide timely feedback to the graduate students/in-service teachers.

4) Plan to enhance the integration of research activities within IBL to increase the motivation of graduate students/in-service teachers and foster the graduate students/in-service teachers' inquiry skills in the coming year.

5.1.2. How do instructors integrate IBL in designing and implementing the curriculum for courses in one University's PDiE program?

This section addresses the second research question regarding the instructors' endeavours to incorporate IBL into teaching within PD programs in university. In their responses, they also revealed what they did and reflected on needs for future and better integration of IBL. They stated that:

1) Due to the graduate students/in-service teachers' limited readiness for the autonomous learning required in IBL activities and their low proficiency in English they selected structured and guided types of IBL to design topic-based and problem-based activities.

2) Since not all graduate students/in-service teachers were confident or skilled enough to create meaningful presentations independently, and thus become disengaged, only some instructors mentioned implementing some problem-based activities in which graduate students/in-service teachers researched teaching difficulties.

3) They provided the graduate students/in-service teachers with opportunities to practice academic writing skills such as designing a research question and writing a clear introduction, only in the very early stages of PD programs.

4) There was a misalignment between teaching using IBL and the exam-driven assessment system mandated by the university administrators, implying that this was beyond their power to change.

5) Although they have the choice and agency to select course content and instructional approaches to incorporate inquiry-based activities, there was no mandate to do so.

5.1.3. What are EFL graduate students/in-service teachers' perceptions of how IBL has been implemented in this University's PDiE program?

This section of the study focuses on sharing the perspectives of the graduate students/in-service teachers regarding the implementation of IBL in PD programs, as presented in interviews with them. They:

1) Described the instructors' roles as being guides or facilitators in inquiry-based activities in the university context.

2) Presented limitations in their ability to engage in authentic inquiry processes due to large class sizes, their limited English language skills, and the limited time available to attend PD courses given their school teaching schedule referring partially to the time that IBL task completion required out of class.

3) Noted that the graduate students/in-service teachers had different levels of understanding of IBL, primarily gained from their teaching practice experiences in schools and not at the university. Only a few graduate students/in-service teachers recognized the application of IBL within PD programs at the university level.

4) Acknowledged that PD programs enhanced their analytical and critical thinking skills.

5) Felt restricted from active learning by the assessment style and criteria used in how some instructors implemented guided inquiry.

6) Prioritized exam grades over acquiring knowledge and constructing their own learning due to what the system values and rewards. They were motivated by garnering higher wages as teachers; thus, they needed passing grades and a final certificate.

7) Felt hindered by limited technological facilities and their instructors' limited familiarity with technology in teaching.

8) Highlighted the challenges of learning how to do research and the gap they experienced between content on theory vs practice in PD programs.

For the future, they expressed a desire:

1) For more content coverage in PD programs, particularly related to technology integration.

2) For opportunities to develop academic writing skills such as reflective writing.

Accordingly, the response to the broader question of the study, which is: How has IBL been implemented in one university-certificated PD program for EFL graduate students/in-service teachers in Egypt? can be summarized by highlighting alignment and gaps identified among the participants. The three groups of participants agreed that:

1) Only some of the instructors utilized guided inquiry-based learning and facilitated collaborative small group settings for the graduate students/in-service teachers to share, reflect on, and evaluate their ideas.

2) The instructors have the agency to include inquiry-based activities in the PD course content.

3) That PD programs had a positive impact on enhancing the graduate students/in-service teachers' analytical and critical thinking skills.

4) The graduate students/in-service teachers focus more on the final exam grades than improving inquiry-based skills.

There were a number of points that showed gaps in the perspectives among the participants as follows:

1) Although the administrators and the instructors saw IBL as a strategy to fulfill the government's educational mandate, the graduate students/in-service teachers' understanding of IBL was shaped by their teaching practice and experiences in schools rather than at the university.

2) The participants held divergent views regarding the fundamental requirements for effective IBL implementation. Even though the administrators emphasized the important role of instructors' teaching awareness in the process of implementation, the instructors and the graduate students/in-service teachers prioritized the development of the graduate students/in-service teachers' experiential learning skills for the incorporation of the success of inquiry-based activities in PD.

3) The participants had varied perceptions regarding the challenges of implementing IBL. Both the administrators and the instructors attributed graduate students/in-service teachers' refrain from active learning to their limited English language skills; whereas, the graduate students/in-service teachers stated that it was mainly due to:

   a. the high variability of individual language, writing and research skills,

b. the limited technology resources,

c. the exam-driven form of assessment, and

d. the large class sizes.

4) The administrators are planning to adopt variable forms of assessment rather than depending mainly on final exams. The instructors believed that any changes to PD content would result in additional financial costs for them (e.g., purchasing new and expensive textbooks.)

5) The administrators aimed to improve the instructors' skills for IBL implementation, and the graduate students/in-service teachers concurred that the instructors, particularly the veterans, would benefit from further training in IBL. The instructors themselves held a differing perspective. They did not perceive their current personal skills as a hindrance to IBL implementation.

6) The administrators and the instructors stated that PD programs already implement adequate research activities but the graduate students/in-service teachers are not able to integrate these research skills into their teaching practice. The graduate students/in-service teachers described PD programs as being too short to improve their research skills and hence fail to enhance their research-teaching nexus.

7) Both the instructors and the graduate students/in-service teachers agreed that the current implementation of IBL fails to bridge the gap between the theoretical content it covered in PD programs and the real-life challenges that the graduate students/in-service teachers encounter in schools. This point was not mentioned by the administrators.

8) Although the instructors acknowledged that the current PD programs encompass some research writing skills such as designing research questions and methodologies, the graduate students/in-service teachers highlighted the absence of opportunities for reflective academic writing.

9) The administrators confirmed that IBL is mandated within their institution. The instructors confirmed that the implementation depends mainly on their individual initiatives within the constraints of the assessment system selected by the administrators. The graduate students/in-service teachers lacked awareness of any specific mandates related to IBL within PD programs in the university.

The need for greater alignment among administrators, instructors, and graduate students/in-service teachers is crucial for the possibility of a paradigm shift to occur in the implementation of IBL in PD programs. Achieving an alignment between all stakeholders is essential to fostering an enriched educational environment that authentically embraces the principles and practices of IBL. Further, such a model would not only improve education for all at the participating university, but would also stand up as a model for all HEIs in Egypt. The following section outlines actionable recommendations for the participating university, which can facilitate this essential alignment, and ultimately promote a transformative shift towards more effective IBL integration there and beyond.

5.2. Implications and suggestions for the participating study university:

The purpose of the current study is to investigate how IBL has been implemented in an English as a Foreign Language (EFL) teachers' certificated professional development program at a higher education institution in Egypt. Based on the study findings, the current study has identified several key areas where improvements can be made, including suggestions to:

1) promote actively and intentionally a shared understanding of IBL implementation and requirements among the participants in the university context.

2) address IBL challenges, such as the graduate students/in-service teachers' variable English language skills, insufficient technology resources, exam-driven forms of PD assessment, and large class sizes.

3) enhance the research-teaching nexus through a socio-culturally responsive inquiry.

4) foster academic writing in the IBL implementation process, and

5) create an alignment between IBL as mandated in the institutional calendar and as implemented in PD programs.

The promise of full IBL implementation will require a paradigm shift. The above implications underscore the need for a comprehensive reevaluation of the university's educational approach. To embrace IBL fully, it is foundational that the participating university embarks on a transformative journey. This journey involves reimagining its instructional methods, aligning curriculum and assessment strategies with IBL principles, nurturing an environment that promotes the graduate students/in-service teachers' research skills, including access to contemporary and reliable technology, and synchronizing the government mandates to the actual implementation of IBL. The next section provides practical recommendations for the aforementioned areas of enhancement.

5.2.1. Suggestions to promote a shared understanding of IBL implementation and requirements among the participants in the university context:

To address the misalignment between the administrators' and instructors' perspectives on IBL implementation as a government's educational mandate, and the graduate students/in-service teachers' limited exposure to IBL in the university setting, it is recommended to adopt a

comprehensive approach to PD programs. PD programs should incorporate dedicated modules or courses that explicitly focus on IBL implementation. This approach will provide the graduate students/in-service teachers with a solid foundation in IBL principles, strategies, and best practices, enabling them to effectively integrate inquiry-based activities in their teaching practice.

These modules should include opportunities for the graduate students/in-service teachers to engage in hands-on experiences and collaborative learning. These activities can involve participating in inquiry-based projects, observing experienced instructors implementing IBL in real classroom settings, and reflecting on their own teaching practice to continuously improve their implementation of IBL.

Additionally, the following recommendations are proposed to address the divergent views of participants regarding the requirements for effective IBL implementation. To enhance the instructors' teaching awareness as a fundamental requirement of IBL as a constructivist approach, it is recommended to provide comprehensive training and PD opportunities for the instructors to develop a deep understanding of IBL principles, strategies, and its pedagogical benefits. This training should focus on equipping the instructors with the necessary skills to effectively guide and facilitate inquiry-based activities in PD programs and use their agency to support the interaction between the graduate students/in-service teachers and their learning environment. It is important to incorporate experiential learning opportunities in PD programs to enhance the graduate students/in-service teachers' ability to actively engage in inquiry-based activities. This can include practical exercises, simulations, and authentic teaching experiences that allow graduate students/in-service teachers to apply IBL strategies in real-life classroom settings in response to Vygotsky's (1978) theory of the "zone of proximal development".

5.2.2. Suggestions to address IBL challenges, such as the graduate students/in-service teachers' variable English language skills, insufficient technology resources, forms of PD assessment, and large class size:

Possible recommendations for addressing the variability in the English language skills among the graduate students/in-service teachers and facilitating IBL include the following:

1. PD programs could offer language support for graduate students/in-service teachers who struggle with English proficiency. Examples to support this recommendation are language classes, tutoring, or language workshops that focus on improving communication skills and academic writing abilities as recommended by the administrators.)

2. The instructors could adopt differentiated instruction to accommodate various levels of English language proficiency.

3. PD programs could prioritize developing English language skills as a learning outcome, in addition to content knowledge and inquiry skills. This could be achieved by incorporating language support and practice activities into the curriculum, and by setting language proficiency goals for graduate students/in-service teachers to achieve.

4. The present study suggests the value of a proof of foreign language skills requirement for the graduate students/in-service teachers to be able to enroll in PD programs.

Since administrators and the graduate students/in-service teachers agreed that there is a need to enhance the integration of technology in PD programs and increase awareness of its role in IBL, the following recommendations are proposed:

1. Instructors could receive training on how to use technology in their teaching and how to incorporate it into IBL activities. This training might focus on identifying appropriate technology tools and how to effectively integrate them into the learning process.

2. PD programs could ensure that the instructors and the graduate students/in-service teachers have access to the necessary technological resources, including hardware, software, and technical support. This can help to overcome barriers to technology use and facilitate more effective integration of technology into IBL activities.

In terms of the current forms of assessment as a challenge for IBL implementation as addressed by the graduate students/in-service teachers, the following are recommended:

1. The integration of both formative and summative assessments that align with the principles and objectives of IBL. Formative assessments, such as self-assessments, peer assessments, and feedback-driven assessments can provide valuable insights into the graduate students/in-service teachers' understanding, progress, and teaching skills. These assessments can be designed to assess not only the acquisition of knowledge but also the development of critical thinking, problem-solving, and collaborative skills.

2. Summative assessments such as project-based assessments or performance assessments, might offer opportunities for the graduate students/in-service teachers to demonstrate their mastery of IBL principles and practices.

3. The provision of clear grading criteria could enable the graduate students/in-service teachers to have a better understanding of how their work will be evaluated and will help to ensure that grading is fair and consistent.

The instructors raised a concern about the possible financial costs related to changing the current PD curriculum and forms of assessment. The following recommendations may be of assistance:

1. Administrators could explore cost-effective technological solutions to facilitate and enhance the shift in assessment processes. Online platforms, learning management systems, and

digital tools could provide efficient means for administering assessments and reducing the need for physical resources and associated costs.

2. Large class sizes are a challenge for IBL implementation. The administrators might provide more flexible and adaptable PD programs to accommodate the diverse needs and schedules of the graduate students/in-service teachers. This could include offering online or hybrid courses, asynchronous learning opportunities, and modular course structures that allow graduate students/in-service teachers to engage in inquiry-based activities at their own pace alongside steady support for their learning. The improvement plans might include needs assessments to identify the specific needs and goals of the graduate students/in-service teachers so as to develop PD programs that meet those needs within the context of IBL approaches.

Finally, an additional challenge in the implementation of IBL in PD programs was identified as the resistance of veteran instructors towards its use. The following recommendations might be considered:

1. Administrators could design training programs that deal with the possible struggles the veteran instructors might have in shifting to IBL such as the unfamiliarity with student-centered approaches.

2. administrators might develop a semester support system, including clear communication channels and regular face to face meetings. Other supports are varied forms of assistance and guidance to address the uncertainty of veteran instructors who might be anxious about handling the increased autonomy of students that is a characteristic of IBL, or might not have the flexibility to work collaboratively with their colleagues, or might lack the confidence and trust to ask for support.

5.2.3. Suggestions to enhance the research-teaching nexus through IBL implementation in PD programs:

Regarding the concerns of some graduate students/in-service teachers that the PD programs are too short and there is not enough practice on conducting research, the following strategies are recommended:

1. Provide opportunities for self-directed inquiry with clear learning objectives.

2. Incorporate authentic research experiences.

3. Provide PD to help instructors learn how to nurture a culture of inquiry in which the graduate students/in-service teachers have opportunities for self-directed inquiry that allow them to conduct their own investigation, explore their interests, and develop their own research questions (Hoover, 1996). By engaging in self-directed inquiry, the graduate students/in-service teachers may be more likely to identify areas of research that are relevant to their own teaching practices (Spronken-Smith et al., 2007; Spronken-Smith, 2012). This can help to bridge the gap between research and practice and promote a more meaningful integration of research into teaching. In turn, this can improve the quality of teaching and the overall effectiveness of PD programs.

4. More inclusion of authentic research experiences in which the graduate students/in-service teachers work on research projects with the faculty instructors in PD programs. This type of collaboration can provide the graduate students/in-service teachers with access to expertise, resources, and knowledge beyond what is available in PD classrooms and can be a valuable way to improve their research skills.

5. Design a new course that is a combination of in-class activities and independent research projects in collaboration with faculty members to contextualize research

within the broader community and promote the transfer of research skills to real-world settings (Capps et al., 2012; Pop et al., 2010; Rowland et al., 2016). This course could be designed in a way that is flexible, responsive, and adaptive to the needs and interests of the graduate students/in-service teachers, and integrate regular feedback and communication with them. Through ongoing evaluation of the course design, it could be steadily refined.

5.2.4. *Suggestions to foster academic writing in IBL implementation process:*

The current study recommends a number of strategies to increase academic writing opportunities for the graduate students/in-service teachers in PD programs through inquiry-based activities. They include:

1. Encourage the graduate students/in-service teachers to practice reflective writing in relation to their actual teaching practice as a part of the formative assessment in PD programs.

2. Adopt feedback strategies such as self-reflection and peer-review to improve the graduate students/in-service teachers' reflective and critical thinking skills. Self-reflection involves graduate students/in-service teachers in reflecting on their own work and can be done through journals, portfolios, or other forms of self-assessment. It helps graduate students/in-service teachers to develop a deeper understanding of their own strengths and weaknesses by continuously gaining feedback from their peers. Feedback plays an important role in motivating graduate students/in-service teachers to indulge in writing projects with their colleagues through inquiry-based activities (Marshall et al., 2009; Cordova et al., 2021). This approach has shown to be

effective in improving the graduate students/in-service teachers' research-teaching nexus, as well (Graham & Alves, 2021).

3. Expose graduate students/in-service teachers and instructors to a wide range of academic writing in their assignments, such as article/book summaries, reviews, critiques, reflections (i.e., fostering personal connections between academic content and teacher thinking, understandings and practices), and posters, to name a few.

5.2.5. *Suggestions to alignment IBL as mandated in the institution calendar and implemented in PD programs:*

Both the administrators and the instructors noted a gap between the mandate of IBL in the calendar and its actual implementation in PD instruction. The graduate students/in-service teachers were not aware of the calendar mandates regarding IBL. The current study recommends the following:

1. Administrators could create a comprehensive framework that outlines the key principles, strategies, and expectations for IBL implementation in PD instruction and present it to instructors and graduate students/in-service teachers. This framework could provide clear guidance on how IBL aligns with the government's mandate, the institution's mission and goals, and how IBL is integrated into the PD curriculum. By establishing a clear framework, all instructors would be given a common understanding of the expectations and requirements for IBL implementation.

2. Provide mechanisms to evaluate and monitor the implementation of IBL in PD programs by collecting feedback from instructors and graduate students/in-service teachers, conducting classroom observations, and analyzing student outcomes.

3. Organize orientation sessions, workshops, or seminars specifically focused on IBL to help raise awareness among the graduate students/in-service teachers of what is expected from them after PD degrees.

4. Create a platform for ongoing communication and dialogue between the administrators, the instructors, and the graduate students/in-service teachers to facilitate the dissemination of information and ensure that all stakeholders are well-informed about the mandates and goals of IBL implementation in PD programs.

5.3. Recommendations for other institutions wishing to implement IBL in the Egyptian context:

1. Initiate a preparation phase well in advance of implementation, ideally one year ahead. This extended timeframe allows educational stakeholders to engage in comprehensive and thoughtful planning, ensuring a smooth transition towards IBL practices.

2. Allocate sufficient time to analyze and align the principles and goals of IBL within the current curriculum framework. This includes mapping learning outcomes, designing assessments that align with inquiry-based approaches, and identifying appropriate instructional strategies such as collaborative and reflective learning to foster inquiry skills.

3. Identify and provide necessary resources such as securing access to relevant materials, technologies, and equipment that support the inquiry process. Adequate resources can significantly enhance graduate students/in-service teachers' engagement and provide them with the tools needed to explore and investigate authentic questions and problems.

4. Provide PD about Healey's model (e.g., workshops, online courses, scholarly literature, and mentorship or guidance from experienced practitioners). By gaining a deeper understanding of Healey's model, the instructors can learn how to scaffold increased and effective integration of its principles into their teaching practices, foster active learning, and enhance the graduate students/in-service teachers' engagement and success.

5. Provide sufficient resources and support for the graduate students/in-service teachers to engage in independent IBL research. They could benefit from a dedicated research library or digital repository with access to relevant academic journals, books, and research databases; workshops or training sessions on research methodologies, data analysis, and scholarly writing; equipment, such as computers, software, and research tools; and mentoring and guidance from experienced researchers or faculty members.

6. Standardize topic-based activity. Give graduate students/in-service teachers agency to choose research topics related to their previous experience as a form of inquiry-based activities. These activities are suggested by the participant instructors, which accommodates the diverse needs and language proficiency levels of student. By allowing students with less proficiency in English to select their own topics, IBL implementation will promote inclusivity and provide an avenue for participation and learning for all students, regardless of their language abilities. Further, this aspect resonates with the constructivist principle of adapting instruction to individual learners' needs and creating an inclusive learning environment.

In implementing these recommendations, institutions across Egypt have the opportunity to enhance the quality of education and contribute significantly to the broader educational system in the country. The successful integration of IBL promises to cultivate a generation of inquisitive, independent learners and educators, aligning with the nation's educational 2030 vision for the future. Bridging the gap between top-down mandates and bottom-up factors of change is of high importance in realizing the vision of an inquiry-based education system in Egypt.

5.4. Recommendations to the Egyptian Ministry of Higher education:

The following section outlines recommendations tailored to the Ministry of Advanced Education, addressing the systemic changes and support mechanisms required to facilitate widespread adoption of IBL principles across all educational institutions in Egypt. In alignment with the Egypt Vision 2030 initiative, the study urges the Egyptian Ministry of Higher Education to collaborate with the Ministry of Education to construct an infrastructure to support the transformation of the entire Egyptian education structure into a dynamic and interactive system that empowers the leaders, the educators and the learners. Suggestions are to:

1. allocate resources to equip educational institutions nationwide with technology and educational materials necessary for effective IBL implementation,

2. ensure that students across Egypt have access to modern learning tools,

3. establish mandatory IBL training programs for educators at every educational level, ensuring that teachers, instructors, and professors are well-oriented with inquiry-based methodologies.

4. create a system of incentives and recognition for educators who actively embrace and excel in implementing IBL techniques,

5. undertake a thorough review of the national curriculum to ensure it aligns with IBL principles,

6. implement a robust system for monitoring and evaluating the effectiveness of IBL integration, using data-driven insights to continually refine teaching methodologies.

7. facilitate collaboration between Egyptian educational institutions and international partners to exchange best practices, resources, and experiences related to IBL.

8. recognize the importance of English language proficiency and invest in its development for both instructors and graduate students/in-service teachers.

9. promote parental awareness of IBL benefits and involve parents in their children's learning journey, creating a supportive learning ecosystem both in and out of the classroom.

5.5. Contribution of this research study to new knowledge:

To date, no study has been conducted on the implementation of IBL at a university in Egypt from the perspectives of administrators, instructors and graduate students/in-service teachers from the social constructivist lens. Through this triangulation of interviews, literature review, and university course outline analysis, a number of cultural challenges and gaps in understanding emerged. Obstacles included a lack of PD preparation for instructors, a misalignment between existing assessment practices and those embedded in IBL, and an inadequate level of English skills for some participating students. A shortage of technological resources, an absence of opportunities to engage in self-selected research studies or a variety of forms of academic writing, and a mismatch between what administrators and instructors believe motivated students and what they reported were also named as challenges.

5.6. Future Research

The participating university served as the site for the current study, which examined the implementation of IBL in the Egyptian context and included the perspectives of the administrators, the instructors, and the graduate students/in-service teachers. The findings provide valuable insights into the challenges, successes, and areas for improvement in the IBL implementation process. Based on the administrators suggestions that identify concrete actions for improved implementation of IBL at their institution, further research might include:

1. A follow-up research project at the study site to examine the continued implementation of IBL including an examination of the challenges and impact of:

    a. changes in technology,

    b. changes in instructor PD,

    c. changes in the approach to assessment moving from high-stakes exams to IBL-oriented assessment, and

    d. changes in the expansion of writing skills in the continued IBL implementation.

2. An exploration of the minimal level of language proficiency required for engaging in inquiry-based learning.

5.7. Reflection on my own growth as a researcher

In closing, I offer the reader a summary of how this study has impacted changes in my own understandings. As stated in chapter three, I collected field notes throughout my research journey. This systematic attention to my own thinking allowed me to capture my biases, monitor and support/transform my perceptions, and witness my own paradigm shift as an academic researcher.

One notable transformation has been deepening my understanding of research ethics and the vital importance of keeping the participants' confidentiality. I have also become more attentive to the need for strict adherence to ethical guidelines, ensuring that the rights and privacy of participants are prioritized at all stages of the research process. Additionally, I have better realized the nature of data collection, and that the depth of insight is a result of serial interviews and the deep excavation of the transcripts. This realization led me to consider the possibility of conducting a third interview to gather richer and more comprehensive data. Moreover, I learned to facilitate personal interviews more effectively, and refined my techniques to foster a deeper connection with participants and gain more granular and meaningful responses.

These thoughts are summarized in Table 10.

Table 10

Changes to the researcher's thinking along the study.

Thoughts at the beginning of my study	Thoughts while writing candidacy paper	Thoughts during my data collection, analysis, interpretation and writing	Thoughts at the close of my study
Graduate students/in-service teachers are not familiar with IBL approach	Graduate students/in-service teachers thrive to have proper quality of PD programs	Graduate students/in-service teachers are motivated to learn	Graduate students/in-service teachers already implement

		via IBL in PD programs	IBL in their teaching in schools
Graduate students/in-service teachers have the knowledge about IBL but are not conscious of the terminology of it	Serial interview will adequately fit the study design	Qualitative research is needed in the Egyptian context	The model of IBL implementation in the study might be beneficial to other universities in Egypt.
Instructors and administrators might be biased to the quality of their PD programs	More research is needed on empowering instructors of PD programs	Instructors have the agency to implement IBL according to PD program content	Instructors and administrators believe that the graduate students/in-service teachers are not ready for IBL.
Graduate students/in-service teachers' thinking is not aligned with the instructors regarding the objectives of PD programs	Improved my sensitivity to statistics and numbers.	The learning outcomes of PD programs are not the same from the graduate students/in-service teachers' and the instructors' perspectives	PD programs are not designed to achieve what is mandated as learning outcomes.

Single interview will be enough for gathering proper data	Enhanced my critical ability to decide which piece of information to add and which to go deep in details with	Serial interview is needed for the thick description.	The participants felt more confident in conducting a second interview.
Graduate students/in-service teachers are highly motivated for pursuing their PD	Show that even if I can not clearly express the idea, I am still committed to convincing the reader that I can see the experience	Administrators confirmed that IBL is partially implemented in PD programs.	There are cultural and technical challenges for IBL implementation.
PD instructors need special training on IBL based teaching	The administrators are not aware of the instructors' needs for training to implement IBL.	The instructors and the administrators believe that the graduate students/in-service teachers are more comfortable with traditional teaching.	There are managerial efforts to lead the change and improvement in PD programs

Studying in Canada is basically research-oriented	PD programs in Egypt have a gap between theory and practice	PD programs in Egypt have a gap between theory and practice	PD programs in Egypt are essentially research-led.

By documenting changes in my own understandings, this table confirms the time and intensity of focus that paradigmatic shifts require. The initial thoughts highlight the unfamiliarity of graduate students/in-service teachers with the IBL approach and their desire for high-quality PD programs. As the study progresses, there is a growing recognition of graduate students/in-service teachers' motivation to learn through IBL, with some already implementing it in their teaching practices. However, there are also concerns about graduate students/in-service teachers' knowledge of IBL terminology and their alignment with the administrators and the instructors' objectives.

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Appendix A: Sample Course outline:

Sample Course outline of a Vocational Diploma in an Egyptian post-graduate institution

1. **The general objectives of the program:**

By the end of this program, PhD graduate should be able to:

1.a. has a proper knowledge about of curricula development

1.b. solve the problems related to curricula development

1.c. develop various curricula of different stages

1.d. Work collaboratively and adhere to continuous self-learning.

1.e. Be aware of the current issues and modern theories in curriculum and methods of instruction.

1.f. Define the professional problems in curriculum and methods of instruction, and present creative solutions.

1.g. Master a wide range of professional skills in curriculum and methods of instruction.

1.h. Improve new instruments and methods of professional practices in curriculum and methods of instruction.

1.i. Utilize technology that suits the professional and research practices in curriculum and methods of instruction.

2. **Educational objectives:**

2.a. explain the major terminologies of curricula development.

2.b. elaborate the foundations of curricula planning and development

2.c. identify the contemporary trends of curricula development

2.d. understand the foundations of teachers' assessment and evaluation.

2.e. identify the instruments of teachers' professional evaluation.

2.f. elaborate the foundations of curricula evaluation.

2.g. explain the steps for curricula development

2.h. identify the steps for designing multimedia

2.i. identify the foundations of teaching quality.

2.j. identify the principles of teachers' ethics

3. **Intellectual skills:**

   3.a. present new solutions for instructional situations

   3.b. present solutions for learners' instructional problems

   3.c.analyze new studies in different fields

   3.d. present new means for students' assessment

4. **Professional skills:**

   4.a. design instructional plans according to the quality standards.

   4.b. design an instructional environment according to learners' needs.

   4.c. is able to utilize the different methods and strategies of teaching

   4.d. master the basic skills of teaching

4.e. possess classroom management skills.

4.f. write continuous improvement reports

5. **The general skills:**

   5.a. Effective communication with colleagues

   5.b. The use of technology in searching for information resources

   5.c. Teamwork and time management skills

   5.d. Continuous self-learning skills

   5.e. follow professional development programs

Appendix B: Sample Course outline:

Sample Course outline of a Special Diploma in an Egyptian post-graduate institution

1. **The general objectives of the program:**

By the end of this program, PhD graduate should be able to:

1.a. has a proper knowledge about of curricula development

1.b. solve the problems related to curricula development

1.c. develop various curricula of different stages

1.d. Work collaboratively and adhere to continuous self-learning.

1.e. Be aware of the current issues and modern theories in curriculum and methods of instruction.

1.f. Define the professional problems in curriculum and methods of instruction, and present creative solutions.

1.g. Master a wide range of professional skills in curriculum and methods of instruction.

1.h. Improve new instruments and methods of professional practices in curriculum and methods of instruction.

1.i. Utilize technology that suits the professional and research practices in curriculum and methods of instruction.

1.j. identify the research methods in TEFL

2. **Educational objectives:**

2.a. explain the major terminologies of curricula development.

2.b. explain the foundational principles of The Arab culture.

2.c. identify the methods of research in TEFL.

2.d. identify different approaches of research in TEFL

2.e. identify the major elements of a study proposal

3. **Intellectual skills:**

3.a. identify the main problems in curricula

3.b. provide solutions to major problems in TEFL

3.c. collect data suitable for every research methodology through various data collection methods

3.d. analyze data related to curricula

3.e. interpret data related to curricula

4. **Professional skills:**

4.a. initially plan for a research proposal

4.b. practice the ethics of teaching

4.c. commit to the ethics of research

4.d. master research skills in TEFL

4.e. utilizes research skills in TEFL to attain new knowledge

4.f. utilize technology in research of TEFL

5. **The general skills:**

   5.a. Effective communication with colleagues

   5.b. The use of technology in searching for information resources

   5.c. Teamwork and time management skills

   5.d. Continuous self-learning skills

   5.e. commit to professional development programs

Appendix C: Sample M. Ed. Course outline:

Translation of a course outline of a Master's Degree of Education in an Egyptian post-graduate institution

4.   **The general objectives of the program:**

By the end of this program, PhD graduate should be able to:

1.a. Master the foundations and methodologies of research in curriculum and methods of instruction department.

1.b. Apply the analytical and critical thinking approach to the knowledge in curriculum and methods of instruction, in addition to related fields.

1.d. Merge between the disciplinary knowledge in curriculum and methods of instruction with the related fields.

1.e. Be aware of the current issues and modern theories in curriculum and methods of instruction.

1.f. Define the professional problems in curriculum and methods of instruction, and present creative solutions.

1.g. Master a wide range of professional skills in curriculum and methods of instruction.

1.h. Improve new instruments and methods of professional practices in curriculum and methods of instruction.

1.i. Utilize technology that suits the professional and research practices in curriculum and methods of instruction.

1.j. Effectively communicate and team lead in different professional contexts.

1. k. Make decisions in the light of the available information in curriculum and methods of instruction.

1.l. Efficiently employ the available resources and try to find new ones.

1.m. Be aware of individual's role in maintaining the society and environment.

1.n. Act according to the standards of ethics

1.o. Commit to continuous self-learning and exchange of experiences and knowledge with colleagues.

5. **Professional skills:**

2.a. present a good candidacy paper for MA in Education

2.b. adhere to ethics of research and citation rules

2.c. write a linguistically correct research in Arabic and English Language.

2.d. utilize the modern methods of TEFL properly

2.e. use the research methods of TEFL properly

6. **Intellectual skills:**

3.a. identify the main problems in curricula

3.b. provide solutions to major problems in TEFL

3.c. collect data suitable for every research methodology through various data collection methods

3.d. analyze data related to curricula

3.e. interpret data related to curricula

7. **Educational skills:**

4.a. define the new research methodologies in TEFL

4.b. explain the steps of every research methodology in TEFL

4.c. identify the core elements of study proposal of Master degree.

4.d. identify the steps of conducting a study in Master degree.

8. **The general skills:**

5.a. Effective communication with supervisors and colleagues

5.b. The use of technology in searching for information resources

5.c. Teamwork and time management skills

5.d. Continuous self-learning skills

Appendix D: Sample PhD Course Outline

Translation of Course outline of a PhD program in an Egyptian post-graduate institution

1. **The general objectives of the program:**

By the end of this program, PhD graduate should be able to:

1.a. Master the foundations and methodologies of research in curriculum and methods of instruction department.

1.b. Work to continuously add to the field of curriculum and methods of instruction.

1.c. Apply the analytical and critical thinking approach to the knowledge in curriculum and methods of instruction, in addition to related fields.

1.d. Merge between the disciplinary knowledge in curriculum and methods of instruction with the related fields.

1.e. Be aware of the current issues and modern theories in curriculum and methods of instruction.

1.f. Define the professional problems in curriculum and methods of instruction, and present creative solutions.

1.g. Master a wide range of professional skills in curriculum and methods of instruction.

1.h. Improve new instruments and methods of professional practices in curriculum and methods of instruction.

1.i. Utilize technology that suits the professional and research practices in curriculum and methods of instruction.

1.j. Effectively communicate and team lead in different professional contexts.

1. k. Make decisions in the light of the available information in curriculum and methods of instruction.

1.l. Efficiently employ the available resources and try to find new ones.

1.m. Be aware of individual's role in maintaining the society and environment.

1.n. Act according to the standards of ethics

1.o. Commit to continuous self-learning and exchange of experiences and knowledge with colleagues.

2. **Professional skills:**

2.a. Mastering the foundational skills of conducting PhD research.

2.b. Designing and administering PhD study instruments

2.c. Utilizing technology in PhD research

2.d. Mastering the skills of using research methodologies in TEFL

2.e. Writing a linguistically accurate research in both Arabic and English languages

2.f. Analyzing studies in TEFL

2.g. Planning for the PhD study application

2.h. adhering to inquiry based learning skills

3. **Intellectual skills:**

3.a. Evaluate the value of curriculum planning

3.b. analyze means of curriculum evaluation

3.c. analyze the new trends in curriculum studies

3.d. explain the theories of advanced statistics

3.e. choose a new topic to add to PhD research field

4. **Educational skills:**

4.a. identify the different concepts for curriculum planning

4.b. identify the foundations of curriculum evaluation

4.c. define the new trends in curricula studies

4.d. identify the various tools of advanced statistics.

4.e. identify the methodologies of research in TEFL

4.f. define the research instruments in TEFL

4.g. recognize the research ethics

5. **The general skills:**

5.a. Effective communication with supervisors and colleagues

5.b. The use of technology in searching for information resources

5.c. Teamwork and time management skills

5.d. Commit to continuous self learning

Appendix E: Sample Vocational Diploma courses

List of sample courses of a Vocational Diploma in an Egyptian post-graduate institution

Course Title	Credit hours
Compulsory Courses: First Semester	
Teaching Strategies	2
New Trends in Curricula	2
Individualized Learning and Self Learning	2
Educational Assessment and Evaluation	2
Curricula of Special Needs Education	2
Curricula Planning and Development	2
Curricula Theories and Models	2
Compulsory Courses: Second Semester	
Multimedia in Learning	2
Quality Standards in Curricula	2
Technology Curricula	2
Research Studies	4
Contemporary Issues in TEFL	2
Practicum	4
Optional Courses	
Contemporary Readings in Curricula and Methodologies of TEFL	2
Textbook Evaluation	2
School Curriculum Design	2
Curriculum Analysis	2

Appendix F: Sample of Special Diploma courses

List of sample courses of a Special Diploma in an Egyptian post-graduate institution

Course Title	Credit hours
Compulsory Courses: First Semester	
New Trends in Curricula	2
Curricula and The Arab Culture	2
Educational Research Curricula	2
Compulsory Courses: Second Semester	
Contemporary Issues in School Curricula	2
Contemporary Issues in Education	2
Research Studies	2
Optional Courses	
Educational Management	2
Studies in Educational Philosophy	2
Educational Psychology	2
Issues in Contemporary Educational Thinking	2

Appendix G: Sample of Master's Degree courses

List of sample courses of a Master Degree in an Egyptian post-graduate institution

Course Title	Credit hours
Compulsory Courses	
Arabic Language	3
English Language	3
Research Studies (Seminar Attendance)	3
Thesis Work	12
Optional Courses	
Research Studies	3
New Trends in Curricula and Instructions of TEFL	3
Readings in Curricula and Instructions of TEFL	3
New Trends in Education and Learning	3

Appendix H: Sample of PhD Degree courses

List of sample courses of a PhD Degree in an Egyptian post-graduate institution

Course Title	Credit hours
Compulsory Courses	
Curricula Planning	3
Curricula Evaluation	3
Contemporary Trends in Curricula	3
Advanced Statistics	3
Research Studies (Seminar Attendance)	3
Thesis Work	15
Optional Courses	
Educational Activities	3
Educational Supervision	3
Research in Methods of TEFL	3
Readings in Curricula and Instructions of TEFL	3

Appendix I: Interview protocol for volunteer jr. high graduate students/in-service teachers in a PD program:

Thank you for taking time to participate in this interview! The purpose of the current study is to investigate the implementation of Inquiry-based learning (IBL) in professional development (PD) programs from the perspectives of in-service student-teachers, instructors and administrators. This interview will last approximately one hour. By responding to the following interview questions, you agree to participate in this research project and allow your data to be utilized. Your responses will be confidential, and your identity will remain anonymous.

A) <u>General introduction:</u>

1. Would you please briefly introduce yourself indicating years of teaching experience, and your academic degree?

B) <u>Motivation for attending PD programs:</u>

2. Could you kindly share what motivated you to enroll in a PD program?

3. What is encouraging or discouraging you from continuing in your PD program? Please explain.

C) <u>Relation between PD programs content and teaching practice:</u>

4. What type of PD courses do you find most engaging/interesting and why?

5. What type of PD courses do you find useful or most relevant to your classroom teaching? Why?

6. What has been the effect of PD programs on improving your subject knowledge?

7. How could you relate your classroom teaching to the activities held in PD programs? Could you please give some examples?

8. How has your work been assessed in the PD programs? How has this helped or hindered you?

9. In your opinion, what are the strengths and shortcomings, if any, in the PD programs you have attended so far?

10. Which content do you prefer to learn more about in your next PD programs and why?

11. Please comment on the duration of the PD program in terms of assisting you in improving your skills.

12. Would you recommend professional development programs at this university for other teachers? Why or why not?

D) <u>IBL in PD programs:</u>

13. In your opinion what role do PD programs have in improving teachers' critical thinking skills?

14. How did the PD programs encourage you to read more about research in your field?

15. What types of class activities or homework help you best engage with the content of the courses?

16. What role has reflection played in your PD program?

17. How did the PD programs encourage you to read more about research in your field?

18. Please give an example of the following types of research you have experienced in your PD Program. It's OK to say 'none' if you have not had such an experience.

o   Conducting a library search

o   Summarizing and critiquing an article (in writing)

o   Presenting a summary of a research article (orally)

o   Synthesizing a number of articles

o   Discussing articles

o   Writing a proposal for a research study

o   Conducting/assisting with a research study

19. What type of learning activities do you prefer during PD programs?

20. What type of activities or homework best enhance your inquiry stance?

21. How would you compare your experience in these new type of course and lecture-exam style course?

E) Challenges:

22. What are the challenges, if any, in the implementation of the new style courses in PD programs in the university?

23. Any other observations, thoughts, or feelings you would like to share?

Appendix J: Interview protocol for Instructors:

Thank you for taking time to participate in this interview! The purpose of the current study is to investigate the implementation of Inquiry-based learning (IBL) in professional development (PD) programs from the perspectives of in-service student-teachers, instructors and administrators. This interview will last approximately one hour. By responding to the following interview questions, you agree to participate in this research project and allow your data to be utilized. Your responses will be confidential, and your identity will remain anonymous.

A) IBL in PD programs:

1. How do you identify the aims of IBL in PD programs?

2. What have been the successes to date of the implementation of IBL in your PD courses?

3. How do you implement IBL strategies in your PD courses? (PROBE: What are examples of student reflection? student critical thinking? student interaction with research?)

4. What types of material do you think improve graduate students/in-service teachers' inquiry stances?

5. How do you benefit from teachers' reflective practices in changing/ modifying your teaching techniques in PD programs?

6. What do your students do to enhance their interaction ith research? Please offer an example.

7. How do you participate in the decision making of IBL implementation in PD programs?

8. How do you collaborate with other colleagues in deciding the material of PD courses?

9. What, if any, is the gap between theory and practice in PD programs at your university? Why does this exist?

10. What types of assessment do you use in your courses and why?

11. What advice might you give to another university instructor who was thinking about implementing IBL in their PD courses? (PROBE: What are the challenges you face in adopting IBL in your instruction?)

12. Any other observations, thoughts, or feelings you would like to share?

Appendix K: Interview protocol for Institutional administrators:

Thank you for taking time to participate in this interview! The purpose of the current study is to investigate the implementation of Inquiry-based learning (IBL) in professional development (PD) programs from the perspectives of in-service student-teachers, instructors and administrators. This interview will last approximately one hour. By responding to the following interview questions, you agree to participate in this research project and allow your data to be utilized. Your responses will be confidential, and your identity will remain anonymous.

1. To what extent do you believe IBL is being implemented in PD programs at our university? Can you please give me example.

2. What have been the successes to date of the implementation of IBL in your PD programs?

3. What advice might you give to another university administrator who was thinking about implementing IBL in their PD programs? (PROBE: Have you had to make any changes to your PD program in order to integrate IBL? If so, please explain. In your opinion what are the barriers or challenges you anticipated facing in the implementation of IBL in PD programs?)

4. How have graduate students/in-service teachers' been involved in making decision about the content of PD programs?

5. What, if any, is the gap between theory and practice in PD programs at your university? Why does this exist?

6. What do you think needs to be changed/modified/added to the current PD programs, if any, and why?

7. How do you identify the aims of IBL in PD programs at your university?

8. Any other observations, thoughts, or feelings you would like to share?

Appendix L: Interview Transcript (excerpt)

The following excerpt is taken from one of the interview transcripts. The interviewee, who is an in-service teacher in one private language school in Egypt and an MA student in a post-graduate institution in Egypt, shares their views on the process of implementation IBL in one University's PDiE program. The interview is translated from Arabic to English.

R: so, generally speaking, can you remember how many inquiry-based activities you experienced in all your PD programs?

P: not real inquiry-based ones, I did not do an actual inquiry for information by myself. The only activity I remember is the one I told you about; the presentation which I copied and pasted the information and was only assessed according to the way I was lecturing the material.

R: let us imagine that an instructor asked you what kind of inquiry-based activities you like me to include in the PD curriculum…

P: I feel my eyes shining when I hear that ~ laughter& enthusiasm~

R: I feel your enthusiasm! ~laughter~ so which kinds of activities you believe can improve your inquiry skills?

P: I can build on what the instructors already do. For example, they assign us into groups and ask us to do a presentation about how to write a research introduction. The instructors can do it in a more active and engaging way; first of all, the group members should practice on the required presentation skills; like using visuals or illustration, or technology, then there should be some follow-up questions from the audience to make sure that everyone understands the material. I know we are considered adult learners and it might seem not suitable for us, but, like kids, we

still need motivation and to feel we are interested in what we are doing. This is a life-long need for any learner.

R: that's true! So as you mentioned you consider using visuals and interactive discussions with the audience could be recommended inquiry-based activities for learners. Can you please explain more your understanding of inquiry-based learning?

P: I can imagine it helps any presenter to be very well-prepared, and has the talent to deliver the information in a very engaging way

R: tell me more please about the relation between a teacher's talent and IBL?

P: ah .. I think it depends on which stage you are teaching, but what is more important than designing an activity is to properly apply it inside the classroom

R: what do you mean by the activity application?

P: to be interesting and helps the teacher achieve the anticipated learning outcomes.

R: based on your experience in all PD programs, what kinds of activities you wished have been included in the courses?

P: in English courses, for example, I wish we had more time to do more gamification techniques, we had a very limited chance to do that and design the games by ourselves, which was highly engaging.

R: and why do you believe this is a kind of IBL activity?

P: it is typical IBL because we had to search for the answers ourselves and get the information independently.

Appendix M: Interview Transcript (excerpt) in Arabic

The following is the original interview transcript excerpt for Appendix L in Arabic.

الباحث: بشكل عام, هل يمكنك تذكر عدد المرات التى قمت بها بنشاط استقصائي حقيقي اثناء برامج التنمية المهنية؟

الطالب المعلم: ليس استقصاءا حقيقيا, لم اقم بجمع معلومات حقيقية لنفسي. النشاط الوحيد الذى اتذكر اننى قمت به كان العرض الشفوي الذي اخبرتك عنه من قبل, و الذي قمت بقصه و نسخه من مصادر اخرى, و العرض تم تقييمه حسب طريقة العرض و الشرح للزملاء فقط.

الباحث: اذا تخيلنا ان استاذ المادة سال المعلمين عن نوعية الانشطة الاستقصائية التى يرغبون فى تضمينها فى برامج التنمية المهنية ...

الطالب المعلم: كم اشعر بالحماس حينما تتحدثين عن ذلك (ضحكة حماسية)

الباحث: اشعر بحماسك ... اذا ما نوعية الانشطة الاستقصائية التى تتمنون تضمينها فى برامج التنمية المهنية؟

الطالب المعلم: اذا اكملنا على ماهو قائم بالفعل فى برامج التنمية المهنية من انشطة, على سبيل المثال اذا كان يتم تقسيمنا الى مجموعات لنشترك فى تصميم عرض عن كيفية كتابة مقدمة البحث العلمي, يستطيع استاذ المادة ان يصيغها بشكل نشط اكثر.

اولا, يجب ان يتدرب جميع اعضاء المجموعات على مهارات العرض العام مثل استخدام الوسائل البصرية و الاشكال التوضيحية او الوسائل التقنية الحديثة. بعدها يتم طرح الاسئلة التعقيبية من المستمعين للتأكد من فهمهم للمادة المعروضة. انا اعلم اننا متعلمين كبار و قد تبدو هذه الطرق بدائية الا اننا , تماما مثل الاطفال, بحاجة الى زيادة الدافعية لنستمتع بما نتعلمه . هذا احتياج للمتعلم طوال العمر.

الباحث: هذا صحيح! اذا انت تعتقد ان استخدام الوسائل البصرية و العروض التفاعلية كأحد امثلة انشطة التعلم القائم على الاستقصاء. هل يمكنك ان تشرح اكثر عن فهمك عن التعلم القائم على الاستقصاء؟

الطالب المعلم: انا اتخيل انه يتضمن ان الطالب يتمكن من مهارات العرض العام و لديه موهبة توصيل المعلومة بطريقة شيقة

الباحث: اخبرني اكثر عن العلاقة بين موهبة المعلم و التعلم القائم على الاستقصاء؟

الطالب المعلم: هذا يعتمد على المرحلة الدراسية, و لكن الاهم ان يتم تطبيق النشاط القائم على الاستقصاء بشكل صحيح داخل الفصل الدراسي.

الباحث: ماذا يعنى لك تطبيق النشاط؟

الطالب المعلم: ان يحقق النشاط الاهداف التعليمية المرجوة منه بشكل شيق و مفيد للمتعلم.

الباحث: بناءا على خبرتك ببرامج التنمية المهنية, ما نوعية الانشطة القائمة على الاستقصاء التى تتمنى تضمينها؟

الطالب المعلم: فى مادة تدريس اللغة الانجليزية على سبيل المثال, كنت اتمنى ان نصمم انشطة قائمة على اللعب . كانت فرص

تعرضنا لمثل هذه الانشطة التفاعلية محدود للغاية.

الباحث: و لماذا تعتقد ان هذه من نوعية الانشطة القائمة على الاستقصاء؟

الطالب المعلم: هو بالفعل نشاط قائم على الاستقصاء لانه يتضمن البحث عن المعلومة بانفسنا بشكل مستقل تماما.