USING ACTION-RESEARCH BASED PROGRAM FOR ENHANCING EFL PRE-MASTER STUDENTS' INFORMATION LITERACY SKILLS AND SELF-REFLECTIVE INQUIRY

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Abstract

The present study was conducted to investigate the impact of using a program based on action research for developing EFL pre-master students' information literacy skills and self-reflective inquiry. The study used the quasi- experimental research design (pre-post control group design). Thirty EFL pre-master students enrolled in the special diploma at the Faculty of Education were randomly assigned to two intact groups: experimental and control. The students in the experimental group only were instructed using a program based on action-research whereas their counterparts did not receive such training as they received regular instruction. Tools of the study included a questionnaire of EFL teachers' research perceptions, a test of research academic knowledge, a scale of information literacy skills and a scale of self-reflective inquiry. Analysis of data obtained by students (using t-test and eta-squared formula) revealed that the students in the experimental group significantly surpassed their counterparts in the control group in the post-performance on the test of research academic knowledge, a scale of information literacy skills and a scale of self-reflective inquiry.

Key words: Action-Research, Academic knowledge of research, Information-Literacy skills and Self-Reflective Inquiry

Introduction:

Universities have devoted substantial resources and personnel in order to help students acquire research skills and to become knowledge- makers representing featured prospective human capital. Research is a major outcome for all students especially those studying master's and doctoral degrees. However, there is a discrepancy between desired educational reforms and the local institutional norms. System leaders at the Ministry of Education usually make all of the actual process of educational reform, whereas those reforms require a bottom up system starting from the classroom itself. Though, teachers are the ones who know what and how to teach and consequently should participate in any renewal process, most commonly the teaching practice, curriculum, materials and activities are top-down designed for teachers.

Research is motivated by a need to know about how things are and what things do or may do. Since students have this capacity to wonder early in their life, the desire to be involved in inquiry needs to be nurtured to be effectively maintained. The education of students should lead them to ask research questions of increasing sophistication, specificity, depth and breadth to make the unknown known. The demands for global competitiveness and local accountability requirements concerning teaching in universities correspond to the call for conducting research due to the required updates in theories. Consequently, the policy underlines that education can be promoted and be in a better standard when it is supported by research.

Teaching, like any other profession, is subject to on-going developments. The roles of teachers and teaching strategies are constantly being modified to adjust to the increasingly complex conditions of classrooms and the specific needs of learners. Since, teachers' professional development has recently received considerable attention in educational research, thus, teachers ought to look for all possible professional development opportunities in order to advance in their careers. The process of teacher development is a lifelong process that cannot be named simply in some workshops organized for in-service teachers. It is more like a continuing education system aiming to foster teachers' professional progress. This way, teachers are supposed to keep themselves updated with the recent advances in their fields, consider, reflect and evaluate their teaching practice to make the appropriate modifications that cater for and accommodate their learners' needs.

It is commonly recognized that most teachers are expected to implement the research results suggested by outside researchers. Recently, however, the research engagement of teachers is considered to be important since it provides teachers with opportunities to consider and improve their own practice by assigning them the role of the researcher. Likewise, Leggetter and Sapsed (2010) point out that students, especially those at the higher education, need a practice-to-theory approach rather than the more traditional theory-to-practice approach. Hence, it is essential that teachers become researchers to bring about both major and minor changes in the educational system especially at the tertiary level.

In a similar vein, graduate students who pursue their higher studies are usually prepared as traditional researchers not as real practitioners. These students are not engaged in meaningful research connected to their professional practices leading them to better serve their educational contexts. Buss (2018) refers to this phenomenon as a mismatch between research in education and real career demands. Accordingly, information literacy (IL) is highly acknowledged by librarians and IL advocates as the backbone of learning and research in higher education. Moreover, the responsibility for students, faculty, and librarians to engage in this dynamic information ecosystem that underlines learning in the digital age has been greatly emphasized. This means that research courses should create potential learning opportunities addressing the IL capabilities followed by practice in real world educational contexts to be continuously used throughout all their future professional work.

In modern approaches to EFL teaching and learning (e.g. reflective teaching, differentiated instruction, etc.), teachers are not regarded as the mere practitioners of others' theories. Rather, they are explorers in the same way as their learners are. Teachers' thoughts and actions inside the classroom, according to Dehghan and Sahragard (2015) are the main determiners of what students learn. Teachers should constantly develop their knowledge of the subject matter and of pedagogy as well. Keeping themselves busy in teaching the assigned syllabus without considering the conscious and subconscious decisions taken inside the classroom, according to Dehghan and Sahragard (2015), may lead to ignoring teaching itself. However, teachers' daily practices can be used to gain a better understanding and with improving those practices at the same time.

The importance of the concept of teachers' conducting research by themselves has been lately emphasized. According to many scholars (Burn, 2010; Erba, 2013; Bahloul, 2015; Mehrani, 2017 and Buss,

2018), there are a number of personal and professional benefits of conducting research by foreign language teachers. Concerning the professional development, teachers become critical and responsive; they learn to think systematically; they practice working collaboratively with their students and other teachers and they increase their self-awareness and personal insights. Concerning personal benefits, they learn to be more influential, reflective, evaluative and critical in their teaching; their teaching is transformed; they become rich resources; they actively generate local knowledge of learning and teaching and start to better evaluate other researches' findings in teaching while they continuously address the pedagogical problems that they face in their profession.

Action Research (AR)

There are many professional development strategies and procedures both at the individual and group- based level in which teachers may be involved to improve personally and professionally. AR has recently been considered highly influential in the domain of teacher professional development that is directed to bring about change in learning and teaching. AR is a paradigm and not a method. As a paradigm, Pipere and Salite (2006) indicate that AR is a conceptual, social, philosophical, and cultural framework for doing research, which embraces a wide variety of research methodologies and forms of inquiry. They add that it is a paradigm that holds the principle that reality is constructed through the individual, consequently, AR studies a problematic situation in an ongoing systematic and recursive way to take action to modify or change that situation.

Dewey has put the roots of the concept of AR when he referred to teacher research as a series of problem- solving activities and emphasized the importance of incorporating reflective practice to improve teaching instruction (Burns, 2010). Wallace (1999), cited in Burns (2010:10) views AR as a reflection on professional practice and generally focuses on the practical techniques and procedures that the individual teacher researcher can make use of in his or her practice. Similarly, Özkan (2011) pinpoints Dewey's notion of teachers as reflective practitioners as they become inquiry oriented when they reflect on their action.

Kurt Lewin, a social psychologist, is the first one who coined the term 'action research' in about 1944 (Pipere and Salite, 2006). Lewin, according to Burns (2010) argued that social scientists could study things through changing them and observing the effect, so they have to include practitioners from the real social world in all phases of inquiry process to better understand and change certain social practices. Burns (2010) adds that Lewin viewed this research methodology as cyclic, dynamic and collaborative in nature. Moreover, Lewin described AR as a process of a spiral of steps, each of which is composed of planning, action and the evaluation of the result of action (Özkan, 2011; Ahmad, 2012 and Dehghan and Sahragard, 2015). AR, according to Leggetter and Sapsed (2010) has been traditionally defined as a systematic approach to research that is based on collaborative relationship between a researcher and a client that is directed mainly towards problem solving, generating knowledge and a new form of action and improving conditions and practices in administrative, leadership, social and community settings.

Stephen Corey (1952), according to Nugent et al. (2012), applied Lewin's idea of AR to an educational setting. Nugent et al. (2012) add that Corey believed that a close examination of one's teaching practices would result in a positive change in these teaching practices. Moreover, Burns (2010), Özkan (2011) and Nugent at

al. (2012) indicate that Lawrence Stenhouse, Stephen Kemmis, David Hamilton, Barry Macdonald, Jean Rudduck, Hugh Sockett, Robert Stake and Rob Walker, contributed to the establishment of AR as an educational tradition which combines diagnosis, action and reflection, focusing on practical issues that have been identified by participants and are both problematic and yet capable of being changed.

Though, AR has been used for more than 50 years in health, education, psychology, etc., it has been used more increasingly in the last 20 years (Burn, 2010). AR has been considered as a systematic process of collecting information to investigate an issue to better develop classroom practice (Richards and Farrel, 2005). The variables teachers and learners experience in daily classroom contexts (of learning approaches, facilities, materials, curriculum requirements or assessments, for example), are dynamic and interactive. in AR, Burns (2017) points out that the aim is not to control variables in order to identify linear cause and effect relationships, but to treat the situation as it actually is and subject it to a new kind of action or intervention.

There are different views about what AR actually is. Some researchers have defined it in terms of classroom-based research for professional development. Some others have broadened this view to a strategy for social change and justice. AR provides an alternative approach to bringing about changes in knowledge, policy and practice. AR process, as Burns (2010) notes, aims to bridge the gap between the ideal and the real in the social situation. The ideal represents the researchers who have the knowledge needed in conducting a research to achieve the required changes based on findings and outcomes, whereas the real represents the teachers who are involved in the practical ongoing social processes within their classrooms. Aga (2015) adds that AR is important to effectively connect theory to practice, to improve educational practice and to empower teachers through promoting professional growth

In the field of education, Burns (2010) points out that AR, is also called classroom research, teacher-led research, practice-centered research and collegial inquiry that uses a self-reflective, critical, and systematic approach to exploring the teacher's own teaching contexts. This means that this type of research is carried out at the teachers' context, with their students and at the school in which they work and on specific questions that deal with educational matters at hand. Likewise, Erba (2013) adds that AR aims at immediate application of theory and placed its emphasis on the solution of a problem in a local setting. Thus, the main purpose of action research is to systematically investigate one's own teaching practices, with the dual purpose of improving these practices and contributing to theoretical knowledge. Educational action research is principally a strategy for the development of teachers as researchers so that they can use their research to improve their teaching and thus their students' learning.

AR, as a research-based form of professional development to enhance pedagogical practice, has recently become increasingly popular around the world as a form of professional learning especially in second language teaching. Burns (2010; 2012) describes AR as a systematic process of solving educational problems and improving teachers' practices through teachers' use of the techniques of research to improve their understanding of their teaching practices and the situations in which these practices are carried out. Nugent et al. (2012) point that considering research as a process of steps used to collect and analyze information in order to

increase our understanding of a topic or issue is in reality considering Action (change) + Research (investigation) as investigating a problem or situation in order to make change happen So, in AR, a teacher becomes an 'investigator' or 'explorer' of his or her personal teaching context, while at the same time being one of the participants in it.

In a world which is full of increasingly complex and inter-related, challenges where universal solutions do not always best fit, AR can lead to more adaptive, contextualized and innovative understandings and responses. AR is considered to be an effective professional development approach as it permits teachers to investigate their classroom practice and enhance their knowledge of the teaching profession. Erba (2013) adds that it is teacher-initiated classroom investigation which seeks teachers' understanding of classroom teaching and learning and to bring change in the classroom practice. Through action research, teachers themselves are encouraged to tackle the issues that they confront daily following the procedures they decide by themselves.

In conducting AR as on type of classroom-based research, Chou (2010), Özkan (2011) and Bahloul (2013) indicate that teachers begin a cycle of posing questions, gathering baseline data, reflection and a determining course of action or intervention, followed up by critical evaluation of effectiveness within teachers' own environment to develop both theory and action together. Though the steps in the action process seem linear, Özkan (2011), Bahloul (2013) add that in practice they are recursive as the teacher researchers keep moving back and forth among many steps to make the needed adjustments to the essential plan which recur until the action researcher has achieved a satisfactory outcome and feels it is time to stop. The processes of AR emphasize that there is no one 'solution' to the issues focused on, and that there will always be a place for further action.

Since, Educational action research is directed towards the improvement of quality of action in education, So, as Burns (2010) points out, the changes made in the teaching situation arise from solid information rather than from our hunches or assumptions about the way we think things are. Erba (2013) points out that AR is not necessarily about understanding why we do things, but more about how we can do things better and changing instruction's impact on student learning. Mehrani (2017) points out that AR mainly emphasizes on discovering, conceptualizing and developing alternative perspectives on educational issues, through critically reflecting and appraising one's own and others' behaviors and beliefs

Conducting an action research, involves both internal and external factors. The desire, time management and incentives as internal factors play prominent roles in conducting action research. Additionally, as some external factors, action research requires support from an institution or university. There are three essential conditions for conducting action research, Kember (2000) argues: a field of study of social practice such as education that involves direct interaction among teachers and students; a spiral cycle of planning, acting, observing and reflecting; and involving others through participation and collaboration. This means that collaboration is emphasized during involvement in AR. Additionally, Burns and Westmacott (2018) assert the need for institutional support for language teacher research if teachers are to make the successful transition to research.

AR fosters teachers' active role in the research process as teacher researchers collect information by themselves to

investigate their own situations in their own classrooms. Likewise, it helps improve the participants' study process as they generate knowledge themselves by way of cognition and reflection. Kapenieks (2016) points out that this generation of knowledge is the result of prototypical thinking which is based on direct and indirect experience and is open to new experience. The professional identity of teachers, according to Kennedy-Clark et a. (2018), is not a reflection of policy or standards, but is a response to being part of a community of professionals and experiencing both the emotional and physical aspects of classroom and school environments.

Pettit (2010) argues that action research processes can transform people and institutions—not through linear models of research-policy-practice, but through emergent forms of action-reflection. Action research, according to Borg (2017), enables teachers to focus on their work with even greater clarity, allowing them to understand teaching and learning in more depth, and to generate insights which can enhance the educational experience of their students. AR, consequently, can help teachers to develop professionally through enhancing the knowledge of their teaching practices, deepening their understanding of their students' needs, and improving their autonomy and motivation .Through AR, as Burns (2017) emphasized, teachers are in a better position to (re)construct themselves as agents of change in their classrooms and potentially in their wider educational settings and, most importantly of all, to maximize the learning outcomes for their students.

AR process represents a dialectical interaction between practice, reflection and learning which doesn't lead to final outcome but to ongoing progression (Chou ,2010). Moreover, AR is a sustained and recursive process through which teachers are engaged in to improve learning and teaching (Pine, 2009). Likewise, Burns (2017) adds emphasized that though the changes through AR are small-scale but the differences in the way the classroom operates as a result may be dramatic. She adds that through AR there is often renewed energy and deeper understanding about language learning. AR is socially embedded as it focuses on practices within real-life. Barr (2018) points out that a successful AR is scaffolding from individual practice to a life-long teacher researcher. Moreover, Kennedy-Clark (2018) indicate that AR cycle is not linear, but a fluid, iterative, open, complex, and responsive process that leads to a deepened awareness of practice and theory

Action research and other research paradigms

The conventional views of research, according to Rainey (2000), consider it as a specialized activity that makes objective data and analysis available to rational decision-makers, with the assumption that good knowledge will lead to improved practices and outcomes. However, Pettit (2010) argues that AR starts with a very different view of what knowledge is, where it comes from, and how it contributes to change. He adds that through AR, the traditional vision of conducting research by only the highly qualified and specialized academics with the subjects of research in a largely passive role, has been changed. In AR, Burns (2010) emphasizes that knowledge is co-created through a shared process, researchers become actors for change, and practitioners become learners and shapers of meaning. Rainey (2000), Pettit (2010) and Burns (2010) conclude that AR is research that is carried out by practitioners on their own practice, not (as in other forms of research) done by someone on somebody else's practice. AR in education is grounded in the working lives of teachers, as they experience them.

Teachers in AR, are seen as the active agents and the knowledge generators. This, according to Özkan (2011), is completely different from the empirical research design which views teaching as a linear process where teachers act as technicians who only implement the research findings in their classrooms without considering either the cultural or contextual factors in the teaching/learning situations. Additionally, Burns (2011) indicates that in AR teacher researchers are involved in designing research, collecting and interpreting data. That is different form the interpretive research paradigm that is conducted only by university researchers for academic audiences. Moreover, Burns (2011) adds that through AR, teachers investigate their own problems in an attempt to improve their teaching practice leading to personal and social change. This, as Özkan (2011) points out, is also different form the critical research paradigm that remains at the theoretical level without providing enough space for practice. Thus, through AR teacher researchers are provided with sustained and systematic process of approaching theories in a way that facilitates bringing about contextualized social change.

Though, there are many variations in the implementations of action research projects, however Özkan (2011) points out that they all share some essential activities as follows: a) forming a question, b) developing a research plan, c) systematically collecting data, d) analyzing the data, e) recording the project in writing, f) evaluating the action research project, and g) sharing the study with others. Teachers' questions result from their real and daily classroom observations and dilemmas of the interaction between students, content, contexts, processes of teaching and teacher's philosophies and beliefs. Özkan (2011) adds that the research plan clarifies the steps that should be followed through including some basic components as the research questions and methods.

According to Burns (2011) AR has been described as a 'family' of research approaches as it does not depend on selecting a specific methodological orientation, but is eclectic. It draws on either or both quantitative and qualitative approaches to meet particular challenges. Additionally, means of data collection, as Turkyilmaz (2011) points out, may include interviews, documents, pictures, videos, test scores, grades, memos, questionnaires, check lists, journals, video tapes, case studies, surveys, records (meetings, classes, observations etc), self-assessments, projects, performances, and presentations. Burns (2011) and Özkan (2011) indicate that in AR data analysis helps in identifying patterns with common features and this can be done through coding which involves breaking data into manageable segments. They affirm that AR is additionally characterized by supporting the findings with evidence, making suggestions and validating the results through other teachers in collaborative inquiry work. As for the final reports, Turkyilmaz (2011) points out that they may be in the form of narratives or regular research reports that include; background information, design of the research and the findings supported with evidence. Burns (2011), Özkan (2011) and Turkyilmaz (2011) conclude that sharing the results of AR is very important step which can be done through formal or informal meetings to spread knowledge and expertise.

In line with the above ideas, Burns (2011) points out that the information obtained from these techniques is a source of reflective praxis (doing and reflecting on action), leading to deepening understanding, further action, and theory construction, in the sense of developing personal practical knowledge. AR is not the

scientific method applied to teaching. AR, according to Nugent et al. (2012), is not just about hypothesis-testing or about using data to come to conclusions as it is concerned with changing situations, not just interpreting them. It brings the researcher into view. AR, Nugent et al. (2012) continue is a systematically evolving process of changing both the researcher and the situations in which he or she works while, the natural and historical sciences do not have this aim.

AR is described, according to Ebra (2013) as a powerful and useful model for practitioner research through which researchers can be participants as they do not have to be distant and detached from the situation. Moreover, she adds that AR involves continuous evaluation and modifications that can be made as the project (research) proceeds, thus, there are opportunities for theory to emerge from the research rather than always follow a previously formulated theory. Through AR the researcher can bring a story to life as they would be engaged all the time in reflecting systematically and critically on practice. Likewise, Hine (2013) concludes that these solutions-based focus, the emphasis on fostering practitioners' skills in addition to the practical appeal of AR turn this type of research to be a worthwhile professional development activity for teachers.

To classify the change to the knowledge, skills and identity of action researchers, Riel and Lepori (2014) relate it to the following three contextual levels: professional, organizational, and scholarly. On the professional level, they indicate that the researcher reflects on the actions taken and any shifts in skills, knowledge, and identity. On the organisational level, they add that the researcher focuses on the interactions among the participants that result from the action taken. On the scholarly level, Riel and Lepori (2014) point out that researchers engage in transactions where they share their findings with the external research community leading others to draw possible implications. Additionally, Hine (2013) and Riel and Lepori (2014) point out that these contextual levels are similar to Reason and Bradbury's (2006) three broad pathways for AR. They described first-, second- and third-person approaches as follows: first-person inquiry describes reflective practice; second-person inquiry involves the others in the social setting or community to create change and third-person inquiry describes a process of organizing behaviours into patterns for developing a social movement and subsequent institutional change.

The principles of action research

Winter (1989) cited in Nugent et al. (2012: 7) outlines six key principles that that set AR apart from other types of research as follows:

1- reflexive critique: it ensures that we reflect on issues and processes and make explicit the interpretations, biases, assumptions, and concerns that formed our judgments,
2- dialectical critique: it entails a discussion of different reflective interpretations of practice in order to understand the relationships between all the parts of our environment to see how everything fits together,
3- collaborative research: it assumes that every person’s ideas are significant, not just those of the action researchers,
4- risk: action researchers must be prepared to take a risk by opening their ideas and reflections to criticism and risk failure in order to learn,
5- plural structure: using triangulation in both data-collection and in accounts of the research itself ensures a plural structure. Such a report encourages ongoing discussion among co-

researchers, rather than a final conclusion, and

6- theory, practice, transformation: they are interdependent and complementary parts of the AR change process as the goal of AR is to make the theory explicit in order to justify the action.

The characteristics of action research

Burns (2010), Ebra (2013) and Borg (2018) describe AR as follows:

1- situational as it is concerned with diagnosing a problem encountered in a specific on – the – spot situation and attempting to solve it, thus, the resulted feedback may be translated into modifications, adjustment or directional changes.
2- collaborative as it is done between two or more teachers or between universities and teachers to explore the curricular approach, and their main focus is on practical problems of individual teachers or schools.
3- cyclic as each cycle begins with planning and ends with reflection to come out with a possible solution for specific problem.
4- participatory as AR emphasizes participation and collaboration where researchers and participants are co-learner in the research change process.
5- self-evaluative as everything is carried out in the research process is continuously and actively evaluated within the ongoing situation which let the method have the nature of flexibility and adaptability.
6- qualitative as it does not involve descriptive statistics and chiefly relies on observation and behavioral data. In most cases it Data is easily collected, shared, discussed, recorded in some way
7- relaxed view of scientific approach as it allows the participants to use mutually acceptable ethnical frameworks rather than those imposed form the external.
8- teacher driven. Teachers have the core role in taking decisions about AR projects.
9- pedagogical. Teachers through AR are encouraged to implement new techniques in their classrooms and measure the impacts of those techniques on students.
10- reflexive. AR is always inward-looking. Teachers thus seek to understand aspects of their own work (including their students) rather than making others (as is often the case in conventional academic research) the focus of the study.
11- formatively extended. The formative element is clear in AR as learning at each point of the process can feed into subsequent decisions which in turn needs an extended time.
12- systematic. AR is neither linear nor rigid. AR is flexible, as teachers make formative decisions in a thoughtful manner about what to do next.
13- reflective. AR does of course, generate results, but an equally important dimension of the work is the thinking that teachers go through as they deepen their understandings of their work and question aspects of it that were previously taken for granted
14- democracy- based. AR emphasizes the ownership of the changes in the educational context for the teachers and learners who conduct the research by themselves.

The benefits of action research

Pettit (2010), Özkan (2011), Turkyilmaz, (2011), Ebra (2013), Aga (2015), Rodríguez (2017), Buss (2018) and Hassane (2018) sort out the benefits of AR as follows:

1- facilitate the opportunity of gaining hands-on experience for learners.
2- foster teachers' knowledge through learning to collect and use evidence and thus, help in realizing long-term and permanent learning
3- honors student learning differences as AR tasks are the best tools to prove that differentiated instruction is under construction in classes.
4- clear up the complexities that occur in the profession.
5- make the tacit knowledge gained through experiences visible
6- raise teachers' autonomy, confidence in discussions of educational reform and instructional decision making.
7- yield results that are directly related to teachers' own practices in their own context.
8- ensure that the concerns and forms of knowledge held by less powerful people are not excluded—and that these people can mobilize their knowledge to effect change.
9- enhance teachers' professional experience by encouraging them to investigate their own teaching in a systematic and organized way leading them to achieve both personal growth and institutional goals
10- sustain quality of education in general and that of teaching in particular.
11- encourage teachers to build increasingly stronger networks of collaboration
12- promote not only self-reflection but also self-assessment,
13- instills improvement continually through developing a more positive environment where teaching and learning matter the most
14- enable teachers to use innovative methods than sticking to textbooks theories and thus, renew their excitement in their teaching.

The constraints of action research

Rainey (2000), Hopkins, (2002), Özkan (2011), Turkyilmaz, (2011), Ebra (2013), Aga (2015), Buss (2018) and Hassane (2018) indicate that the constraints to conduct AR can be grouped under the headings of; people (dissatisfaction, resistance, insufficient training, lack of research skills, limited opportunity and time to practice), system (mismatch between internal and external need, lack of clear roles/responsibilities, lack of support, low collegial culture and lack of favorable work conditions), materials, data-related problems (such as incomplete and inconsistent information and lack of sample reports of previously conducted AR) and resource (shortage of equipment, insufficient devices and financial costs).

Action Research and information literacy

Traditionally, According to Bruce (2008) IL has been defined simply as the ability to find, evaluate, and use information. However, Burns, 2010; Feekery (2013) and Purcell and Barrell (2014) argue that the revolution of information, the availability of different modes of information sources and the accompanying changes of the purposes of education have directed focus towards meaning making more than simple knowledge acquisition. Consequently, learners need to know how to access, generate, think about, learn from as well as create information for the sake of the development of IL competencies. Machin-Mastromatteo (2013), Purcell and Barrell (2014) and Feekery et al.(2016 emphasize the great need for creating capable, critical and information literate learners to cope with the digital information ecosystems and tools for better performance and smooth transition from education institutions to the real workplace

A key constructivist learning principle, according to Burns (2000), is that reflection is an essential part of the learning process in higher education and professional practices. She adds that reflection promotes higher-order thinking skills, including problem-solving, evaluation and critical analysis, synthesis of ideas, and meaning making which represent the key key aspects of IL. Hence, Bruce (2008) affirms that IL development requires a process-oriented approach rather than focusing on the product. Since action researchers, (Burce, 2008; Burns, 2010; Feekery, 2013) are committed to defining problems and informing, evaluating and changing both their own and others' behaviors and practices, leading to pratical actions and life-long learning. Thus, Feekrey (2013) emphasizes the utility of AR in fostering non-threatening, open discussion and reflection on all aspects of teaching and learning, and bridging the gap in librarians' and faculty concept of and instruction to IL.

Recent literature on IL, according to (Burce, 2008) addresses the great shift towards holistic views of IL and the stronger connections between IL and learning. These views identify a wide range of behavioral and cognitive competencies that distinguish an information literate individual involved in tertiary studies. Bruce (2008) and Machin-Mastromatteo (2013) emphasize the interaction with, and use of, information in learning and that information use and learning are inseparable. Burns (2010) stresses the need to enable students in higher education to become information literate as well as reflective learners and inquirers in a world of ever- expanding information. likewise, Mastromatteo (2013) asserts the role of IL to prepare students for successful transition from dependent to independent learning and from university to different workplaces.

However, there is so little information through the literature on how IL is either perceived or addressed through the different educational institutions especially at the tertiary level. Bruce (2008) and Machin-Mastromatteo (2013) indicate that the importance of explicit IL instruction is clearly less recognized and that many—if not most—teachers tend to believe that IL instruction and its development remain within the responsibility of university teachers and curricula. In addition to that Feekery et al.(2016) confirm the general short-comings in graduate capabilities, including IL competencies across the different education systems allover most of the world which address the mismatches between faculty assumptions and the realities of student experience. Additionally, they address the need to implement change within pedagogy and curriculum design to support students' IL development

Action research and the development of self-reflective inquiry

At the start of the new millennium, the concepts of teacher-researcher and reflective practitioner prevail widely. Reflective tools (journals, portfolios, minute papers, etc.), according to Lovat et al. (1995), Cirocki and Farrelly (2016), enable teachers to make sense of their practice and better understand themselves, their students and their respective roles and responsibilities in the classroom in light of policies, curriculum, materials, methods as well as peers. The modern model of teacher professionalism, according to Lovat et al. (1995) and Rainey (2000) and Ferri and Wilches (2005) is grounded in critical self-reflection, classroom-based research, professional autonomy and recognition for the role. For this reason, language teachers are expected to assume the roles of teacher-researcher and reflective practitioner.

Hopkins (2002) indicates that classroom-based research is a well-planned inquiry process through which contextualized research questions would be developed in addition to the tools of gathering data for issuing new insights about theory and practice related to the teaching and learning processes. Hence, classroom research engages teachers in an on-going process of self-examination and continuing professional development. Tom (1985) cited in Lovat et al. (1995: 31) saw the processes of generating models of inquiry in the student teacher as ranging from low guidance, common sense approaches to high guidance, discipline-based models of research. Most common among the former, Tom (1985) affirmed, was the AR model, where each teacher is viewed as needing to study his or her own situation in order to understand better the teaching process. AR is an approach to classroom-based research that connects classroom research and action towards change. Thus, as Hopkins (2002) indicates, AR is a process in which study and inquiry lead to actions that make a difference in teaching and learning, that bridge doing (practice), learning (study), and reflection (inquiry).

Pipere and Salite (2006), Burns (2010) and Negi (2016) relate AR to the ideas of reflective practice in being characterized by introspective thinking about what one did, what one is doing and what one is going to do. The process of reflection is the core of AR which can be a powerful tool for professional enquiry, self-reflection and self-evaluation (Burns, 2010). In reflective practice, as Erba (2013) indicates, teachers reflect on their instructional practices and bring both action and reflection together resulting in practical solutions that are directly related to the classroom teaching. Moreover, Cirocki and Farrelly (2016) point out that through reflective inquiry teacher-researchers are given the opportunity to contribute to educational reform and embrace the life-long activity of a commitment to professional development.

AR inspires and develops the expertise of teachers to become more reflective practitioners in social situations to take the possibilities for reflection-in-action, reflection-on-action and reflection-for-action into the realms of research (Burns, 2010). In AR, according to Riel and Lepori (2014), understanding is based in experience coupled with an analytic approach to evidence, followed by reflective integration. There are many models for AR, some of them as Negi (2016) points out are Kemmis and McTaggart (1990), Sagor (1992), Calhoun (1994), O'leary (2004) and British Council (2015) . Burns (2010) and Hassane (2018) point out that the most common AR study model would consist of four stages: planning, action, observation and reflection. This model was designed by Kemmis and McTaggart (1988) and can be summarized as follows:

1. develop a plan of critically informed action (representing a specific dilemma) to improve what is already happening,
2. act to implement the plan,
3. observe the effects of the critically informed action in the context in which it occurs and
4. reflect on these effects as the basis for further planning, subsequent critically informed action and so on, through a succession of stages.

Both Barr (2018) and Buss (2018) add that this cyclic four-step process (plan, act, collect data and reflect on data) of AR is used to enable practitioners conduct systemic inquiry about contextual problems of practice in their immediate context. Additionally, Barr (2018) and Kolk (2018) affirm that this progressive reflective cycle of AR involves each aspect of teaching

activity, such as classroom teaching, materials development, and learning achievement—and leads to effective learning outcomes of students within a small social community with no extra work loads. They add that AR allows teachers to become designers, leaders, decision-makers and reflective practitioners. Since inquiry is the secret among the skills of AR, Burns and Westmacott (2018) affirm that through AR teachers not only operate in the classroom but also observe systematically the practical effects and consequences of their actions and behaviours.

In nutshell, we can say that AR is a professional development strategy mainly conducted by teachers in a specific on- the -spot situation to bring out positive changes in the teachers' mentalities, the classroom teaching and learning. It is one of the most important and practical tools for the reflective practice and self-evaluation to bring out the improvement, modification, and re-formation in the field of teaching profession and personal learning growth and the whole community. According to Borg (2018), AR is by, with, of, and for people, rather than on people.

Context of the problem

Most teachers agree on the existence of a huge gap between what they have learnt and what they actually face in classroom context. This is due to the fact that education in schools focuses on teaching rather than learning. Likewise, there are many teachers who are talented in dealing with language activities, however, those teachers may not be competent at realizing the way language learners actually learn. Additionally, most decisions at the educational institutions were top-down, proving to be ineffective as they failed to incorporate the experiential knowledge and needs of the teachers. Training sessions that were provided were mandatory, but did not consider the teachers' context, causing discontent with new teaching methods. Teachers in more remote regions viewed the new methods to be difficult to implement given limited local resources.

In a similar vein, the literature indicates that many candidates come into the Master degree level with weak prior knowledge and skills in conducting research. They should be able to seek knowledge, use the library or other web-based knowledge facilities in addition to various necessary knowledge and skills to conduct and write research. This is because the students at the end of their studies have to submit their theses which would be evaluated before the institution awarding them the Master degree. Studies have shown that the learning outcomes of methodology and other related courses on research were not easily attainable by most students in the social science and education during undergraduate and postgraduate programs, i.e. the use of statistics and the methodology of research, etc. (Meerah, 2012).

To be more specific, the researcher designed and submitted a questionnaire of EFL pre-master students' perceptions of research skills to measure the to be administered to EFL students enrolled at the special diploma in the Faculty of education, Minia University. The questionnaire aimed at identifying the internal and external factors as well as the constraints that affect the students' research skills at their immediate contexts. Their responses showed their appreciation to the research process and to its trustworthy gains. However, the majority believed that there were many factors that hindered the development of their research skills. Concerning the internal factors, most of them indicated their low professional abilities for research due to their low image of their self-efficacy as well as the lack of incentives that would encourage involvement in the process. As for the external factors, most of them reported the

lack of needed resources, time, support and professional training.

Teachers' beliefs and values influence their teaching and their students' learning directly and serve as the background to their decision-making and action. Some teachers hold beliefs which enable them to make crucial decisions on changing traditional classroom practices. These teachers can create innovations and changes in education, especially if they employ reflective practices and receive right professional support for their efforts. They tend to be more concerned with developing their own professional competence, helping other colleagues to improve and creating change in the curriculum

Consequently, there should be a shift to another approach where teachers become active learners shaping their professional growth through reflective participation in both programs and practice to transform and readjust their old methods and skills and enhance their abilities to reflect on their actions in the teaching process in order to become good teachers. Since there is no one single method that could remedy the problem, action research method is suggested to help learners address the learning problems and students to individualize their learning. Through action research, deep connections can be set between students and the real world leading to better learning outcomes.

Review of related literature

There is a considerable emphasis on teachers' professional development through AR in the literature. Although it is evident that language teachers' beliefs and values about research can influence their approaches to classroom practices and help them to adopt an AR orientation toward teaching and develop information literacy skills , literature is sparse in this regard both in general education and in the field of language teaching.

Action research and participants' beliefs of the impact of research

After reviewing a group of studies conducted to investigate teachers' views of the utility of research, the following studies have been traced:

1- Özkan (2011) classified the major constraints for being involved in AR
2- Erba (2013) investigated the practices and challenges of conducting AR in Sululta Secondary in Addis Ababa.
3- Aga (2015) assessed the actual practice of AR and the accompanying change to EFL teachers and students at Jimma and Hawassa Universities and to their practices
4- Dehghan and Sahragard (2015) investigated the beliefs of 89 Iranian EFL teachers about action research
5- Negi (2016) attempts to find out the perceptions, practices and problems of the secondary.
level EFL teachers in Nepal in conducting the action research
6- Mehrani (2017) attempts through a narrative study to gain insights into Iranian English teachers' perspectives on the advantages and disadvantages of AR.
7- Elmas and Aydin (2017) explore 44 pre-service EFL Turkish teachers' perceptions of research skills for a deeper understanding of how their perceptions of research skills affect or contribute to the teaching and learning processes.
8- Ulla (2018) explored the experiences, motivations, challenges, and perceived benefits of 11 public high school-teachers while undertaking a research study in their respective schools in Butuan City, Mindanao, Philippines.

Findings of the previous studies highlighted the following points:

1- most teachers involved in these studies reported their awareness of the concept of research with its components; i.e.

question-raising, planned investigation systematic data collection, selecting evidence, etc. and their appreciation for research implications for classroom practice and issues related to it.

2- the major constraints of being involved in AR has been classified as follows : personal features(lack of time, lack of resources, lack of the language of research, research skills, writing and publicizing the final report, the disapproval of colleagues, beliefs about the role of teachers, professional factors, student disapproval, etc.) and school organizational features (getting support to conduct research, pressure of student examinations, and disapproval of principals).

3- The major factors that enable some teachers to conduct AR were their professional commitment to support their teaching learning process with research, the consequent

4- most teachers preferred to engage in research rather than engage with the research results.

5- some group of teachers considered AR as one of the duties of professional researchers not teachers.

6- The majority of teachers reported some of the benefits of involving in AR as the increasing awareness of their students' individual needs, reflection on their teaching practice, achieving leadership in educational decisions and career development (e.g. completion of their graduate degrees and job promotions).

Studies focus on the relationship between AR and the professional development

The following studies have been conducted to investigate the impact of AR on the participants' professional development:

1- Chou (2010) investigated twenty-one elementary English teachers' professional development through collaborative action research in an in-service teacher training program in Taiwan.

2- Özkan (2011) investigated the long-term effects of action research on 8 Turkish EFL university instructors' professional development and instructional practices

3- Ahmad (2012) investigated the effect of Pedagogical Action Research Projects on Egyptian EFL student teachers' teaching skills at Suez Faculty of Education, Suez Canal University.

4- Hassane (2018) explored the impact of action research as a technique in an internal corporate training centre in Kuwait where development opportunities are limited

5- Kennedy-Clark (2018) investigated the way AR can be used to support four Australian high-school pre-service teachers.

Findings of the previous studies supported the useful impact of AR upon participants' professional development as AR enhances:

1- being critical in problem-solving, systematic in planning and evaluation, improved in theirleadership, self-confidence, communication and decision-making skills which would lead to an increase in their self-esteem.

2- the supportive context through the guidance, collaboration and support of instructors and peers to guarantee the effective implementation of action research.

3- developing research skills, but also reflection upon teachers' strengths and areas of development in their own teaching. in addition to that the importance of sharing reflective practices with students is emphasized as an integral part of a teacher's professional identity.

Studies focus on AR and the development of teacher researchers

The following studies were conducted to investigate the impact of AR on developing teachers as teacher-researchers:

1- Pipere and Salite (2006) investigated the impact of AR on the acquisition of research skills by 25 mid-career in-service teachers from the Master degree program in Education.
2- Al-Yasen (2013) explored the research skills of 68 graduate students in the College of Education at Kuwait University.
3- Riel and Lepori (2014) investigated the learning outcomes reported by 25 university graduate students in their final written reflections from their published action research projects on the Center for Collaborative Action Research (CCAR) website.
4- Bahloul (2015) investigated the responses of 130 Master EFL students at Batna University in, Algeria to action research and the idea of a teacher being a researcher.
5- Burns and Westmacott (2018) discussed the experiences of five EFL teachers at a small private Chilean university of a new AR program that was developed as a vehicle for helping teachers to become involved in research and write a research publication for peer-reviewed journals.

Findings of the previous studies indicated that conducting an AR is:

1- important with regard to a teacher's self-development , self-confidence and professional development.
2- effective in engaging university teachers in relevant, supportive and worthwhile projects to developing as a researcher in the future
3- suitable for developing different research skills, the research experts themselves and their new attitude to master thesis in education and research.

Studies focus on AR and the development of future competencies

Kapenieks (2016) has identified the mutual influence of students' EAR, working in a group, to the development of selected competencies, that will be necessary in the near future and midterm future for competitiveness in the labour market. The results showed that AR in an e-learning environment helps the students not only to create knowledge but also to develop their views and interests in a way that enhances their novel and adaptive thinking and design mindsets. During collaboration in the group in internet, students influence each other to express their ideas in the structured way which matches the system of competencies suitable to support life-long learning for most required professions in near future as well as teachers' education for sustainable development.

Studies focus on AR and the development of self-reflective inquiry

Cirocki and Farrelly (2016) attempted to explore the extent to which Armenian EFL teachers engage in classroom research, the challenges they face therein, and whether or not they consider themselves to be reflective practitioners. The findings of the study indicated that the majority of participating Armenian EFL teachers are engaged in classroom research in addition to acknowledging the significance of reflective inquiry.

Buss (2018) affirmed the effective role of using AR in developing inquiry as one of the practice skills among doctoral preparation program participants at Arizona state university. Those participants claimed that after graduation they had developed powerful, worthwhile research and inquiry practice skills that they influenced and will continue to influence their workplace settings.

Studies focus on action research and information literacy skills

The research agenda integrating (AR) into (IL) research and practice seems very rare.

Feekery (2013) explored embedding IL into the disciplines of New Zealand (NZ) tertiary context through participatory action research (PAR) to shift IL beyond the library. She attempts to capture unique insights into faculty's lived experiences as they adapted curricula and assessments to support students' IL development and learning in the New Zealand university context. She focused on making stronger connections between IL and learning, and adopts learner-focused pedagogies that encourage reflective, experiential, and collaborative learning. Data were collected through AR qualitative data collection techniques, including class observations, faculty interviews, reflective feedback, meeting notes, student focus groups, surveys, making records via instructor and student reflective journals and document analysis of course outlines, websites
and handouts, and student assessments. The study resulted in IL development being integrated into each year of the assigned program through the application of PAR with the focus on the on-going process for supporting the development of IL through students' learning.

Similarly, Purcell and Barrell (2014) evaluated the impact of the IL teaching on students' confidence in their abilities to find, select and use information. Results indicated that the teaching had a positive and desirable impact upon students' confidence. However, staff and student feedback suggested that mutual expectations, and the consistency and timing of support, were important factors in the development of students' IL skills.

The results of the aforementioned studies affirmed the utility of AR in enhancing the development of its practitioners (whether at the academic or the professional levels), the skills of reflection-in-action, reflection-on-action and reflection-for action and the future competencies of novel and adaptive thinking and mind habits. Considering the constraints of being involved in AR, this study attempts to use AR skills as a framework for developing EFL pre-master students' information literacy skills and self-reflective inquiry.

Statement of the problem

The culture of conducting research is important in research and for the development of a country for economic and well-being purposes. The perception of teaching and researching, for a large number of teachers, are two different things at two different times. What needs to happen to diminish this thought process is to rethink how teachers use their time doing research as part of teaching in the classroom. Since teacher educators deal with human beings having individual differences at the physical, psychological, intellectual and moral aspects, thus, they need to keep themselves updated. This calls for the need for practicing in research for improving the quality of their knowledge, skills and practice. to act as both active agents and implementers of research results. Moreover, teachers should be able to construct their own theories of practice according to the particular context of their classroom, particular students and socio-cultural environment. Furthermore, teachers should become more than consumers of theories and research, they should become researchers and theorists in their own right. Thus, this study attempts to enable premaster students to identify and solve problems and analyze information about their classrooms and schools through repositioning the sets of information

literacy skills in addition to the skill of self-reflective inquiry within the framework of the process of AR to develop their own academic and professional competence and consequently their students' learning outcomes.

Questions of the study

The present study attempted to answer the following questions:

1. What is the effect of using an action research-based program on developing EFL pre-master students' information literacy skills?
2. What is the effect of using an action research-based program on developing EFL pre-master students' reflective inquiry?

Objectives of the study

The current study attempted to identify:

1- the effect of using an action research based-program on developing EFL pre-master students' information literacy skills.
2- the effect of using an action research based-program on developing EFL pre-master students' reflective inquiry.

Hypotheses of the study

The present study attempted to test the following hypotheses:

1- There would be a statistically significant difference between mean values obtained by the students of the experimental and the control groups on the post- performance of the scale of information literacy skills (favoring the experimental group).
2- There would be a statistically significant difference between mean scores obtained by the students of the experimental and the control groups on the post- performance of the test of academic research skills (favoring the experimental group).
3- There would be a statistically significant difference between mean values obtained by the students of the experimental and the control groups on the post- performance of the scale of reflective inquiry (favoring the experimental group).

Rationale of the study

Hypotheses

- All the hypotheses of the study were stated on the basis of the literature reviewed which confirmed the impact of impeded research skills into course designs through the medium of action research to develop information literacy skills (Bruce, 2008; Feekery, 2013; Feekery, 2016 and Kapenieks, 2016**)**. Likewise, the use of AR enables to bridge the gap between action (the expert knowledge) and research (the experiential knowledge) (Burns, 2010; Ahmed, 2012; Mehrani, 2017 and Kennedy-Clark et al. 2018).
- Similarly, Burn (2010), Mustafa (2011), Nugent et al., (2012), Erba (2013), Aga (2015) and Borg (2018) affirmed the effectiveness of using AR for enhancing learners' self-reflective inquiry. Thus, it is expected that through the use of AR, EFL pre-master students would enhance their skills of information literacy and self-reflective inquiry.

Theoretical background

This study has roots in foreign language theories as follows:

1- The education philosophy of the American philosopher, psychologist and education reformer John Dewey (Dewey, 1916) which foreshadowed action research. Additionally, the theoretical studies of K. Lewin (Lewin, 1946), B. Dick (Dick, 2009) and other followers contributed to the emergence of educational action research. Their work affirmed the idea that a practitioner’s reflection on knowing and reflection in action can lead to actionable theory that can be generalized to other situations.

2- The theoretical studies of B. Glaser and A. Strauss, the developers of the grounded theory and methodology based on data and differ from the traditional research methods (Glaser, 1967). Barge (2008) points out that integrating the grounded theories as practical theories into AR would lead to the improvement of the existing situations through better informed decisions and actions.

3- The generative ideas of postmodernism. Brown and Jones (2001) point out that foundational principles of contemporary action research reflect the generative ideas of postmodernism as that Knowledge is created through open discourse and that the search for knowledge is endlessly self-revising process.

4- The holistic approach. Booth (2003) asserts that action research in education exhibits a holistic approach that leads to the novel and adaptive thinking of its participants.

5- The reflective teaching. Kennedy-Clark et al. (2018) indicates that reflective practice is a process of learning that occurs through observation and engaging in discussion of practice so that questions about tacit beliefs and pedagogical practices could be examined. Thus, through AR, teachers will be given the space to examine their own classroom, identify an issue or challenge, plan a study, reflect and evaluate the taken decisions and to put forward a discussion of their experiences.

6- Transformational learning. Riel and Lepori (2014) indicate that critical reflection on experience which one has in AR is central to transformational learning.

7- Action Research, as Nugent et a. (2012) indicate, supports the results-oriented approach addressed by the Global Partnership for Education by ensuring that all learners' needs are recognized and met through ongoing differentiated instruction

Significance of the study

Although it is evident that language teachers' beliefs and values about research can influence their approaches to classroom practices and help them to adopt an action research orientation toward teaching, literature is sparse in this regard both in general education and in the field of language teaching. Likewise, the research agenda integrating AR into IL research and practice seems very rare.

More specifically, implementing action research in relation to information literacy and reflective inquiry through the present study is hopefully expected to:

- enhance teachers' expertise in concrete and practical ideas through the professional development activities that are directly related to the day to day operation of their classroom through providing them with objective lens with which they can view their teaching context.
- highlight the importance of IL in students' research, writing, and learning processes
- create effective learning opportunities for learning by doing and reflecting.
- enable teachers to be more creative, open-minded, positive, initiative and holistic, compared to those who use old traditional ways of teaching, and thus, raise their self-efficacy beliefs and have their own voices inside the classroom.
- enable students to conduct effective source evaluation by stressing the value of information literacy to the assigned discipline.
- facilitate deeper understanding of the way academic skills can be developed through across scaffolded instruction.

- connect classroom learning with real-world situations and research
- challenge applying ideal theoretical ideas.
- bridge the theory-practice gap in learning and teaching since teachers conduct action researches by themselves relating their daily classroom work to academic research and accordingly improve their teaching practice.
- empowers the participants to use mutually acceptable ethical frameworks (agreed upon procedures) rather than those imposed from the external as well as a common language to negotiate with others about teaching dilemmas, skills and strategies.

Delimitations of the study

The present study was delimited to the following elements:

1- The EFL pre-master students enrolled at the special diploma, Faculty of Education, Minia University. The action research-based program is sought to help these students enhance their skills of both information literacy and reflective inquiry. Thus, they are expected to better set up a research focus, generate and interpret data and form conclusions with developed reflective inquiry skills. Moreover, they are expected, as prospective teachers to develop their skills of research and decision taking for better future teaching performance and students' learning outcomes.

2- There is no balance between male and female EFL pre-master students in both the experimental and the control groups. This is due to the sex ratio of the population of EFL pre-master students enrolled in the special diploma.

3- The model of Kemmis and McTaggart (1988) of AR is the one adopted in the present study.

4- The technical aspect of research skills is the only one addressed in this study rather than the other aspects of research writing and publishing.

Definitions of terms

Action Research (AR)

- Ozkan (2011: 11) defines AR a systematic and purposeful inquiry about anything that happens related to teaching and learning in a classroom.
- Hines (2013, p. 151) defines action research as "a process of systematic inquiry that seeks to improve social issues affecting the lives of everyday people.
- In this study, Action research is defined as a cyclical intervention that identifies a particular problem and addresses this problem through a reflective and progressive process of planning, engagement and critical evaluation of decisions taken and actions performed.

Information literacy skills (IL)

- Mandinach and Gummer (2013) cited in Kennedy-Clark et al. (2018:10) point out that information literacy for teachers includes three skill sets with these being: 1) problem-focused skills, such as knowing how to frame questions, identify problems and to make informed decisions; 2) data-focused skills, which include knowing how to access, generate and interpret data; and 3) process-focused skills, which include knowing how to engage in collaborative inquiry and to evaluate cause and effect.
- The American Library Association (ALA) defines it as a set of abilities requiring individuals to recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information.
- In this study, the definition of Mandinach and Gummer (2013) of information literacy skills will be adopted.

Reflective inquiry

- Pipere and Salite (2006: 29) define it as a type of introspective thinking about what one did, what one is doing and what one is going to do.
- It is defined in this study as a process of continuous and systematic thinking of one's actual practice to explore personal beliefs, analyze, understand and evaluate tacit and explicit knowledge to develop decision making skills, better teaching performance and learning outcomes.

Methodology

Research Design

The present study utilized the quasi-experimental research design. The pre-post control group design (Hatch and Farhady, 1982) was used in designing and conducting the study. An experimental group and a control group were exposed to pre and post means of getting data. The experimental group only was instructed and trained using a program based on action research while the control group did not receive such training.

The Pilot Study

The pilot sample of the study consisted of fifteen (15) male and female English majors enrolled in other branches of special diploma at the Faculty of Education, Minia University in the academic year 2017/2018. The pilot study lasted for fifteen days before the treatment and helped in determining the validity and reliability of the study tools.

Participants of the Study

The main sample of the study consisted of thirty (30) English majors enrolled in the Methodology branch of the special diploma at the Faculty of Education, Minia University in the academic year 2017/2018. They were randomly divided into two equal intact groups; experimental and control and were of the same age level and the same professional level.

Instructor

The researcher taught only the experimental group using the AR based program by herself while she taught the control group using the regular procedures according to the rules of the institution.

Instructional design of the study

The experimental treatment: the participants in the experimental group went through the following procedures:

a- A questionnaire of EFL students' perceptions of research skills was designed and applied by the researcher to be informed about the internal and the external factors that affect the perceptions of EFL pre-master students at the Faculty of Education towards the research process and the common constraints in their immediate context.

b- They were trained using the action research- based program that integrates the three sets of information literacy skills with the practices of self-reflective inquiry. AR was used as a paradigm for fostering the enhancement of information literacy skills and reflective inquiry through the integration of action (the expert knowledge) and research (the experiential knowledge).

c- The material (the training program) consists of four units. They are constructed according to the three sets of information literacy skills (problem-focused, data- focused and process-focused skills) in relation to the four steps of the cyclic model of AR (Kemmis and Mc taggert (1988) model of AR ;plan, act, observe and evaluate).

d- Two digital web-based learning platforms were created. A Face book account was intended to enable the students to interact and collaborate together, share materials and knowledge, ask questions related to language learning, initiate inquiries about language use and foster

interpersonal communication. interaction and communication can be done synchronously or asynchronously.

e- A group web-based blog was constructed by the researcher for the student to post their tasks applying the information literacy skills in relation to the four steps of the AR model, post and receive feedback comments of peers or the instructor and share reflection comments.

f- An ongoing dialogue between the researcher/instructor and the students through feedback blogposts facilitated the development of their information literacy skills through AR learning assignments to foster future adjustments.

g- For the development of the self-reflective inquiry, multiple levels of reflection tasks were integrated from the early beginning of the intervention: reflection-in-action, reflection-on-action and reflection-for-action.

h- Case studies, worksheets and authentic reflections of real action researchers constituted the practical part of the intervention.

The control treatment: students in the control group received instruction on the course of seminar using the regular way with no action-research intervention.

Variables of the Study

1- The independent variable

The use of an action research- based program.

2- The dependent variables

Level of information literacy skills.

Level of reflective inquiry.

3- The control variables

- Age

The two groups of the study were matched on age as the age level of all the participants ranged from 24.5: 26 years old with nearly the same number in each group. Table (1) shows no significant difference between the students in both groups as the (t) value (0.161) is not significant at 0.05 level

Table (1): Means, Standard Deviation and t-value of participants' age

Group	Subjects	Means	SD	t-value	Df	Sig. (2-tailed)
Treatment	15	25.100	0.6036	0.161	28	0.873
Non-treatment	15	25.067	0.5300			

Note. *. Not significant at 0.05 level

- Linguistic background

All the participants studied English for 12 years (from primary (1) till the end of the secondary stage at public schools in Minia Governorate in addition to another 5 or 7 years at their university level till they reached the pre-master level.

- Professional experience

All the participants are involved, some way or another, in teaching English. Some of them are teachers at schools, some are language instructors in private centers, some were doing their public service as teachers at schools and the rest were private language tutors.

All the participants teach students coming from almost the same backgrounds, whether educational, cultural, or working, thus, facing some typical challenges and issues.

Instruments of the study

1- A Questionnaire of EFL students' perceptions of research skills

Objectives of the questionnaire

Identifying the main factors that affect EFL pre-master students' perceptions of their research skills whether internally or externally.

Construction of the questionnaire

a- Reviewing the literature related to the domain of the beliefs and perceptions of research skills

b- Stating the objectives of the questionnaire.

c- Designing a preliminary questionnaire. It consists of two variables with eleven closed-ended questions with pre-defined options in addition to one open-ended question.

d- Evaluating the preliminary form of the questionnaire by a jury of 7 TEFL experts.

Validity of the questionnaire

A jury of 7 TEFL experts approved the face validity of the questionnaire, its suitability and appropriacy for the study sample.

Administration of the questionnaire

The questionnaire was administered to the students of the experimental group to determine both the internal and external factors that affect their perception of their research skills.

Results

Analyzing the data obtained revealed that most students agree on the utility of conducting research though most of them consider themselves as teachers rather than teacher- researchers. Concerning their research assignments, most students reported that they were accustomed to download ready- made materials from the internet. As for the internal factors, though most students showed their desire to conduct research, most of them agreed on being professionally isolated due to their lack of required skills of research. Considering the external factors, most of them agreed on the existence of some constraints for conducting research as the lack of training, time, support and incentives. Among the other constraints, some students added the need for professional and financial support in addition to the demand for enough resources and materials. Table (2) presents the percentage of the students' choice of the items of the questionnaire.

Table (2): Variable/ Response Distribution Analysis of the questionnaire of EFL students' perceptions of research skills

The Variable	Corresponding number of statements	Variable/ Response distribution		Total number (N)
Internal	1	A teacher	80%	15
		A teacher-researcher	20%	
	2	Download it from the internet	70%	
		Compile it from different resources	20%	
		Write it according to the assigned criteria	10%	
	4	Yes	50%	
		Don't know	50%	
	5	Yes	30%	
		Don't know	30%	
		No	40%	
	6	Yes	50%	
		To some extent	40%	
		No	10%	
	9	Yes	50%	
		Don't know	50%	
	10	Yes	90%	
		Don't know	10%	
External	3	Yes	10%	
		No	90%	
	7	Yes	50%	
		May be	50%	
	8	Yes	70%	
		To some extent	30%	
	11	Yes	60%	
		To some extent	40%	

2- A scale of information literacy skills

Objectives of the scale

A scale of information literacy skills was designed by the researcher for EFL pre-master students to identify the information literacy skills they perform during involvement with a research problem, ensure equality of the students in the experimental and control groups through piloting and measure the degree of improvement of the students in both groups on their use of information literacy skills after the course is over.

Construction of the scale

It is constructed on the basis of Likert five-point scale. The information literacy skills are classified and represented in the scale through a group of three dimensions, each followed by a group of statements that developed for measuring students' information literacy skills with the total number of 46 statements. Each statement has five response categories rating as follows: strongly illiterate, illiterate, undecided, literate and strongly literate. Responses are given scores (weights) according to the scale response categories as follows: strongly illiterate (1), illiterate (2), undecided (3), literate (4) and strongly literate (5). There are no correct or wrong answers. Maximum score on the scale of information literacy skills is 230. This is shown in table (3).

Table (3): The Dimensions of The Information-literacy Skills scale

No.	Scale dimensions	No. of items
1	Problem-focused skills	11
2	Data-focused skills	17
3	Process-focused skills	18
Total number of items	46	
Total score	230	

Testing time

In piloting the scale, time taken by each student was recorded, divided by the whole number of students who took the scale and was found to be 40 minutes. Thus, the testing time of the scale was 30 minutes.

Instructions of the scale

They are written in English. They are easy to understand. They include information about the purpose of the scale, its dimensions, the distribution of the scores on the points of the scale and the way of recording the answer.

Validity of the scale

1-The face validity of the scale was determined by submitting it to a jury of 7 TEFL experts to judge its validity according to the following criteria: linguistic stating of statements, relatedness of the statements to the dimensions of information literacy skills and suitability of the statements to the subjects. The suggestions and recommendations of the jury members were taken into consideration and the scale was revised to reach its final form.

2-Pearson correlation was used to determine the internal consistency of the scale. The same piloting sample (15 EFL pre-master students enrolled in the special diploma) took the scale. The internal consistency of each dimension was calculated. The internal consistency of the individual statements of the dimensions of the scale was calculated as shown in table (4). The correlation between the three dimensions of the scale and the total scale was determined as shown in table (5). The values of the correlation coefficient ranged from (0.53: 0.87) are considered acceptable.

Table (4); The Internal Consistency of the scale of information literacy skills

Item no.	Internal consistency	Item no.	Internal consistency	Item no.	Internal consistency
1	.776**	17	.695**	33	.679**
2	.617*	18	.600*	34	.732**
3	.806**	19	.696**	35	.620*
4	.716**	20	.647**	36	.631*
5	.753**	21	.675**	37	.670**
6	.632*	22	.622*	38	.728**
7	.614*	23	.689**	39	.672**
8	.864**	24	.612*	40	.528*
9	.639*	25	.559*	41	.732**
10	.553*	26	.623*	42	.529*
11	.566*	27	.675**	43	.591*
12	.689**	28	.706**	44	.534*
13	.654**	29	.603*	45	.588*
14	.604*	30	.732**	46	.679**
15	.672**	31	.651**	-	-
16	.630*	32	.631*	-	-

Note. **. Correlation is significant at the 0.01 level (2-tailed).
Note. *. Correlation is significant at the 0.05 level (2-tailed).

Table (5): The correlation between each dimension and the total scale

Dimensions	Internal consistency
Problem-focused skills	.846**
Data-focused skills	.963**
Process-focused skills	.955**

Note. **. Correlation is significant at the 0.01 level (2-tailed).

Reliability of the scale

Establishing the reliability of the scale was done during piloting. The same piloting sample (15 EFL pre-master students enrolled in the special diploma) took the scale. The reliability coefficient of the scale was determined using:

a- The split-half method as Guttman Split-Half Coefficient of the scale is 0.956. It is considered acceptable as shown in table (6)

Table (6): The Split-half Reliability coefficient of the scale of information literacy scale

The information-literacy skills scale	Means	Variance	Standard Deviation	No. of items	Guttman split-half coefficient
Part 1	54.53	76.695	8.758	23a	0.956
Part 2	55.40	70.114	8.373	23b	
Both Parts	109.93	281.210	16.769	46	

*Correlation is significant at the 0.05 level.

b- Alpha Cronbach (α) coefficient which is (0.961). It is considered acceptable as shown in table (7).

Table (7): The Cronbach Alpha's Reliability coefficient of the scale

Dimensions	Means	Variance	Standard Deviation	No. of items	Alpha
Problem-focused skills	25.73	21.067	4.590	11	0.884
Data-focused skills	41.00	43.000	6.557	17	0.912
Process-focused skills	43.20	47.314	6.879	18	0.912
Total of dimensions	109.93	281.210	16.769	46	0.961

Note. *. Alpha is significant at the 0.05 level (2-tailed).

Cohen et al. (2007:506) point out that the split half coefficient and the alpha coefficient are considered reliable if they range from 0.70 to 0.90. Thus, both of the reliability coefficients of the scale are considered within the acceptable range.

3- A Test of Research Academic Knowledge

Objectives of the test

A test of academic research knowledge was designed by the researcher for EFL pre-master students enrolled in the special diploma to assess the technical aspect of their research skills, ensure equality of the students in the experimental and control groups through piloting and measure the degree of improvement of the students in both groups on their level of the technical aspect of their academic research skills after finishing the course.

Construction of the test

It consists of 55 items for the whole test. It is constructed according to a table of specification on the basis of the technical aspects of the academic research skills topics of the suggested program. Items are of the multiple-choice type. One point is given for each test item. The maximum score of this test is 55.

Testing time

In piloting the test, time taken by each student was recorded, divided by the whole number of students who took the test which was found to be 65 minutes. Thus, the testing time was 65 minutes.

Instructions of the test

They are written in English. They are brief and easy to understand. They include information about the purpose of the test, the way of recording the answers and the time allowed to complete the test.

Validity of the test

1- The face validity of the test was determined by submitting it to a jury of 7 TEFL experts to judge its validity according to the following criteria: linguistic stating of items, how far the items measure the objectives of the program and suitability of items for the subjects. The suggestions and recommendations of the jury members were taken into consideration and the test was revised to reach its final form.
2- Pearson correlation formula was used to determine the internal consistency of the test. 15 EFL pre-master students enrolled in the special diploma were selected randomly to take the test. The internal consistency of each item was calculated as shown in table (8). The values of the correlation coefficient ranged from (0.52 to 0.65) are considered acceptable.

Table (8): The Internal Consistency of the Test of Research Academic Knowledge

Item no.	Internal consistency	Item no.	Internal consistency	Item no.	Internal consistency	Item no.	Internal consistency
1	.632*	15	.561*	29	.615*	43	.517*
2	.615*	16	.523*	30	.563*	44	.537*
3	.578*	17	.640*	31	.549*	45	.641*
4	.570*	18	.632*	32	.571*	46	.554*
5	.596*	19	.592*	33	.643**	47	.554*
6	.597*	20	.623*	34	.558*	48	.563*
7	.571*	21	.558*	35	.648**	49	.589*
8	.563*	22	.587*	36	.549*	50	.589*
9	.623*	23	.561*	37	.554*	51	.552*
10	.545*	24	.541*	38	.545*	52	.631*
11	.525*	25	.631*	39	.597*	53	.570*
12	.606*	26	.579*	40	.545*	54	.529*
13	.585*	27	.580*	41	.597*	55	.580*
14	.575*	28	.566*	42	.554*	-	-

Note. **. Correlation is significant at the 0.01 level (2-tailed). *Note.* *. Correlation is significant at the 0.05 level (2-tailed).

Reliability of the test

Establishing the reliability of the test was done during piloting. The same piloting sample (15 EFL pre-master students) were randomly selected to take the test. The reliability coefficient of the test was determined using:

1- The split-half method as Guttman Split-Half Coefficient of the test is 0.883. It is considered acceptable as shown in table (9)

Table (9): The Split-half Reliability coefficient of the test

The test	Means	Variance	Standard Deviation	No. of items	Guttman Split-Half Coefficient
Part 1	15.13	75.981	8.717	28a	0.883
Part 2	14.47	70.124	8.374	27b	
Both Parts	29.60	261.543	16.172	55	

Note. * Correlation is significant at the 0.05 level.

2- Alpha Cronbach (α) coefficient which is (0.963). It is considered acceptable as shown in table (10).

Table (10): The Cronbach Alpha's Reliability coefficient of the test

The test	Means	Variance	Standard Deviation	No. of items	Alpha
Statistics	29.60	261.543	16.172	55	0.963

Note. * Alpha is significant at the 0.05 level (2-tailed).

Cohen et al. (2007:506) point out that the split half coefficient and the alpha coefficient are considered reliable if they range from 0.70 to 0.90. Thus, both of the reliability coefficients of the test are considered within the acceptable range.

4- A Scale of Self-Reflective Inquiry

Objectives of the scale

A scale of self-reflective inquiry was designed by the researcher for EFL pre-master students to describe the personal beliefs, educational practice, benefits and constraints that determine the ability for reflective inquiry, ensure equality of the students in the experimental and control groups through piloting and measure the degree of improvement of the students in both groups on their ability of reflective inquiry after finishing the course.

Construction of the scale

It is constructed on the basis of Likert three-point scale. The most important skills for self-reflective inquiry are classified and represented in the scale through a group of four dimensions, each followed by a group of statements that are developed for measuring students' ability for self-reflective inquiry with the total number of 36 statements. 33 statements are classified as being positive while 3 statements (no.) are reverse coded as they represent negative abilities of self-reflective inquiry. Each statement has three response categories rating as follows: low, median and high. Responses are given scores (weights) according to the scale response categories as follows: low (1), median (2) and high (3). There are no correct or wrong answers. Maximum score on the scale of self-reflective inquiry is 102. This is shown in table (11)

Table (11): The Dimensions of The Self -reflective inquiry scale

No.	Scale dimensions	No. of items
1	Personal Perceptions and Beliefs	9
2	Importance and Benefits	8
3	Educational Practice	13
4	Constraints	6
Total number of items	36	
Total score	102	

Testing time

In piloting the scale, time taken by each student was recorded, divided by the whole number of students who took the scale and was found to be 40 minutes. Thus, the testing time of the scale was 40 minutes.

Instructions of the scale

They are written in English. They are easy to understand. They include information about the purpose of the scale, its dimensions, the distribution of the scores on the points of the scale and the way of recording the answer.

Validity of the scale

1- The face validity of the scale was determined by submitting it to a jury of 7 TEFL experts to judge its validity according to the following criteria: linguistic stating of statements, relatedness of the statements to the dimensions of self-reflective inquiry and suitability of the statements to the subjects. The suggestions and recommendations of the jury members were taken into consideration and the scale was revised to reach its final form.

2- Pearson correlation was used to determine the internal consistency of the scale. The same piloting sample (15 EFL pre-master students enrolled in the special diploma) took the scale. The internal consistency of each dimension was calculated. The internal consistency of the individual statements of the dimensions of the

scale was calculated as shown in table (12). The correlation between the four dimensions of the scale and the total scale was determined as shown in table (13). The values of the correlation coefficient ranged from (0.53: 0.75) are considered acceptable.

Table (12): The Internal Consistency of the scale of self-reflective inquiry

Item no.	Internal consistency	Item no.	Internal consistency	Item no.	Internal consistency
1	.595*	13	.633*	25	.562*
2	.521*	14	.604*	26	.548*
3	.627*	15	.631*	27	.585*
4	.660**	16	.625*	28	.548*
5	.592*	17	.574*	29	.574*
6	.602*	18	.535*	30	.585*
7	.558*	19	.753**	31	.709**
8	.557*	20	.652**	32	.726**
9	.563*	21	.622*	33	.526*
10	.550*	22	.535*	34	.723**
11	.574*	23	.580*	35	.717**
12	.608*	24	.568*	36	.647**

Note. **. Correlation is significant at the 0.01 level (2-tailed). *Note.* *. Correlation is significant at the 0.05 level (2-tailed).

Table (13): The Correlation Between Each Dimension and The Total Scale

Dimensions	Internal consistency
Personal Perceptions and Beliefs	.901**
Importance and Benefits	.805**
Educational Practice	.738**
Constraints	.572*

Note. **. Correlation is significant at the 0.01 level (2-tailed).
Note. *. Correlation is significant at the 0.05 level (2-tailed).

Reliability of the scale

Establishing the reliability of the scale was done during piloting. The same piloting sample (15 EFL pre-master students enrolled in the special diploma) took the scale. The reliability coefficient of the scale was determined using:

1- The split-half method as Guttman Split-Half Coefficient of the scale is 0.784. It is considered acceptable as shown in table (14).

Table (14) : The Split-half Reliability coefficient of the scale of self-reflective inquiry

The self-reflective inquiry scale	Means	Variance	Standard Deviation	No. of items	Guttman split-half coefficient
Part 1	28.67	34.095	5.839	18a	0.784
Part 2	29.13	30.695	5.540	18b	
Both Parts	57.80	106.600	10.325	36	

Note, Correlation is significant at the 0.05 level (2-tailed)

2- Alpha Cronbach (α) coefficient which is (0. 892).It is considered acceptable as shown in table (15).

Table (15); The Cronbach Alpha's Reliability coefficient of the scale

Dimensions	Means	Variance	Standard Deviation	No. of items	Alpha
Personal Perceptions and Beliefs	14.13	10.267	3.204	9	0.761
Importance and Benefits	12.87	7.552	2.748	8	0.745
Educational Practice	21.73	28.495	5.338	13	0.840
Constraints	9.07	5.067	2.251	6	0.760
Total of domains	57.80	106.600	10.325	36	0.892

Note. *. Alpha is significant at the 0.05 level (2-tailed).

Cohen et al. (2007:506) point out that the split half coefficient and the alpha coefficient are considered reliable if they range from 0.70 to 0.90. Thus, both of the reliability coefficients of the scale are considered within the acceptable range.

Findings

Hypothesis 1

The first hypothesis of the study predicted that there was a statistically significant difference (favoring the experimental group) between mean values obtained by the students of the experimental and the control groups on the post- performance of the scale of information literacy skills. Statistical analysis of the obtained data showed that the experimental group achieved a higher degree of improvement than the control group on the scale of information literacy skills as t-value (49.534) is significant at (0.05) level and beyond. Thus, the first hypothesis is confirmed. Table (17) below shows the data obtained to test this hypothesis.

Table no. (16) : Means, Standard deviation, t value, η2 and effect size on the post-performance of both the experimental and control group of the scale of information literacy skills

Aspects of comparison	Group	No.	Mean	Std. Deviation	t-value	Df	Sig. (2-tailed)	η2	Effect size
Problem-focused skills	Post-exp.	15	53.73	0.884	14.055	14.719	0.000	0.8759	Large
	Post-con.	15	33.47	5.514					
Data-focused skills	Post-exp.	15	82.27	1.486	44.767	20.231	0.000	0.9862	Large
	Post-con.	15	42.87	3.067					
Process-focused skills	Post-exp.	15	86.13	2.066	44.975	28	0.000	0.9863	Large
	Post-con.	15	46.07	2.764					
Total of dimensions	Post-exp.	15	222.13	3.482	49.534	20.565	0.000	0.9887	Large
	Post-con.	15	122.40	6.978					

Note. *. significant at the 0.05 level (2-tailed).

To ensure the effectiveness of the action research- based program in improving students' information literacy skills, eta-squared formula statistics (η2) was used. Cohen et al. (2007:522) pointed out that when eta-squared value = 0.01, the effect is considered weak, when it = 0.06, the effect is considered medium and when it = 0.14 the effect is large. As shown in table (16) eta-squared value(η2) equals (0.9887) which is considered large. Thus, the action-research based program is considered with

high effect in improving EFL pre-master students' skills of information literacy.

Additionally, the comparison of the values obtained by the students of both the experimental and control groups in the pre-post performance on the scale of information literacy skills revealed that the experimental group outperformed the control group as t-value (-66.201) is significant at 0.05 level and beyond. Eta-squared value (η2) equals (0.9968) which is considered large.

The results showed that the control group achieved some improvement in the post-performance on the scale of information literacy skills (on the dimension of problem-focused skills) due to their involvement in the seminar course. However, the improvement of the experimental group was larger as eta-squared value (η2) for the experimental group equals (0.9968) which is considered high and greater than the eta-squared value(η2) for the control group which equals (0.3532). Thus, the action research-based program is considered more effective than the regular instruction in improving learners' skills of information literacy. This is shown in table (17).

Table (17) : Means, Standard Deviation, t value, η2 and effect size between mean scores of the experimental and the control group on the Pre-Post of the information-literacy skills scale. N=15

Aspects of comparison	Group	Mean	Mean diff.	Stand. Dev.	t-value	df	Sig. (2-tailed)	η2	Effect size
Problem-focused skills	Pre-exp.	30.13	-23.600	1.598	-53.024	14	0.000	0.9950	Large
	Post-exp.	53.73		0.884					
	Pre-con.	30.40	-3.067	1.724	-2.248	14	0.041	0.2652	Large
	Post-con.	33.47		5.514					
Data-focused skills	Pre-exp.	42.20	-40.067	2.210	-58.973	14	0.000	0.9960	Large
	Post-exp.	82.27		1.486					
	Pre-con.	42.53	-0.333	2.924	-1.581	14	0.136	0.1515	Large
	Post-con.	42.87		3.067					
Process-focused skills	Pre-exp.	45.53	-40.600	3.399	-38.660	14	0.000	0.9907	Large
	Post-exp.	86.13		2.066					
	Pre-con.	45.80	-0.267	2.883	-1.740	14	0.104	0.1778	Large
	Post-con.	46.07		2.764					
Total of dimensions	Pre-exp.	117.87	-104.267	4.704	-66.201	14	0.000	0.9968	Large
	Post-exp.	222.13		3.482					
	Pre-con.	118.73	-3.667	5.548	-2.765	14	0.015	0.3532	Large
	Post-con.	122.40		6.978					

Note. *. significant at the 0.05 level (2-tailed).

Hypothesis 2

The second hypothesis of the study predicted that there was a statistically significant difference (favoring the experimental group) between mean scores obtained by the students of the experimental and the control groups on the post- performance of the test of research academic knowledge. Statistical analysis of the obtained data showed that the experimental group achieved a higher degree of improvement than the control group on the test of research academic knowledge as t-value (11.703) is significant at (0.05) level and beyond. Thus, the second hypothesis is confirmed. Table (18) below shows the data obtained to test this hypothesis.

Table (18) : Means, Standard deviation, mean difference, t value, η2 and effect size on the post-performance of both the experimental and control group of the test of research academic knowledge.

The test of research academic research knowledge	Group	No.	Mean	Mean diff.	Std. Deviation	t-value	Df	Sig. (2-tailed)	η2	Effect size
	Post-exp.	15	50.00	12.133	2.236	11.703	28	0.000	0.8303	Large
	Post-con.	15	37.87		3.335					

Note. *. significant at the 0.05 level (2-tailed).

To ensure the effectiveness of the action research-based program in improving students' academic knowledge of research, eta-squared formula statistics (η2) was used. Cohen et al. (2007:522) point out that when eta-squared value = 0.01, the effect is considered weak, when it = 0.06, the effect is considered medium and when it = 0.14 the effect is large. As shown in table (18) eta-squared value(η2) equals (0.8303) which is considered large. Thus, the action-research based program is considered with high effect in improving EFL pre-master students' academic knowledge of research.

Additionally, the comparison of the scores obtained by the students of both the experimental and control groups in the pre-post performance on the test of academic research knowledge revealed that the experimental group outperformed the control group as t-value (15.637) is significant at (0.05) level and beyond. Eta-squared value (η2) equals (0.9458) which is considered large.

The results showed that the control group achieved some improvement in the post-performance on the test of research academic knowledge due to their involvement in the seminar course. However, the improvement of the experimental group was larger as eta-squared value (η2) for the experimental group equals (0.9458) which is considered high and greater than the eta-squared value(η2) for the control group which equals (0.8141). Thus , the action research-based program is considered more effective than the regular instruction in improving learners' academic knowledge of research. This is shown in table (19)

Table (19): Means, Standard Deviation, t value, η2 and effect size between mean scores of the experimental and the control group on the Pre-Post performance on the test of research academic knowledge. N=15

Aspects of comparison	Group	Mean	Mean diff.	Stand. Dev.	t-value	Df	Sig. (2-tailed)	η2	Effect size
Total	Pre-exp.	29.53	-20.467	4.068	-15.637	14	0.000	0.9458	Large
	Post-exp.	50.00		2.236					
	Pre-con.	29.80	-8.067	3.610	-7.829	14	0.000	0.8141	Large
	Post-con.	37.87		3.335					

Note. *. significant at the 0.05 level (2-tailed).

Hypothesis 3

The third hypothesis of the study predicted that there was a statistically significant difference (favoring the experimental group) between mean values obtained by the students of the experimental and the control groups on the post- performance of the scale of self-reflective inquiry. Statistical analysis of the obtained data showed that the experimental group achieved a higher degree of improvement than the control group on the scale of self-reflective inquiry as t- value (60.540) is significant at (0.05) level and beyond. Thus, the third hypothesis is confirmed. Table (20) below shows the data obtained to test this hypothesis.

Table (20) **:** Means, Standard Deviation, t value, η2 and effect size on the post-performance of both the experimental and control group of the scale of self-reflective inquiry.

Aspects of comparison	Group	No.	Mean	Std. Deviation	t-value	df	Sig. (2-tailed)	η2	Effect size
Personal Perceptions and Beliefs	Post-exp.	15	25.40	1.404	30.538	27.384	0.000	0.9709	Large
	Post-con.	15	10.80	1.207					
Importance and Benefits	Post-exp.	15	22.73	1.223	31.044	26.520	0.000	0.9718	Large
	Post-con.	15	10.27	0.961					
Educational Practice	Post-exp.	15	38.27	1.163	35.477	21.891	0.000	0.9782	Large
	Post-con.	15	16.33	2.093					
Constraints	Post-exp.	15	11.67	0.617	15.150	22.023	0.000	0.8913	Large
	Post-con.	15	6.73	1.100					
Total of dimensions	Post-exp.	15	98.07	2.712	60.540	26.532	0.000	0.9924	Large
	Post-con.	15	44.13	2.134					

Note. *. significant at the 0.05 level (2-tailed).

To ensure the effectiveness of the action research- based program in improving students' abilities of self-reflective inquiry, eta-squared formula statistics (η2) was used. Cohen et al. (2007:522) point out that when eta-squared value = 0.01, the effect is considered weak, when it = 0.06, the effect is considered medium and when it = 0.14 the effect is large. As shown in table (20) eta-squared value(η2) equals (0.9924) which is considered large. Thus, the action research-based program is considered with high effect in improving EFL pre-master students' skills of self-reflective inquiry.

Additionally, the comparison of the values obtained by the students of both the experimental and control groups in the pre-post performance on the scale of self-reflective inquiry revealed that the experimental group outperformed the control group as t-value (54.501) is significant at (0.05) level and beyond. Eta-squared value (η2) equals (0.9953) which is considered large.

The results showed that the control group did not achieve any noticeable improvement in the post-performance of the scale of self-reflective inquiry as their post-performance on the total dimensions of the scale did not reveal apparent improvement as eta-squared value(η2) for the control group equals (0.1389) which is considered moderate. This may be justified because of the lack of engagement in reflection and self-reflective activities. Thus, the action research- based program is considered more effective and influential than the regular instruction in improving learners' abilities of self-reflective inquiry. This is shown in table (21).

Table (21) : Means, Standard Deviation, t value, η2 and effect size between mean scores of the experimental and the control group on the Pre-Post performance on the scale of self- reflective inquiry. N=15

Aspects of comparison	Group	Mean	Mean diff.	Stand. Dev.	t-value	df	Sig. (2-tailed)	η2	Effect size
Personal Perceptions and Beliefs	Pre-exp.	10.60	-	1.993	-24.865	14	0.000	0.9779	Large
	Post-exp.	25.40	14.800	1.404					
	Pre-con.	10.73	-0.067	1.100	-0.564	14	0.582	0.0222	Small
	Post-con.	10.80		1.207					
Importance and Benefits	Pre-exp.	10.27	-	1.387	-26.149	14	0.000	0.9799	Large
	Post-exp.	22.73	12.467	1.223					
	Pre-con.	10.07	-0.200	1.100	-0.823	14	0.424	0.0461	Small
	Post-con.	10.27		0.961					
Educational Practice	Pre-exp.	15.93	-	1.710	-40.040	14	0.000	0.9913	Large
	Post-exp.	38.27	22.333	1.163					
	Pre-con.	16.07	-0.267	2.017	-1.000	14	0.334	0.0667	Moderate
	Post-con.	16.33		2.093					
Constraints	Pre-exp.	6.80	-4.867	0.676	-20.589	14	0.000	0.9680	Large
	Post-exp.	11.67		0.617					
	Pre-con.	6.60	-0.133	0.828	-0.521	14	0.610	0.0190	Small
	Post-con.	6.73		1.100					
Total of dimensions	Pre-exp.	43.60	-	3.112	-54.501	14	0.000	0.9953	Large
	Post-exp.	98.07	54.467	2.712					
	Pre-con.	43.47	-0.667	1.959	-1.503	14	0.155	0.1389	Moderate
	Post-con.	44.13		2.134					

Note. *. significant at the 0.05 level (2-tailed).

Discussion

The inherent features of the study on the basis of the students' reflections

- Immediately from the beginning stages of the experiment and after introducing the intended learning outcomes of the program most students showed their eagerness towards the idea of being involved in real research tasks that would further and deepen their knowledge for future research work.
- A Face Book account was immediately set up form the starting point of the intervention to enable learners to share ideas, materials, questions and answers bridging all gaps of misunderstanding and solving all problems towards the achievement of the expected personal learning outcomes**.**
- The idea of using blogposts as a means of interaction and collaboration during the different stages of the intervention was not welcomed at the beginning due to the fear from of lack of technological skills. However, when the researcher established the group blog, showed live examples of how to post or comment, then asked for the first task to be done and shared via this blog most of them became more relaxed and gradually they started to post the required materials.
- The concept of AR was totally new for all of the students. To keep them motivated, AR was immediately related to the enhancement of the information literacy skills for better future academic and professional purposes especially for those who intend to pursue their master degrees or even travel abroad.
- Being involved in teaching in some or way or another, all of the students showed great interest toward applying the cycle of AR in tackling real teaching problems for immediate practical solutions. Moreover, they were greatly enthusiastic towards designing and applying different research tools with enhanced abilities

for interpreting qualitative and quantitative data collected to develop better informed insights.

- The students reported their management of the difficulties they faced during their engagement in AR though the theoretical sessions and the real samples of AR case studies.
- Additionally, the ongoing engagement of reflection-in-action, on-action and for action kept them always alert towards their actions, even with their minor details, made their implicit ideas clear, came up with innovative ideas to be assessed immediately for their real impact.
- Through the intervention, the students used the blog to post the assigned tasks one after another (the steps of their action researches), comment on each others' work and ideas, receive and respond to peer and instructor's feedback comments. They valued the experience of using blogs for collaboration and interaction, promising to keep on the habit of issuing posts through blogs (personal or general) in the future.

The interpretation of the results with reference to the related literature

- creating an environment wherein research skills are needed for task completion through AR cycle is better than those discrete curricula employed to teach research skills to students which proved to be dry and boring, leading to low and unenthusiastic student participation (O'Hanlon (1988) cited in Lovat at al.,1995; Özkan, 2011 and Ahmed, 2012).
- Teachers' involvement in research can improve their practice, and in turn better ensure students' success (Bahloul, 2015; Aga, 2015 and Burns, 2018)
- Engaging in teaching has been found to promote research skill development while engaging in research may improve teaching skills. Thus, a focus one only one of these activities may restrict the development of graduate students' skills in each of these areas (Gilmore and Feldon, 2010; Turkyilmaz, 2011; Kennedy-Clark et al., 2018)
- AR is an effective paradigm for scaffolding information literacy skills (Bruce, 2008; Feekery, 2013; Feekery, 2016 and Kapenieks, 2016).
- AR should be considered more seriously as a framework for promoting reflective teaching and self-reflective inquiry (Erba, 2013, Burns, 2010; Mehrani, 2017; Barr, 2018 and Buss, 2018).

The relation of the results of the present study to the results of other conducted studies

Results of studies that coincide with those obtained by the present study

- The findings of the present study corresponded with Özkan (2011), Ahmed (2012), Aga (2015), Bahloul (2015), and Burns (2018) Who affirmed the impact of AR in developing teachers' academic and professional performance leading to better students' learning.
- Additionally, the use of AR has proved to be effective in promoting information literacy skills and reflective inquiry (Burns, 2010; Feekery, 2013 and Feekery et al. 2016).

Results of studies that show the limitations of the use of AR

Since AR is considered as a study which involves selection of a sample, statistical data analysis, and academic output, thus some teachers considered AR as one of the duties of professional researchers not teachers (Özkan, 2011; Hopkins, 2002 and Dehghan and Sahragard,

2015). Likewise, information literacy differs from language ability and underscores the need for explicit instruction in this area (Right, 2018).

Implications

The present study adds to the literature on using action research for developing the skills of information literacy and self-reflective inquiry for learners in the tertiary level. More specifically the following implications can be elicited

1- AR is an effective paradigm for promoting teachers' personal and professional growth.
2- AR facilitates the advance of the teaching profession in terms of educational accountability, accreditation and sustainability.
3- AR encourages teachers to develop their sense of being initiative and having their own voices inside the classrooms.
4- AR enables teachers to be more creative, open-minded, positive and holistic, compared to those who use old traditional ways of teaching, and thus, raise their self-efficacy beliefs.
5- AR nurtures individual differences and learners' different learning styles.
6- AR enables practitioners to spot immediate problems at their immediate contexts for achieving practical and easy-to-apply solutions.
7- Inquiry and research skills must be better matched to career demands and work requirements.
8- Faculty members should explore ways to adapt curriculum and assessments to support IL development within different content courses
9- Faculty members should address the development of both the students' performance as well as academic skills for better independent life-long learning skills.
10- All faculty should create a series of assessment tasks in each course to help students further develop IL within the research and writing process.
11- The importance of developing practice-related inquiry skills appropriate to the specific workplace context; rather than the technical skills, which could not be used routinely in educational practice settings.
12- Reflective practice is thoroughly promoted through high quality teacher education programs.
13- The importance of equipping teachers and principals with new skills and methods that sharpen their analytical power and heighten their self-awareness.

Recommendations

1- Conducting practical and empowering action research skills workshops that are interactive, holistic, cooperative, learner-centered, and experiential.
2- Forming a permanent action research study group in the institution and encourage teachers to work in a more collaborative manner.
3- Further enhancement of the research training to produce very knowledgeable and skillful researchers in the students' field of specialization.
4- School administrators and teacher training units should provide opportunities to promote the implementation of action research in schools for the sake of better outcomes in teaching practices and student learning.
5- Course designers, material producers (text book writers, training manual developers etc.) and all other professionals in addition to the researchers in the field of reflective practices should be directly or indirectly involved in the field of ELT.
6- Teachers should be provided some model action research reports prepared by some skilled teachers for the guidance and inspiration.

7- Redesigning EFL courses in a way that they enable instructors to do action research, among others, by balancing methods and content.
8- Motivating staff members to do action research to make and disseminate their research findings through giving training workshops, seminars, incentives and /or rewards for action research work in addition to creating enabling environment for self-reflection.
9- The needed professional development for the faculty members to facilitate IL development within the curriculum and assessment procedures.
10- Enhancing and strengthening collaborative and collegial work cultures and spirits among staffs.

Suggestions for further research

1- Using AR for developing information literacy skills with undergraduate students.
2- Using AR for developing peer reviewed research articles.
3- A comparative study may be carried out by forming an AR working group in a state and a private university in Menia/ Egypt.
4- Investigating and generating a suitable and workable model or strategy in conducting a collaborative AR.
5- Educational Action Research in an e-learning environment.
6- This study may be replicated with a larger and more diverse sample of EFL instructors from different universities in Egypt.

Conclusion

Learning to be an effective action researcher is more than a question of the technical learning of tools and methods, and of applying these in the study of students' problems. Learning of action research as a way of working for change, embedded in practice, helps participants develop self-awareness about their own learning, the different forms it can take, and how it is connected to processes of both personal and social change. Action research combines two modes of activity- action and research. The action takes place within the ongoing educational process within a specific context (e.g. classrooms). The research takes place through the systematic observation and the analysis of the changes resulted to identify the underlying rationale for further actions and changes on the basis of the findings. Action research serves a dual objective, namely serving as a vehicle to devise solutions for existing teaching issues and promoting teacher development. In addition, it provides teachers with the practical skills and specialized knowledge essential to achieve positive change within classrooms. Through action research process, teachers can maintain reflective inquiry on what was going on their classrooms before and after and for future change. The process leads to improving information literacy skills which enhance the teacher development and can also lead to better future learners' outcomes as well as institutional improvement.

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