A Course Based on Connectivism to Enhance EFL Pre-Master Candidates' Research Competences and their Academic Self-Confidence

By

Amira Elamir Khater

Associate professor of TEFL

Curriculum and Instruction Department

Faculty of Women for Science, Arts and Education

Ain Shams University

A Course Based on Connectivism to Enhance EFL Pre-Master Candidates' Research Competences and their Academic Self-Confidence

ABSTRACT

The present research aimed at developing a course based on connectivism to enhance EFL pre-master candidates' research competence and measure its effect on their academic self-confidence. The research followed the quasi-experimental one group design. It followed the mixed approach method where it was divided into quantitative part where statistical analysis, using non-parametric statistics, of some questions of the pre-post research competence test and the other division was a quantitative part where the rest of the questions were analyzed qualitatively. Their academic self-confidence was measured by the implementation of a questionnaire by the end of the course. Participants were 12 EFL pre-master candidates at The Faculty of Education, Ain Shams University who were tested before the implementation of the course and re-tested after the intervention. Results showed that candidates' research competences were enhanced in the overall scores as well as in each sub-competence, namely; stating research title & differentiating variables, differentiating introduction vs. context of problem, piloting to support problem, identifying problem, stating questions & hypotheses, collecting data, identifying design, design instruments, differentiating qualitative vs. quantitative, APA referencing. Also, the qualitative analysis of the answers of 4 sample candidates on three questions proved their improvement. Results also showed that their academic self-confidence was affected positively.

مقرر قائم علي النظرية الترابطية لتعزيز الكفاءات البحثية و الثقة بالنفس أكاديميا لدي طلاب اللغة الإنجليزية كلغة أجنبية بالسنة التمهيدية للماجستير

المستخلص

اســـتهدف البحث الحالي إلى أعداد مقرر قائم على الترابطية لتعزيز الكفاءات البحثية، والثقة بالنفس اكاديميا لطلاب اللغة الإنجليزية كلغة أجنبية في السـنه التمهيدية للماجسـتير. اتبع البحث تصميم المجموعة الواحدة شبه التجريبية. كما اتبع المنهج المختلط حيث تم تقسيمها إلى جزء كمي حيث كان التحليل الإحصـــائي ، باســتخدام الإحصـــائيات غير المعيارية ، لبعض أســئلة اختبار الكفاءة البحثية القبلي-البعدي ، وكان القسـم الآخر جزءًا كيفيا حيث تم تحليل بقية الأسـئلة نوعياً . كذلك تم قياس ثقتهم الأكاديمية بأنفسـهم من خلال تطبيق اسـتبيان بنهاية المقرر. كان المشـاركون 12 طالبا و طالبه من تخصـص اللغة الإنجليزية كلغة أجنبية في السـنه التمهيدية للماجسـتير في كلية التربية ، جامعة عين شـــمس ، تم اختبارهم قبل تطبيق المقرر وأعيد اختبارهم مرة اخري بعد التطبيق. أظهرت النتائج أن الكفاءات البحثية للمرشحين قد تم تعزيزها في الدرجات الإجمالية وكذلك في كل كفاءة فرعيه ، وهي كما يلي: تحديد عنوان البحث والتمييز بين المتغيرات ، والتفريق بين المقدمة مقابل سـياق المشـكلة ، والتجريب الاسـتطلاعي لدعم المشـكلة ، وتحديد المشكلة ، وتوضيح الأسئلة والفرضيات ، جمع البيانات ، تحديد التصميم ، و تصميم الادوات ، والتمييز النوعي مقابل الكمي ، و كتابة المراجع بنظام APA. كما أثبت التحليل النوعي لإجابات عينة من 4 طلاب على ثلاثة أسئلة تحسنها بشكل ملحوظ . كما اظهرت نتائج الاستبيان ان المقرر القائم علي الترابطية كان له تأثير ايجابي علي ثقتهم بأنفسهم أكاديميا.

A Course Based on Connectivism to Enhance EFL Pre-Master Candidates' Research Competences and their Academic Self-Confidence

Introduction

One of the important indications of growth and wealth in the information age, when knowledge is advancing and countries compete for advancement, is the index for ranking countries in education and scientific research. Universities, in this context, play an important role because they not only teach, but also encourage new researchers to pursue scientific study and keep up with current trends in their professions. As a result, if countries are measured by their scientific advancement, education development is the backbone for catching up with the great advanced countries. Thus, studies and research in the field of education, the development of curriculum and teaching methods, teacher preparation, and so on, all contribute to the advancement of nations.

Despite the obvious importance of scientific study in the field of education, some researchers struggle to plan their research and face difficulties conducting it. Meerah, Osman, Zakaria, et al., (2012) found that master's and doctoral researchers take a long time to complete their theses and dissertations due to a lack of preparation in research skills. According to Azim and Daud (2019), post-graduate students' ability to acquire research skills is declining, and their inability to do research is increasing.

Many studies identified the problem as post-graduate students, both MA and Ph.D., are unable to identify and state the problem of their research effectively. They are unfamiliar with research methodologies and designs,

as well as how to select the best one for their research (Meeran,S; Osman,K; Zakria,E; Krish,P.2012;Rahman et al., 2014). Furthermore, as indicated by Hendriarto, Mursidi, Kalbuana, Aini, and Aslan (2021), finding data, comprehending and analysing it are among the competences that post-graduate students do not fully grasp. Regular programs for postgraduate students that are used to relying on giving them books and articles to read, and explaining theoretically how to conduct research are no longer an effective way to help them conduct research in an era when knowledge has complicatedly doubled and is doubling every 18 months, according to the American Society of Training and Documentation (ASTD). As a result, professors and instructors are required to devise new techniques and methods for instruction.

Consequently, learning theories began to enter the digital era where connectivism occupied an essential role in developing the learning process using network of connections. Connectivism entails a flow of information between humans and non-humans, as well as a network of connections between entities known as 'nodes'. Individuals, groups, ideas, resources, and communities are examples of such nodes (Siemens, 2004). Among the connectivist ideas is the ability of the individual to examine information and take what is relevant to him/her and discard what is not. Connectivism encourages students to look for information on their own, judge its credibility, share it with others, and use as many diverse sources as they can and choose, among the varieties of videos, WhatsApp, Facebook, blogs, wikis, and so on (Shrivastava. 2018) .

From the foregoing, it is possible that such new educational methods will affect the motivation of learners and increase their academic self-confidence in terms of their ability to search for information, evaluate it, discuss it and choose what suits them. Thus, learners discover in themselves latent abilities that provoke their critical thinking and encourage them to engage in individual and collaborative work, realize that they have their own ideas and opinions, as well as freedom in their choices. Thus, learners' academic self-confidence in their abilities to achieve academic success may rise up to unexpected levels .

Based on the previous discussion, the researcher concluded that connectivism is in accordance with the competences required for pre-master EFL candidates at Faculty of Education, Ain Shams University who are lacking in research competencies, and who are in urgent need for new trends that contribute effectively in enhancing their competences and affect positively their academic self-confidence.

Undoubtedly, Egyptian research students are not dissimilar to their peers in other settings. They study research principles in educational sciences at the professional or special diploma level under the term 'Research Seminar,' but they lack the required research competences at the application level.

To document their weaknesses in research competences, the researcher of the present study relied on four resources: the researcher's

personal experience, the previous Egyptian studies, conducting a pilot study, and conducting a simple questionnaire.

The researcher works as an associate professor of TEFL at The Faculty of Girls for Arts, Science, and Education where she oversaw a number of MA and Ph.D. students who had several problems when preparing their proposals and executing their theses and dissertations. This caused them to fall behind schedule, whether presenting the proposal in the seminar or finishing their thesis or dissertations. In addition, the researcher taught the 'quantitative and qualitative research' course to EFL pre-Master candidates at The Faculty of Education Ain Shams University, as well as supervising a group of master's candidates. During the first semester of the academic year 2021-2022, the researcher realised that Faculty of Education EFL pre-master candidates were unable to identify and state the problem, confused between the dependent and the independent variables, and even confused between the research method and research design.

To the best of her knowledge, the researcher found just one study done by Saleh (2020) that demonstrated that general diploma students at Faculty of Education Fayoum University lacked in the essential research skills. However, several studies have been conducted abroad to evaluate postgraduate students' research skills, to explore postgraduate applicants' degree of proficiency in using research competence, or to suggest proposed techniques or programs to enhance postgraduates' research abilities. These research were done away from the Egyptian context, and their participants were not explicitly EFL candidates, as of Meerah, Osman, Zakaria, Ikhsan, Krish, Lian & Mahmod (2011), Ismaila & Meerah (2012), Gomez; Panaligan (2013), Rahman, Yasin, Salamuddin & Surat (2014),

Gyuris,E.(2018), Ismuratova; Slambekova, Kazhimova, Alimbekova (2018), Karimova (2018), Jamieson & Saunders (2020).

Pilot study

Six pre-master EFL candidates were asked to answer the following questions

- Have you studied 'Research Seminar'? if yes, identify the topic you studied during this course.
- How can you identify the research problem i.e., find a topic for research?
- Can you differentiate between methodology and design?
- What is the difference between a dependent and an independent variable?
- What are the tools or instruments that the researcher can use?

Analyzing the results of the pilot study, it was found that

Concerning the first question:

- Two candidates have never studied 'Research Seminar' because they studied their diplomas in universities other than the Faculty of Education, Ain Shams University.
- One of the group members studied 'Research curricula' in Arabic in another University and said that he cannot interrelate the terms between Arabic and English and the concepts overlap.
- The other three candidates haphazardly named some topics completing each other's information in the following order:
- Choosing a problem
- Writing questions

- Defining terms
- Reviewing literature

The second question:

- Two candidates could not answer because they have not studied how to conduct research before.
- Two candidates mentioned that they can identify the problem relying on the suggestions for further research included in theses.
- One of them said she would ask her supervisor to suggest a topic for her.
- The last one said she would consult other studies and ask her supervisors.

The answers of the six candidates show that they do not have a full picture of how to identify a real problem.

The third question:

Unfortunately, none of the 6 candidates could answer the question.

The fourth question:

- As expected, two of the six could not answer the question
- Two of them managed to differentiate between both variables.
- The other two candidates gave the dependent variable the definition of the independent and vice versa

The last question:

All six candidates mention the tests, interviews, and questionnaires as being the instruments that a researcher can use. These answers reflect that they lack the knowledge of the other instruments researchers can use.

Finally, the Questionnaire

Table (1)

Items	Agree	Disagree	Not sure
1-I can write a well-formulated title for my research	50%	33.33%	16.66%
2-I can choose my participants and describe them well	33.33%	33.33%	33.33%
3-I can decide when to choose the two-group design or one-group design.	--------	100%	--------
4-I do not know how to write a behavioral definition of terms.	66.66%	16.66%	16.66%
5-I can state the significance of my research.	33.33%	66.66%	--------
6-I know when to write a directed hypothesis and when to write the null one.	---------	100%	---------

Pre-master responses on the pilot questionnaire

Analyzing the results of the questionnaire, it was found that most of the candidates cannot write well-formulated titles, do not know how to choose their participants and how to describe them, do not know how to present the significance of the research and they do not know how to write accurately the behavioural definition.

Moreover, the results show that all of them do not know the differences between the types of hypotheses and all of them do not know when to use the one-group design or the two-group design.

Research problem

The problem of this research could be identified in the EFL pre-master candidates at The Faculty of Education, Ain Shams University weakness in research competence required to conduct a research proposal. Therefore, the current research attempts to develop a course based on connectivism to enhance EFL pre-master candidates research competence and determine its effect on their academic self-confidence.

Research Questions

In an attempt to solve this problem, the present research sought to provide answers for the following main question

What is the effect of a course based on connectivism on enhancing EFL pre-master candidates' research competence and their self-confidence at the Faculty of Education, Ain Shams University?

From this main question, the following sub-questions emerged:

1. What are the research competences required for EFL pre-master candidates?
2. What are the principles, features, tasks, and activities based on connectivism needed to design a course to develop research competences for pre-master candidates?
3. What is the effectiveness of the course based on connectivism on developing research competences required for EFL pre-master candidates?
4. What is the effect of the course on pre-MA candidates' academic self-confidence?

Research hypotheses

1. There is a statistically significant difference between the mean ranks of the experimental group on the pre-post administration of the research competencies overall-test, in favour of the post-test at 0.01 level of confidence.

2. There are statistically significant differences between the mean ranks of the experimental group on the pre-post administration of the research sub-competencies test, in favour of the post-test at 0.01 level of confidence.

3. It is hypothesised that the course based on connectivism to enhance EFL pre-masters' research competence affects positively their self-confidence.

Research Objectives

In light of the above-stated problem, the main purpose of the present study was to examine the effect of a course based on connectivism on enhancing EFL pre-master candidates' research competences in preparing a research proposal.

Significance of the research

This research is expected to have significant implications for both EFL pre-master students, and professors who are in charge of preparing MA candidates to conduct their researches. For EFL pre-master candidates, students will learn research methodologies and how to use the vast amount of information available on the internet, as well as how to discriminate critically between what is required and what is not. On the other hand, the research may call academic attention to a new theory that is beneficial in teaching and learning and is based on the wealth of knowledge available on the Internet. consequently, they will train their students to rely on themselves to find information and verify its validity. Hence, these individuals will be regarded as competent and qualified researchers.

Delimitations of the study

This study is limited to**:**

- 12 EFL pre-master candidates at Faculty of Education, Ain Shams University.
- The first semester of the academic year 2021-2022
- The research competences needed for conducting research proposal, namely; stating research title & differentiating variables, differentiating introduction vs. context of problem, piloting to

support problem, identifying problem, stating questions & hypotheses, collecting data, identifying design, design instruments, differentiating qualitative vs. quantitative research, APA referencing.

Definition of Terms:

Research competences are defined operationally as

EFL pre-master candidates' ability to master the competences of conducting a research proposal efficiently including their ability to state research title and differentiate its variables, write a suitable introduction and connect it with the context of the problem, conduct a pilot study to support the problem, identify the problem and accurately state it, state the questions and the hypotheses accurately, show skilfulness in collecting appropriate data, choose the appropriate design, choose the instruments that are appropriate to the method of research, differentiate between the qualitative and quantitative methods that suite the research and document the references correctly according to the APA style.

Academic self-confidence is defined as

EFL pre-master candidates' belief in their own qualifications to achieve academic success in the area of conducting a well-planned research proposal from three perspectives: personality traits, conducting research proposal and research method. This definition was then conceptualised and restricted to sub-items addressed the scale adapted by the researcher involving 23 items dealing with the course, activities, research title selection, personality traits that could be affected by the course etc.

Review of Literature

Connectivism

George Siemens used the word connectivism to characterise learning as a network in which knowledge is formed at a level beyond the individual human participants. Although formal organisations should "plug-in" to the world of massive flows of information and infer meaning from it, knowledge in networks is not under their control or created by them (Bates, 2015, p.56). It is considered a learning theory for the digitalized world.

Its appearance gave birth to the theories of 'Behaviourism, cognitivism and constructivism' which believe that learning is a social process that happens inside the brain; meaning that learning happens from 'inside'. These theories concentrate on individual learning rather than learning as a social activity. Even social-constructivism deals with learning as a brain-based construction. Besides, it deals with social group interaction as a means to enhance the individual's learning which means "that the whole is greater than the sum of the parts, and knowledge becomes a cultural artifact, associated with groups within a specific context" (Bell:2011,101). Thus, these theories may vanish unless it is incorporated with a theory of learning based on technology and the virtual world that considers learning as a process happening from outside (Perrin&Perin. 2005 and Matter.2018).

Knowledge acquisition is no more directly identified in coursebooks or the classroom. Knowledge becomes widely changeable because of the ongoing discoveries, scientific researches, and experimentation that led to the infinite amount of information. Therefore, learning should be

continuous, non-stoppable, and always in constant updating. Learning in a few decades became informal rather than being formal. It happens now outside the classroom thanks to technology and the spread of the internet.

Students can experience different viewpoints, different voices and interact with other people from different cultures and dogmas. They can experience learning from different perspectives. Now, learners are active consumers rather than being passive ones. In this concern, (Downes, 2007b) indicated that it is impossible for students not to learn something. while interacting through the virtual world of the internet, they rediscover their selves, their society, and build their own concepts, revisit the information they gathered and reformulate it according to the renewable updates. Seimens (2005) argues that a network is a chain of connections between entities. Computer networks and social networks function on the principle that systems, people, groups, entities, and nodes may connect creating one whole. He used the term "nodes" to refer to a computer, person, a group of people, communities, or ideas. As is well known, a network contains many connections and links between entities, which are referred to as nodes, and each node contains information in the form of knowledge. True knowledge happens by understanding the shared information through nodes when one is connected to a network. Thus, knowledge and understanding are the results of deep connections. In connectivism learning becomes an ‘actionable knowledge’ (Herlo,2017).

Connectivism adopts three important concepts; experience, chaos, and self-organization. As for the experience, it is believed that one cannot only rely on his experience, forming connections with others helps one to

learn from others' experiences as one's experience is naturally limited. Thus, the other's experiences can make use of others' experiences and the cycle endlessly and ceaselessly continues. the more one makes a connection, the more he/she stores larger experiences which means more knowledge (Stephenson, 2007).

Chaos is defined as breaking down predictability; it is a kind of complicated arrangement that defies the order. In the constructivist view, learners make an effort and practice activities to make meaning. For chaos, meaning-making is nonsense because meaning already exists and the learner's role is to make an effort to follow the pattern to uncover what is hidden. Thus, what one learns and how one reacts depends on his/her learning. As a consequence, inductively decision-making is affected by one's learning/ knowledge. If the conditions under which one takes decisions change, the decision-making becomes a faulty one. The ability to recognize the change and adapt to it is the key concept of connectivism (Siemens, 2005).

Roacha (1998) defined self-organization as one's ability to change behaviours, patterns, and structures spontaneously from random conditions to well-fitted ones. In the knowledge economy, the ability to form connections between sources of information and reorganize them to create useful information patterns is required for a successful learning.

Hence, connectivism is the integration of the principles of experience, chaos, and self-organization concepts. New information is acquired continuously. The ability to differentiate between what information is important and what is not is vital. The ability to make

decisions and revise them or refute them depending on new information is unnegotiably critical. It can be defined as the integration of theories of chaos, network, and complexity, and self-organization. Learning is a process that occurs within variations of environments that are not entirely governed by the individual (Siemens, 2005). Learning is based on networks of information, contacts, and resources that are meant to solve problems; consequently, the learning process requires individuals who can gather, classify, and prioritize information (Wright, 2010).

Connectivism and critical thinking

Kerr (2007) criticized connectivism for not building higher-order thinking. He wondered how could connectivism transfer understanding, make understanding and build understanding as he considers deep thinking and creating understanding as an internal process. In this debate, Siemens indicated that when the learner creates and recreates his learning network, he/she -no doubt- evaluate the variety of knowledge presented, and in the process of evaluation he takes decisions of what is useful and what is not. The process of thinking, evaluating, and making decisions, that may be refuted later to take other decisions based on more learning and more understanding, is said to be thinking critically.

Siemens (2004 , 2005) identifies the following principles of connectivism

1. Learning and knowledge rest in the diversity of opinions.

2. Learning is a process of connecting specialized nodes or information sources.

3. Learning may reside in non-human appliances.

4. The capacity to know more is more critical than what is currently known.

5. Nurturing and maintaining connections is needed to facilitate continual learning.

6. The ability to see connections between fields, ideas, and concepts is a core skill.

7. Currency (accurate, up-to-date knowledge) is the intent of all connectivist learning activities.

8. Decision-making is itself a learning process. Choosing what to learn and the meaning of incoming information is seen through the lens of a shifting reality. Although there is a right answer now, it may be wrong tomorrow because of alterations in the information climate affecting the decision.

9. Learning happens in many different ways, e.g., courses, email, communities,

conversations, web searches, email lists, reading blogs, etc. Courses are not the primary conduit for learning.

10. Learning is a knowledge creation process, not only knowledge consumption. Learning tools and design methodologies should seek to capitalize on this trait of learning.

Connectivism tends to change the professor's role in learning, focusing on individual learning, networking, and information flow between the nodes of the network, resulting in new forms of knowledge. Thus, the

professor's role is to give students the environment and the basic learning context for being together (in a human network), and after that the professor plays the role of advisor of and facilitator for the students to build the learning environments that allow them to connect to the learning networks. This way of learning will lead to a lifelong learning where learners are exposed to the huge flowing of information and they will automatically practice self-reflection. (Herlo,2017).

Pedagogical implications of connectivism

Modern learning should be a continual process that involves connecting with other external sources of information that can help one to do various tasks. Learning is then understood as a process that involves searching for information, selecting relevant content, storing information and opinions, connecting with network users to exchange ideas, reasoning, questioning, individual information processing, editing texts, evaluating and using generated information, problem-solving, and making decisions, among other things. When comparing learning utilizing modern information and communication technology to traditional learning, it is feasible to distinguish many key differences. Jaszczyszyn and Szada-Borzyszkowska(2014).

Table (2) Traditional vs. connective learning

Traditional Learning	Connective Learning
Memorizing facts, dates, details	Connecting to information sources
Understanding processes and phenomenon	Gathering knowledge in devices
Teaching concepts	Finding (searching) knowledge
Practicing skills	Creating and maintaining connections
Solving different subject problems, both theoretical and practical ones	Perceiving relationship between areas, ideas, and concepts
Gaining personal experience	Critical thinking
Solving model tests	Selecting the content of learning and making the decision independently.

Source: J.P. Sawiński, Konektywizm, czyli rewolucja w uczeniu się [Connectivism – revolution in learning] (w:) http://www.edunews.pl/badania-i-debaty/badania/1077-konektywizm-czyli-rewolucja-w-uczeniu-sie. cited in Jaszczyszyn and Szada-Borzyszkowska (2014).

The Connectivist web stems from a generation of students who learned, worked, entertained themselves, and expressed themselves through open collaborative platforms like YouTube, Flickr, GoogleTalk, eMule, Fotolog, and Del.ico (Downes,2005a). From this perspective, connectivism's social environment encourages the development of novel learning activities within a collaborative framework:

Collection- Data storage, resource organization, information filtering, and contract creation

Reflection: think critically, select and review knowledge, and create new learning paths.

Connection: establish working groups on the spur of the moment, integrate into existing learning communities, exchange learning objectives, beliefs, and attitudes, and link data.

Publishing: share learning experiences, modify information in a variety of forms, and transform collaboration tools into cognitive tools**.**

Based on the above, the learning process is seen by Del Moral, Cernea, &Villalustre (2010 &2013) as follows

- Learning is centred on making connections between disparate sets of specialized data. Learners' connections are more essential than their current level of knowledge.
- Learning is a process that takes place in uncertain situations with moving fundamental elements, where chaos resulting from the production of spontaneous and uncontrollable connections can hold the meaning.
- Learning takes place as a result of the construction and integration of learning networks, as well as the continuous growth of knowledge. New and novel linkages offer up new worlds and allow for the creation of new knowledge.
- Learning takes place as a result of Creating meaning through conceptual connections.
- Learning takes place as a result of our regular interactions with social networks.
- Autonomy, diversity, openness, and interaction, as well as connectedness as a network property, all contribute to learning.

Instruction:

- The design process is based on chaos and complexity theory, and self-organization theory. Siemens (Siemens, 2005). Based on emergent and connective learning.
- There are a variety of goals, all of which are determined by individual pursuits of personal goals, but which are all interconnected through complex emergent self-organized networks and communities.
- Rather than being imposed by outside bodies, cooperation within networks, collaboration within groups, and personal learning arise as self-organizing phenomena.
- Peer evaluation that stems from negotiation, interaction, and conversation is more effective than formative traditional evaluation which becomes secondary for connectivism learning.

Learning environment

- The learning environment is available to new users and new learning resources, allowing the network structure to develop over time.
- Multiple learning itineraries are formed from the synergies of the learning community in learning environments.
- Environments for learning using collaborative tools, community members' experiences are used to improve group work and knowledge generation.
- They also give tools for manipulating resources and ideas, as well as for representing information in a learning environment.

- Environment for learning as a network property, provide autonomy, diversity, openness, interactivity, and connectedness.
- Because the learning environment lacks scaffolding, students' assistance emerges from the network's dynamic, which delivers answers and eliminates errors.

The learner

- The learner is at the heart of the learning process.
- He has complete control over the learning process and can choose the learning strategies that best suit his learning style.
- In the modern knowledge economy, learners must have the ability to make connections between sources of information and so construct meaningful information patterns. Siemens (Siemens, 2005) synthesizing and recognizing relevant information patterns are required skills.

Connectivism is more than a theory that explains and outlines how to teach a specific body of knowledge to students. Its success isn't determined by summative assessments of pre-determined learning goals. Rather, it emphasizes a broader concept of learning and the development of a broad-based capacity to learn and adapt in dynamic and chaotic situations (Bowes & Swanwick, 2018). As a result, research has mostly concentrated on connectivist techniques and practices. Personalization, agency, authentic audience, connectivist, and creativity are some of the terms used by some writers (Tucker, Wycoff, & Green, 2017). Others (Hazeldine, Yardley, & Shearman, 2018) examine the student's role in learning. For them, learners'

understanding and confidence grow as a result of a combination of flexibility in learning and supported learner autonomy.

Significantly, connectivism research led to the creation of the first Massive Open Online Course (MOOC) such as courses presented by Coursera, or even those online programs such as Duolingo, British podcast, BBC Learning English, and 100 other programs and applications.

In today's environment, one's ability to learn, unlearn and relearn information is quickly becoming an indicator for success. Educators and students alike can benefit greatly from adopting a just-in-time learning environment. Today's students, in both school and university classrooms, have grown up in an information-overload world where the internet and its sophisticated application and search engine tools become widely available, so, while research remains a core skill to be taught, still we need more required skills to cope up with such complicated and innovative world. consequently, a new set of fundamental literacy abilities has formed. For educators, this is a once-in-a-lifetime chance. For their pupils, instructors can now model and support networked learning environments. Collaboration can take place across time and location, both locally and globally.

Simultaneously, discussions about what it means to be smart and educated in the age of the Internet and intelligent online tools could improve today's educational universities. Perhaps knowing something isn't as crucial as understanding how to learn something new when you want to learn it and being able to use it all in a connected, continually changing information landscape (Utecht & Keller.2019).

Conducting researches

To do research, one goes on a trip of discovery fuelled by curiosity or necessity. Students should be encouraged to pose research questions of increasing complexity, specificity, depth, and breadth as they embark on a path to make the unknown known. All instructors must conceptualize and facilitate this process, especially those who teach in the university level.

Hendriarto., et.al., (2021) claim that every educational institution or university may provide graduates with the knowledge and abilities needed for scientific activities that need research. These institutes and universities must generate graduates who are capable of overcoming barriers and problems in the workplace in the future. So, it is vital to master and build research skills with the proper idea structure in growing these competencies from school, university-level to postgraduate university, or job world.

Research is defined as the formal, systematic application of the scientific method to the study of issues is referred to as research; educational research is referred to as the formal, methodical application of the scientific approach to the study of educational difficulties. The purpose of educational research, like the goal of all science, is to describe, explain, predict, or regulate events or educational phenomena (Gay, Mills and Airasian.2012).

It is a deliberate action aiming at establishing new facts and knowledge about a certain topic is referred to as research. The research process involves identifying a specific problem or area of interest,

converting that problem into a research problem, collecting data, interpreting the data, and publishing the study findings.

Research competences are seen as a critical component in predicting student performance, particularly at the master's and doctorate levels (Rahman et al., 2014), and developing research competence might be used to assess students' capacity to conduct research and generate new information. The competence of using research methods is associated with problem solving in research and the addition of fresh ideas from prior studies. Writing a well-organized research paper also include designing the study, determining the methods for data collection, and interpreting the findings (Ashwin et. al., 2015). Or, as identified by Badke (2012) it is the capacity to recognise a problem, decide what types of informational resources are required to respond to the problem, efficiently locate those resources, analyse the obtained information for quality and relevance, and successfully apply the information to handle the problem.

According to the literature in the field of educational research as summarised by Alfakih (2017), the preparation of a research proposal (RP) for Ph.D. and MA. candidates is important because it assists them in demonstrating that the research they intend to conduct is significant, necessary, and feasible, that they will be able to make an effective contribution to the field, and that the thesis can be completed within the normal time frame.

Preparing research proposal is an important element for the Ph.D and MA. thesis preparation process, which typically includes finding a research subject, preparing a proposal, doing research, and writing up the thesis

(Riazi, 2000; Wang & Yang, 2012). Furthermore, producing research proposal is challenging for a variety of reasons (Wang & Yang, 2012); as a result, Ph.D. and MA. candidates should pay particular attention to developing their RP, because it is required to:

- demonstrate that they are conducting meaningful research, learning about something useful in a specific setting.
- connect their suggested topic to the work of others while demonstrating their familiarity with main schools of thought pertinent to the issue.
- develop a certain theoretical perspective, and decide on a methodological approach.

A successful research proposal should address three major concerns: What will be researched into? Why is research required? How will the problem be investigated? (Pietersen, 2014) According to Kivunja (2016).

Table (3) The main components of a research proposal and their functions

component	Subcomponent	Function
1. Cover page		• Identifying topic, writer, institution and degree
2. Introduction	2.1 Background 2.2 Need for study/ rationale 2.3 Aim and objectives • 2.4 Research questions/ hypotheses 2.5 Significance/ expected outcomes	• Answering WHAT questions, including providing background information about the context of the study. • Answering WHY questions, including persuading the reader that the study is needed and will be useful/interesting. *Stating clearly and succinctly the aim and objectives of the study. • Formulating research questions/ hypotheses. • Answering SO WHAT questions, including on the significance of the study and expected outcomes
3-Review of literature -		Providing a brief review of significant literature and current research in the field and indicating on which issues/topics the full review will focus.

4. Methodology	4.1 Research design 4.2 Timetable/Plan 4.3Proposed thesis structure	• Answering HOW, WHEN, WHERE, and WHO questions, including outlining and describing the type of information and sources to be used, the main methods/instruments to be employed and when and where, data collection and analysis procedures, study subjects or participants, and any ethical or safety issues identified. • Depicting the tasks proposed and the stages/times for their completion. • Describing the sequence and focus of each proposed chapter.
5. References		• Listing all publications cited in the proposal, using a suitable academic referencing style.

Alfakih (2017). A Training Program to Enhance Postgraduate Students' Research Skills in Preparing a Research Proposal in the Field of Curriculum and Instruction Methods of Arabic Language . IOSR Journal of Research & Method in Education (IOSR-JRME) e-ISSN: 2320–7388, p-ISSN: 2320–737X Volume 7, Issue 3 Ver. IV (May - June 2017), PP 01-06 www.iosrjournals.org

This frame of research proposal represents the procedures followed in the present research in which Pre-master candidates were required to accomplish by the end of the course.

It is claimed that if the candidates managed to accomplish the research proposal by themselves following the procedures of connectivism as indicated in the course, this might develop their academic self-confidence.

Academic self-confidence

Vrugt, Lanereis, and Hoogstraten (1997) develop the notion of academic self-confidence in education, which refers to a person's self-confidence in the context of academic accomplishment, as opposed to general self-confidence. Academic self-confidence is quickly impacted by context factors, as opposed to general self-confidence, which is not easily influenced by situational factors. Nalbone and Zokina (2003). Also, Laird (2005) indicated that academic self-confidence refers to belief in one's own

academic and intellectual skills in general, as well as belief in specific areas of that ability.

Academic self-confidence relates to the usual concept of self-confidence, or a person's belief in his or her own qualities. This definition was then conceptualised into the academic realm by restricting the skills addressed in the scale items to those involved with coursework, activities, research title selection, and anything else relevant to the recognised research competences in general.

Astin (1993) discovered in his research that students generally increase their academic self-confidence through college participation and that measures of student involvement, particularly involvement with faculty, have a significant effect on students' academic self-confidence at the end of college, even after controlling for background characteristics and their starting level of academic self-confidence.

According to researches, higher levels of academic self-confidence, social action engagement, social agency, and the ability to think critically are related to higher academic achievement and academic self-confidence. Patricia Gurin and her colleagues' theory explains why we might anticipate diverse encounters to alter components of self (Gurin et al., 2002). Based on psychological theories and data, these experts argue that through engaging with multiplicity sources, students learn about viewpoints, experiences, and ways of life that differ from their own or those they have previously experienced. This interaction clearly promotes information acquisition, influences the process by which students shape their commitments to attitudes, roles, and relationships. It also promotes the process of identity building and consequently self-confidence because

having a say in their own learning and managing the sources, engaging in discussions affected their confidence in their ability to think critically and the ability to identify the relevant from irrelevant. Therefore, it is concluded that connectivism may play an important role in enhancing candidates' academic self-confidence.

Research Method

The present research adopts the mixed approach method where quantitative data will be analysed using the qusai-experimental one-group design, as well as quantitative analysis of 4 sample participants' answers on three questions of the pre-post research competence-test.

Participants

The research participants are a group of 12 EFL pre-master candidates who were enrolled in the course quantitative and qualitative research presented at the Department of Curriculum and Instruction, Faculty of Education, Ain Shams University. They were 10 females and 2 males. 9 females had previously studied research seminar at special diploma, while one female and one male has never studied any course dealing with conducting research, and only one female had studied research seminar in Arabic.

Instruments of the research

1)The quantitative instruments

The research made use of the following quantitative tools

a) Measurement tools

- A pre-post research competence test
- A self-confidence questionnaire applied at the end of the course

b) Application tool

- The course prepared in light of connectivism.

2)Concerning the qualitative analysis

The researcher analysed the answers of the first, second and fifth questions of the pre-posttest of a sample of 4 different candidates .

Describing the pre-post research competence test

The pre-posttest consisted of 6 questions, some of which were divided into sub-questions as follows.

the first question was not included in the quantitative analysis (what is research?).

the second question was also excluded from quantitative analysis and will be analysed qualitatively, it asked candidates to join the couples of variables to make complete titles of three researches indicating the dependent and independent ones.

The third one asked them to read an extract from research then answer four sub-questions where they were required to write a title and differentiate the variables, state the problem of the research, suggest the questions of the research and finally, write the hypotheses taking into account that the research was implemented on two groups.

The fourth question was an extract of another research where they were required to answer 7 sub-questions. They were asked to write the problem of research, to specify if the extract represents the introduction or the context of the problem and why, suggest a title for this research indicating its variables, suggest the procedures that should be followed to support the claim that the problem exists, explain the design of the study taking into account that the participants were 30 students who cannot be separated,

show how to collect data suggesting its type, and finally, describe the instruments of this research.

The fifth question aimed at testing their cognitive competence in differentiating between quantitative and qualitative research types from these perspectives: purpose, participants, length of the study, data display, language and data analysis. This question was analysed quantitively too.

The last question asked candidates to document three references following APA style 7th edition. The first reference was a book with 4 authors, an MA thesis, and an article in a journal.

Table (4) questions of the competences of the pre-post test and the questions display

Competence	Questions number and its items	Load
Stating research title & differentiating variables	3a & 4c	4
Differentiating introduction vs. context of problem	4b	2
Piloting to support problem	4d	2
Identifying problem	3b & 4a	4
Stating questions & hypotheses	3c & 3d	4
Collecting data	4f	2
Identifying design	4 e	2
Selecting instruments	4 g	2
APA **Referencing**	6 a, b &c	6
9 competencies	**3 questions (3,4&6) = 14 items**	**28**

Validity of the test

internal consistency

the test proved to be valid through the following:

a) validity of inter-item consistency

The correlation coefficients were calculated between the score of each item and the total score of the test, after deleting the effect of the item from the total score. The following table shows the correlation coefficients:

Table (5) The values of the correlation coefficients between the score of each item and the overall score for the test

Item	Correlation
1	**0,74
2	**0,79
3	**0,70
4	**0,72
5	**0,78

****Significant at 0,01 and it is significant when**

0,63 ≤R

The previous table shows that all items are statistically significantly related to the total score, which indicates the sincerity of the internal consistency of the test items.

b) Correlated Item-Total Correlation

To ensure the internal consistency of the test dimensions, the correlation coefficients were calculated between the degree of each dimension (sub-competence) and the total score of the test after deleting the dimension

(sub-competence) degree from the total score. The following table shows the correlation coefficients:

Table (6) The values of the correlation coefficients between the score of each sub-competence and the total score for the test

Sub-competencies	Corrected Item-Total Correlation
Stating research title & differentiating variables	** 0,81
Differentiating introduction vs. context of problem	** 0,78
Piloting to support problem	** 0,74
Identifying problem	** 0,82
Stating questions & hypotheses	** 0,80
Collecting data	** 0,77
Identifying design	** 0,71
Selecting instruments	** 0,77
APA Referencing	** 0,76

****Significant at 0,01 and it is significant when**

$0{,}63 \leq R$

the previous table shows that all the dimensions of the test are statistically significant to the total score, which indicates the internal consistency of the test.

Content Validity

To measure the test content validity, the first version ‘appendix (2) of the test was given to three jury members of EFL specialists ‘appendix (1) ‘ to evaluate the appropriateness of the items of the test.

The first version consisted of 6 questions, from each question a group of sub-questions emerged. The jury suggested some modifications as follows:

1-delete the definitions question and keep only the question "what is research?

2- delete item e in question 3.

3-Delete item e in question 4.

4) 2 jury members advised the researcher to analyse questions number 1, 2 and 5 qualitatively. (Appendix 3: final version)

Test Reliability

the overall test reliability was calculated through

a) **Alpha- Cronbach**

Alpha-Cronbach's coefficient was calculated to test the research competencies and its value was (0.89), which is a high value that generally indicates the accuracy and reliability of the test as a means of measurement and therefore it can be relied upon.

b) Re-test

The research competency test was administered to 5 EFL pre-master candidates at the Faculty of Girls, Ain Shams University. It was impossible to test the reliability at the Faculty of Education due to the small size of the participants (12). After two weeks the researcher

retested the same students on the same test. Then, the Pearson correlation coefficient between the test/retest results were calculated. The reliability coefficient was (r = 0.92). Therefore, the test was considered reliable for the purpose of the study.

Test time limitations

Time of the test was

$$\frac{100+85+60+60+120}{5} = 85$$

estimated by calculating the means of time each of the 5 candidates took to answer the test divide their number:

It is important to note that the 5 candidates spent much time doing nothing while trying to answer some sub-questions and finally they left them unanswered.

The self-confidence questionnaire applied at the end of the course

The questionnaire consisted of 23 items where items 3,5,7,13,17 and 23 were put in reverse. Candidates were asked to respond to each item in a scale of 3 points; 3= agree, 2= not agree, 1= not sure.

The questionnaire covered three areas of self-confidence which are:

- Self-confidence related to personal traits. These were items number 3,5,6,8.9.10,11,12,13.
- Self-confidence related to conducting research proposal. These were items number 1, 2,7,17.

- Self-confidence related to the course and the instructional method. These were items number 4,14,15,16,18,19,20,21,22 and 23.

Validity of the questionnaire

To measure the questionnaire content validity, the first version ‘appendix (4) of the questionnaire was given to three jury members of EFL specialists ‘appendix (1) to evaluate the appropriateness of the items of the test. The first version of the questionnaire consisted of the items related to the proposal, and the course and the instructional method.

The jury members suggested adding some items concerning personal traits because the quality of the course and the engagement of the candidates in the learning process may affect some personal traits positively. Appendix (5: final version).

The course designed in light of connectivism

Rationale of the Course

The course is based on more than one educational foundation, one of which is learner-centered learning, in which s/he is the one who seeks knowledge, analyses, and evaluates what is true and what is not. The learner is responsible for his or her own learning, which is referred to as learning for continuity and retention. Furthermore, because knowledge is variable and evolving, the learner must identify the sources of his own learning, seek and compare them, and choose the most appropriate for his mental and linguistic abilities.

One of the course's principles is also the element of technology, which is one of the most important and powerful sources of knowledge in the modern era. There are numerous websites, databases, and free books

available on the Internet and YouTube, not to mention social networks such as WhatsApp, Email, and Telegram, as well as digital applications that, if used for learning, would produce astounding scientific results. Accordingly, connectivism, which arose in light of these and other principles, was used to design the current course in order to enhance the research competencies of EFL Pre-Master candidates.

Description of the course

The experiment lasted for two months, at the first semester of the academic year 2021/2022. The researcher used to meet the participants every two weeks on Saturdays, so the off week was spent researching, preparing, and communicating via messenger or telegram. Candidates were required to post their works on Telegram in order for their colleagues to reflect on them. Then started online discussions about the topics they prepared. Their participation varied; at times, they presented power point presentations, YouTube videos accompanied with their comments and explanations, they also wrote essays.

The researcher's role was to discuss with them their areas of weakness, identify them, and record them in a checklist as the content of their course. During the off week they prepared these materials and be ready for the presentations. The researcher used to join the online sessions to organize and facilitate the discussion, and participate with them.

The online sessions mainly revolved around theoretical information collected from the previously mentioned sources. During these debates and based on their presentation, they determined which information was relevant and which was not for carrying out their proposals under the supervision of the research. The outcomes of these conversation should be reproduced in its final version, whether it be a power point presentation or an essay.

Based on the material presented in the online sessions and what was agreed upon, the candidates were required to do assignments, which were applying what they have learned on the research proposal. After the online discussions, candidates used to meet with the researcher in the face-to-face sessions the following week to present the practical application (assignment), discuss it with the colleagues, and make any required modifications. The course covered 10 sessions, where each session took two hours, with a total of 20 hours. Summative assessment was used all through the course where candidates get final feedback from the researcher by the end of each session to make necessary modifications on their assignments to be published for the rest of the colleagues. (Appendix: 6)

Aim of the course

This course aims at providing EFL-pre master candidates with knowledge and competence of writing a well-constructed MA proposal.

Objectives of the course:

By the end of the course EFL pre-master candidates will be able to:

1- Identify the dependent and independent variables of their research and suggest write accurately the title of the research proposal.
2- differentiate between the introduction and the context of the problem.
3- Develop accurate pilot study.
4- State the problem of the research accurately.
5- Choose the appropriate method of research.
6- Decide on the suitable design for the research.

7- Identify the suitable instruments for the research.

8- Collect data needed for the research from different sources.

9- Write the references of the research according to the APA style 7th edition adequately.

10- Differentiate between qualitative and quantitative researches.

Table (7)Summary of some sessions of the course based on connectivism

Session type	Duration/ Sessions	Objectives	Content	materials	Activities &tasks	Assignments
Face-to-face session	**Introductory session**: 2 hours	By the end of this session students would be able to: 1)summarize their background knowledge about conducting research in light of their previous study at the special diploma. 2)identify the procedures they will follow in the course. 3)decide on the technological tools, web-sites, applications and social media they will use.	EFL pre-master candidates' background knowledge. Review of the technological and internet tools they may use.	worksheets	*Group works *Discussions * Exchange e-mails *Make a WhatsApp group *Make a telegram group	*Write reflections on the first session *From different sources, present what is "Research? "*responses sent via telegram.
Face-to-face session	**Session 1:** **2 hours**	By the end of this session, candidates will be able to:	Different definitions and explanation of the concept (Research).	*Candidates' PowerPoint presentations.	* Group discussions	Reviewing proposals and theses components, then prepare a pp-presentation.

		1)discuss the concept of (Research). 2)present the materials they collected from different sources about the meaning of (research).		*Reflections on YouTube videos	*Individual presentations	Reflecting on the session
On-line session	**Session 2: 2hours**	By the end of this session, candidates will be able to: 1) present the findings of the review they prepared. 2) Discuss the components of a research paper. 3) compare and contrast the different proposals, and theses.	Components of MA and Ph.D. theses and proposals.	*Theses and proposals *candidates' PowerPoint Presentations	*Group discussions *Individual presentations	Consulting different sources, find answers for the following question: What types of research are there?
Face-to-face session	**Session 3:** **2 hours**	By the end of this session, candidates will be able to: 1)Discuss types of researches 2)define quantitative research 3) discuss the difference	1)Presenting the three types of research. 2) discussing the features of quantitative researches	*Samples of quantitative researches *Candidates'' PowerPoint presentations.	*Individual presentations *Group discussions	Extra reviews on quantitative research samples Reflecting on the session

		between method and design				
Face-to-face	**Session 4:** **2hours**	By the end of this session, candidates will be able to: 1)Discuss types of researches 2)discuss quantitative research 3) discuss the method and design of the presented samples 4) suggest other probable titles for the samples.	Discuss quantitative research and applying is features on the samples of studies they chose.	Samples of quantitative researches PowerPoint presentation	Group work	Reviewing different instruments used in quantitative researches. Differentiate between pilot-studies and the tools used and the final pre-posttests
online	**Session 5:** **2 hours**	By the end of this session, candidates will be able to: 1)Discuss types of instruments in quantitative researches 2) compare and contrast the differences between pilot study and the instruments used to measure participants' performances or competences	1)theoretical overview of the instruments of quantitative researches collected by the candidates. 2) studies and theses to discuss their instruments and pilot studies	1)Theoretical data of quantitative researches 2)theses and studies from the internet and scholarly websites	Group discussions and individual presentations	*Prepare the principles of developing questionnaires *Prepare samples of different kinds of questionnaires.

Face-to-face	**Session 6:** **2hours**	By the end of this session, candidates will be able to: 1-suggest a title of an expected research 2-differentiate between introduction and context of problem. 3- present the principles of developing a questionnaire. 4- present a sample of a questionnaire	1)Candidates' essays about the principles and types of questionnaires used in quantitative research. 2)sample questionnaires	Essays and PowerPoint presentations	Group discussions Pair work Group discussions	1)Collecting data about developing pre-posttest , observation sheets. 2) download samples of observation sheets, and pre-posttests on the different language areas.

Statistical analysis and Display of results:

Statistical methods used in the research:

The following statistical methods and treatments were used using the SPSS 21 program:

1. Wilcoxon test to find out the differences between the mean ranks of the research group candidates in the research competence pre- post overall as well as sub-competencies test.
2. Calculating the effect size of the course in developing research candidates' overall as well as sub-competencies of research competence.
3. Calculating the correlation coefficient between the scores of each sub-competence and the total score of the test to find out the internal consistency of the items of the research competence test.

4. Calculating the correlation coefficient between the score of each item and the total score of the test to find out the internal consistency of the research competence test items.
5. Calculating the correlation coefficient between the scores of the two applications to determine the validity of the test.
6. Calculating the validity of the test using the Alpha Cronbach .

Having analyzed the data collected from the test of the study statistically, a detailed presentation of the results in relation to the hypotheses and the questions of the study will be displayed. Also, to determine the extent of change in the participants' performance in the research competence due to the implementation of the course, Wilcoxon Signed-Ranks test was used.

1- **Testing the first hypothesis:**

The first hypothesis states that *"**there is a statistically significant difference between the mean ranks of the research group in the pre and post applications of the overall research competece test in favor of the post application**."*

The following table shows the results obtained in this regard:

Table (8)
The significance of the differences between the average ranks of the group scores before and after using the associative theory, on the research competency test as a total score where (n = 12) and (degrees of freedom = 11).

SKIL	Ranks	Number (N)	Mean Rank	Sum of Ranks	mean		Std. Deviation		Z	Sig.
					PREE	POST	PREE	POST		
Overall research competence	Positive Ranks	12	6.50	78	7.17	25.75	4.06	3.86	3.062	0.002
	Negative Ranks	0	0.00	0.00						
	Ties	0	0.00	0.00						
	TOTAL	12								

It is recognized from the previous table that the results of the students of the research group in the overall research competencies degree in which the positive ranks came 12, the equivalent ranks 0 and the negative ranks 0, and this indicates that the scores of 12 students increased in the post application than the pre application, and there are no students whose scores decreased or were equal in the overall research competence test after using the connectivism theory.

Also, the level of significance (Sig.) in research competencies as a total score equal to (0.002), i.e., less than (0.01) and this indicates that there is a difference between the two applications before and after the research competence test as a total degree at the level of significance 0.01 in favor of the post application, and thus, we accept the hypothesis.

Testing the second hypothesis

The second hypothesis states that "there are statistically significant differences between the mean ranks of the research group in the pre-post applications of research sub-competencies test in favor of the post application."

The following table shows the results obtained for the sub-competencies:

Table (9)
The significance of the differences between the average ranks of the group scores before and after using the associative theory, on the research competency test as sub-skills where (12 = n) and (degrees of freedom = 11).

SKIL	Ranks	Number (N)	Mean Rank	Sum of Ranks	mean		Std. Deviation		Z	Sig.
					PREE	POST	PREE	POST		
Stating research title & differentiating variables	Positive Ranks	12	6.50	78	1.67	3.33	0.78	0.49	3.176	0.001
	Negative Ranks	0	0.00	0.00						
	Ties	0	0.00	0.00						
	TOTAL	12								
Differentiating introduction vs. context of problem	Positive Ranks	12	6.50	78	0.42	3.58	0.67	0.67	3.115	0.002
	Negative Ranks	0	0.00	0.00						
	Ties	0	0.00	0.00						
	TOTAL	12								
Piloting to support problem	Positive Ranks	11	6.00	66	0.42	1.67	0.67	0.49	3.035	0.002
	Negative Ranks	0	0.00	0.00						
	Ties	1	0.00	0.00						
	TOTAL	12								

SKIL	Ranks	Number (N)	Mean Rank	Sum of Ranks	mean		Std. Deviation		Z	Sig.
					PREE	POST	PREE	POST		
Identifying problem	Positive Ranks	12	6.50	78	1.25	3.25	0.62	0.75	3.111	0.002
	Negative Ranks	0	0.00	0.00						
	Ties	0	0.00	0.00						
	TOTAL	12								
Stating questions & hypotheses	Positive Ranks	12	6.50	78	0.67	3.25	0.89	0.75	3.114	0.002
	Negative Ranks	0	0.00	0.00						
	Ties	0	0.00	0.00						
	TOTAL	12								
Collecting data	Positive Ranks	11	6.00	66	0.33	1.92	0.65	0.29	3.071	0.002
	Negative Ranks	0	0.00	0.00						
	Ties	1	0.00	0.00						
	TOTAL	12								
Identifying design	Positive Ranks	10	5.50	55	0.5	1.92	0.8	0.29	2.919	0.004
	Negative Ranks	0	0.00	0.00						
	Ties	2	0.00	0.00						
	TOTAL	12								
Selecting instruments	Positive Ranks	10	5.50	55	0.75	2	0.75	0.00	2.879	0.004
	Negative Ranks	0	0.00	0.00						
	Ties	2	0.00	0.00						

SKIL	Ranks	Number (N)	Mean Rank	Sum of Ranks	mean		Std. Deviation		Z	Sig.
					PREE	POST	PREE	POST		
	TOTAL	12								
APA Referencing	Positive Ranks	12	6.50	78	1.17	4.83	1.11	1.34	3.089	0002
	Negative Ranks	0	0.00	0.00						
	Ties	0	0.00	0.00						
	TOTAL	12								

It is noted from the previous table that the results of the research group's performance in research competencies sub-skills came as follows:

For the two skills (selecting instruments and identifying design), in which the positive ranks are 10/0, the neutral ranks are 2 and the negative ranks are 0, this indicates that the scores of 10 pre-master candidates increased in the post-application over the pre-application. Only two students whose scores were equal in the two applications, the pre- and post-applications, and there are no students whose scores have decreased.

As for the two skills (Piloting to support problem and collecting data), they have positive ranks 11/ 0, neutral ranks 1 and negative ranks 0, and this indicates that the scores of 11 students increased their scores in the post-application than the pre-application, and only one student had equal scores in the pre- and post-applications, and there are no students had decreased grades.

As for the rest of the sub-skills, which are the five skills (stating research title and differentiating variables, differentiating introduction vs. context of the problem, identifying problem, stating research questions and hypotheses, and referencing according to APA 7th ed.) in which the

positive ranks are 12, the equal ranks are 0, and the negative ranks are 0, and this indicates that the scores of 12 students have increased in the post-application than the pre-application, and there are no students whose scores have decreased or are equal in research competencies.

The means in the post application in all sub-competencies are greater than the pre-application and this indicates that the level of the research group candidates increased after using the connectivism theory. The level of significance in all the sub-skills as a total score is less than (0.01), this indicates that there is a difference between the two applications before and after the intervention at the level of significance 0.01 in favor of the post application. thus, we accept the second hypothesis.

Testing the third hypothesis

The third hypothesis states that " ***that the course based on connectivism to enhance EFL pre-masters' research competence affects positively their self-confidence'*** .

Frequencies and percentages for all items of the questionnaire were calculated. It was taken into account that the three-way Likert scale used in the study is graded as follows:

Agree (3), disagree (2), not sure (1), and accordingly, the values of the arithmetic averages that were reached from the study are dealt with as follows:

If the means is less than 1.67, the general direction of the item is not achieved, and if the means is from 1.67 to 2.33, the general direction of the item is achieved to some degree, and if the means is from 2.34 to 3, the

general direction of the item is largely achieved. The following tables show the frequencies, percentages, averages, and the general directions of the questionnaire items that were reached.

Table (10)
Results of applying academic self-confidence after implementing the connectivism theory to develop pre-MA candidates research competencies

Item	Agree		Disagree		Not sure		Mean	percent	General direction of the items
	N	%	N	%	N	%			
1	10	83.3	0	0.00	2	16.7	2.67	0.89	**Agree**
2	10	83.3	0	0.00	2	16.7	2.67	0.89	**Agree**
3	1	8.3	11	91.7	0	0.00	2.08	0.69	**Disagree**
4	10	83.3	2	16.7	0	0.00	2.83	0.94	**Agree**
5	1	8.3	10	83.3	1	8.3	2	0.67	**Disagree**
6	10	83.3	0	0.00	2	16.7	2.67	0.89	**Agree**
7	7	58.3	5	41.7	0	0.00	2.58	0.86	**Agree**
8	8	66.7	2	16.7	2	16.7	2.5	0.83	**Agree**
9	12	100.0	0	0.00	0	0.00	3	1	**Agree**
10	12	100.0	0	0.00	0	0.00	3	1	**Agree**
11	7	58.3	4	33.3	1	8.3	2.5	0.83	**Agree**
12	10	83.3	2	16.7	0	0.00	2.83	0.94	**Agree**
13	2	16.7	10	83.3	0	0.00	2.17	0.72	**Disagree**
14	10	83.3	0	0.00	2	16.7	2.67	0.89	**Agree**
15	11	91.7	0	0.00	1	8.3	2.83	0.94	**Agree**
16	12	100.0	0	0.00	0	0.00	3	1	**Agree**
17	1	8.3	11	91.7	0	0.00	2.08	0.69	**Disagree**
18	12	100.0	0	0.00	0	0.00	3	1	**Agree**
19	12	100.0	0	0.00	0	0.00	3	1	**Agree**
20	12	100.0	0	0.00	0	0.00	3	1	**Agree**
21	9	75.0	1	8.3	2	16.7	2.58	0.86	**Agree**
22	12	100.0	0	0.00	0	0.00	3	1	**Agree**
23	12	100.0	0	0.00	0	0.00	2	0.67	**Disagree**
General direction of the questionnaire							2.64	0.88	**Agree**

From the previous table, it is concluded that items number:

(1, 2, 4, 6, 7, 8, 9, 10, 11, 12, 14, 15, 16, 18, 19, 20, 21, 22, 23) came with means greater than (2,33), and this indicates that the general directions of all these items were in agreement, and that items (3, 5, 13, 17) came with an arithmetic means between (1.67 to 2.33), and this indicates that the general direction of all these items was not in agreement, as the general direction of the questionnaire as a whole came with means of (2,64), ie greater than (2,33), and this indicates that the direction for the questionnaire as a whole came in agreement, and thus we accept the hypothesis that states that the candidates of the research group achieved an acceptable degree of academic self-confidence. Thus, the fourth question of the research was answered, which states what is the degree of pre-master candidates' academic self-confidence after the application of connectivism theory to enhance their research competence?

Measuring the effect of using connectivism theory on enhancing research competence

To find out the effect of using connectivism on the enhancing research competence for EFL pre-master's candidates, the size of the impact of the course on the research group was calculated. In her calculation, the researcher relied on the use of the Wilcoxon Test to calculate the difference between the mean ranks of the pairs of related scores. And when the results show that there is a statistically significant difference between the ranks of the related pairs of degrees or between the ranks of the pre-post administration, it is possible to know the strength of the relationship between the independent variable and the dependent

variable using Matched Pairs Rank Biserial Correlation, which is calculated from the following equation:

$$r = (4(T1)/ n(n+1)) -1 \ldots\ldots\ldots (1)$$

where r = strength of the relationship (the binomial correlation coefficient for the ranks of the related pairs).

T1 = the sum of all the ranks with a positive sign.

n = number of pairs of scores.

And (r) is interpreted as follows:

- If: $(r) < 0.4$ indicates a weak effect size.
- If: $0.4 \leq (r) < 0.7$, it indicates an average effect size.
- If: $0.7 \leq (r) < 0.9$, it indicates a strong effect size.
- If: $(r) \geq 0.9$ indicates a very strong effect size.

The following table shows the results of the effect size:

Table (11)

Effect size (η2) and the sum of positive orders, where the number of order pairs = 12

competence	Sum of positive Ranks	Effect size (η^2)	significance
Stating research title & differentiating variables	78	1	Very strong
Differentiating introduction vs. context of problem	78	1	Very strong
Piloting to support problem	66	0.69	Medium
Identifying problem	78	1	Very strong
Stating questions & hypotheses	78	1	Very strong
Collecting data	66	0.69	Medium
Identifying design	55	0.41	Medium
Selecting instruments	55	0.41	Medium
APA Referencing	78	1	Very strong
Overall research competence degree	78	1	Very strong

From the previous table, it is clear that the effect size in the four sub-skills (Piloting to support problem, collecting data, identifying design,

Selecting instruments) is limited to (0.4, 0.7) i.e. the effect size is medium, this means that the use of the connectivism theory has average effect in developing these skills. The effect size in the sub-skills (Stating research title & differentiating variables, differentiating introduction vs. context of problem, identifying problem, stating questions & hypotheses, APA Referencing) as a total score is greater than 0.90, and this indicates that the effect size is very strong which means that the use of the connectivism theory has a very strong impact on the development of these skills.

Thus, the third question of the research questions was answered, which states: What is the effect of a course based on connectivism theory on enhancing EFL pre-master candidates research competence?

Discussion of results

Based on the results of the study, it can be concluded that the course based on connectivism proved its effectiveness on enhancing EFL pre-master candidates' research competence. Subsequently, these significant results can be due to the following:

Self-inquiry and retention of knowledge: slef-inquiry is a key principle for learning according to connectivism. This key principle encouraged candidates to be more engaged and involved in the learning process which led to the retention of knowledge. This result is in the same line with that of Crosling, Heagney and Thomas (2009) who ensured that There is a 'dynamic interplay' between student engagement, the quality of student learning and the teaching and learning context. Also, Chen et al. (2008) indicated that academic achievement, which underlies student

retention, necessitates more than information acquisition, and that the classroom is a crucial starting place for students to begin to comprehend fundamental concepts related to their learning responsibilities.

Multiple sources and independence of choice: the multiplicity of the resources in the open space provided candidates with a huge amount of knowledge, and therefore they had the opportunity to choose from among these sources what suits their linguistic development and what facilitates the process of understanding this information. As well, granting them independence as researchers for training them in data collection skills in selecting, sorting and evaluating these sources was one of the factors that motivated them to immerse themselves in the process of research and exploration. This result agrees with that of Kopzhassarova et.al (2016) who ensured that at the current stage of society's growth, the evolutionary process in education entails a shift in priority from passive knowledge absorption to independent, creative, and cognitive activity of learners. They recommend that learners must be trained to adapt flexibly to changing situations by independently gaining relevant information and skillfully applying in different situations of varied challenges.

Individual differences and motivation:

All EFL learners enrolled in the Pre-Master program have a definite goal of preparing a master's thesis in their field. However, some of them did not have the opportunity to study the research methods as mentioned previously. Therefore, preparing the course in a manner that takes into account the individual differences between them was one of the factors that brought satisfactory results with these three candidates. The

process of searching for sources and selecting them individually gave them the opportunity to choose simple sources at the very beginning, such as some videos and PowerPoint presentations, shared via internet, that simply and easily present the topic under discussion. Accordingly, they were motivated to exert efforts to achieve success in the course, and more importantly achieve their future goal which is being able to conduct MA thesis. This conclusion supports that of Saville-Troike (2006) who said that motivation to learn is one of the plausible reasons of success at second language acquisition. According to Gardner (1985) Motivation = effort + desire to achieve goal + attitudes. Also, Oxford (2003) argues for the necessity for instructors to be aware of the sorts of techniques employed by students in a class because she ensures that it is naive to expect that a single L2 technique can possibly fit an entire class full of students with a variety of stylistic and strategic preferences. That is why connectivism is considered a successful choice because it gives learners the chance to work individually according to their pace, interests, and learning style. At the same time, working in groups and group discussions open the horizons for more investigations and fruitful learning.

Role of Information and Communication Technology (ICT) in enhancing of the learning process: Because ICT is always expanding, so are the chances for teaching and learning. For example, the use of computers and the Internet no longer requires a fixed location; mobile technologies enable engagement via text messaging and access to the Internet wherever and whenever it is desired. Therefore, the use of ICT in the present course allowed the candidates to contact the researcher and each other any time, send their assignments on Telegram from anywhere. Even in the case that

one of them was unable to attend one of the face-to-face sessions, s/he was able to follow up on what was being done through remote communication. This is one of the reasons of the success of the course which provided them with two advantages; one is the ability to access knowledge from the open internet websites, applications, multimedia etc, and the ability to be in contact with the researcher and the colleagues anytime from anywhere. This result supports that of UNESCO (2008) which indicated that lack of ICT in the learning process may be viewed as disadvantage to learners because it minimizes their opportunity to learn some of the skills and traits required to become full participants in an increasingly ICT-mediated globalised environment. It also, supports that of Lim and Oakley (2013) who said that it is acknowledged that there are 'generic competences' required for living, learning, and working in the twenty-first century. The capacity to utilise ICT for a number of objectives, such as obtaining information, communicating, accumulating knowledge, representing ideas, problem solving, generating and developing ideas and products, collaborating, and learning how to learn, is one such generic capability.

formative Assessment, successful performance, and Instructor's role

Formative assessment helped candidates to overcome the problematic issues they may encounter during conducting the proposal regularly. Also, Self-assessment and the reflections they were required to present each time they have an on-line session played a vital role in enhancing their awareness of the process of conducting a research paper. Moreover, the instructor (researcher) played the role of advisor, organizer, feedback initiative and gab-filler when needed. This role helped candidates to concentrate on their

performance, consult each other's as well as consulting their instructor feeling that they all are in the same boat. This result agrees with that of McCallum (2000) who claimed that learners should be taught in self-assessment so that they can identify the major goals of their learning and, as a result, understand what they need to do to succeed. Self-assessment should involve both reflection on one's learning strategies and analysis of one's work. Also, it is in terms with Wininger and Norman (2005) who claimed that this type of assessment is used to increase students' learning by providing feedback from both the instructor and the students. To accomplish this aim, the instructor must periodically adapt the instruction to close the gap between the students' intended goal and their current position. Consequently, instructors should change their teaching style from lecturing to directing and coaching students' own learning activities, based on the feedback.

Qualitative Analysis

This part is concerned with the qualitative analysis of a sample of 4 candidates' answers of the first, second and fifth questions of the research competence pre-post-test:

First question: what is research?

It is important to mention that there are several definitions of research. They presented different definitions because each has consulted different reliable sources as discussed in their presentations. Therefore, any definition that speaks about its nature, characteristics, problem is considered an acceptable one

> *It's collecting information and making surveys to solve a problem.*

The first candidate: S.S answered tis question in the pre-test as follows

For **S.S.** research is only a matter of information collection to solve a problem without mentioning what kind of information, how to collect this information and without identifying what is meant of problem or what kind of problems.

S.S answered this question again in the post-test as follows

- *it's an adventure!*
- *The systematic investigation into a topic and study of materials and sources in order to establish facts and reach new conclusions.*
- *It's looking up information and Gathering facts.*
- *It's driven by a question that then guides the process.*
- *Conducting research means looking up information to answer your research questions.*
- *Not everything we read about the topic will fit the research question.*

In the post-test she managed to reflect what is research, its nature, requirements and put her feet on the first step of understanding the purpose of conducting researches.

The second candidate: Z.M

It is an advanced and academic level at covering data or information in order to emphasize a specific problem.

She answered the question in the **pre-test** as follows

Candidate **Z.M** like her colleague S.S considered research as a matter of collecting data to solve a problem. Again, she did not give any explanation

of the problem or explanation of the nature of research that differentiates it from an article or essay describing a problem.

> *. Educational research seeks to understand, explain, predict, and manage human behaviour through solving educational problems in a methodical and scientific manner. Educational research is concerned with educational issues affecting both students and instructors. - It is a precise, objective, scientific, and methodical inquiry procedure. - It makes an attempt to arrange data statistically and qualitatively in order to draw statistical conclusions. - It finds new facts from fresh perspectives, generating new knowledge. - It is founded on philosophical philosophy. - Its interpretation and conclusions are dependent on the researcher's talent, inventiveness, and experience.*

Revising **Z.M** answer, it is concluded that she was able to integrate the concept of a research with its characteristics, major procedures; starting from the problem, data collection and analysis quantitatively and qualitatively, and finally interpreting the results. This indicates her ability to comprehend the nature of scientific research and had enough knowledge of all its elements.

The third candidate M.S. : she answered the question as follows

> *Research is a process of finding answers to existing problem through the study of its different aspects.*

Though the definition is not wrong, but it lacks details that characterize the concept of research from other writings that may tackle the same problem. Articles about education can discuss the problem of "traditional methods of teaching" and it can provide some solutions but we cannot call it ‘research’.

The following is her answer on the **post-test**

> *Research is seeking to solve a problem following scientific and systematic procedures in the field of education, specifically teaching methods, where the researcher begins by inquiring about the causes of the problem and the surrounding circumstances and puts hypotheses to verify its validity. Then he experiments that solution to find out its effect by treating the results statistically and interpreting them to conclude that the solution is recommended or rejected.*

Here, the candidate M.S. explained what is meant by research and how to go through its procedures to accomplish an overall end. We recognize that she used specific terms in her description such as "scientific, systematic", "inquiry،" "hypotheses،" "experiments،" "results،" "statistically", "interpreting" which indicate that she does not only know the procedures of conducting research, but also the accurate expressions used in the research.

The fourth candidate is M.I.: the following is his answer to the first question in the pre-test

It is systematic research in which the researcher is in pursuit of finding solutions for certain problem to get clearer picture about the reasons through setting hypotheses to approve or disapprove.

The candidate has an acceptable background of the concept of research, but though he still cannot identify it accurately and deeply. besides, he repeated the word research in the definition which is not a scientific way, instead he could use the term 'plan' for instance.

His definition of research developed recognizably in the post-test as follows:

Research is the systematic and objective examination and recording of controlled observation that may lead to the formation of generalisations, principles. It is a series of processes used to gather and evaluate data in order to gain a better knowledge of a topic or situation. These data should be analysed statistically or qualitatively to determine if the recommended approach, technique, or strategy is effective or not, and this is how the study may bring new frontiers in the field of teaching-learning process.

Analysing the post-test answer of the candidate **M.I.** we can recognize that his language was improved where he used more specific explanation, followed the logical order of research procedures and used well defined terms such as "systematic", "objective", "procedures‹" "data", "analysed",

"statistically", "qualitatively", "approach", "technique", "strategy", "effective", "teaching/learning process".

The second question

Candidates were asked to join three couples of variables to form research titles identifying the independent and the dependent variables.

The following is a sample of 4 candidates answers:

The first candidate is Y.M. He answered this question in the pre-test as follows

a) Speaking – communicative approach: speaking is independent, the approach is dependent

The impact of using the communicative approach on enhancing speaking

b) Cognitive theory is dependent and academic writing is independent

Adopting cognitive theory to improve academic writing

c)teaching performance – differentiated learning: the first is independent while the second is dependent.

The role of differentiated learning in enhancing teaching performance

As shown in the answer of the candidate **Y.M.** we recognize that there is an overlap between the dependent and independent variables. His attempt to form research title for the three couples shows that he tried to vary the style of writing the titles where he used the term 'the impact of' for the first couple, the term 'the effect of 'Adopting' for the second' and the term 'the role of' for the third. Of course, the first term is the correct one but the

other two are not used to form a research title. It is recognized also that the candidate is always putting the theory at the beginning of the title, he could not vary the order of writing the variables. Moreover, the most apparent problem is that he did not include the subjects of the research in the title.

Now, let's analyze his answer to this question in the post-test:

a) Speaking – communicative approach: speaking is dependent, the approach is independent

The Impact of Using the Communicative Approach on Enhancing Secondary Stage Students' English-Speaking Performance

b) Cognitive theory is the independent variable and academic writing is the dependent

A Suggested Program to improve English Majors' Academic Writing in Light of Social Cognitivism

c)teaching performance – differentiated learning: teaching performance is the dependent while differentiated learning is the independent.

A Strategy Based on Differentiated Learning to Improve Teaching Performance

Analysing Y.M. answers on the post-test, it is found that he has developed enormously in varying the style of writing the research title. He managed to differentiate between the variables. Also, the capitalized the initials of each word in the title. He included the subjects of each research except for the third one; he missed identifying his subjects.

It is worth noting that Y.M. was one of the three candidates who has never studied 'Research Seminar'.

The second candidate is L. S. her answers to the second question in the pre-test came as follows:

a) Speaking – communicative approach: speaking is dependent, the approach is independent

using communicative approach to develop speaking for students

b) Cognitive theory is the independent variable and academic writing is the dependent

using cognitive theory to develop students' academic writing

c)teaching performance – differentiated learning: the first is the dependent and the second is the independent

using differentiated learning to develop students' teaching performance

Analysing **L.S.** answers one can say that she can differentiate between the variables. But when we start analysing the titles, we can say the sound monotonous. Using the same words, following the same order. And in spite of including subjects to the title, one can conclude that she had included them mechanically without thinking of which students did she mean, at which level, especially the last title where she said 'students' teaching performance', she should identify these students to be student-teachers.

The following is **L.S.** answers on the post-test:

a) Speaking – communicative approach: speaking is dependent, the approach is independent

Using Some Communicative Activities to Develop First Sycle Basic Education Pupils' English Speaking Interaction

b) Cognitive theory is the independent variable and academic writing is the dependent

A Suggested Program Based on the Cognitive Theory to Improve EFL Master Students' Academic Writing

c)teaching performance – differentiated learning: the first is the dependent and the second is the independent

The Effectiveness of Differentiated Learning Program to Improve EFL In-Service

It is recognised that **L.S.** style of forming research title has improved. She used terms like 'using some communicative activities' where she changed the wording of the question 'communicative approach' to fit her title. She also used 'A suggested program based on…' instead of the term 'using', and used the term 'the effectiveness of …….. program'. She was aware of identifying appropriately her subjects. And finally, the capitalization of the initials was considered.

The following is the analysis of the answers on the pre-test of the third candidate

a) The use of the communicative approach to improve speaking skill for young students

b) the effect of cognitive theory on developing academic writing

c)the effect of differentiated learning on developing teaching performance

E.S.

It is difficult to know whether **E.S** deliberately left writing the variables because she did not know their classification or because she forgot to write them because of her interest in writing the titles of the research. It is recognised that she included her subjects only in the first title, though they were not very well identified, while she did not include them in the next two.

a) Speaking "dependent" – communicative approach "independent" I added another affective variable (self-Efficacy).

Using The Communicative Approach to Develop Secondary Stage EFL Students' Speaking Fluency and Its' Effect on their Self-Efficacy

b) Cognitive theory (independent) and academic writing (dependent)

A Suggested Online Teaching Model to Improve EFL Pre-Service Teachers' Academic Writing in Light of Cognitive Theory

c)teaching performance – differentiated learning: the first is the dependent and the second is the independent

The Impact of Some Differentiated Learning Techniques to Improve EFL In-Service Secondary Stage Teachers' Teaching Performance.

Also, she tried to vary the style of writing the titles, she managed to write two different titles but she could with the third one. And like the other two colleagues, **E.S** did not take into account the simple rule which is the capitalization of the initials.The following is the analysis of **E.S.** answers on the post-test

In the post-test **E.S.** classified the variables correctly**.** Varied styles were used as well as accurate identification of the sample. Moreover, she added

another variable for the first title which indicates her mastery of forming research titles and identifying the suitable variables. And as usual, taking into consideration the capitalization rules.

The fourth candidate is E.H. the following is her answers on the pre-test

I do not know what the variables are. I did not study any relevant course before.

But I'll try to write title as much as I can.

a) the communicative approach and its effect on speaking skill

b) the cognitive theory and its effectiveness on academic writing development

c) Differentiated learning and the development of teaching performance

As mentioned by the candidate, she did not study any relevant course before. Consequently, she could not classify variable and the way she formed the titles indicates lack of knowledge of the correct way of writing titles. However, she used some terms that belong to the correct formulations such as 'effect', effectiveness', 'development' that can be relied on to compensate the weaknesses.

The following is **E.H** answers in the post-test

a) Speaking "dependent" – communicative approach "independent"

The Effect of The Communicative Approach on Developing Secondary University Students' Speaking production

b) Cognitive theory (independent) and academic writing (dependent)

The Effectiveness of the Cognitive Theory on Developing EFL Adult Learners' Academic Writing

c)teaching performance – differentiated learning: the first is the dependent and the second is the independent

A Program Based on Differentiated Learning to Improve EFL In-Service Primary Stage Teachers' Teaching Performance.

In her post-test answers, **E.H.** managed to differentiate between variables. It is noted that she did not vary in the order of the variables in title formation, however she managed to write correct titles including subjects and their field of specialization (EFL). She used the terms she already knows, but this time used them correctly, "the effect of", "the effectiveness of " adding "a program based on….". She considered the rules of capitalization as her colleagues.

Generally speaking, it could be concluded that all the 4 candidates achieved progress in writing research titles and differentiating between variables. They recognized that there should be an identification of the subjects of their researches and the specialization (EFL or ESP etc.) should be clear in the title. Capitalization rules should be followed.

It is worth noting that these competences were clearly followed in the proposals the presented during the course and the suggested modifications were discussed and implemented.

The Fifth question where candidates were required to differentiate between quantitative and qualitative researches in the light of: purpose, research questions, participants, length of the study, data display, language and data analysis. They were asked to complete a table of these terms.

Unfortunately, only 2 tried to fill some parts of the table while the other 10 left it unanswered.

The following is the answers of the 2 candidates.

Candidate 1: M.I.

TYPE OF RESEARCH	**Qualitative Research**	**Quantitative Research**
Purpose	Understand the problem in depth	Explanation of the problem
Research questions	General	specific
Participants	Small in number	Specific, large and random
Length of study	Long	short
Data display	----------	----------
Language	Descriptive	specific
Data Analysis	……	……..

Candidate 2: M.S.

TYPE OF RESEARCH	**Qualitative Research**	**Quantitative Research**
Purpose	In depth knowledge	numbers
Research questions	Why	what
Participants	Small	large
Length of study	Longer	shorter
Data display	Words	Numbers, graphs and charts

Language	Descriptive and detailed	objective
Data Analysis	Descriptions	numbers

Both candidates managed to approximately differentiate between qualitative and quantitative researches. the answers show that they both understand but may be could find the proper description of some items. During the course, all items were discussed, explained with examples from studies and theses.

The following is the final product that nearly all the candidates managed to answer in the post-test, may be with the use of different vocabulary.

TYPE OF RESEARCH	**Qualitative Research**	**Quantitative Research**
Purpose	Understand phenomena or individual	To generalize or predict
Research questions	On-going, dynamic (can change)	Fixed, decided before data collection
Participants	Small number and could be one person	Large number
Length of study	Long term	Short term
Data display	Narratives, participants' words	Numbers, figures, charts and tables
Language	Descriptive	technical
Data Analysis	Interpretive analysis by categorizing data according to themes for instance.	statistical

This table shows that the previously mentioned 2 candidates were so close to the accurate answer, while the rest of them acquired the information during the progress of the course.

Conclusion:

- Authentic exercises allowed candidates to investigate the task from several angles and using a range of tools. Authentic activities encouraged them to work together. Reflection was facilitated by authentic activities. Assessment was easily interwoven with authentic activities. Such activities allowed for competing answers and a wide range of outcomes.
- Tasks that permit numerous connecting points (nodes) for candidates to examine the information from diverse perspectives and the acceptance of more than one solution to a problem (providing nodes) encouraged candidates to investigate more freely with confidence that their efforts were appreciated and of value.
- Tasks drew on a variety of data sources. There were no restrictions on the media used to obtain information. These sources of knowledge might include persons, journals, books, articles, databases, social networks, and so on.
- The chosen topics should be relevant to the teaching/learning problems. It should seek to build problem-solving abilities. Tasks show how a more in-depth understanding can develop their competences. The emphasis should be on knowledge application rather than pure knowledge acquisition.
- Making decisions is a learning process. The significance of incoming information and the choice of what to learn are viewed through the concept that information is of a dynamic nature. While

there is a correct answer now, it may be incorrect tomorrow owing to changes in the information climate influencing the choice.

- In a connectivist learning environment, candidates bring numerous competencies and skills, as well as varied methodological techniques that are intimately tied to their particular characteristics. Learning styles are becoming increasingly important in this new environment where candidates tailored the learning process according to their cognitive variety.

References

Alfakih (2017). A Training Program to Enhance Postgraduate Students' Research Skills in Preparing a Research Proposal in the Field of Curriculum and Instruction Methods of Arabic Language . *IOSR Journal of Research & Method in Education* (IOSR-JRME) e-ISSN: 2320–7388, p-ISSN: 2320–737X Volume 7, Issue 3 Ver. IV (May - June 2017), PP 01-06 www.iosrjournals.org

Astin, A. W. (1993). *What Matters in College? Four Critical Years Revisited*. San Francisco: Jossey-Bass.

Ashwin, M., Alan H. 2015. Barriers to Self-Directed Learning When Completing a Master-Level Dissertation. *Proceedings of the 14th European Conference on Research Methodology for Business and Management Studies*, 15-22.

Azmi, N. & Daud, N. 2018. A Relationship Between Research Skills and Autonomous Learning Among Postgraduate Students, International *Journal of Business, Economics and Law*, Vol. 18, Issue 6 (April), ISSN 2289-1552 2019.

Badke, W. 2012. *Workforce development: Helping adult students develop research skills for the workforce*. Retrieved from http://www.evolllution.com

Bates, A.W. (2015). *Teaching in a digital age, licensed under a Creative Commons Attribution Non-Commercial 4.0 International License, except where otherwise noted*. Retrieved from https://opentextbc.ca/teachinginadigitalage/chapter/3-6-connectivism/

Bell, F. 2011. Connectivism: Its place in theory-informed research and innovation in technology-enabled learning. *The International Review of Research in Open and Distributed Learning*, 12(3), 98-118.

Bowes, M., & Swanwick, C. (2018).'Using connectivism to theorise developments in digital technology in physical education in Aotearoa/New Zealand'. In J. Koekoek, & I. van Hilvoorde (Eds.), *Digital Technology in Physical Education: Global Perspectives* (pp. 204-222). Routledge.

Chen, X. et.al; 2008. Effects of the Peer Group on the Development of Social Functioning and Academic Achievement: A Longitudinal Study in Chinese Children, *Child Development*, March/April 2008, Volume 79, Number 2, Pages 235 – https://srcd.onlinelibrary.wiley.com/doi/pdfdirect/10.1111/j.1467-8624.2007.01123.x

Downes, S. 2005a. e-Learning 2.0. *E-Learn Magazine*, 10(17). Retrieved from http://elearnmag.acm.org/featured.cfm?aid=1104968

Downes, S. 2005b. *An Introduction to Connective Knowledge*., s.l.: s.n.

Downes, S. 2007. *What connectivism is*. Retrieved from web http://halfanhour.blogspot.com/2007/02/what-connectivism-is.html

Downes, S. 2019. Recent Work in Connectivism, *European Journal of Open, Distance and e-Learning* Vol. 22 / No. 2 – 2019 DOI: 10.2478/eurodl-2019-0014. https://www.researchgate.net/publication/338830631_Recent_Work_in_Connectivism

Del Moral, M. E., Cernea, A., & Villalustre, L. (2010). Learning objects 2.0: A new generation of content in context connectivism. *Revista de Educación a Distancia (RED)*, 25, 1-11

Del Moral, M. E., Cernea, A., & Villalustre, L. (2013). Connectivist Learning Objects and Learning Styles. *Interdisciplinary Journal of E-Learning and Learning Objects*, Volume 9, 2013.

Gardner,R.1985. Social Psychology and Second Language Learning. *The Role of Attitudes and Motivation*, London.

Gurin, P., Dey, E. L., Hurtado, S., and Gurin, G. (2002). *Diversity and higher education: Theory and impact on educational outcomes*. Harvard Educational Review 72(3): 330–365.

Gyuris, E.2018. Evaluating the Effectiveness of Postgraduate Research Skills Training and Its Alignment with the Research Skill Development Framework, *Practice Journal of University Teaching & Learning Practice,* Volume 15 Issue 4 Research Skill Development spanning Higher Education: Curricula, critiques and connections

Hazeldine, L., Yardley F., & Shearman, J. (2018). Flexible autonomy: an online approach to developing mathematics subject knowledge for teachers. In J. Golding, N. Bretscher, C. Crisan, E. Geraniou, J. Hodgen, & C. Morgan (Eds.), *Research Proceedings of the 9th British Congress on Mathematics Education* (3-6 April 2018, University of Warwick, UK). Retrieved from http://www.bsrlm.org.uk/wp-content/uploads/2018/11/BCME9ResearchProceedings.pdf#page=65

Heagney and Thomas 2009. Improving student retention in higher education Improving Teaching and Learning, AUSTRALIAN UNIVERSITIES' REVIEW, vol. 51, no. 2, 2009. https://files.eric.ed.gov/fulltext/EJ864028.pdf

Hendriarto,P. Mursidi ,A. Kalbuana,N. Aini, N . Aslan (2021). *Understanding the Implications of Research Skills Development Framework for Indonesian Academic Outcomes Improvement*. This is an open access article under the CC BY SA license https://creativecommons.org/licenses/by-sa/4.0/

Webb, F., Smith, C. & Worsford, K. (2011). *Research skills toolskit*. Retrieved http://www.griffith.edu.au/gihe-resources support/graduateattributes

Herlo,D. 2017. CONNECTIVISM, A NEW LEARNING THEORY?. The *European Proceedings of Social & Behavioural Sciences*. 7th International Conference. ISSN: 2357-1330. http://dx.doi.org/10.15405/epsbs.2017.05.02.41

Ismaila, R & Meerah, T.2012. Evaluating the Research Competencies of Doctoral Students, *Procedia - Social and Behavioral Sciences*, 59 (2012) 244 – 247 www.sciencedirect.com

Ismuratova,S; Slambecova,T; Kazhimova,K; Alimbekova, A. and Karimova,R. 2018. Model of Forming Future Specialists' Research Competence. *Education* Vol. 39 (Number 35) Year 2018. Page 24.

Jaszczyszyn, E., Szada-Borzyszkowska, J. (2014), Connectivism in the theory and practice of teaching, [in.:] Vol. 2, p. 162-168 [ISBN 978-954-490-449-4] https://www.researchgate.net/publication/266911035

Jamieson, L & Saunders, M. 2020. Contextual Framework for Developing Research Competence: Piloting a Validated Classroom Model. *Journal of the Scholarship of Teaching and Learning*, Vol. 20, No. 3, December 2020, pp. 1-19. doi: 10.14434/josotl.v20i3.24487

Jones, H, "Academic Self-Confidence Scale: A Psychological Study in Two Parts" (2001). *Chancellor's Honors Program Projects*. https://trace.tennessee.edu/utk_chanhonoproj/472

Kerr, B. (2007). A Challenge to Connectivism. Transcript of Keynote Speech, *Online Connectivism Conference*. University of Manitboa. http://ltc.umanitoba.ca/wiki/index.php?title=Kerr_Presentation

Kivunja C. (2016). How to write an effective research proposal for higher degree research in higher education: Lessons from practice. *International Journal of Higher Education*, 5(2), 163-172.doi.org/10.5430/ijhe. v5n2p163.

Mattar, J. (2018). Constructivism and connectivism in education technology: Active, situated, authentic, experiential, and anchored learning. (RIED) *Revista Iberoamericana de Educación a Distancia*, 21(2), pp. 201-217. doi: http://dx.doi. org/10.5944/ried.21.2.20055

Meerah, T. Osman,K. Zakaria,K. Ikhsan,K.Krish,P. Lian,D. & Mahmod,D. 2011. Developing an Instrument to Measure Research Skills. *Procedia - Social and Behavioral Sciences*,60 (2012) 630 – 636, www.sciencedirect.com

McCallum, B.2000. *Formative Assessment- Implications for Classroom*. https://dera.ioe.ac.uk/4565/1/formative(1).pdf

Oxford, R. L. (2003). Language learning styles and strategies: concepts and relationships. *International Review of Applied Linguistics and Language Teaching*,41, 271–278

Perrin, D. G. Downes, S. Muirhead, B. & Perrin, E. eds., January 2005 . *International Journal of Instructional Technology and Distance Learning*. s.l.: s.n.

Pietersen, C. (2014). Content issues in students' research proposals. *Mediterranean Journal of Social Sciences,* 5(20), 1533-1541.

Rahman, Saemah. M Yasin, Ruhizan. Salamuddin, Norlena. Surat, Shahlan. (2014) 'The Use of Metacognitive Strategies to Develop Research Skills among Postgraduate Students', *Asian Social Science*, Vol. 10, No. 19. Retrieved from http://dx.doi.org/10.5539/ass.v10n19p271

Riazi, A. M. (2000). *How to write research proposals*. Tehran: Rahnama Publications.

Rocha, L. M. (1998). *Selected Self-Organization and the Semiotics of Evolutionary Systems*. Retrieved December 10, 2004 from http://informatics.indiana.edu/rocha/ises.html

Saville-Troike, M. (2006). *Introducing Second Language Acquisition*. Cambridge: Cambridge University Press

Saleh, M (2020). 'A Challenge Based Learning Program to Develop General Diploma Students' Research Skills and their Satisfaction' . *Journal of faculty of Education*. Mansoura University. Volume 109, N.3.Winter 2020article 7, pp3-29.

https://maed.journals.ekb.eg/article_132384_aff23b5196e873fd23840effcc54c1d5.pdf
10.21608/MAED.2020.132384

Shrivastava, A. 2018. Original Research Article Using connectivism theory and technology for knowledge creation in cross-cultural communication. *Research in Learning Technology* 2018, 26: 2061 - http://dx.doi.org/10.25304/rlt.v26.2061

Stephenson, K. (1998). *What knowledge tears apart, networks make whole*. Internal Communication Focus, 36. Retrieved from http://www.netform.com/html/icf.pdf

Siemens, G. (2004) *Connectivism: A Learning Theory for the Digital Age*. http://www.elearnspace.org/Articles/connectivism.htm

---------- (2005). *Connectivism: Learning as Network-Creation*. Retrieved December27,2008,from http://www.elearnspace.org/Articles/networks.htm

Tucker, C. R., Wycoff, T., & Green, J. T. (2017). *Blended Learning in Action: A Practical Guide toward Sustainable Change*. Corwin Press.

Utecht,J. & Keller, D. 2019. Becoming Relevant Again: Applying Connectivism Learning Theory to Today's Classrooms. *Critical Questions in Education* 10:2 Spring 2019

Vrugt, A. J., Lanereis, M.P., & Hoogstraten, J. (1997). 'Academic self afficacy and malleability of relevant capabilities as predictors of examination performance'. *Journal of Experimental Education* 66(1), 61-71.

Wang, X., & Yang, L. (2012). 'Problems and strategies in learning to write a thesis proposal: A study of six MA students in a TEFL program'. *Chinese Journal of Applied Linguistics*, 35(3), 324-341.

Wininger, S. and Norman, A. 2005. Teacher Candidates' Exposure to Formative Assessment in Educational Psychology Textbooks:A Content Analysis. *Educational Assessment*,10(1), 19–37 Lawrence Erlbaum Associates, Inc. https://www.researchgate.net/publication/237621015_Teacher_Candidates%27_Exposure_to_Formative_Assessment_in_Educational_Psychology_Textbooks_A_Content_Analysis

Wright, C. (2010). *Different approaches to learning: An overview of Behaviourism, Cognitivism, Constructivism, and Connectivism*. Retrieved June 28, 2011, from: http://www.scribd.com/doc/36915156/Different-Approaches-to-Learning-An-Overview-of-Behaviourism-Cognitivism-Constructivism-and-Connectivism.

Zorkina, Y. and Nabone, D. P (2003). 'Effect of induce level of confidence on college students' performance on cognitive'. Accessed at http://www.uiowa.edu on March 10, 2009. In Emma Gyuris. 2018. Evaluating the effectiveness of postgraduate research skills training and its alignment with the Research Skill Development framework. *Journal of University Teaching & Learning Practice*, v.15, Issue 4 Research Skill Development spanning Higher Education: Curricula, critiques and connections.