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Role of Collaborative Network Learning in Developing the Effectiveness of Research Self-Identity Among College Students of Education of King Khalid University Abha Saudi Arabia

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ABSTRACT

The present study aimed at investigating the effectiveness of collaborative network learning in developing the effectiveness of the research self-identity in the "Research Seminars" course for the seventh-level students of the College of Education at King Khalid University Abha Saudi Arabia. The study followed the semi-experimental approach, which is the design of pre-measurement and post-measurement for two groups, the experimental group and the control group. The experimental group uses the method of networked collaborative learning through course codes to activate the research self-identity with the pre and post application of the research tool on the two research groups. The researcher applied the tool of Research Self Effectiveness Scale on a sample consisting of (25) students from the College of Education. The study confirmed the learning effectiveness of the networked collaborative learning in developing the research effectiveness of the experimental group.

KEY WORDS: EFFECTIVENESS – COLLABORATIVE NETWORKED LEARNING – RESEARCH SELF-IDENTITY.

INTRODUCTION

The current era is witnessing rapid and changing technological progress in all areas of life in general and particularly in the field of education, and to keep pace with this, e learning has become an entry and a starting point for the strategic development of the educational process and educational institutions. Thus, new concepts emerged based on scientific and theoretical foundations related to e-learning such as virtualization, network, personality, and the use of various web technologies and tools to provide a collaborative electronic learning environment of a personal and social nature that increases the effectiveness of communication between teachers and students. These electronic environments have been indispensable in our lives, as the intensive use by some students has helped them to meet their social, academic, and psychological needs. (Ozad & Uygarer 2014)

Zaitoun (2005) referred to the modern trend in e-learning. He explained that it applies e-learning to a group of learners in a collective, collaborative manner called the "collaborative e-learning style", and with the emergence of the new generation of the Web (Web2), which includes many social programs such as "blogs", forums, wikis, and others, the concept of e-learning and how to interact with it has changed to be more interactive and more specialized. These collaborative e-learning environments contribute to improving individuals' awareness of their own effectiveness and their research skills. Self-efficacy is one of the important matters for the individual; it is through the individual's personal beliefs about his own efficacy that he can achieve the goals he seeks. Therefore, the individual with high effectiveness has more persistence, endurance, and perseverance to accomplish tasks. It makes him more balanced, less stressed, more self-confident, and obtaining his goals without attacking others or infringing moral and legal rules (Al-Ma'aytah, 2000).

More recently, the concept of self-efficacy appeared in the field of scientific research, so the definition of "Forester et, al., 2004" explained that it is "the effectiveness of the research self-identity as the confidence in the performance of tasks associated with conducting research successfully. However, " Unrau & Beck, 2005" determined that the effectiveness of Research self-identity is defined as confidence in the implementation of research activities from organizing a research plan to carrying out a research process from office research to reading, writing and publishing research. In light of the above, the researcher considered the need to encourage female students in the collaborative learning groups, and to provide appropriate support and conditions that help them raise the level of effective research self-identity. This is the starting point for the researcher in studying the effectiveness of collaborative-networked learning in developing the research self-identity, including scientific research skills among students of the College of Education for Girls at King Khalid University.

The study of Hamada and Ismail (2014) aimed at measuring the impact of designing a collaborative e-learning environment based on some Web 2 tools in accordance with the principles of communicative theory on developing personal knowledge management skills among computer students by conducting a research experiment on students of the fourth year in the Department of Educational Technology. They were randomly distributed into two groups: the first experimental group is taught through a collaborative e-learning environment based on Web 2.0 tools that was designed through the Moodle learning management system. It is linked to Web 2.0 tools like wiki, Facebook, and blogs. The second experimental group is taught through a traditional e-learning environment designed using the Moodle system Learning Management Chat tool for synchronous communication and Forum tool for asynchronous communication.

The results of the current research confirmed the effectiveness of both the collaborative e-learning environment based on some Web 2.0 tools and the traditional e-learning environment in developing personal knowledge management skills for computer students in favor of post-performance. The results also showed that the collaborative e-learning environment based on some proposed Web 2.0 tools outperformed the traditional e-learning approach in developing personal knowledge management skills for educational technology students. The study of Al-Yateem and Al-Sayyad (2015) aimed at finding out the effect between two types of educational designs (blogs) on gaining knowledge in mathematics among secondary school students in Bisha. The chosen sample was divided into two experimental groups with one design assigned to each group – one of the two designs is based on Hypertext, the other design is based on super graphics in the engineering unit in mathematics. The results showed that there is a change in the two experimental groups in knowledge acquisition after applying the two designs.

The study of Abu Hashim, Abu Al-Layl, Allam and Kamel (2016) aimed at revealing the effect of using a collaborative e-learning environment on developing some self-organization skills and mathematics achievement among high school students. The research relied on the semi-experimental method. The research group consisted of (30) students from the second grade of secondary school in one of the Al-Azhar institutes in Ismailia Governorate. The research tools were represented in an achievement test in the dynamics unit of the second grade secondary school students. The theoretical framework of the research was based on several elements such as the collaborative e-learning environment, the characteristics of the collaborative e-learning environment, the importance of employing the participatory e-learning environment in teaching and learning mathematics. In addition, it also focused on the collaborative e-learning environment, the characteristics of blogs, the justifications for using blogs in the collaborative e-learning environment, the importance of educational practices to employ blogs within the collaborative e-learning environment, and the considerations that must be taken into account when designing the collaborative e-learning environment. The results of the research indicated that there were statistically significant differences at the level of significance of (0.01) between the arithmetic average scores of the control students group and the experimental group in the post measurement of the achievement test in favor of the experimental group.

The research recommended the necessity of using the collaborative e-learning environment in different school subjects. It also raises the need to prepare training programs for teachers to develop the skill of using the collaborative e-learning environment, and the need to spread awareness of the importance of activating the collaborative e-learning environment because of its effective role in building the educational process and developing achievement. The research suggested studying the effect of using the collaborative e-learning environment on developing achievement in other school subjects. The study of Arnout (2017) also aimed at identifying the level of research effectiveness of the self-identity among graduate students and revealing the differences in the effectiveness of the research self-identity according to the influence of some demographic variables. The researcher used the descriptive and comparative causal approach. A random sample of (671) students was selected. The results of the application showed a decrease in the effectiveness of the research self-identity.

Ismail's study (2019) sought to measure the effect of the interaction between the design of the evaluation method and the pattern of corrective feedback through digital platforms and its effect on developing the effectiveness of the research self-identity and making professional decisions among graduate students. The semi-experimental approach was used based on the global design (2 x 3). The research sample consisted of (90) master's degree graduate students in the field of educational technology. They were randomly divided into

(6) experimental groups of (15) members each. The two tools of the study were a measure of the effectiveness of the research self-identity consisting of (5) dimensions namely research initiative and perseverance, research planning, research effort, seeking research assistance, and research writing effectiveness.

It included (40) items, and the professional decision-making scale included (40) items. The results related to both the effectiveness of the research subject and the professional decision-making showed the effectiveness of the discussion method compared to the video interview method via the digital platform, and the effectiveness of corrective feedback after discussion with peers compared to the corrective feedback after discussion with the teacher and direct corrective feedback. The existence of statistical significant differences due to the basic effect of the interaction between the design of the evaluation method and the pattern of corrective feedback via digital platforms. The study of Abu Bakr and Ahmed (2020), which dealt with identifying the relationship between organizational conflict management methods like cooperation, negotiation, avoidance, coercion, settlement and job bliss and self-efficacy of research among faculty members at Minia University. The researchers prepared three measures namely organizational conflict management methods, job bliss, and research self-efficacy. The basic study sample consisted of (252) faculty members in some colleges of Minia University. The results of the study found that there is a positive correlation between the methods of cooperation, negotiation, and settlement as well as job blissfulness and the effectiveness of the research self-identity among faculty members at the university.

Research Problem: Through e-collaborative learning, students learn through collaborative groups via the Internet, which is a type of e-learning based on the participation of each group in learning lessons and implementing educational projects, and includes synchronous and asynchronous collaborative learning (Loo, 2004).

Here, the vital role of interaction in the collaborative e-learning environment emerges, which encourages students to be active and pushes them to continuous education and engage in learning and actively participate in multiple learning activities through various e-learning tools in collaborative interactive environment. The latter is characterized by the abundance of open learning resources, open access and open search seeking to build knowledge autonomy and the acquisition of learning experiences that enable students to achieve learning goals on their own. In addition, interaction in e-learning via the web is a communicative dialogue between the learner and the e-learning program and gives him/her a degree of freedom to actively participate in learning and building information (Sheikh, 2013). Self-identity is one of the most powerful processes of self-regulation. When self-efficacy is of a high level, one gains confidence in his ability to perform behaviors that control a difficult circumstance and self-identity in this case can be

considered a form of confidence. (Bim, 2010) According to Pandora, self-identity in the field of scientific research is confidence in the ability to carry out research activities including organizing research plan, library research, reading, writing, and publishing (Lei, 2008).

The collaborative e-learning environment via the web is one of the environments in which the various tools and capabilities of the Internet can be used in developing problem-solving skills if they are appropriately constructed. Employing Internet tools are the best employment to serve the collaborative learning environment (Al-Sayed, 2013). (Alsurehi & Youbi 2014) explained that many universities in the Western world are using a range of student social networking applications in order to facilitate and enhance communication, collaboration and research. Some foreign studies also indicated that social media has greatly benefited in meeting human needs for belongingness, self-confidence and self-realization. It allowed university students to satisfy many needs according to the "Maslow" hierarchy of human needs and help them improve academic achievement, complete academic tasks, and enhance social interaction with classmates and members of the teaching staff as in the study of (Ahmad 2012).

In light of the above, the researcher found during the teaching of a "Research Seminars " course for seventh-level students at the College of Education for Girls at King Khalid University, that many students prefer electronic participation through various blogs and forums such as discussion forums on the blackboard system to perform the required tasks and information with their peers in that course. In fact, the course of the research circle is advanced and has a special nature that requires research with high skills and the generation and application of knowledge so that students can understand and apply their knowledge in preparing research plans. The tasks and educational activities in this course needs to build knowledge and effective communication through collaborative learning via the Internet in the blackboard e-learning system to complete those tasks and activities in the course. The researcher stressed the need to examine the effectiveness of network collaborative among these students and measure its role in developing the effectiveness of their research self-identity in the course of Research Circle by trying to answer the following question: What is the effectiveness of collaborative networked e-learning in developing the research self-identity among the students of the College of Education at King Khalid University?

In order to answer this main question, the validity two hypotheses will be tested. The first of which states, "there is a statistically significant difference between the pre and post measurement of the experimental group on the measure of the effectiveness of the research self-identity in favor of the post measurement". The second hypothesis states, "there is a statistically significant difference between the two groups of experimental and control research on the measure of the effectiveness of the research self-identity in the course forums after using

the collaborative learning method in the network in the post-measurement for the benefit of the experimental group.

METHODOLOGY

The semi-experimental approach was used, which is the design of the pre-measurement and the post-measurement for two groups, the experimental group and the control group. The experimental group uses the collaborative learning method in the network through the course codes to activate the research self-identity with the pre and post application of the research tool on the two research groups. The researcher applied the tool of the effectiveness of the research self-identity scale on a sample consisting of (25) female students from the College of Education at King Khalid University by conducting the apparent validity of each of them to verify the validity of the content.

It was presented in its initial form to a group of referees including professors specialized in educational psychology, psychometrics, pedagogy, curricula and teaching methods, and educational technology. In light of their opinions and directions, some modifications were made, including deletion and addition, in line with the nature of the sample in the current research until the research tool reached its final form to be applied to the current research sample. The researcher determined a measure of the effectiveness of the research self-identity in the following dimensions: The ability to succeed In the course of the research circle – the ability to choose a research problem – the ability to collect literature – the ability to choose a systematic design –

Table 1. Shows the significance of the differences between the pre and post measurement for the experimental group on the research self-efficacy scale

Dimensions of the Research Self Effectiveness Scale	Comparison group	Arithmetic Average	Standard Deviation	T value	level of significance
The ability to succeed in the course of the research circle	Pre	7.72	1.43	8.68	Significant at 0.01
	Post	12.84	3.11		
The ability to choose a research problem	Pre	6.92	1.85	30.64	Significant at 0.01
	Post	11.56	1.85		
The ability to collect literature	Pre	13.24	1.66	17.20	Significant at 0.01
	Post	20.68	1.82		
The ability to choose a systematic design	Pre	7.36	1.50	37.29	Significant at 0.01
	Post	12.40	1.38		
Efficient data analysis, interpretation and recommendations	Pre	7.04	1.43	20.31	Significant at 0.01
	Post	12.08	1.73		
Total marks	Pre	42.28	3.39	34.51	Significant at 0.01
	Post	69.56	4.75		

Data analysis competence, interpretation, and recommendations. It was formulated in (28) phrases. After that, she calculated the validity and reliability of the scale, and the results showed that the scale has its ability to distinguish between individuals. As for reliability, the Alpha Cronbach equation was used and the results showed that the reliability coefficient is high and statistically significant at a level of significance (0.01). The study community consisted of female students from the College of Education at King Khalid University. The research sample consisted of (50) female students of the seventh level who are studying the " Research Seminars " course at the College of Education for Girls in Abha at King Khalid University. The sample was divided into two groups, the experimental group of (25) female students and the control group of (25) female students. The researcher believes that the selection of female students at King Khalid University in this research was done on the basis that they are a distinguished age group in the Saudi society characterized by maturity, vitality and the ability to assume responsibility. Moreover, they are taught in the final stage of university education and use the tools of collaborative networking represented in Blogging to develop and activate their research self-identity.

Statistical Results: The first hypothesis validity test: To verify the validity of this hypothesis, the research self-efficacy measure was applied in the " Research Seminars" course on the members of the experimental group before and after the use of the networked collaborative learning method. The arithmetic average scores of the experimental group in the pre and post measurements were compared on this scale as a total grade. The following table shows the results related to this hypothesis.

It is evident from the data of table (1) that there is a statistically significant difference between the pre and post measurement of the experimental group on

the measure of the effectiveness of the research self-identity before and after the use of the collaborative learning method in the network in the overall score and dimensions by (0.01) in favor of the post-measurement of the experimental group. This result can be explained by the superiority of the experimental group members in the post-measurement on the measure of the effectiveness of the research self-identity due to the use of the collaborative learning method on the network through the course notes on the blackboard system.

Here, students independently implement the steps of scientific research, organize the research plan and display information while they have a high degree of confidence in their capabilities and capacities to perform the tasks required in the " Research Seminars " course codes with high skill. They can identify the research problem and write it distinctly and search for books and references by themselves in the electronic library on the King Khalid university website and other electronic resources such as "Google". This scientific activity related to scientific research skills that students perform on their own in the " Research Seminars " course blogs increases significantly the effectiveness of the research self-identity. This result

is consistent with the findings of the studies of (Vaccaro, 2009), (Amin and Muhammad, 2009), (Al-Dukhani, 2015), (El Desouki, 2015), and (HeidariGorji et. al, 2015) whose results agreed that there is a strong relationship between the motivation to learn and the effectiveness of the research self-identity.

The second hypothesis validity test: To verify the validity of this hypothesis, the research self-efficacy measure was applied to all the sample members (the experimental group – the control group) after completing the use of the networked collaborative learning method, and the arithmetic average scores of the two groups were compared on this scale as a total degree. The following table shows the results related to this hypothesis. It is evident from the data of table (2) that there is a statistically significant difference between the two groups of experimental and control research on the measure of the effectiveness of the research self-identity after the completion of the use of the collaborative learning method in the network in the overall degree and dimensions, where the values of "T" ranged between (6.588 – 19.815), which are significant values at A level (0.01) in favor of the experimental group, and this indicates that the third hypothesis has been fulfilled.

Table 2. Illustrates the significance of the difference between the experimental and control groups On the research self-efficacy scale after completing the networked participatory learning method

Dimensions of the Research Self Effectiveness Scale	Comparison group	Number	Arithmetic Average	Standard Deviation	T value	level of significance
The ability to succeed in the course of the research circle	Control	25	8.08	1.82	6.588	Significant at 0.01
	Experimental	25	12.84	3.11		
The ability to choose a research problem	Control	25	6.96	1.86	9.419	Significant at 0.01
	Experimental	25	11.56	1.58		
The ability to collect literature	Control	25	13.08	1.52	16.006	Significant at 0.01
	Experimental	25	20.68	1.82		
The ability to choose a systematic design	Control	25	7.08	1.75	11.904	Significant at 0.01
	Experimental	25	12.40	1.38		
Efficient data analysis, interpretation and recommendations	Control	25	7.08	1.38	11.290	Significant at 0.01
	Experimental	25	12.08	1.73		
Total marks	Control	25	42.28	4.97	19.815	Significant at 0.01
	Experimental	25	69.56	4.75		

Whereas, the students of the experimental group, as indicated by the statistical evidence shown in Table (3), have benefited from the use of the collaborative learning method in the network to acquire scientific research skills in the course of the "Research Seminars" and were able to satisfy their psychological needs (such as a sense of self-worth and freedom of expression), academic needs (Such as participating in the topics of the course decision and increasing motivation and improving the level of academic achievement), intellectual needs (such

as exchanging opinions and ideas easily, developing critical thinking and enriching intellectual outcomes) in the course forums on the blackboard system. This contributed to the development of their research self-identity in a positive and effective tangible manner as compared to the control group that did not use the networked collaborative learning method and their research self-identity was very low. This confirms the effectiveness of networked collaborative learning in developing the research self-identity in the " Research

Seminars " course among the seventh-level students of the kindergarten department at the College of Education at King Khalid University. Moreover, this is in agreement with the findings of the studies of (Hamada, 2014), (Al-Rehaily, 2014), and (Abu Hashem, 2016), which agreed that the use of the e-learning collaborative environment has a great impact on learners.

Findings and Recommendations: Through the application of the study methodology and its tools, the study confirmed in its results the effectiveness of using the collaborative network learning method in developing the effectiveness of research among the students of the experimental group, which led to the enhancement and acquisition of scientific research skills, the satisfaction of their psychological and academic needs, the increase of motivation and the improvement of academic achievement. This result can be explained by the fact that the superiority of the experimental group members in the post-measurement over the research self-efficacy scale is attributed to the use of the collaborative learning method on the network through the course codes on the blackboard system. At this level, each student independently implements the scientific research steps from organizing the research plan and presenting information while she is of a high degree of confidence in her capabilities and capacities to perform the tasks required in the "Research Circle" curriculum blogs with high skill. She can identify the research problem, write it distinctly, and search for books and references by herself in the electronic library at the King Khalid University website and other electronic resources such as "Google scholar".

The scientific activity related to the scientific research skills practiced by each student on her own in the " Research Seminars " course blogs significantly increases the effectiveness of their research self-identity. They have benefited from the use of the collaborative network learning method in acquiring scientific research skills in the course of the " Research Seminars " and they were able to satisfy their psychological needs (such as a sense of self-worth and freedom of expression), academic needs (such as collaborative in the subjects of The research circle course, increasing motivation, improving academic (and intellectual) achievement (such as exchanging opinions and ideas easily, developing critical thinking and enriching intellectual outcomes) on the blackboard system course blogs.

This contributed to the development of their research self-identity in a positive, tangible and effective way compared to the control group with whom the network collaborative learning method was not used, so their research self-identity was very low. This confirms the effectiveness of networked collaborative learning in developing the research self-identity in the "Research Circle" course among the seventh-level students of the Kindergarten Department of the College of Education at King Khalid University.

The study recommends, based on its results, to make use of the participatory network learning method in developing critical thinking skills, self-development, and developing personal, academic and skillful abilities among university students, as well as the necessity of holding training courses for university faculty members to develop the skills of using online collaborative learning tools such as blogs and discussion forums in the educational process. Moreover, there is a need for educating faculty members about the importance of networked collaborative learning in developing the research self-identity among university students, also encouraging university students to have confidence in their abilities and capabilities to implement scientific research steps with skill and accuracy, as well as supporting the method of online collaborative learning in teaching electronic courses to achieve high quality learning outcomes.

Conflict of Interest: Author declares no conflicts of interests to disclose.

Ethical Clearance Statement: The Current Research Work Was Ethically Approved by the Institutional Review Board (IRB) of King Khalid University, Abha Saudi Arabia.

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