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Using a Project-Based Blended Learning Program to Enhance EFL Secondary Stage Al-Azhar Students' Psychological Flow

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Abstract

This research aimed at studying the impact of a project-based blended learning (PBBL) program on enhancing EFL secondary stage Al-Azhar students' psychological flow. The participants of this research were (58) second year Al-Azhar secondary stage students at Fisha Banah and Meet Masoud Secondary Institutes, Aga, Dakahlia, Egypt. The research adopted the quasi-experimental design using two groups: an experimental group (n= 28) and a control one (n= 30). To collect data, the researcher used a psychological flow scale consisted of thirty-six items. The researcher taught both groups: the experimental group was taught through the PBBL program, while the control group was taught through the regular method of teaching. Research results revealed that there was a statistically significant difference between the mean score of the experimental group and the control group in the psychological flow scale in favor of the experimental group. Moreover, the effect size of the PBBL program was found to be high. Thus, this research recommended embedding the psychological flow dimensions during the teaching and learning processes.

Key words: Project-based blended learning, psychological flow, EFL

Introduction

Flow study, or what is known as optimal experience or subjective experience appeared when Csikszentmihalyi interviewed some people, including chess players, artists, rock climbers, musicians and dancers, to investigate the nature and conditions of enjoyment. These people mentioned that enjoyment was the main reason for completing an activity. This enjoyment is resulted from flow in which creativity and productivity come out from the mind smoothly. Csikszentmihalyi introduced flow as the subjective experience in which the person engages in challenges to achieve some goals and get immediate feedback feedback (Csikszentmihalyi, 1975).

In 1990, Csikszentmihalyi used the term "optimal experience" to describe those occasions in which people feel a sense of exhilaration, a deep sense of enjoyment, which they appreciate for long and that becomes a

turning point in their lives. The optimal state results when consciousness is ordered; and this happens when people are focused on realistic goals with their skills matching the task challenges. The main element of an optimal experience is being an end in itself. It may be undertaken for other reasons but the activity soon becomes intrinsically rewarding. In other words, it is autotelic. (Auto means self and teleos means goal).

In education, students are in dire need for methods and strategies that encourage them to be engaged and interested in learning EFL. This result is supported by many studies in the field of teaching English as a foreign or a second language (e. g. Aubrey, 2018; & Amini, Ayari, & Amini, 2016).

Technology has provided many opportunities to help students' motivation and engagement (e. g. Nassir, 2014 Simeonov, 2017; Elsadek, 2018; & Carreon, 2018). Due to the development of modern technology, it became a necessity to integrate technology with the processes of teaching and learning. Besides, students are greatly interested in using computers and the internet. Thus, teachers can make use of this in incorporating technology in teaching. The merge of face-to face learning and online learning can result in what is called blended learning. This type of learning can increase the students' motivation and interest in learning English, and consequently increase their psychological flow (Alebaikan & Troudi, 2010).

Projects are based on cooperation. Therefore, project-based blended learning may enhance students' cooperation and motivation; and consequently increase their psychological flow level while engaging in meaningful and systematic projects. Thus, this research adopted the project-based blended learning to enhance EFL secondary stage Al-Azhar students' psychological flow.

Review of Literature and Related Studies

Nature of Psychological Flow

Flow state is a mental state according to positive psychology. Csikszentmihalyi and Rathunde (1993) described flow as "a subjective state that people report when they are completely involved in something to the point of forgetting time, fatigue, and everything else but the activity itself" (p. 59). Flow has largely been regarded as a short-term phenomenon—a construct that is only useful when applied to single, distinct experiences (Dörnyei, 2009).

Psychological flow research can be traced through the work of researchers in 1980s and 1990s who studied activities of flow. These studies

assured the essential forms of the flow state, presenting how universal they are across activity contexts. Through interviews, research results have yielded particular descriptions of deep flow in various activities: different types of sports; literary writing; artistic and scientific creativity; social work; and aesthetic experience (Csikszentmihalyi & Robinson, 1990; Colby & Damon, 1992; Csikszentmihalyi, 1996; & Jackson & Csikszentmihalyi, 1999).

Widely investigating the creative process in the 1960s, Csikszentmihalyi was fascinated by the fact that when an artist working on a painting going well, he/she continues single-mindedly, forgetting hunger, fatigue, and boredom. However, he/she rapidly loses interest in the painting once it has been completed. Flow theory and research had their origin in the tendency to understand this phenomenon of being intrinsically motivated, or autotelic activity (activity that is rewarding in and of itself; auto = self, telos = goal), apart from its final product or any extrinsic reward that might result from the activity (Csikszentmihalyi, 2014).

Dimensions of Psychological Flow

There are four dimensions of flow based on Egbert's (2003) observations. But, Jackson (2014) elaborated the idea of flow and its dimensions. Flow occurs when the individuals move beyond their average experience of challenge and skill. A balance of challenges and skills is one of nine key dimensions of flow. The other flow dimensions are action-awareness merging, clear goals, unambiguous feedback, concentration on task, sense of control, loss of self-consciousness, time transformation, and autotelic experience. These dimensions are also called as "the elements of happiness" and they are discussed as follows:

- ■ *Balance between challenge and skills*: Flow needs a balance between identifying task difficulty and the person's abilities.
- ■ *Merging of action and awareness*: Action and awareness make the person totally involve in the action.
- ■ *Clear goals*: To be in a flow state, there should be clear, achievable and measurable goals.
- ■ *Direct and immediate feedback*: After doing the activity, there should be clear and meaningful feedback.
- ■ *Concentration on the task*: The individual should completely focus their attention on the 'here and now' task or activity.

- *Sense of control*: Flow experience means that the individual has a sense of control, he/she does not worry about losing control in any situation.
- *Loss of self-consciousness*: It is the ability to focus on the goal without worrying about the opinions of others.
- *Distortion of the sense of time*: The sense of time is completely altered. Hours and minutes seem to pass quickly or slowly.
- *Autotelic experience*: Here, the activity is characterized by internal pleasure, whether there are external reinforcements or not.

Measuring Psychological Flow

Psychology scientists have searched for methods for measuring flow state. But recently, there has been increasing interest in developing methods used in flow research (Richardson, 1999). The research has resulted in different ways to be used in measuring flow. Below is a discussion of the most common methods used in measuring the flow state.

Interview

Interview presents a holistic, emic account of measuring the flow experience in real-life like. It in an effective tool in initially determining and defining dimensions and identifying dynamics of the flow experience. Interviews provide rich and integrated description of the flow state.

Questionnaire

A questionnaire is an important and effective tool in collecting information. In a flow questionnaire, the individuals are introduced to several questions or statements describing the flow state such as: if they have been through the experience; how many times; and in what kind of activities (Csikszentmihalyi & Csikszentmihalyi, 1988). In order to get accurate responses about flow activities, Csikszentmihalyi (2000) presented the original interviews to a dancer, a rock climber, and a musician.

The Psychological Flow Scale (Mayers 1978) elicits an estimate of the frequency with which a person experiences each of nine dimensions of the flow experience (e.g., ''I become involved, 'I get direct clues about how good my performance is). The scale was repeated many times to measure the differences across various activity contexts to identify to what extent the flow dimensions are experienced. Delle Fave and Massimini (1988) used the flow questionnaire and flow scale to know about a person's flow activities. Then the person's rating of the flow dimensions for primary flow activities is compared with those for a standardized set of everyday activities (e.g., work, TV viewing). More recently, paper-and-pencil scales have been

developed to measure the flow state in particular contexts, including sports and psychotherapy (Jackson & Marsh, 1996; & Parks, 1996).

In this research, the researcher adopted Csikszentmihalyi's psychological flow scale which focuses on the nine dimensions of flow and contains thirty-six items. The thirty-six items scale was adapted Jackson and Marsh (1996) and given to fifteen 2nd year secondary students at Sangeed secondary Institute for Girls, Aga, Dakahlia Governorate, after being validated by psychology professors at Faculty of Education, Mansoura University. The researcher wanted to measure the students' flow level while engaging in EFL speaking and writing activities before and after implementing the PBBL program.

The Theory of Psychological Flow in Teaching and Learning a Foreign Language

Learning a foreign language is a complicated cognitive activity involving many psychological phenomena, such as information identification, attention distribution, memory, and thinking (Lin, 2000). Applying psychological flow theory in foreign language teaching can effectively improve the learners' interest in learning this language, increase their motivation, and improve their participation in learning. The most favorable English input should increase learners' interest in learning, which should be the exploratory materials attracting learners to learn continuously. During their exploration, learners forget how the input content is presented, but they focus on knowing English input content directly.

Egbert (2003, p. 502)) introduced a model that shows the relationship between flow and language acquisition. The model illustrates that a well-prepared task and learners' high skill in using the foreign language and appropriate tools can result in the flow state. Consequently, flow leads to learners' enhanced performance; then leads to changes in the learners' skills and abilities to use the language. In other words, although flow is an individual experience not occurring in isolation, it depends on individual skills, the tasks teachers assign, the environment, and other participants.

However, there are some principles that teachers should take into consideration in order to create and achieve flow in a foreign language classroom (Guan, 2013): These include: (1) task design in foreign language teaching and learning: Teachers need to provide clear, interesting, and achievable tasks. Also, there should be clear goals and a balance between challenges and skills; (2) the environment in which the learning task takes

place: Learners should reasonably distribute their attention and avoid interference to achieve the optimal learning state. Students should have a sort of self-dependence without any interference from their teachers or peers. Besides, the task should be important and meaningful to students; and (3) the performer of the learning tasks: Learners should understand the task at hand and have a sense of self-control over the task or the activity.

Studies Related to Students' Psychological Flow

There are few studies that investigated the relation between psychological flow and learning. Below are some of them:

Mahmoud (2018, in Arabic) investigated the relationship between psychological flow and the level of aspiration among Faculty of Education students, taking into consideration the variables of sex and academic specialization. The study participants consisted of 138 students, and their ages ranged from 21 to 22 years. The researcher designed two scales to measure the psychological flow and the level of aspiration. Study findings revealed the positive relationship between the psychological flow and the students' level of aspiration.

The study of Aubrey (2017) explored the relationship between flow and engagement in second language (L2) use for inter-cultural and intra-cultural task-based interactions in a Japanese classroom for EFL learners. The study adopted the quasi-experimental design in which learners in the inter-cultural group ($n = 18$) and the intra-cultural group ($n = 18$) completed five dialogic, oral tasks. Tasks were then repeated, during that time the intra-cultural group continued to perform the tasks with Japanese peers, while the inter-cultural group performed the tasks with international interlocutors ($n = 18$). Concerning the relationship between flow and engagement in L2 use, analysis of flow questionnaires and task transcripts indicated that inter-cultural task interactions had a significant positive correlation between flow and turn-taking.

Amini, Ayari, and Amini (2016) investigated the relationship between task-induced state of flow during vocabulary acquisition activities and the achievement in terms of short-term and long-term vocabulary acquisition. Sixty five learners at an English Language Institution participated in vocabulary acquisition tasks aimed at engaging learners cognitively and affectively in the state of flow. To measure flow state the "Flow Perceptions Questionnaire" in the Likert format (Egbert, 2003) was used. The result indicated that flow existed in the vocabulary learning classroom and that there was a significant relationship between the level of

flow state and vocabulary retention both in immediate and delayed measurements.

AL-Ukayli and AL-Mohammadawy (2015, in Arabic) examined outstanding secondary stage students' psychological flow and its relation to self-regulation. Research participants consisted of 314 male and female students in Karkh and in Rusafa, Baghdad. The researchers used two instruments; a psychological flow scale and a self-regulation scale. Results revealed the positive correlation between the psychological flow and self-regulation of the study participants.

Investigating the state of psychological flow has started by the positive psychologist Csikszentmihaly since the seventeen's. The psychologist assures that when a person has interest in a certain activity and emotionally engaged in doing it, he/she experiences a state of psychological flow. This state explains why some people enjoy their work, study, sports, etc., while others do not.

This research investigated how or to what extent using a project-based blended learning program could improve the students' psychological flow level concerning learning English, when engaging in doing speaking and writing activities. Thus, project-based learning, with its blended part, is discussed below.

Project-Based Learning (PBL)

Education in the 21st century has witnessed great changes due to the use of modern technology. Therefore, educationists call for embedding the 21st century skills in the educational curricula. These skills include Critical thinking, communication, collaboration and creativity, in addition to using technology effectively. This can be achieved through using various teaching strategies and approaches; and project-based learning is one of them. To better understand PBL and how it implies these skills, there should be a discussion of the theory behind it, which is the constructivism theory.

Project-Based Learning (PBL) is a strategy that maximizes students' role in learning, as it takes into account the principles of constructivism. It is simply defined as a learning strategy which is organized around projects (Larmer, Markham, & Ravitz, 2003). In a PBL classroom, students themselves do the planning, implementation, reflection, and evaluation of their learning by using authentic tasks, such as solving a problem or a task which is constructed based on real-life topics (Westwood, 2008).

For a project to be considered PBL, there are five criteria: centrality, driving question, constructive investigations, autonomy, and realism. They are discussed in detail by Thomas (2000) as follows:

1- Projects are central, not incidental to the curriculum. In PBL, the project is the central teaching strategy; students meet and learn the central concepts of the discipline via the project.

2- Projects are focused on questions or problems that "drive" students to meet (and struggle with) the central concepts and principles of a discipline. The questions that students try to answers, as well as the activities, products, and performances that occupy their time, must work in harmony for the service of an important intellectual purpose.

3- Projects engage students in a constructive investigation. This investigation requires a clear goal that involves inquiry, knowledge building, and resolution. Investigations may have many types such as designing, decision-making, identifying a problem, problem-solving, discovery, or model-building.

4- Projects are student-driven. They are not teacher-led, or designed. But, they incorporate students' autonomy, choice, unsupervised work time, and responsibility than traditional classroom activities.

5- Projects are realistic, not school-like tasks. They give students a feeling of authenticity. These characteristics can include the topic, the tasks, the roles that students play, the context within which the work of the project is done, the project products, the audience for the project, or the criteria by which the products or performances are assessed.

Thus, a project is meaningful if it accomplishes two main criteria: first, students must realize the work as personally meaningful; and second, it is done for an educational purpose. For students, a project is meaningful when they have a clear idea about seven requirements that this project has to fulfill: a desire to know; a driving question; student voice and choice; develop 21st century skills represented in communication, collaboration, critical thinking, and using technology; inquiry and innovation; feedback and revision; and publishing the final product (Larmer & Mergendoller, 2010).

Importance of Project-Based Learning

Engaging students in active learning gives them the chance to search, solve problems, and produce and present their production. This type of learning makes students the center of the learning and teaching processes.

Boudersa and Hamada (2015, p. 31) identified the following points of importance of project-based learning:

- Preparing students for work place
- Increasing students' motivation
- Connecting learning at school with students' real life
- Providing collaborative opportunities to construct knowledge
- Increasing social, communication, and problem-solving skills
- Helping students make and see connections between disciplines
- Providing opportunities to contribute to students' community
- Increasing students' self-esteem
- Allowing students to use their individual learning strengths and various approaches to learning
- Providing a practical , real world way to use technology
- Research has introduced PBL as an achievable and flexible alternative to traditional intense language programs. It helps teachers to merge academic instruction with real-life situations in communicating across cultures. This strategy of learning encourages students to improve their overall skills while increasing their ability to do group work. It also helps students manage their time effectively. Students are assessed based on their final projects, not just being given marks for doing exams or writing essays and reports. Therefore, assessment of project-based work is often more realistic and meaningful to them. Furthermore, PBL is an important and useful way to connect learning and technology, as well (Foss, Carney, McDonald & Rooks, 2007).

Project-Based Learning Elements

Learning in the 21st century should ensure students to acquire skills including those related to work habits and characters that are believed to be essential to achieve success in life. Learning activities must ensure that students have (1) learning and innovation skills; including critical thinking skills and problem solving, communication and collaboration, creativity and innovation; (2) information, media, and technology skills; and (3) life and career skills (Trilling & Fadel, 2009). To achieve these skills, students require an educational program that is capable of developing human resources in order to become competitive persons; and help them use technology as it should be emphasized in the project (Bender, 2012).

There are six essential elements of project-based learning (PBL). They are discussed as follows (Edutopia, 2007, cited in Sepulveda, 2016) :

1- Start with the essential question: It is the problem or challenge posed to students to solve. This should be an open-ended question. Each group should be able to come up with a unique answer or solution. Essential questions should be suitable to students' level and be relevant and authentic.

2- Plan the project design: Think about what linguistic and content skills are necessary to students to learn as they work on the project and find ways to make sure students must practice and develop these skills during the project. Think about how they will gather the information they need – online, from classmates, from books, from community members, etc. Set clear objectives for the project and think about what the outcome will be. This outcome is a student-created product or performance (e.g. poster, presentation, paper, role play, story, script, video, digital story, brochure, book, etc.).

3- Provide students' choices: Even though the teacher has designed the project, think about ways students can make choices about to approach or develop the project. The more students are involved in making their own choices, the more invested they will be in the project. (Deci & Ryan, 2000).

4- Create a schedule: The teacher should think about how long the project will last and set a deadline. Sometimes students can get stuck or off-track. Projects can be large or small. Thus, the teacher has to think about what is appropriate for the students and teaching context.

5- Assess the outcome: The teacher should think about how he/she will assess students' work, and what the skills to be evaluated are. Projects are not for fun, so the teacher should make sure to have clear learning objectives and a good way to assess them.

6- Find a wider audience: The teacher should find ways that help students share their products outside of the class. Can they post them on a class blog? Share with other students at a school assembly? Put posters in the hall? Invite parents to see their outcomes? The purpose of finding a wider audience is making student work seems more authentic, providing extra value to their work, and making students feel proud about their achievements (Hickey, 2014).

Project-Based Blended Learning

To get the new abilities, learners can use the internet and social media like chatting on the messenger, and using Facebook and Whatsapp to learn more about English speaking communities and their cultures which will develop their productive skills and their knowledge about the target language and its use (Rodinadze & Zarbazoia, 2012). In fact, the use of technology has changed the teaching methods from teacher-centered to learner-centered ones. As a result, teachers should be facilitators and guide their learners' learning; this change is very useful for learners to increase their learning (Riasati, Allahyar, & Tan, 2012).

Parvin and Salam (2015) carried out a study and declared that by using technology, learners get the chance to increase their exposure to language in a meaningful context and make their own knowledge.

Alsaleem (2014) conducted a study on using WhatsApp applications in English dialogue journals to improve learners' writing, vocabulary, word choice, and speaking ability. Based on the results of this study, it was concluded that WhatsApp showed improvement in learners' writing skills, speaking skill, vocabulary, and word choice.

Therefore, in this research, project-based learning is combined with online learning to create a project-based blended learning. This combination was hoped to improve students' productive skills and increase their psychological flow.

Challenges of Applying PBL in EFL Classrooms

Although PBL is an effective way that helps students be more active in the learning process, it has some challenges and problems during applying it in the classroom, as well. Marx, Blumenfeld, Krajcik and Soloway (1997) identified the problems that teachers may face during using PBL in the classroom as follows:

- **Time:** Projects often last for a long time.
- **Classroom management:** If the teacher wants students to work productively, he\she has to balance between the need to let students work on their own and the need to keep order in the classroom.
- **Control**: Teachers have to control the flow of information, but at the same time, they should give students the opportunity to build their own knowledge and understanding.
- **Support of student learning:** Scaffolding students' activities causes a sort of difficulty for teachers. They need to choose between giving them too much independence or too much modeling and feedback.

- **Technology use:** Teachers have a difficulty integrating technology into the classroom, especially as a cognitive tool.
- **Assessment:** Teachers, sometimes, find it difficult to design assessment tools that require students to show their understanding.

Assessing PBL

Assessment is to effectively measure students' learning outcomes using varied tools, such as academic standards, rubrics, teacher's observations, performance assessments, portfolios, and regular tests. Good teachers use the data from students' assessments and reflection of their own teaching to plan and set their future teaching goals (Norman & Hayden, 2002).

Projects are similar to well-written stories, as they have a beginning, a middle, and an end. This gives the teacher a chance to design activities according to the development of the students' interests and personal engagement in the topic of study. The 'end' is the assessment, and without it, students' projects will have little focus; students will have little direction; and the results will be unsatisfactory (Chard & Katz, 2001).

Various methods can be used to assess PBL, such as: rubrics; portfolios; and E-portfolios (Frei, Gammill & Irons, 2007). They are discussed in detail in the following paragraphs.

Rubrics

Generally, the rubric explains the guidelines for a project. This rubric is a list of objectives; what the student will do or be able to do as a result of doing the assignment. For every objective, a rubric will determine performance indicators, which mean the observable evidence that the students have gained the objectives knowledge, or skills to varying degrees, each degree is assigned number of points leading to a grade. (Warlick, 2005).

Peer Evaluations

Peer evaluations can also be unreliable when friends are part of the same groups. But, with more accountability on individuals within a group, motivation can occur naturally. There are many ways that students can grade their group members including peer nominations, peer rankings, and peer ratings. Regardless of the type of peer evaluation, students find that rating their peers is in PBL projects is very important (Lim, 2012).

Self-Evaluations and Reflections

Self-evaluations are important as they give students a chance to self-regulate their learning. Bender (2002) suggests that these two types of evaluation can be done throughout and at the end of a project. He also advocates that doing this gives teachers an opportunity to hold student-teacher conferences to determine what their "real" self-evaluation should look like. Warren (2016) recommends thinking of reflections in three phases: in-action, on-action, and for-action. The last phase allows students to think about how they can improve on the next project.

Portfolios and E-portfolios

Portfolios and E-portfolios (electronic portfolios) have been recently used to assess students' engagement in project-based learning. Portfolios are collections of students' work and the outcomes of their learning. Students have the right to select the products that they feel best show their learning and skills. E-portfolios are digital portfolios that are stored on computers. They may contain presentations, writings, and other products done by students using the computer. They may also contain other work or products that have been scanned and stored digitally (Frei, Gammill & Irons, 2007).

Studies Related to Using PBL and Blended Learning in Enhancing Students' motivation, attitudes, and psychological flow

Some studies investigated the effectiveness of PBL in improving different aspects students' psychological and affective variables.

Masrom and Yusof's study (2013) revealed the positive result of working in groups in a PBL classroom on students' self-confidence, commitment and responsibility. In like manner, creativity in PBL activities were reported by Talat and Chaudhry (2014) who concluded that after being treated using a PBL model of teaching, students developed creativity through providing creative ideas and language use. Erdem (2012) found that PBL could increase students' enthusiasm towards learning.

The study of Elsadek (2018) aimed at developing some EFL speaking skills and reducing anxiety among faculty of Education students using electronic project-based learning (EPBL). Participants of the study were 27 first year English section students at faculty of Education, Benha University. Instruments of the study included a speaking skills checklist, a speaking skills test, a speaking skills rubric and a speaking anxiety scale. The study results showed that the students' speaking skills were significantly developed and their speaking anxiety was reduced due to the EPBL.

Nassir (2014) investigated the effect of a project-based learning strategy on ninth graders' achievement level and their attitude towards English in governmental schools - North Governorate. The researcher chose 76 girls from Halima Assadia prep school for girls in Annazla, Jabalia, Palestine as the study participants. Instruments of the study were a pre-post achievement test, a pre-post speaking evaluation card and a pre-post attitude scale. The findings revealed that the experimental group outperformed the control group in the post application of the achievement test, attitude scale and speaking card; due to the use of project-based learning.

Statement of the Problem

Based on the researcher's experience as an EFL teacher for 15 year and the review of literature, the research problem was stated as follows:

Second year secondary stage Al-Azhar students' psychological flow is low while engaging in doing EFL speaking and writing activities.

Therefore, the researcher suggested using a project-based blended learning program as a means of enhancing the students' psychological flow level.

Research Questions

1- What is the effectiveness of a project-based blended learning program in enhancing second year secondary stage Al-Azhar students' psychological flow level?

Hypotheses

This research attempted to verify the following hypotheses:

1- There is a statistically significant difference at the ≤ 0.05 level between the mean score of the experimental group and that of the control group on the post administration of the psychological flow scale in favor of the experimental group.

2- There is a statistically significant difference at the ≤ 0.05 level between the mean score of the experimental group on the pre and post administration of the psychological flow scale in favor of the post administration.

Purpose

The present research aimed at:

1- Determining the effectiveness of the project-based blended learning program in improving second year secondary stage Al-Azhar students' psychological flow level.

Significance

It was hoped that the present research would contribute to:

1- Enriching literature concerning using project-based blended learning in enhancing second year secondary stage students' psychological flow level.
2- Drawing EFL teachers' attention to the importance of creating a relaxing learning environment to increase their students' psychological flow level.

Delimitations

This research was delimited to:

1- The participants of the study: Second year secondary stage Al-Azhar students (58 female students at Fisha Banah and Meet Masoud Secondary Institutes, Aga, Dakahlia Governorate).
2- The nine dimensions of Csikszentmihalyi's psychological flow

Methodology:

Participants

The participants of the current research were second year secondary stage Al-Azhar students. Fifty-eight students were selected from Fisha Bana Secondary Institute for Girls and Meet Masoud Secondary Institute for Girls in Aga Administration, Dakahlia Governorate. The participants were chosen according to the feasibility, as each institute had only one second year secondary class enrolled in the literary section during the academic year 2019/2020. The participants were divided into two groups; experimental and control.

Design

The current research adopted the quasi-experimental design to apply the PBBL Program. The participants were divided into two groups: experimental and control. The experimental group was taught through using the proposed PBBL program to improve their speaking and writing skills. At the same time, the control group continued to study according to the prescribed method in the Teacher's Guide of the Ministry of Education. The pre-post psychological flow scale was administered to both groups before and after the program. The results of the pre-post psychological flow scale analyzed by using a *t*- test for independent samples.

Instruments

The present research made use of the following instrument:

1- A psychological flow scale to measure students' psychological flow level.

Definition of Terms:

Project-Based Learning (PBL):

Hallermann, Larmer and Meregndoller (2011) defined PBL as "a systematic teaching method that engages students in learning important knowledge and 21st century skills through an extended, student-influenced inquiry process structured around complex, authentic questions and carefully designed products and learning tasks" (p. 5).

The researcher defined project-based blended learning (PBBL) as a strategy that includes a number of activities, including planning, data collection, problem –solving and evaluation, done by students who work in groups inside and outside the classroom, via the internet. The main target is to work collaboratively in order to speak fluently and write properly.

Psychological Flow:

Flow is "a state in which people are so involved in an activity where nothing else seems to matter; the experience is so enjoyable that people will continue to do it even at great cost, for the sheer sake of doing it" (Csikszentmihalyi, 1990, p. 45).

Flow was defined as "a state that is characterized by enjoyable feelings, concentration, immersion, and intensive involvement" (Chen, 2006, p. 222).

Results and Discussion

The results of the research are statistically analyzed in terms of its hypotheses and they are discussed in the light of the theoretical background and related studies. Research results were reported as follows:

The first hypothesis stated that "**There is a statistically significant difference at the ≤ 0.05 level between the mean score of the experimental group and that of the control group on the post administration of the psychological flow scale in favor of the experimental group.**"

To verify this hypothesis, the *t-* test was used to compare the mean score of the two groups in seven dimensions of the scale: (D1) Balance between challenge and skills; (D2) Merging of action and awareness; (D3)

Clear goals; (D4) Direct and immediate feedback; (D5) Concentration on the task; (D6) Sense of control; and (D7) Loss of self-consciousness. The results are shown in table (1):

Table (1): Comparing the level of the control and experimental groups on the post-administration of the psychological flow scale

Dimensions	Groups	N	Mean	S. D.	t	df	Sig.
D1	Exp.	28	14.7	2.04	10.3		
	Ctrl.	30	8.70	2.41			
D2	Exp.	28	14.1	1.54	14.2		
	Ctrl.	30	7.80	1.81			
D3	Exp.	28	14.9	1.82	12.3		
	Ctrl.	30	8.97	1.83			
D4	Exp.	28	14.1	1.75	11.9	56	0.05
	Ctrl.	30	8.63	1.75			
D5	Exp.	28	14.8	1.94	9.83		
	Ctrl.	30	8.70	2.67			
D6	Exp.	28	14.3	1.86	13.5		
	Ctrl.	30	8.33	1.47			
D7	Exp.	28	15.1	1.59	12.9		
	Ctrl.	30	10.4	1.16			
Total	Exp.	28	133.6	9.44	19.1		
	Ctrl.	30	83.1	10.6			

Results in table (1) reveal that the mean score of the experimental group students in every dimension of the first seven dimensions of the scale was high. For the experimental group, the mean score ranged from 14. 1 to 15.1 compared to the control group which ranged from 7.80 to 10. 4. The t-values were significant at the 0.05 level in favor of the experimental group, as they were (10.3, 14.2, 12.3, 11.9, 9.83, 13.5, 12.9, and 19.1) for the seven dimensions and their total score. This indicates that there were statistically significant differences between the control group and the experimental group in the post application of the psychological flow scale (in 7 dimensions) in favor of the experimental group. This means that the PBBL program helped in enhancing the experimental group's psychological flow level.

At the pre administration of the psychological flow scale, there were significant differences between mean score of both experimental and control

groups at dimensions 8 and 9 ((D8) Distortion of the sense of time; and (D9) Autotelic experience) as shown in table (2):

Table (2): The level of the control and experimental groups on the pre-administration of the psychological flow scale (dimensions 8 and 9)

Dimensions	Group	Mean	S. D.
D8	Exp.	14.2	1.52
	Ctrl.	10.8	1.14
D9	Exp.	17.6	.88
	Ctrl.	10.8	1.73

Therefore, ANCOVA was used to determine the significance of differences between experimental and control groups at these two dimensions. Table (3) shows the ANCOVA analysis:

Table (3): Comparing the level of the control and experimental groups on the post-administration of the psychological flow scale (dimensions 8 and 9)

Dimensions	Source	Sum of Squares	df	Mean Square	F	Sig.
D8	Pre	38.1	1	38.1	33.8	.01
	group	120.8	1	120.8	107.2	.01
	Error	61.9	55	1.13		
	Total	272.2	57			
D9	Pre	13.3	1	13.3	7.75	.07
	group	537.7	1	537.7	313.9	.01
	Error	94.2	55	1.71		
	Total	778.6	57			

According to the significance of F value, there are significant differences between mean score of both experimental and control groups in dimensions (8, 9) in favor to the experimental group.

The second hypothesis stated that **"There is a statistically significant difference at the ≤ 0.05 level between the mean score of the experimental group on the pre and post administration of the psychological flow scale in favor of the post administration."**

To verify this hypothesis, the *t*-test for dependent samples was used to compare the difference between the mean score of the experimental group students in the psychological flow scale before and after the implementation of the PBBL program. The results are as shown in table (4):

Table (4): Comparing the level of the experimental group on the pre – post administration of the psychological flow scale

Dimensions	Test	Mean	N	S. D.	t-	df	Sig.
D1	Pre	7.69	28	2.42	15.6		
	Post	14.7	28	2.03			
D2	Pre	6.46	28	1.88	18.4		
	Post	14.1	28	1.54			
D3	Pre	8.86	28	2.38	13.6		
	Post	14.9	28	1.82			
D4	Pre	7.93	28	1.90	12.9		
	Post	14.1	28	1.75			
D5	Pre	8.25	28	3.13	12.5	27	0.05
	Post	14.8	28	1.94			
D6	Pre	7.00	28	2.28	17.5		
	Post	14.3	28	1.86			
D7	Pre	10.8	28	2.11	9.09		
	Post	15.1	28	1.59			
D8	Pre	11.4	28	1.22	9.43		
	Post	14.2	28	1.52			
D9	Pre	11.3	28	2.23	14.8		
	Post	17.6	28	.88			
Total	Pre	79.7	28	14.6	22.2		
	Post	133.6	28	9.44			

Results in table (4) illustrate that the total *t*-test value was (22.2) and it was significant at the 0.01 level, and difference was in favor of the post administration of the psychological flow scale. This value difference between the mean score was > 0.5 (133.6).

These results supported the significance of the *t*- test values for the difference between the pre- and post- administration of the psychological flow scale on the experimental group. Table (5) shows results of the effect size of the PBBL program on the students' psychological flow level:

Table (5): Effect size of the PBBL program on improving the experimental group students' psychological flow

Dimensions	t	η^2	Effect size
D1	15.6	0.90	
D2	18.4	0.93	
D3	13.6	0.87	
D4	12.9	0.86	
D5	12.5	0.85	high
D6	17.5	0.92	
D7	9.09	0.75	
D8	9.43	0.77	
D9	14.8	0.89	
Total	22.2	0.95	

Results in table (5) indicate that all values of η2 are greater than 0.15, so the effect size was high. Also, the participation of the project-based blended learning program in the psychological flow variance was 95%.

Conclusion

Based on the statistical analysis of the psychological flow hypotheses, it was clear that the experimental group students outperformed the control group students in all the psychological flow scale dimensions, and the *t*-values were highly significant at 0.01 level. Besides, the experimental group's post psychological flow scale results were much better than the pre scale results. These findings indicate that the project-based blended learning proved to be more effective in increasing the participants' psychological flow level.

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