

Gender and Motivation in Problem-Based Learning

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ABSTRACT: Motivation is considered the heart of the learning process that is affected by many factors, among which there is gender. Therefore, the researcher conducted a quantitative research method to investigate the relationship between gender and motivation sub-themes while using problem-based learning. Nine female students and eleven male students of the second baccalaureate level participated in the current research through using the convenience sampling technique. The quasi-experimental research design, a quantitative research method, is used to conduct this study to analyse cause-effect relationships between the variables being studied. Then, the participants were given a five-point Likert scale questionnaire to fill in. The SPSS software was used to analyse data. The findings demonstrated that there was a positive relationship between gender and students' achievement and motivation sub-themes.

KEYWORDS: Gender, motivation, gender and problem-based learning.

1 INTRODUCTION

Many scholars acknowledge the importance of motivation in learning as it can influence what, when, and how a learner learns (Pintrich & Schunk, 2002). Whereas motivated students tend to engage in activities that they believe will help them learn, unmotivated students are not able to be systematic in making an effort in learning, as are motivated students (Chafi, 2016). The importance of motivation is often emphasized in the field of language learning. That's, students' learning process becomes more successful by using motivational teaching methods that can enhance students' learning efficacy, and engage both males and females in the learning process. However, based on the review of literature and some studies, students' motivation in problem-based learning differs between males and females. It is believed that female students are highly motivated in the learning process and perform better than male students. Thus, the main aim of this study is to find out the extent to which both male and female students differ in terms of motivation sub-themes while using problem-based learning.

The present study addresses the following research questions:

1. Is there a relationship between gender and intrinsic motivation while using problem-based learning?
2. Is there a relationship between gender and extrinsic motivation while using problem-based learning?
3. Is there a relationship between gender and attitude motivation while using problem-based learning?

2 RESEARCH HYPOTHESES

A research hypothesis is the prediction about the possible outcome of the research or the experiment a researcher is conducting (Stofile, 2017). For this research study, the following hypotheses are tested:

- a. There is a significant relationship between gender and intrinsic motivation while using problem-based learning.
- b. There is a significant relationship between gender and extrinsic motivation while using problem-based learning.
- c. There is a significant relationship between gender and attitude motivation while using problem-based learning.

3 DEFINING CONTEXT

3.1 MOTIVATION

Motivation is considered an important element for learning and teaching process, but there is no agreement on the exact definition of motivation. Different schools of thought dealt with motivation from different corners, which have made the concept very hard to define (Keblawi, 2009). The behaviouristic approach, for example, defines motivation as an outcome of prize and reward. However, the cognitivists see that motivation is related to learner's inner decisions. The constructivists consider that the individual and social interactions are the main factors that foster and increase learners' motivation. They suggest that both the learner and the learning environment should be at the centre in conceptualizing motivation. Although these schools of thought see motivation from different angles, they all agree on the idea that an individual has a desire to fulfil a need, and this need is seen as something rewarding.

When we think of how to encourage learners to be productive and self-reliant, we indeed deal with motivation. According to Williams (2013), motivation in education is one of the most important factors that teachers should target to improve learners' engagement in the learning process and achieve academic success. This is due to the fact that learners are complex with complex needs and desires. In other words, learners need to be all the time motivated so that learning can be a continuous consistent process.

PROBLEM-BASED LEARNING

Problem-based learning is an instructional method in which students are the centre of the learning process. They work in collaborative groups in order to solve a problem. They engage in self-directed learning and apply their prior knowledge to solve problems (Cindy & Hmelo, 2004). The role of the teacher in this method is to facilitate the learning process and provide the suitable learning environment for students. The goal of problem-based learning is to help students develop motivation, effective problem-solving skills, autonomous learning skills, and collaboration. To clarify, constructing extensive and flexible knowledge goes beyond learning only facts about the subject. It involves integrating information across multiple domains. Such knowledge is coherently organized around the deep principles in a domain (Chi, Bassok, Lewis, Reimann & Glaser, 1989). The development of problem-solving skills or metacognitive skills refer to the controlling processes of planning problem solving, monitoring progress, and evaluating whether goals have been met (Hmelo, 2004). Problem-based learning is well suited to helping students become active learners because it makes students bear the responsibility for the learning process (Collins, 1989).

3.2 GENDER AND LEARNING

Gender is about the characteristics of women, men, girls, and boys that are socially constructed. This contains norms, behaviors, and roles associated with being a man, a woman, a girl, or a boy, as well as relationships with each other. It is worth studying gender because it has a strong impact on the student's motivation and performance. Based on the review of literature, there is a difference between female and male students in terms of motivation and achievement in the learning process. Besides, according to Dayioglu & Turut-Asik (2007), gender affects learners' performance. That is to say, female students are more active and motivated in the learning process than male students, especially when they are given the chance to participate in the learning process. This requires that teachers should adopt modern teaching pedagogies that put both sexes at the heart of learning.

4 RESEARCH METHODOLOGY

The main aim of this study is to investigate the relationship between gender and motivation while using problem-based learning as a student centered learning pedagogy. A quantitative research method is used to statistically measure the relationship between the variables under study.

4.1 RESEARCH DESIGN

The research design is the structure of research that consists of all the elements in a research project together. The research design of this study contains: The research sample, the data collection method, the measuring instruments, the data collection procedure, the data analysis procedure, and the validity and reliability for the research instruments.

4.1.1 RESEARCH SAMPLE

To conduct the current study, the researcher creates a group of twenty participants: nine female students and eleven male students. They are from different classes of the second baccalaureate level in Kacem Amine high school. The researcher used the convenience sampling technique, a non-probability sampling type. This is due to the fact that this study is conducted only in one high school where participants are conveniently available because it is very difficult to have access to the full target population of all the second baccalaureate students in Morocco for a representative sample. Thus, the outcome of this study can be applicable only to the population of the high school where the present study is conducted.

4.1.2 DATA COLLECTION METHOD

The experimental research design, a quantitative research method, is used to conduct this study to analyse cause-effect relationships between the variables being studied. The results of the experimental design can be statistically analysed and so there can be little argument about the results.

4.1.3 MEASURING INSTRUMENTS

The current study uses a post-test and a five-point Likert scale questionnaire as main instruments to find answers to the research questions. These research methods are meant to collect data on gender motivation and achievement when they are assigned a problem-based activity.

4.1.4 DATA COLLECTION PROCEDURE

The researcher met all the participants in the classroom for two hours. The participants sat separately from each other. They were given a problem to solve in half an hour. The problem was related to the content of the textbook. Then, they were exposed to a post-test. After the test, they were given a five-point Likert scale questionnaire to fill in so that the researcher could know his participants' motivation and reactions about problem-based learning.

4.1.5 DATA ANALYSIS PROCEDURE

The Statistical Package for the Social Sciences (SPSS) is used to analyze raw data.

5 RESULTS**5.1 FINDINGS OF THE POST-TEST**

T-test was used to compare the means of female category and male category. Data was taken from the post-test grades. As stated in table#1#, the means of the two categories are different. The mean of females is 17, 67, whereas the mean of males is 14, 91. In addition, in the independent samples test table#2#, it is observed that the p-value is 0.001, which is smaller than 0.05. This indicates that there is a positive relationship between gender and motivation, and this relationship is statistically significant.

Table 1. Gender Distribution among Respondents

Group Statistics					
	Sex	N	Mean	Std. Deviation	Std. Error Mean
Students' grades	Female	9	17,67	,707	,236
	Male	11	14,91	1,044	,315

Table 2. Independent Sample Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Students' grades	Equal variances assumed	1,150	,298	6,741	18	<,001	2,758	,409	1,898	3,617
	Equal variances not assumed			7,010	17,484	<,001	2,758	,393	1,929	3,586

5.2 FINDINGS OF THE QUESTIONNAIRE

5.2.1 GENDER RELATIONSHIP WITH EXTRINSIC MOTIVATION

Pearson’s correlation tests are used to find the significant correlation between gender and students’ motivation sub-themes and the strength of the relationship between them. In one item of the extrinsic motivation items in the questionnaire, participants are asked if they are motivated by problem-based activity to receive attention, care, and good marks. The correlation table#3# shows that the correlation coefficient is (r =.508), and p-value=.022. As a consequence, there is a positive correlation between gender and extrinsic motivation, and this correlation is statistically significant.

Table 3. Correlations

Correlations

Gender	Pearson Correlation	1	,508 [*]
	Sig. (2-tailed)		,022
	N	10	10
Problem activities make me work hard to receive attention, care, and good marks from my teacher	Pearson Correlation	,508 [*]	1
	Sig. (2-tailed)	,022	
	N	10	10

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

5.2.2 GENDER RELATIONSHIP WITH INTRINSIC MOTIVATION

Participants are asked if the problem-based activity revives their inner energy to be responsible for their learning. According to the correlation table#4#, there is a positive correlation between gender and intrinsic motivation because the correlation coefficient is (r =.532). This correlation is statistically significant at the.016 level.

Table 4. Correlations

Correlations

Gender	Pearson Correlation	1	,532 [*]
	Sig. (2-tailed)		,016
	N	10	10
Problem activities revive my inner energy to be responsible for my learning	Pearson Correlation	,532 [*]	1
	Sig. (2-tailed)	,016	
	N	10	10

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

5.2.3 GENDER RELATIONSHIP WITH ATTITUDE MOTIVATION

Concerning the item of attitude motivation, participants are asked if the problem-based activity makes them love learning English, love their teacher, and classmates. According to correlation table#5#, the correlation coefficient is ($r = .554$). This correlation is statistically significant at the .011 level. This explains the fact that there is a positive correlation between the two variables, gender and attitude motivation.

Table 5. Correlations

Correlations			
Gender	Pearson Correlation	1	,554*
	Sig. (2-tailed)		,011
	N	10	10
Problem activities make me love learning English, love my teacher and my classmates	Pearson Correlation	,554*	1
	Sig. (2-tailed)	,011	
	N	10	10

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

6 DISCUSSION

The findings of the independent Sample t-Test reveal that females and males differ on the level of their overall achievement and motivation. In other words, the means of the two categories are different. The mean of females is 17, 67, whereas the mean of males is 14, 91. Besides, the means of the two groups are statistically significant because the p-values are smaller than the theoretical significance level. Moreover, Pearson correlation tests are also used to measure gender relationship with motivation sub-themes, namely extrinsic motivation, intrinsic motivation, and attitude motivation. The correlation tests show that there is a positive and statistically significant relationship between gender and students' extrinsic motivation because the value of the correlation coefficient is ($r = .508$), and the p-value is (.022). There is also a positive and statistically significant relationship between gender and students' intrinsic motivation because the correlation coefficient is ($r = .532$), and the p-value is (.016). Concerning attitude motivation, the value of the correlation coefficient is ($r = .554$). Furthermore, the p-value is (.011), which is less than (.05). This means that there is a positive and statistically significant correlation between gender and students' attitude motivation. Consequently, the alternative hypotheses stating that there is a predictive link between gender and students' motivation sub-themes are accepted.

Similar to what has been shown by the findings of the current study where gender is associated with students' motivation, gender issues have been discovered to play an important role in motivation and learning. In other words, the findings of the present study are supported by numerous studies such as: Caro et al., (2009), Garkaz, Banimahd & Esmaeili, (2011). These studies demonstrate that females perform better than males. The findings of this research are also supported by the study of Jelas & Ali, (2010). They claim that there are variances in the cognitive-motivational function of male and female in the learning process, and girls were found to have an extra adaptive attitude towards educational tasks.

7 CONCLUSION

Based on the findings of the present study and the findings of the previous studies that are conducted by other researchers to investigate the type of relationship between gender and students' achievement and motivation in the learning process, it is concluded that gender is one of the other main factors that affects students' achievement and motivation in the learning process. In other words, when female students are no longer passive learners and are given the chance to be responsible for their learning, they can be highly motivated and perform better than male students in the learning process. Besides, the gender variable is shown to have an effect on classroom participation. This, according to the study, may be due to the fact that most females are interested in the subject they are studying more than males, or it can be related to the teaching pedagogy the researcher relies on. Therefore, to make the subject more interesting for both males and females, teachers should create an active learning environment where students are given the chance to be the leaders of their learning process. This can be done

by adopting student-centred learning methods such as problem-based learning where students are put at the heart of the learning process.

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