

# Using Blended learning to develop skills of Object-oriented programming (OOP) for Faculty of Education students

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## Abstract

The recent paper aims at showing the importance of the blended learning to develop skills of Object-oriented programming (OOP) for vocational diploma students of instructional technology at faculty of education. The random study sample was formed of (17) students of the vocational diploma in the year (2018-2019) Two tools were used in the research including an accumulative test to measure the cognitive aspect of Object-oriented programming (OOP) As for the research findings. The cognitive accumulative test and the note card for the vocational diploma students showed differences with statistical significance at significant level ( $\leq 0.05$ ) between arithmetic means grades in the pre and post applications for the benefit of the post application.

**Keywords:** *Blended learning, Object-oriented programming, (OOP), university students.*

## Introduction

Gathering between face to face learning in classical classes teaching and the electronic modern ones. Blended learning introduces material and learning sources electronically in which students interacts with the content by doing educational activities. Benefiting from electronic feedback via using electronic learning data and content management systems such as blackboards and models which serve a good environment for students to interact with themselves . with teachers and with the educational content through communication tools (Al-Qushairi, 2009 ). Also. blended learning includes 3 systematic components: social. cognitive and educational. The process of learning is involved in the educational context which is connected to social elements. cognitive aspect. teaching process and the internet as a basic aspect for information technology (Averinou& Gialama , 2011). In fact. blended learning

becomes one of the educational ways which contribute to achieve educational process aims by acquiring knowledge and information face to face. using educational platforms. self and mutual learning. having students responsible for their learning through doing activities (Mirriahi. 2015). In her study. (Sayed & Al Shaer ,2019) focused on employing a suggested strategy based on a reinforced reality technology in blended learning environment. The study findings confirmed that the study sample showed a great admiration of the blended learning environment based on a reinforced reality which had a great effect on developing school achievement and skills of processing information. Object-oriented programming (OOP) is about programs helping computer user to set up his own programs by using any of the famous programming languages such as VB.net.( c++ . c# )and so on. These programs help to translate the written programs by using one of programming languages into a machine language which is easy for the computer to understand. The researcher concludes that programming is about orders

and instructions written by any of programming language to carry out a certain program. Written by any of programming language such as VB.net. Orders are translated into the machine language to be easy for computers to understand. Every programming language has rules and symbols defined according to the used programming language. (Youssef, 2015) introduced a study entitled by "the effect of using on electronic educational forum on developing skills of Object-oriented programming (OOP) by using visual basic.Net for prep school students. the findings showed the effectiveness of the suggested learning forum on developing skills of programming for students .Under the title of "the effect of interaction between the mutual learning existing in a transforming learning environment and the cognitive style for prep school students. (Mahmoud, 2015) tried in that study to develop programming skills and upgrade their school level in programming subject by using visual basic. Net. The findings proved students' excellence during sharing learning inside groups in both the cognitive and skillful aspect for programming skills in visual basic. Net. Moreover in his study (El-Morsy,2011) aimed at presenting programming skills "visual basic.Net" through using virtual classes to develop skills of computer application curriculum besides studying the effect of these virtual classes for fourth grade student specializing in preparing a computer teacher in faculty of qualitative education. The findings of the previous study showed differences with statistical significance regarding results of the accumulative test and the note card in the pre and post application at the benefit of the post application. The study also investigated the effect of the virtual class designed by visual basic .Net on developing programming skills. In their study. (Aql & Al Nahal, 2017) tried to employ a strategy of electronic projects to be used in developing skills of designing educational websites for the students in AlAqsa University in Gaza. The findings showed differences with statistical significance at significance level of  $\alpha=0.01$  between arithmetic means grades for experimental group students in the post application of the cognitive test and the evaluating card of skills to design educational websites in favor of the experimental group. The study recommended using the strategy of electronic projects to develop skills of designing educational websites to be included in study plans in instructional technology department.

## Methodology

The current study aims at knowing the effectiveness of the blended learning on developing skills of Object-oriented programming (OOP) for vocational diploma students of instructional technology at Faculty of education. The researcher used the sub experimental method particularly the mono group experimental design (pre-post). The research verifies 2 basic assumptions.

- There are differences with statistical significance at significant level of  $\leq 0.05$  between arithmetic means grades of the pre and post application in the cognitive accumulative test for vocational diploma students at department of instructional technology at the favor of the post application.
- There are differences with statistical significance at significant level of  $\leq 0.05$  between arithmetic means grades of the pre and post application in the note card for skills of creative mutual electronic performance for vocational students at the favor of the post application.

The study sample included (17) students from vocational diploma of instructional technology in the year of 2018-2019 besides designing a test to measure the cognitive aspect of Object-oriented programming (OOP) skills. a note card and using means and standard deviation. t-test to get the statistical analysis.

## Result

After testing the statistical assumptions. The study showed the following: there is a difference before and after the application for the experimental group at the benefit of the post application. Means of the pre application grades was (8. 0) which is fewer than the post application which was 47. 12.

That difference between means has a statistical significance because T value (30. 7) was higher than table T value (0. 05).

**Table 1. statistical significance for differences between means of performance grades in the cognitive aspect test in the subject of Object-oriented programming (OOP) for vocational diploma students**

| Group | Means  | Standard deviation | Degree of freedom | T value | Significant |
|-------|--------|--------------------|-------------------|---------|-------------|
| Pre   | 8.000  | 1.897              | 15                | 30.748  | 0.05        |
| Post  | 47.125 | 6.131              |                   |         |             |

Table (2) shows a difference between the pre and post application for the experimental group at the note card at the benefit of the post application. To illustrate. Means of the pre application grades was (11. 4) which was fewer than the post application means which was( 80. 6) That difference has a statistical significance because calculated "T" value was ( 81. 1) which was higher than table value of "T"(0. 05).

**Table (2) statistical significance of differences between means of performance grades in the card measuring the skillful aspect of Object-oriented programming (OOP). Skills for vocational diploma students in department of instructional technology in regard with the pre and post application.**

| Group | Means | Standard deviation | Degree of freedom | T value | Significant |
|-------|-------|--------------------|-------------------|---------|-------------|
| Pre   | 11.4  | 1.0                | 15                | 81.1    | 0.05        |
| post  | 80.6  | 3.9                |                   |         |             |

## Discussion:

An The previous findings showed the following:

- There is a clear effect of the blended learning on developing the cognitive aspect of Object-oriented programming ( OOP) skills because it gathers between the classic and electronic learning which considers the individual differences for students in the study sample and enables them to acquire skills.
- Having acquired the cognitive aspect of Object-oriented programming ( OOP) skills, a positive motivation was generated to help students to carry out these skills practically which led to acquiring new skills synchronically and non-synchronically.2.1. Page Layout

## Recommendations

- 1- The Designing practical programs depending on blended learning while teaching Object-oriented programming ( OOP) .
- 2- It is necessary taking care of developing the cognitive attainment, and skillful performance while teaching technological skills and practical aspects for post graduates students of faculty of education.
- 3- It is necessary for activities to be included in school curriculum to develop thinking for students.

## Conclusion

Blended learning is an important and international strategy used for achieving aims, so responsible persons should take care of it particularly at university..

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