Comparative Analysis for The Effect of Static and Motion Infographics on Achieving Intended Learning Outcomes (ILOs)

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Abstract

"A picture is worth a thousand words" is an expression that talks about the value and efficiency of visual communication, the use of educational aids within the educational environment helps the learner to understand more efficiently and effectively

These educational methods may depend on texts and images such as Static infographics, and movement, sound, and video maybe added to it such as Motion infographics.

There is no doubt that infographics are one of the ways to present complex and content-intensive information in a way that achieves Intended Learning Outcomes (ILOs) and supports cognitive, and intellectual skills.

Here the research problem appears in answering the question of what is the most appropriate educational method to achieve the intended learning outcomes of the curricula (Static infographic or Motion graphics) in terms of the effect and arousal of a group of senses at the same time.

The research aims to optimize the use of infographics to achieve the targeted learning outcomes of the curricula. The importance of the research is due to choosing the best educational method for transferring scientific information by measuring the speed of assimilation, remembering and understanding of students.

To achieve the goals of the research, the researcher used the **descriptive-analytical** approach in the theoretical framework to define the concept, types, and workflow of the implementation of educational infographic and the **experimental** approach in the applied framework through designing a Static Educational model and another Motion graphics model and measuring the impact of each of them on achieving the educational outcomes targeted for the course of graphic design foundations as well as a questionnaire for students on How effective is each one of the models as an educational tool?

Key Words

Infographic, Motion Graphics, Intended Learning Outcomes (ILOs), Teaching Aids, Learning Styles.

Research problem

The research problem is summarized in answering the following questions:

1. What is the best Teaching Aid for achieving the intended learning outcomes of the curricula (Static infographic or motion infographic) for the university education stage?

2. What is the impact of the use of visual educational media (Static infographic) and audio-visual educational media (motion infographic) supported by multimedia on absorption, instant recall, and the ability to apply and retrieve information?

Research Aims

1. Identify the best methods of employing infographics as a Teaching Aid method to achieve the intended learning outcomes for the academic curricula of university education.
2. Determine the effect of Static and motion infographics as a Teaching Aid in transferring scientific information and achieving the intended learning outcomes of the curricula.

Research Importance

The importance of the research lies in directing towards employing infographics in its various styles as an effective educational method to achieve the targeted learning outcomes of the curricula.

Research Methodology

The researcher used the descriptive analytical approach to collect information and analyze the results, the researcher also used the experimental approach through designing a static and motion educational infographic and measuring the impact of each on achieving the targeted learning outcomes.

Research Hypotheses

The optimal use of educational aids to support the visual educational pattern (Static infographic) and the visual and auditory style (Motion infographics) lead to the achievement of the targeted learning outcomes for the curricula.

Research limits

Thematic limits: The use of Static and Motion infographics as a Teaching Aid in the course of graphic design basics and measuring the intended learning outcomes of the course.
Place Limits: Department of Printing, Publishing, and Packaging - Faculty of Applied Arts - Helwan University.
Time limits: six academic weeks for the academic year 2017-2018, the first semester.
Human limits: 28 students - divided into two groups equally.

Research themes

First: The Theoretical& Analytical Framework
To achieve the goals of the research, the researcher estimated the theoretical and analytical study to:
1. Teaching Aids and learning Styles.
2. Educational Infographics (understandable, Features & Types and Workflow).

Second: The Practical Framework
The researcher aims from the applied practical framework to determine the optimal educational method to achieve the targeted educational outcomes. Therefore, the researcher followed the following steps as shown in the following figure to achieve the goal through 6 weeks.
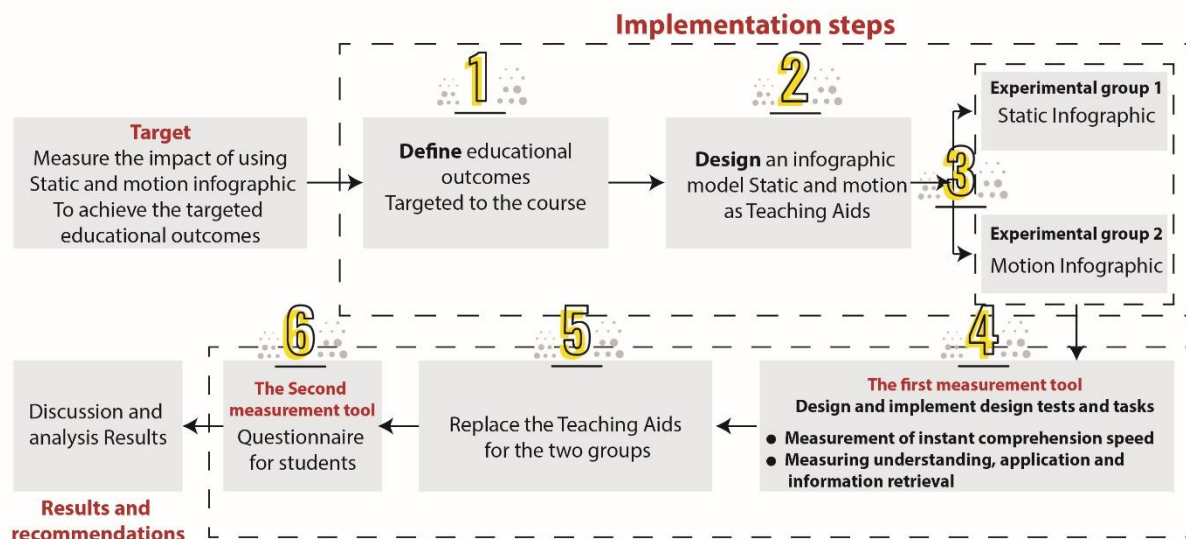
Steps to implement the practical application of the research

1- Determine the Study Sample

That experience was applied in teaching the course of Fundamentals of Graphic Design for the first year in the Printing, Publishing and Packaging Department of the Faculty of Applied Arts, Helwan University - the academic year 2017/2018 for 28 students who were divided into two groups, each group consists of 14 students.

2- The Time Range of The Research

The time range for the application of the research phases was determined by 6 study weeks, which is the time allocated according to the course description for assessing the work of the year for the fundamentals of graphic design.

3- Procedural definitions

Instant absorption: It is the amount of achievement of the informational content during the lecture time and it is measured by an achievement test of the ability to recall the information (remembering) at the end of the lecture time.

Information retrieval: It is the amount of what the learner achieved from the educational outcomes and targets (knowledge and understanding skills, mental skills, professional and practical skills, general and transferable skills) and is measured by the average achievement of the aforementioned skills.

4- The researcher has determined the intended educational outcomes of the course during the time period for conducting the research as follows:

• **Knowledge and Understanding skills**: The student can learn the elements and foundations of graphic design.

• **Intellectual skills**: The student can analyze and criticize design patterns according to the rules and principles of graphic design.

• **Professional and practical skills:** employment and application of design elements to achieve the foundations of graphic design in some design models.

• **General & Transferable skills:** the ability to effectively demonstrate the design business models implemented by the student.
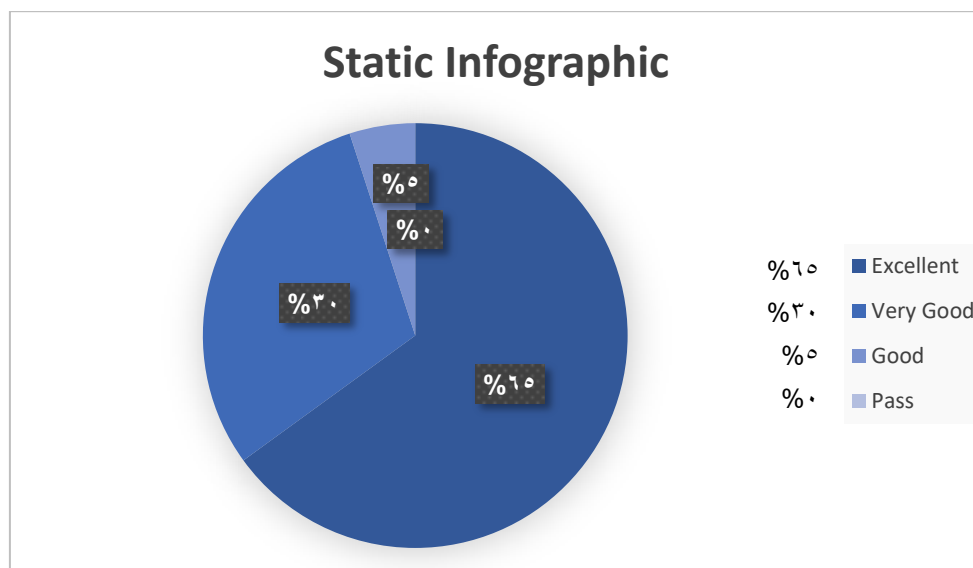
5- The researcher divided the specified research sample into two groups:

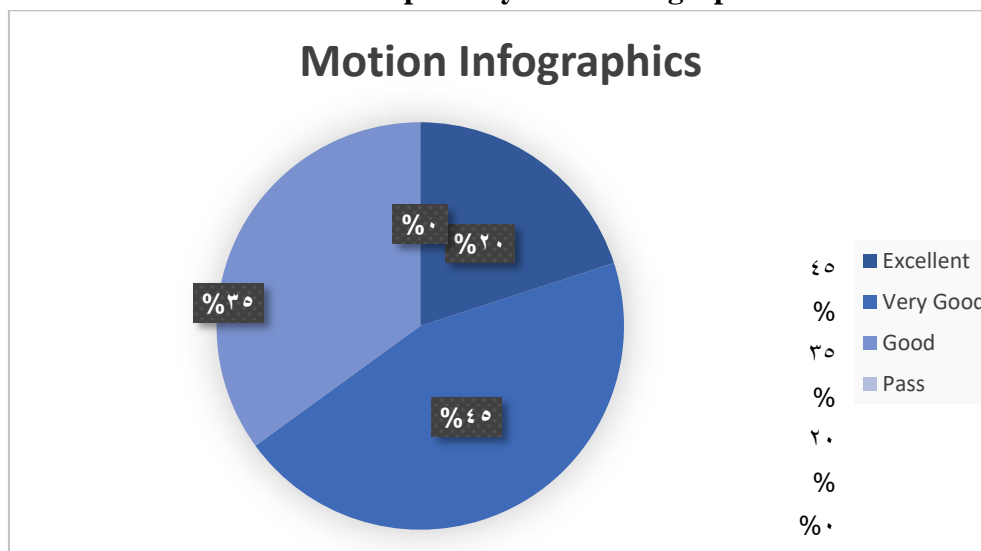**Group 1:** was used static infographics as a teaching aid.

Group 2: was used motion infographics as a teaching aid.

6- Discussion

The following figure shows the students 'estimates to measure the intake rate for the first and second group for the first week.
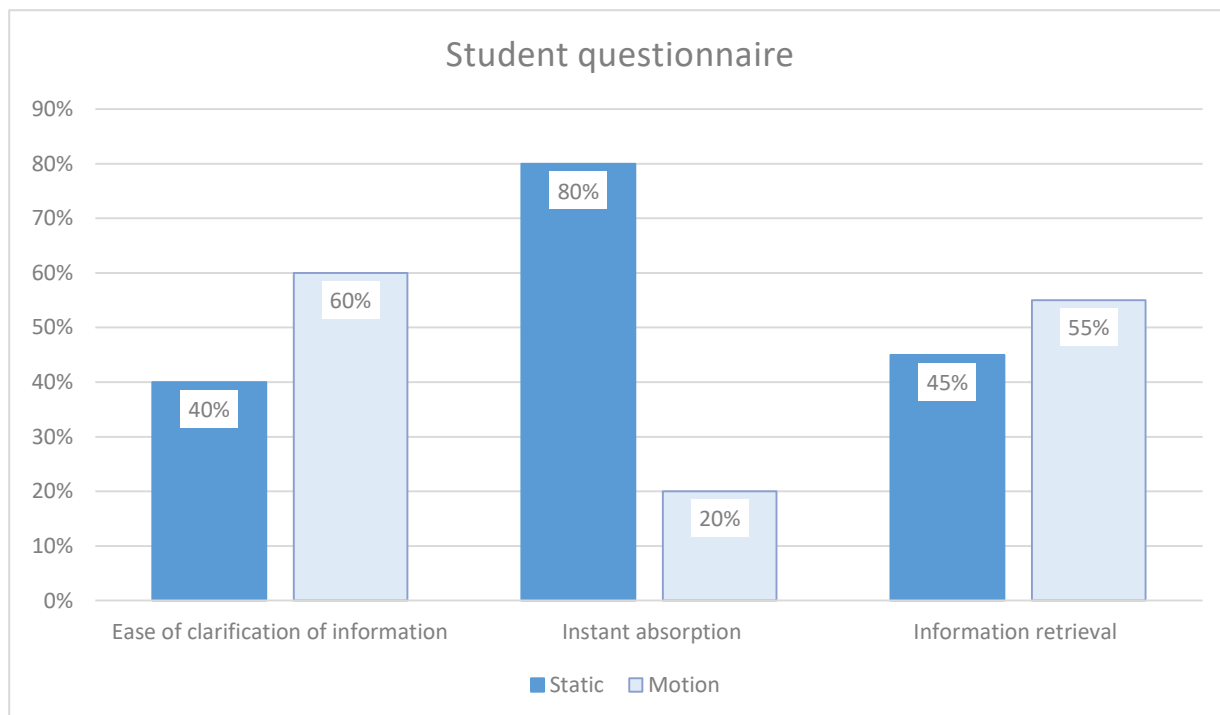

Instant absorption by Static Infographics

Instant absorption by Motion Infographics

The following figure shows the result of the questionnaire, students, for the effect of fixed and moving infographic

The following figure shows students' estimates to measure the rate of retrieval, analysis and application of information, which represents the average estimates for both groups from the second week to the fifth week.
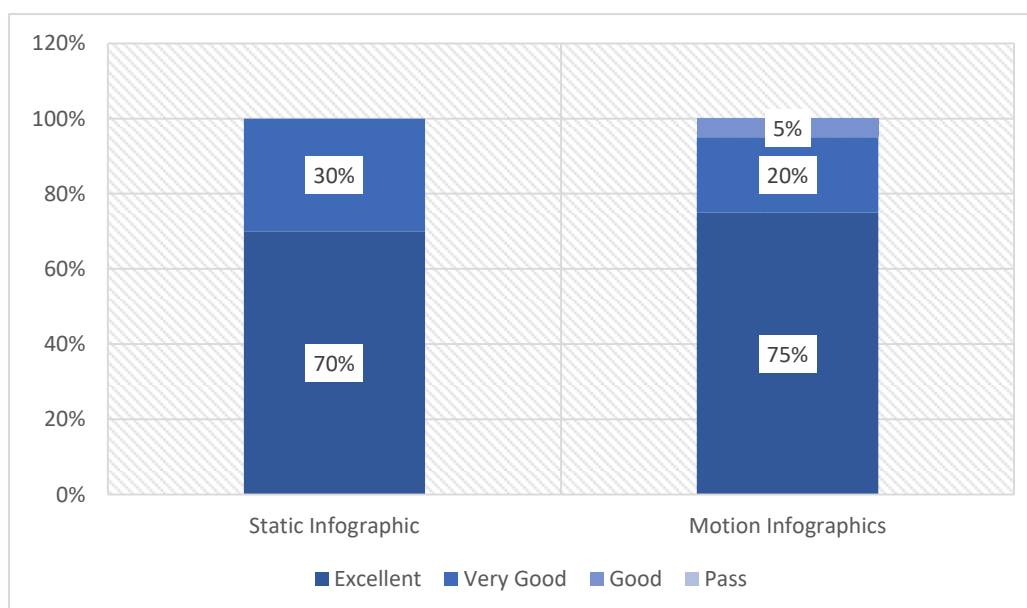
7- Results

1. The visual image is a powerful learning tool, more influential than the verbal and textual pattern of information retrieval.

2. Static and Motion infographics as an educational tool that plays a major role in helping the teacher to perform his functions, improving the teaching and learning process, and achieving the targeted educational extracts, each with its characteristics, advantages, and uses.

3. Static infographics support the process of remembering and instant absorption of the learner with a greater percentage of Motion infographics.

4. Motion infographics supports the process of understanding and retrieving information for the learner with a greater percentage than Static infographics.

5. When using infographics as Teaching Aids, it must be designed and directed according to the content and purpose of the course.

8- Recommendations

1. Activating the visual style in education using infographics in its various styles as an educational method.

2. Infographics represents a powerful and effective visual pattern for the transmission of scientific information, but when using infographics as an educational method, coordination should be chosen that will help in communicating information content more effectively.

3. Urging to increase scientific research and Arabic books that explain the means and methods of preparing infographics with its various patterns in support of the educational process.

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