

Learning processes of high school students in an online environment:
Website design on the subject of geology of Israel

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Abstract:

This study focused on the design of digital activities on the geology of Israel. Through this activity, we wanted to learn about (a) the prerequisites that influence students' entry to work on-site (for example, the teacher's preparation, technical limitations, motivation); (b) The way to create meaningful learning processes in e-activity; (c) The contribution of the animation and the various learning tasks on the site for the student's learning process and (d) Characterization of the teachers' use of the various components built for them on the site.

The research structure included the following steps:

Pre-development research included gathering information through questionnaires towards students' attitudes towards working with a computer and the Internet, self-learning, and towards the subject Geology of Israel.

- The development stage. It included the design of the activity design in two phases. The activity included animations of complex geological processes. Various activities were developed to create a better understanding of the different stages of those processes. The study population included 106 students of five 11th grade earth science classes from various high schools.

The study was based on various qualitative research tools such as video photography, classroom observations, interviews with students and teachers, and student entry data analysis.

The study's findings led to the following improvements of the design: how to choose the images, the option for teachers to select and put questions to students, inserting clues to connect the student with relevant information to the question, and enabling teachers to view their students' answers.

The students' findings indicated that the changes made in the development stages of the design contributed to improving students' learning processes.

This study raises several suggestions for improving the design of the activity:

- a) Ensure the insertion of texts only essential to the site and submission of textual activity pages to support site work.
- b) Preparation of students to learn from hypertextual texts
- c) Introduction of pre-activity to work on a site that will create a cognitive conflict with the process illustrated in the animation, which will improve the ability of students to understand the process illustrated in animation.

In addition, this study highlights the influence of self-learning abilities on the quality of learning in the digital environment. At the same time, it is suggested that teaching in the digital environment should be based on personal mediation.