

## Література

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### VIDEOS FOR MATHEMATICS AT SCHOOL IN SECONDARY LEVEL I

**INTRODUCTION:** To support the teaching and learning process in the classroom, media are repeatedly used as tools to motivate students, to make lessons more varied and efficient. Professional publications in recent years demonstrably show that the proliferation of mobile devices and the Internet has centred the research focus on the use of new media. Apps, learning software, gaming, global networking through social media, wikis, online research, learning management systems are becoming increasingly important.

The use of teaching and learning videos not only enriches lessons virtually, but also plays an important role in making it easier for learners to absorb and retain audio-visual content. Humans are visually shaped, and their visual intelligence is of central importance [A].

A study by Busemann and Gscheidle [B] shows an evaluation of various categories of passive use of learning videos via video portals: After music videos (72%), homemade videos (42%), movie or TV trailers (36%), tutorials (instructional videos) are in fourth place in the ranking with 26%. This can be taken as evidence that learning with the help of videos is definitely of importance. Overall, this study makes it clear that Internet-based video use is generating high user numbers as a result of the increasing spread of mobile devices such as smartphones or tablets and the availability of fast broadband access almost everywhere. A study by Weng & Pfeiffer [C] focused attention on video tutorials and apps in mathematics. In this context, students developed a learning app in quiz format with corresponding video

tutorials, which were intended to contribute to an improvement of mathematical competencies in the mathematics course at the Stuttgart University of Applied Sciences. The evaluation of this study shows that video tutorials and learning apps reflect a combination of subject knowledge and media presentation.

Based on these considerations, the following main research question is answered in this paper: **How should videos for teaching mathematics at secondary level 1 be designed in terms of content and graphics to promote learning outcomes?**

Since superheroes are appealing to every age group, a hero should be created for students to encourage and help them in mathematics. Based on this consideration, the lead character, ClassNinja, has been developed. Then, the design and script of the learning and teaching videos for teaching mathematics is designed and documented. In the script, the entire story of a teaching and learning video, all person/characters that are to appear, scenes used, as well as what is spoken and the designed images/graphics are recorded in detail, which means that the script forms the central working basis for the success of a video and is at the beginning of the production process [D]. After that, the practical design of the videos is done by a graphic designer. In contrast to the teaching and learning videos on the Internet, the ClassNinjas videos are to be realized professionally, i.e. with professional equipment. In order to achieve a successful effect, the video sequences were designed according to the cognitive processing of the young people.

**METHODOLOGY:** The Design-Based Research Method (DBR) is used in the study. The aim of Design-Based Research is to solve practical problems while further developing scientific theories [E]. This approach represents a combination of application-based, theory-based, and knowledge-based research [E]. The term "design" also plays an important role in educational sciences and is associated with the development of didactic action strategies or digital tools [F]. According to Payr (1999), design research is a planning-developing designing element that is always oriented towards content. This research approach aims to make an exemplary contribution to the solution of an educational problem and thereby produce applicable theories that are useful for practice [G].

According to Jahn [G], the design-based research method is divided into four different phases: analysis phase, phase of development, phase of testing and phase of evaluation.

**RESULTS:** In the survey itself, 82 students from the School of Business and Technology in Wiener Neustadt (secondary level 1) took part in the testing. There were 23 questions to be answered. 49 boys and 33 girls participated, with 12 students attending the sixth grade and 70 students attending the eighth grade. Of these, 5 students were taught according to the special education curriculum and were inclusive in the classroom. The survey aims to determine the graphic and content quality of the teaching and learning videos. To enable a well-structured analysis of the data, the quality criteria, were organized into five main categories and the statements were formulated to fit them. The five categories are: graphic design (4 statements), content structure (4 statements), availability & accessibility (2 statements), agreement content design (7 statements) and structural design (4 statements).

Regarding the graphic design of the teaching and learning videos, there were four statements to be evaluated by the students. 73.2% of the respondents liked the Ninja as the leading figure in the videos. Thus, all videos succeeded in giving the students a sympathetic leading figure. The use of different forms of representation for illustration was confirmed by a total of 72% of the respondents. 66 students found the use of everyday examples helpful in illustrating the explanations.

63 respondents stated that the animation in the learning video is appealing and encourages further viewing.

The content structure of the teaching and learning videos is based on storytelling. 40% of the students confirm with "agree" and 24% of the students confirm with "fully agree" that the story at the beginning of the learning video arouses their interest.

The speed of the narration was not rated as appropriate by 22 students. This could be due to the fact that many of the test persons do not use German as their first language and therefore had difficulties following the speaker. It should be noted that the media player offers the possibility to regulate the speaking speed.

62 subjects, or about 76% of the students surveyed, felt that the teaching and learning videos enabled them to link new information with known knowledge. This finding was particularly evident when the teaching and learning videos were used at the end of a chapter.

The accessibility of the teaching and learning videos was considered by the following two statements in the survey.

For about 85% of respondents, the app provides a good overview of the school level, subject areas, and the learning videos. From this, it can be inferred that teaching and learning videos that can be viewed on the smartphone are quite popular among the adolescent learners due to the quick accessibility.

Overall, 65% of students rated the teaching and learning videos or app as helpful. This could be due, for example, to the fact that the use of teaching and learning videos, especially in distance learning, was helpful but not sufficient to master the material areas on its own.

71.9% of respondents said they had acquired new knowledge through the teaching and learning videos. The highlighting of important information in the video was also noticed by a large part of the study group, as 77% of the respondents agreed with the corresponding statement.

Although the teaching and learning videos did not resonate equally with every student, 75.6% of respondents indicated that they were able to take away content information from the videos. 72 students, or 87.8% of the respondents, indicated that the topic of the videos was clear from the title. 76.8% of the students said that they would recommend the learning videos and the app to others.

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## **ФОРМУВАННЯ ДУХОВНИХ ЦІННОСТЕЙ УЧНІВ НА УРОКАХ ЛІТЕРАТУРИ**

*«Якщо Ви не любите читати, значить Ви не знайшли потрібну книгу»*

*Джоан Роулінг*

Для багатьох людей книга має велику художню і духовну цінність, нехай навіть вона буде з потертою обкладинкою, але ж головне завжди в середині, головне її зміст. Кожна нова книга – це завжди подія та нове знайомство. Тільки книга дає можливість вигадувати та проникати у світ героїв художнього твору, вчить емпатії, дає підставу для польоту фантазії.

Дитина пізнає світ через мистецтво. І своєрідність цього пізнання у тому, що слово не лише відображає життя, яке можна реально побачити, сприйняти, а й переживання, почуття і прагнення. Через слово людина може осягнути багатогранність іншої особистості, її почуття й переживання. Тому у викладанні літератури особлива увага має бути приділена сприйманню художнього твору [1; 3].

У наш час, коли добре розвинені комп'ютерні технології, гостро відчувається проблематика читання юнаками художньої літератури. На сучасному етапі досить поширеними є електронні книги, бібліотеки мають доступ до Інтернет мережі, але, якщо порівнювати з попередніми поколіннями, сьогодні молоді люди читають недостатньо. Досліджено, що найбільше читають діти у роки навчання, а саме літературу, яка запланована програмою. Чимало зусиль докладається викладачами літератури для того, щоб зацікавити учнів у читанні художніх творів.

Література є найважливішим засобом залучення особистості до джерел національної та духовної спадщини народів світу [3; 34]. Н. Й. Волошина розробила цілісну систему виховання учнів на уроках літератури, в основі якої