VIDEO FOR NAVOICA, A POLISH MOOC PLATFORM

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ABSTRACT

The content analysis included video lectures posted in 208 MOOCs on the Polish educational platform NAVOICA. The aim was to determine their subject matter and the methods of preparing video lectures. It turned out that video lectures were included in 57% of MOOCs, most often related to *Medical and health sciences* and *Humanities*. They appeared least frequently in MOOCs in the fields of *Engineering and technology* and *Natural sciences*, as they were replaced by recordings of screen scrolling and PowerPoint presentations, usually supplemented with commentaries and music. Video lectures were short, just a few minutes in length. Authors introduced the course and its modules, presented educational content by speaking to the camera, staged scenes illustrating the course issues, interviewed experts, conducted experiments, and presented and commented on events and phenomena such as landforms and water conditions. Videos downloaded from YouTube and Vimeo were also used. Some video lectures were produced as part of international projects. Implementation possibilities were limited by the COVID 19 pandemic, as more than 160 MOOCs were realized as part of a project launched in November 2019. Moreover, most universities did not have the technical conditions to produce high-quality films. The use of synthetic voiceovers limited the expression of comments. There is a need for organizational and technical support for lecturers and a systematic addition of high-quality video lectures to the NAVOICA platform resources.

KEYWORDS

Lecture, Postproduction, Recordings, Animation, Label, Interview

1. INTRODUCTION

A MOOC needs to be integrated into the user's communication habits. The development of the gaming industry has triggered the expectation of multimedia and visualization. Platform administrators take these habits into account. Videos have become the main elements of knowledge transfer in MOOCs (Stöhr et al., 2019, p. 166). They are standard components of MOOCs on the British FutureLearn platform, the American edX and Coursera, the Japanese Gacco and the Chinese XuetangX.

Videos are a more effective educational tool in the 21st century than printed materials (Armstrong et al., 2011). Watching video lectures is the primary activity of MOOC users and the most important way to transfer knowledge in MOOCs. Swedish students found video lectures more attractive than traditional ones, even in design-build-test project courses based on tutoring. They especially appreciated the availability of digital content during the project (Bhadani et al., 2017).

A strong correlation was observed between the number of videos watched in MOOCs and students' academic performance. Therefore, it was found that watching videos is an important element of online learning, and this is true for both specialists, dealing with the subject matter of the course and non-specialists (Stöhr et al., 2019, p. 166). Recent research confirms that participants more actively engaged in video lectures "could achieve better grades and higher course completion rates" (Wei et al., 2023, p. 3).

At the height of the development of MOOCs, when 2012 was declared the "Year of the MOOC", the use of videos in them developed. It turned out that educational videos watched online must be short and formally adapted for educational use. Australian experts (Glance et al., 2013) emphasized the need to make video descriptions more precise and to intersperse segments of the video with tests. To ensure that video viewing is not passive, Taiwanese experts (Lee et al., 2015) suggested displaying videos along with the chatrooms, where participants can exchange comments in real time and subsequent students can view previous recordings. In turn, an American team (Bonafini et al., 2017, p. 230) found a correlation between the degree of participants' engagement in watching videos and the likelihood of completing MOOCs, as well as a positive correlation between the number of videos watched and students' achievements. They recommended creating interactive videos: with content segmentation and inserting questions. Recently, a team of Chinese researchers, after analyzing logins and detailed records of students' interaction with videos, found that as much as 59.45% of their activity was watching videos (Hui et al., 2019, p. 6482).

However, users do not always maintain attention until the end of watching the video. Pausing, speed changes, and searching mainly occur in the first minute of the video and quickly decrease after 300 seconds (Hui et al., 2019, p. 6488). This may mean that after five minutes of watching, users are no longer focused on watching the video, perhaps even moving away from the screens. During this study, however, videos in MOOCs s on the Coursera platform usually lasted 10-15 minutes (Galán et al., 2019, p. 83). According to these Spanish authors, "new university training scenarios are moving towards a new model of mass education, open and free through a methodology based on video-simulation and collaborative work of the student" (p. 49).

It was found that there are cultural differences in the use of video, resulting from the collectivistic nature of Eastern cultures and the individualistic attitude of Western users (Ślósarz, 2024). MOOCs participants in South Asia watched videos willingly, and as the number of videos increased, their risk of dropping out decreased. They perceived the teacher on the screen as present in front of them. However, students of the Anglo-Saxon region and Germanic Europe reported aversion to instructional videos in FutureLearn MOOCs, complaining that they were slow, leading to loss of concentration. They substituted watching by reading transcripts in search of "knowledge in a nutshell". Consequently, the number of videos watched achieved a slight negative relationship with those learners' persistence in MOOCs (Rizvi et al., 2022, p. 108-109). "Participants from all around the world consistently raised a need for more interactive videos or videos with embedded quizzes." – conclude authors (p. 112).

In the case of learning English, teacher talk videos that present the interpersonal functions of language play a key role (Halliday, 1975). Chinese researchers (Tang et al., 2022) studied for discourse analysis 11 short videos, totaling 43 minutes and 45 seconds, in the MOOC course "Critical English Writing" at Nankai University. They found that the use of mood, modality, personal pronouns, speed and syntax is necessary for learning to speak effectively during interactions (p. 182). Brazilian researchers (Fontana, & Leffa, 2018) presented suggestions of digital architecture for the design of a LMOOC within a communicative perspective, underlying the importance of using videos that stimulate students' motivation and involvement in language learning. In practice, language teaching in MOOCs focuses on grammar rather than communicative aspects and interactions. Meanwhile, video has powerful teaching effects (from Spanish *efeitos didáticos poderosos*, p. 465) – so verbal communication should be part of the interaction rather than a series of presentations.

Videos promoting MOOCs are the most carefully prepared. An analysis was made of 420, posted by 105 universities and educational centers on the Miríadax platform (Rajas-Fernández et al., 2021). They were found to contain information, teaching and advertising content. They use the aesthetics of audiovisual, advertising and television communication (staging, interviews, reports), 2D and 3D animations, photographs and graphics, texts superimposed on images, and music. They imitate classroom activities, but enrich the message narratively and aesthetically in order to capture the attention of the student-viewer, inform the characteristics of the classes, and offer valuable content.

The researchers' findings influenced practice. For example, at Khan Academy, the lectures in front of the camera were replaced by videos lasting several minutes, showing, in addition to experts, maps, graphics, places with transcriptions, and user comments. There is even an opportunity to learn about a specific topic by watching selected videos from various courses (Khan Academy, n.d.).

2. METHODS

2.1 Aim, Methods, Instruments and Procedures

The aim was to find out whether video lectures are always posted in MOOCs on the NAVOICA platform and how they were prepared.

A quantitative method was used to determine the degree of participation of video lectures in MOOCs. A categorization key for the films was developed and the results were coded. Then they were analyzed using the content analysis method, which covers both the features of texts and the contexts of their occurrence, in order not only to describe the state of affairs, but also to explain its causes (Michalczyk, 2009, p. 97).

A video was defined as a sequence of events recorded by a camera as a set of moving images. Therefore, PowerPoint presentations and recordings of screen scrolling with sound were not included. Assuming that videos have become the main carrier of teaching content in e-learning, and most of the resources of the NAVOICA platform are the result of collective projects, a hypothesis was formulated: *the MOOCs posted on the NAVOICA platform contain video lectures in each unit of their content.*

Using the Firefox browser, all courses posted on the NAVOICA platform were logged in and their components were analyzed. A quantitative analysis was carried out: it was checked how many MOOC courses from each scientific discipline included video lectures. The data obtained were entered into an Excel spreadsheet, taking into account four categories of videos:

1. Introductory – when lecturers announce the content of the course, its purpose, and requirements. They are posted in course descriptions and on social media.
2. Video lectures – when instructors present the course content by addressing the camera. They most often follow the pattern of a talking head and a writing hand. They can be recorded in the field or laboratory, contain animations and embedded questions.
3. Interviews and reports – developing course content, presenting people, places, and phenomena.
4. Animations with audio narration, explaining key topics from the course.

Attention was paid to whether the video was accompanied by a transcription in the form of an stand-alone text placed below the recording and whether it was complemented by on-screen explanatory labels and drawings. If they appeared only once in the MOOC, their existence was noted, as was that of a single video lecture. Introductory videos were considered to be those posted at the beginning of the modules, excluding those posted at the beginning of the course. Videos included from YouTube were treated equally to those prepared by the MOOC creators. A quantitative analysis of the data obtained was developed in Excel sheets, followed by a qualitative analysis of video lectures. The strategies for the creation of the video lectures studied were established.

2.2 Research Material

The research material consisted of 208 MOOCs that were avaliable on the Polish educational platform NAVOICA on May 21-22, 2024. They were prepared by 29 universities and educational entities. The largest number of courses were prepared by: Białystok University of Technology (32), The University of Economics and Human Sciences in Warsaw (30), The West Pomeranian Business School Applied Sciences Academy (22), and Cracov University of Technology (14). The dominant MOOCs were in the fields of *Social sciences* (84 – 40%), and *Natural sciences* (46 – 22%). Less well represented were *Humanities* (39 – 19%, including 28 courses in the field of teaching foreign languages), *Engineering and technology* (25 – 12%), and *Medical and health sciences* (14 – 7%). Their equipment in video lectures is presented in Table 1.

Table 1. Video lectures in MOOCs from specific fields of science. Source: own work

	Natural sciences	Engineering and technology	Medical and health sciences	Social sciences	Humanities	Total
With video lecture	16	7	13	55	27	118
No video lecture	30	18	1	29	12	90

Video lectures were most frequently used in MOOCs related to *Medical and health sciences*, as they covered such attractive topics as dietetics and health, as well as in the MOOC *ELLIPSE Gatekeeper+ Course in Suicide Prevention*, presented in 7 languages. The smallest share of video lectures marked the MOOCs in the field of *Engineering and Technology*, as IT specialists most often replaced video lectures with recordings of screen scrolling.

The MOOC courses on the NAVOICA platform have a precise structure: MOOCs are divided into modules, these into lessons, and lessons into short units. Therefore, the videos were often followed by exercises or tests. Every video on the NAVOICA platform must be subtitled following the Web Content Accessibility Guidelines. In addition, the content of the video is sometimes provided in the form of a transcript below the recording, which allows MOOCs to be adapted to the needs of people with limited capabilities: those with hearing or visual impairments (Bolińska, & Gurba, 2022).

2.3 Results

The authors of most MOOCs include video lectures. Instead of them or in parallel, they used other ways to transfer knowledge. Table 2 compiles them.

Table 2. Video lectures in the context of other modes of knowledge transfer in in MOOCs

	Video lecture	Trans-cription below the recording	Video introdu-ction to module	Promo-tional video	Anima-tion	PowerPoint presenta-tion with sound	Screen recording with sound	Explana tory labels
With	118	27	45	68	65	83	42	89
None	90	181	163	140	143	125	166	119

Table 2 shows that recorded video lectures were most often not post-produced, so they did not include transcripts, animations, or explanatory labels. Video was rarely used as promotional material, with only 33% of MOOCs using it in this way. The video was used as an introduction to a module in 22% of all MOOCs. Video lectures were often replaced by PowerPoint presentations with audio and recordings of screen scrolling with audio. The universities that prepared the most MOOCs set up recording studios. They professionally prepared promotional videos and the opening sequences with which the video lectures were preceded. However, these foreheads disturb viewers when they present the university and last for several seconds or so, delaying the opening of the content. Users may also be discouraged by the inclusion of the same videos in different courses.

Over 43% of MOOCs authors did not use video lectures. The main reason for this phenomenon is external. The NAVOICA platform was launched in October 2018, and more than 160 courses were developed and published as part of the project announced in late 2019 by the Ministry of Science and Higher Education "Direction to the MOOCs" (Smyrnova-Trybulska et al., 2021). Thus, the implementation of most MOOCs was disrupted by the pandemic, which especially affected the recording of video lectures. They require prolonged and direct cooperation between instructors and developers, specialized equipment, software, and a studio. Meanwhile, the pandemic prevented or limited direct contact and made consultations, recordings, and film editing especially difficult. Videos were sometimes carried out in the unattractive convention of a remote lecture in an apartment. Many universities had equipment problems. A camera was sometimes purchased during the project implementation. As lecturers acted students, trying to faithfully read the text, but unable to convey scientific passion in front of the camera. The same limitation applies to the use of expressionless synthetic voice-overs.

The second reason for the lack of video lectures in over half of the MOOCs was that during the period of creating the NAVOICA platform resources, university employees, i.e. the authors of MOOCs, were overloaded with remote teaching. Preparing and sharing classes in digital form requires more time than conducting them in person. In addition, lecturers most often had to quickly master the necessary digital competence. Remote classes in real-time were not always conducted efficiently in technical terms, and students were often overloaded with factual material. As a result, the surveyed UKEN students (Długosz, 2021) complained of fatigue (64%), mental exhaustion (62%), mood swings (60%), and deterioration of relationships with peers and lecturers (52%). Recorded lectures are also exhausting for students from a

neurodidactic point of view due to difficult concentration, lack of engagement, and low motivation, as well as the resulting fatigue (Romaniuk & Łukasiewicz-Wieleba 2021, 44).

Even some language courses lacked video lectures – 10 out of the 28 had none, and four were missing multimedia. MOOCs on the NAVOICA platform are not moderated, so there was also no interaction between teachers and users. That is, there was no communicative language teaching.

In case of implementation difficulties, video lectures were replaced or supplemented with PowerPoint and Prezi presentations (83) or recordings of screen scrollings (42) with sound. These were accompanied by clarifying animations (65), descriptive labels (89), and music. In some cases, videos from YouTube and Vimeo platforms were indicated as video lectures and analyzed.

Some courses were implemented as part of international projects. Those videos included contributions from foreign experts, as in the MOOC *ELLIPSE Gatekeeper+ course in suicide prevention* addressed for managers, doctors, social workers, journalism students, journalists, teachers, and further professionals responsible for other people (Pawelec et al., 2023). Authors this project, which included MOOCs in three languages, used the emotional song *I'm OK* by musician and psychologist, Filip Mizia in the introduction.

The most interesting video lectures turned out to be:

1. Filmed experiments, for example when the author conducts them in the field to examine the quality of surface water (Pełechaty, 2023).
2. Film reports showing MOOCs author explaining the terrain around him while being in the field (Jaśkiewicz, Kaczmarek & Lorenc, 2023).
3. Filmed activities, e.g. polymer testing equipment operating in the laboratory as a background for the statements of the MOOC authors (Mierzwiński et al., 2022).
4. A funny dialogue between a competent Karolina and an incompetent Krystian as the presentation of the content of the course *Taming Python III* (Wernikowski et al., 2022).
5. Statements of the MOOC authors to the camera, made in the studio, and later illustrated with labels with captions, animations, etc. (Białowąs, & Szyszka, 2024).

The third reason for the scarcity of video lectures may have been the insufficient technical skills of some of the MOOCs' authors. However, most courses were created in teams and with technical support. In addition, long-term projects have been implemented in Poland for years to improve the competence of lecturers (priority is often given to the oldest), teachers, and future teachers in the field of creating multimedia publications in video format, among others. (Smyrnova-Trybulska et al., 2022, p. 17-19).

3. CONCLUSION

MOOCs on the NAVOICA platform featured all categories of videos: introductions, video lectures, interviews, reports, and animations. Their diversity and modes of filmmaking testify to the high creative potential and ingenuity of the authors as well as the high technical competence of the developers. This optimistic conclusion from our study is an important guide for the organizers of subsequent MOOC competitions or for the administrators of the NAVOICA platform and similar ones.

However, the hypothesis that *MOOCs posted on the NAVOICA platform include video lectures in every unit of their content* has not been proven to be true. Text, graphics, photos, PowerPoint presentations, and recordings of screen scrolling were often used in place of video lectures as teaching content media. Instead of video lectures, MOOC authors often used text, graphics, photos, as well as sound-added PowerPoint presentations and recordings of screen scrolling. The main reasons for this were the reduction in cooperation due to the pandemic, the limited capacity of most universities to produce videos, and the habit of lecturers to use PowerPoint presentations and screen recordings – scrolling and static, not provided with sound.

The study results cannot be generalized. The resources of the NAVOICA platform were mostly created during the COVID-19 pandemic, were largely conditioned by PR mechanisms, and are still being updated. However, we believe that this study provides educational institutions, MOOC course authors, and platform administrators with guidelines and recommendations listed in the next chapter regarding the preparation and use of video lectures on MOOC platforms in Poland and other countries. International exchange of experiences and institutional support for this modern form of education as well as systemic solutions at national levels are necessary.

4. RECOMMENDATIONS

Based on our findings, practical strategies can be applied in video lecture organization, preparation, and design. First, the authors of MOOCs need technical support for video production and especially in the post-production stage. Recording studios and multimedia centers operating at some universities are a good solution. Implementation services could be provided to all Polish authors of MOOCs by the National Information Processing Institute as the administrator of the NAVOICA platform and creator of many MOOCs. Then the NAVOICA platform could contain more high-quality video lectures and disseminate good practices as a national educational asset. The use of video as the main medium for knowledge transfer should be perfected to add value to education through the use of sound, image, motion, color, music, etc. Recordings may be accompanied by questions, tests and discussions. However, it is worth limiting the use of sequences promoting universities and courses in video lectures. Providing users with the ability to download videos for later offline viewing is strongly needed.

Second, NAVOICA's and other MOOC platforms' resources should be systematically supplemented. However, organizing a large-scale project for this purpose proved to be ill-advised. A better result would be the creation of the scientific discipline *Educational technology* in Poland, which would allow researchers to devote more time to the creation of video lectures, MOOCs, research teams, and developing national and international cooperation.

However, knowledge transfer in MOOCs cannot be based solely on video lectures. Reading texts, graphics, screen recordings, and PowerPoint presentations should be offered in parallel. MOOCs without video lectures can also be attractive and have high content value.

DATA AVAILABILITY

The research data have been published in the RODBUK open database and are available at Ślósarz, A. (2024). *Elements of cognitivist and constructivist learning on Polish MOOC platform NAVOICA*. RODBUK (Repository of Open Research Data of Krakow Universities, V1) [data set]. University of the National Education Commission. https://doi.org/10.24917/UKEN/FNMAGC

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