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Social aspects of introducing online learning – the students' perspective

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Abstract

The article presents the introduction of online learning at universities in Poland, which was a solution aimed at preventing, countering and combating COVID-19. Attention was drawn to the perception of this change by the stakeholders, i.e. students. The analysis examines students' concerns regarding the implementation of this form of learning in selected areas related to access to technology, the organization of classes, and the participation in them, social interactions and administrative activities. The aim of the research was also to ascertain students' opinions on the consequences of the implemented change and on the actions aimed at facilitating the transition to online learning undertaken by the authorities and university employees.

The research was conducted with the use of an electronic survey questionnaire. The responses of 189 full-time university students were analyzed. Based on the results of the research, communication between students and university authorities, as well as the involvement of participants in the process of change were considered as key elements in the implementation of online learning.

Among the important activities there were those that enable participation in online learning (provision of equipment, programs, licenses) and those that support learning (access to library resources). As regards the latter, conclusions were formulated concerning the planning of teaching, i.e. the content and the way of transferring knowledge.

Keywords: online learning, change process, resistance, stakeholders, universities

Introduction

Changes are part of human life and organization. Some authors (Griffin, 2007; Skalik, 1996) associate them with new solutions, understood as a state that differs from the current one. Others (Armstrong, 1998; Czerska, 1996) see change in terms of the process (introduction of new solutions). Regardless of the approach, it is noted that the success of a change largely – according to Collin A. Carnall, 40% of the time (Jasińska, 2015, p. 61) and in technological changes, 57% – depends on the human factor (Legris & Collerette, 2006, p. 65). For this reason, stakeholders' responses to the change are underlined. Stakeholders are individuals and/or groups of people who are interested in and influence the functioning of an organization (Seres et al., 2019) and those without whom the organization cannot exist (Delgado-Zapero & Strojny, 2020). They can speed up, modify, slow down, or even stop the implementation of the change (Grundy, 1997). In order to prevent actions inhibiting the implementation of change, it is proposed to involve stakeholders in this process. This means identifying the stakeholders, analyzing their needs, as well as communicating with them and involving them in the decision-making.

Stakeholder management is the hallmark of effective change implementation at universities (Grigorescu & Olteanu, 2014). The study results show that it is the students who are the most important stakeholders of the university (Delgado-Zapero & Strojny, 2020). Therefore, it seems crucial to involve them in the process of educational changes. The introduction of online learning may be considered as one of them.

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An analysis of the literature on the subject indicates that universities are mainly considering the use of different forms of e-learning (*blended learning*) and the use of electronic tools in the learning process (*WBT*). No publication describing teaching conducted exclusively online has been identified. There are also few articles that address the process of change and take into account its perception by students (Falqueto et al., 2020).

Online learning was introduced by the Minister of Science and Higher Education in Poland on March 11, 2020 (Regulation, 2020) to prevent, counter and combat COVID-19. It should be noted that the change was not planned (it was adopted urgently) but imposed and treated as a temporary solution. Edicts can be indicated as the applied tactic of implementing changes (see Czapla, 1988). At the same time, it should be stated that the way in which online learning was adopted is inconsistent with the guidelines for effective implementations (see Centkowska, 2015; Wasiluk, 2004).

Considering the above, as well as the fact that the everyday functioning of contemporary students is based on the use of technology, their perception of the introduced change was found to be cognitively interesting. The following questions were asked: what were students' concerns about the transition to online learning? Have the concerns decreased over time? How do students evaluate their participation in the introduced change? Which form of learning do they prefer?

Change management at universities – review of the literature on the subject

Taking into account the subject of the article and the issues discussed, two main reviews of the literature on the subject were conducted. The first one concerned change management in relation to universities and online learning. The second one referred to university stakeholders in the context of changes, including online learning. The EBSCO multi-search engine was used in the review.

Each of the reviews started with a search for publications containing selected phrases in the title (i.e. change management, online learning, stakeholders, universities). Then the search results (and thus the list of publications) were limited to articles that: (1) were published in scientific journals, (2) were peer-reviewed, and (3) were published in English. In the case of the review concerning the following phrases in the title: "change management" and "universities", an additional criterion - the subject matter - was taken into account. That allowed to identify publications whose content was directly related to the introduction of changes at universities. The search resulted in 29 articles. While analyzing their content, some articles were rejected while important and available items cited in them were added.

Introducing changes at the university

In the analyzed articles on changes introduced at universities, two main directions of the considerations can be distinguished. The first one is to show the need to make changes in university management. This is the result of the analysis of the university's environment, contemporary conditions of its functioning (Enăchescu & Trapiel, 2014; Mainardes et al., 2013) and the opinions of university stakeholders (Geryk, 2018; Grigorescu & Olteanu, 2014; Urbanovič & Wilkins, 2013). The second direction of considerations is related to the process of implementing changes. Change is defined as "whatever a person himself or other people – reasonable people – consider replacing one situation with another, as long as the change does result simply from the passage of time, it is new, substantial and both relevant and significant" (Fox, 2001, as cited in Shoham & Perry, 2009, p. 228). It is also treated as an organizational change, it is associated with adaptation, i.e. reorganization of structures, new procedures, practices, and thus with organizational culture and leadership (Muluneh & Gedife, 2018). Attention is paid to responses to changes (Ally et al., 2016), barriers and factors for the successful implementation of changes are identified (Grantins et al., 2017; Leitzel et al., 2010), and different models for implementing changes are proposed (Muluneh & Gedife, 2018). At the same time, it should be added that the considerations take into account the specificity of the functioning of public organizations (formality, bureaucracy). Universities' resistance to change is emphasized and differences in the implementation of changes between education and business are demonstrated. It is particularly important to focus on assimilation, i.e. the need for planning, preparation, and awareness of the necessity for change, as well as on shaping adaptability and on the use of systemic management.

The following stages of change management at the university are proposed (Grantins et al., 2017):

1. Determining the need for change supported by current business analysis, external conditions, identification of new opportunities, etc.
2. Developing arguments for change, including a risk and resource impact assessment.
3. Communicating a vision of change, presenting a convincing narrative by demonstrating an improved future situation and the ways to achieve it.
4. Developing a strategy and a plan of changes (specific goals, clear procedures, division of responsibilities, deadlines).
5. Managing the change process (everyday activity – task implementation, adjusting organizational culture).

The description of the process should include the university's stakeholders. Based on Alvaro Delgado-Zapero and Jacek Strojny (2020), the article distinguishes the following stakeholder groups:

- primary group, which includes students, lecturers, university authorities, administrative staff;
- science and technology group, which includes companies, research centers, other universities, the ministry of education, trade unions (associations);

• political and social group, which includes media, NGOs, political parties, primary and secondary schools, and regional administration.

As indicated by Tony Grundy (1997), the introduction of a change depends on the one hand on the attitudes of university stakeholders and on the one hand on the level of impact and influence (Figure 1).

It should be emphasized that the attitude of the stakeholders is influenced by the understanding of the situation and the acceptance of the change (Aydan & Karakaya, 2018). The latter also has an emotional dimension (cf. Sobka, 2014, p. 58). In the case of stakeholders, understanding and acceptance will involve satisfying needs, achieving goals and interests, as well as with meeting expectations. On the other hand – in the context of the process of change – it is necessary to point out the importance of communication (Grantins et al., 2017). Initially, communication is used to increase stakeholders' awareness of the change, then to learn about different stakeholders; groups, as well as their expectations and needs, and then – as feedback – to learn and implement individual actions related to the change.
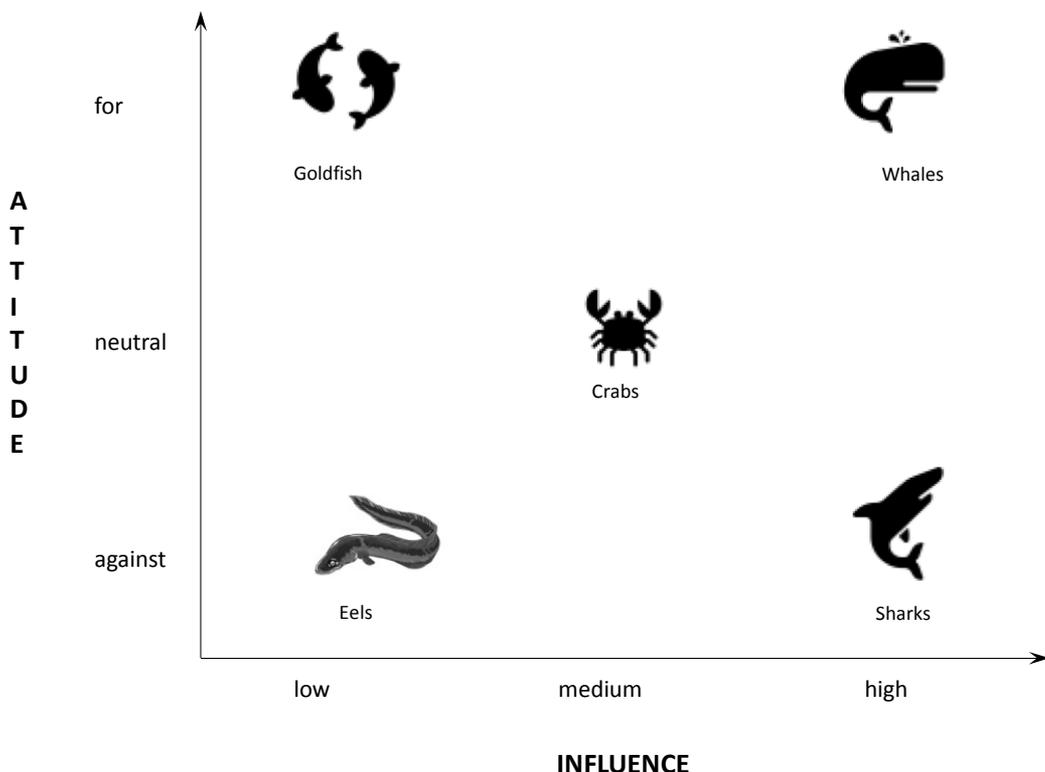
It is worth adding that students are interested in: creating a better learning environment and conditions, shaping relationships at the university and beyond, increasing responsibility, opportunities for personal development and in striving for achievement, recognition and appreciation (Hoat et al., 2009). As the research results show, they want to influence the functioning of universities also due to their future professional work (Geryk, 2018; Mainardes et al., 2013). The development of various skills, character traits, as well as the possibility of shaping relationships will allow them to better prepare for professional life. Although students are recognized as both internal and external stakeholders (Mainardes et al., 2011), they are not given adequate attention (Geryk, 2018; Mainardes et al., 2013) or are viewed from the perspective of managers, which means that they are not taken into account while decisions are made (Falqueto et al., 2020). This is confirmed, for example, by research results on quality management: low involvement of students was caused by their low awareness and lack of knowledge in this field, not by their reluctance to change or lack of acceptance of the solution (Manatos et al., 2017).

Online learning from the perspective of university stakeholders

Online learning, remote learning and e-learning are terms referring to various methods, solutions and activities using information, multimedia, internet and intranet technologies for teaching and learning (Ferri et al., 2018; Frączek, 2015; Houshmand et al., 2019). It means communicating via electronic media. It is worth pointing to the intensity of the use of technology (Matusiak, 2011, p. 59). Online learning can complement (e.g. by sharing teaching content

Figure 1
The analysis of stakeholders in change management

and materials) or replace traditional classes (when classes are conducted exclusively online). Learning can take place in an asynchronous mode (when the students independently perform tasks provided by the teacher at a time chosen by them) or synchronously (communication between the teacher and the students takes place on a specific date, usually in the form of a videoconference) (Szewczyk, 2018).

The analyzed articles consider online learning from the perspective of internal stakeholders: university employees or students. Publications on lecturers show how they perceive the implementation of technology (Scott, 2013), and include information on their concerns (Humbert, 2007; Porter et al., 2016). The importance of: voluntary participation in change, continuous communication, conducting training, organizing meetings aimed at exchanging experiences, motivating and appreciating teachers and supporting them in action, as well as making the necessary changes in the organizational culture is also emphasized (Porter & Graham, 2015; Stoltenkamp & Kasuto, 2011). Ahmad AlHamad (2020), on the other hand, writes about the need to be ready for e-learning. Other authors do the same (Sheiladevi & Rahman, 2016). While describing the implementation of e-learning in Malaysia (ministerial project), they note that although universities had the latest infrastructure and teachers were trained to use it, their attitudes were crucial. In their proposed approach to institutional implementation of blended learning, the team of Wendy Porter (2016) also begins with shaping awareness (exploration). Only the next step is adoption (early implementation), including elements related to the support provided, as well as the strategy and structure of the change.

Taking into account the students' perspective, the analysis focuses mainly on the impact of online learning on knowledge acquisition and achieved results. It is stated that the use of this form of teaching (web-based lecture technologies or mixed forms), through continuous access to the material, contributes to the consolidation of knowledge, and thus to better learning outcomes (Gosper et al., 2016; Yazon et al., 2002). It is also positively perceived by learners, and at the same time considered more difficult than the traditional one (Smal, 2009). First of all, online learning means more effort on the part of the learner. It requires self-assessment, self-motivation and organization of learning – time management, planning or searching for educational materials on the Web, their substantive evaluation and problem-solving. It also causes concerns about understanding the teaching content and weakening interpersonal relationships. This explains the preference for a synchronous form of online learning as well as for learning in small groups with the employment of problem-based learning (Lim et al., 2009). It is worth adding that due to the transition to online learning, the students' involvement not only in studying, but also in university life, may decrease (Mechlińska-Pauli, 2008). For this reason, Sönmez Pamuk (2012) formulates the conclusion that e-learning not only necessitates the access to

technology, but also requires its proper use and an appropriate pedagogical approach. According to the author, the use of this form of teaching is favored (by teachers):
- planning the curriculum before the onset of teaching, so as to properly select the content and forms of communication (e-learning tools),
- ensuring that feedback is provided so that the understanding of the teaching content is confirmed,
- organizing periodic meetings (especially in the case of the asynchronous form) to ensure social presence.

The student, apart from having experience, IT and technological competences, should prefer to learn remotely.

In addition to the presented characteristics of online learning, it should be noted, following Kofi Ayebi-Arthur (2017), that it is also an opportunity to learn during a crisis. Reflecting on the situation of education after an earthquake in New Zealand, the author considered communication, the availability of IT infrastructure and the motivation (readiness) of academic staff to use e-learning, and of students to engage in learning in this form, to be crucial for the implementation of the change (technology important for this form of education).

Also, Suzanna Long and David G. Spurlock (2008), when analyzing the implementation of changes, pointed to the key importance of communication and acceptance of change. By pointing to technophobia and structural resistance, the researchers emphasized the importance of trust, the sense of security of stakeholders in terms of the implemented technological solutions and their belief that the change is necessary, possible to implement, including in the financial (cost) context. It can be seen that the topics covered by these guidelines reflect concerns regarding the introduction of innovations that may be the causes of resistance, including implementation costs, fear of personal failure, and loss of status and power.

In addition to students' acceptance of this solution (AlHamad, 2020), their previous experiences with technology are also important for the introduction of online teaching – the more positive they are, the higher the level of satisfaction with online learning is (Smart & Cappel, 2006).

Research methodology

The primary aim of the research was to understand the perception of issues related to the process of introducing online learning as a result of the pandemic by the participants and stakeholders of the change – students. Focus was placed on the social aspects of the changes implementation process.

The following main research questions were formulated:
1. What were students afraid of while starting online learning?

2. Have their concerns diminished while using this form of learning?

3. How did the students perceive the possibility of co-decision-making on online learning, i.e. the choice of the technology used, time of classes, forms of obtaining credit?

4. What actions, undertaken by the university and/or the lecturers, did they perceive as supporting the implementation of changes?

5. How did the students rate online learning when compared to the traditional one? Which form of learning did they prefer?

Taking into account the results of the analysis of the literature on the subject in the context of the emergence of concerns, attention was also paid to:

- experience and skills – both in the use of technology and in studying;
- field of study – taking into consideration that some of them require practical learning (e.g. in such fields as nursing, cosmetology, physiotherapy, automation and robotics or forestry);
- communication, i.e. having information about the change and participation in making decisions about the change.

It was also checked whether the undertaken activities supporting online learning were relevant to the degree of concern related to the change three months after their implementation.

The list of possible student concerns related to the change in learning mode was compiled using a potential problem analysis. The presented (review of the literature on the subject) difficulties of the online learners and the authors' knowledge – i.e. the students' perspective – were used as the basis. Due to the pandemic, the students returned to their family homes. Uncertainty about the development of the situation and the possible date of restoration of full-time classes at universities hindered decisions related to renting apartments or taking up seasonal work (students were afraid that the academic year may be extended). During the pandemic, online learning was the only form used, which could cause tediousness, monotony, deterioration of health (e.g. of eyesight), stress. The students' co-residents also often worked or studied remotely, which worsened the learning conditions.

The research was conducted in May 2020. An electronic survey questionnaire consisting of four sections was used. These were: concerns experienced (about the change and during its duration), the manner of introducing changes, especially in the context of creating a climate conducive to the acceptance of changes (received support, participation in changes), information and opinions on online learning and personal data. Participation in the research was encouraged by posting a message on the student forum with a link to the page. At the same time, the forum participants were asked to send the link to their friends who are also students. The Mann-Whitney U test, the Kruskal-Wallis test and Spearman's correlations were used in the analysis.

200 people took part in the research. Due to the small percentage of participants studying on a part-time basis, as well as at private universities and colleges, the analysis was limited to 189 people studying on a full-time basis.

Most of the respondents were undergraduate students (42%). Graduate students accounted for 36% of the respondents, whereas engineering students for 22%. More than half of the respondents (57.7%) were first-year students. The others were, respectively: second-year students – 17.4%, third-year students – 10.6%, fourth-year students – 9%, and fifth-year students – 5.3%. The largest group was made up of students of innovative economy (14.3%), then of management (11%), logistics (10.6%), mechanics and machine construction (9.5%), economy (8.5%), and forestry and law (5.8% each). Due to the specificity of the studies (Zając, 2005), for the needs of the analyses, the fields of study were grouped taking into account the degree of their practicality. Low, medium and moderate degrees were distinguished.

Most of the respondents were women (61%). The respondents were mainly people aged between 21 and 25 (73.5%), then under 20 (19.6%), and between 26 and 30 (5.8%). People aged between 31 and 40 made up the smallest group (1.1%). None of the respondents was over 40 years old.

Most respondents studied at universities in the Lubuskie (33.9%), Pomorskie (31.7%), Dolnośląskie (12.2%), and Wielkopolskie (10.1%) voivodeships. The smallest number of respondents studied in the following voivodeships: Zachodniopomorskie (4.2%), Podlaskie (3.7%), Łódzkie (3.2%), and Małopolskie and Mazowieckie (0.5% each).

Introduction of online learning in the opinion of the surveyed students

It should be noted that almost half of the respondents (49.7%) stated that they had been informed about the transition to the online form of conducting classes within a week of the announcement of the decision of the Ministry of Science and Higher Education. Every fourth respondent (21.7%) found out about the change in the method of conducting classes on the following day or within two weeks (23.3%). On the other hand, the remaining respondents (5.3%) received this information within a month. The respondents learned about this decision: from the content of e-mails addressed directly to them (42.3%), from information posted on the university's website (33.3%), from social media (12.2%), from the internal IT system (e.g. e-dean's office – 10.1%), and from lecturers (1.6%). A small percentage of people (0.5%) indicated that they were not informed about the new form of conducting classes.

The vast majority of respondents (89.4%) participated in online classes from home. Others participated in them while staying in a boarding house (rented apartment, room, etc. – 7.4%), in a dormitory (1.6%) and at work (1.6%).

It should be noted that almost half of the respondents (49.7%) indicated that more than 75% of planned classes were conducted in the remote form, while 29.6% of the respondents answered that 50% to 74% of the planned classes were conducted in this form. According to 14.3% of the surveyed students, 25% to 49% of the planned classes were conducted online, and according to 6.4% of the respondents – up to 24% of the planned classes were conducted online. According to the respondents' comments on the tasks and materials being sent by lecturers, it appears that some classes were conducted in an asynchronous form, i.e. in the form of an electronic correspondence exchange.

The respondents indicated that the classes were conducted using the following e-learning programs and platforms: MS Teams (61%), Zoom (32%), Discord and Skype (28%), and Google Classroom (26%). It should also be emphasized that the respondents pointed to the use of various solutions by lecturers. They considered it an inconvenience, as getting to know each of them required additional effort (and time).
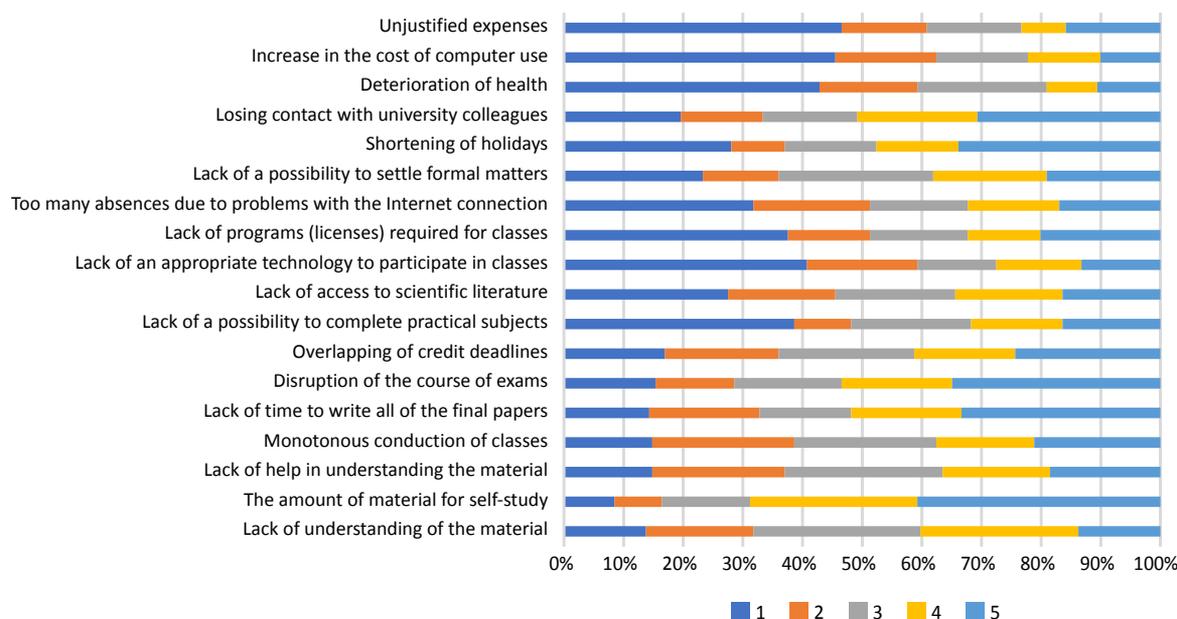
The students' biggest concerns connected with the commencement of online learning were directly related to the classes, mainly to such issues as: too much material for self-study, insufficient time to write final papers, or disruption of the course of exams (Figure 2). The respondents were also afraid of losing contact with colleagues and of the possibility of shortening the holidays as a result of extending the academic year. The least worrying were issues related to the technological area, e.g. regarding the lack of appropriate equipment and programs to participate in classes and incurring additional, unjustified expenses (e.g. for energy consumption and apartment rental).

Interestingly, according to 27.5% of the respondents, remote conduction of classes did not affect contact with university colleagues, and according to 29.5% of the respondents, it had a positive impact. According to 37% of the respondents, replacing traditional classes with an online form negatively impacted contact between students. At the same time, it is also worth presenting the respondents' statements about the fact that studying is not only about education, but also about interpersonal relations, and indicating the proposals for periodic meetings, including student events such as Bacchanalia, only in a remote form.

The vast majority of students (88%) indicated that they had not studied remotely before, but some people from this group used multimedia tools (such as Zoom, Skype or Discord). For this reason, it was found that 40% of the respondents have enough experience in using such technologies to participate in the classes.

Although students were participants in the change, their participation in the implementation of online learning should be considered as passive, i.e. limited to obtaining information. Only a small number of respondents (Figure 3) had any impact on the changes. Said impact pertained to the choice of the form of the examination and the hours of classes rather than the conduct of the classes or the type of e-learning platform used. Participation of respondents in decisions concerning exams consisted in choosing their form from the indicated ones (28%) and the possibility of submitting proposals or expressing opinions about the solutions (18.5%). Similarly, the hours of the classes were determined by choosing from the indicated solutions (16.9%), submitting proposals or express-

Figure 2
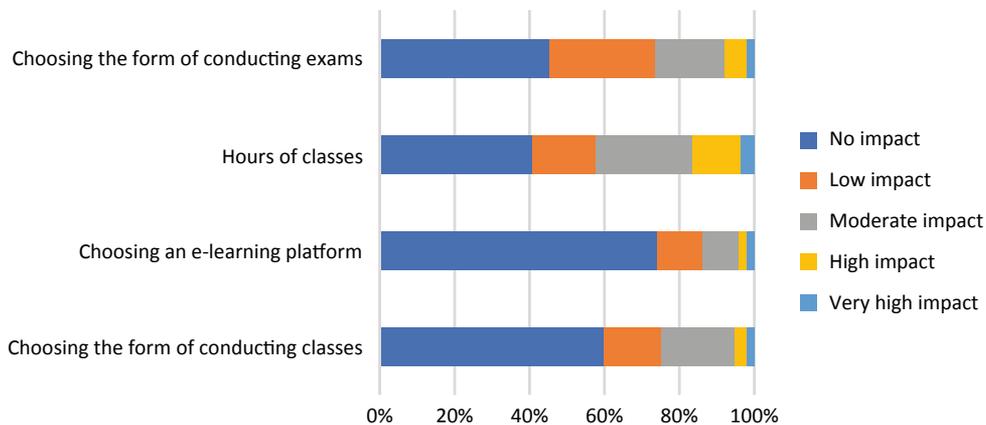*Students' concerns connected with the commencement of online learning*

Legend: The degree of experienced concerns, where 1 is low and 5 is high.
Source: authors' own work.

Figure 3
Participation of respondents in decision-making

Source: authors' own work.

ing opinions about the solutions (25.7%). Sometimes the hours of exercises and lectures were set by the students together with the lecturer (12.7%). The respondents participated in determining the method of conducting the classes by selecting from the indicated solutions (15.3%) and by submitting proposals or expressing opinions on the proposed solutions (19.6%). Also in terms of the e-learning platform used, they could choose from the indicated solutions (1%).

According to the results of the Mann-Whitney U test for experience in the use of technology, there is no reason to reject the null hypothesis, and therefore the students' concerns were not derived from this experience. The situation is different in the case of the variable "gender", for the following concerns: the amount of material for self-study ($Z = -2.27$, $p = 0.022970$), overlapping of credit deadlines ($Z = -4.44$, $p = 0.000009$), lack of a possibility to complete practical subjects ($Z = 2.37$, $p = 0.017344$), lack of access to scientific literature ($Z = -2.42$, $p = 0.015415$), lack of an appropriate equipment to participate in classes ($Z = -3.33$, $p = 0.000868$), deterioration of health ($Z = -2.78$, $p = 0.005375$), and unjustified expenses ($Z = -2.44$, $p = 0.014676$).

On the other hand, the results of the Kruskal-Wallis test showed statistical significance with respect to the following concerns:

- inability to complete practical subjects for the variable field of study (calculated as the degree of practical learning) ($H = 8.318783$, $p = 0.0156$), and degree of study ($H = 24.05219$, $p = 0.0000$);
- lack of help in understanding the material for the variable year of study ($H = 10.56762$, $p = 0.0319$);
- monotonous conduct of classes for the field of study ($H = 7.375901$, $p = 0.0250$) and degree of study ($H = 6.948026$, $p = 0.0310$);
- disruption of the course of an exam for the variable field of study ($H = 7.916710$, $p = 0.0191$) and degree of study ($H = 10.26924$, $p = 0.0059$);

- overlapping examination dates for the variable year of study ($H = 12.45860$, $p = 0.0142$);
- lack of an appropriate equipment for the variable year of study ($H = 14.03848$, $p = 0.0072$), and lack of necessary programs (licenses) for the year of study ($H = 12.03803$, $p = 0.0171$).

Similarly, the time of receiving information about the introduction of online learning differentiated the groups in the case of concerns: lack of understanding of the material ($H = 16.28212$, $p = 0.0010$); lack of time to write all the final papers ($H = 10.10009$, $p = 0.0177$), lack of a possibility to complete practical subjects ($H = 10.30307$, $p = 0.0162$) or lack of a possibility to settle formal matters ($H = 14.62538$, $p = 0.0022$), deterioration of health ($H = 19.64327$, $p = 0.0002$), increase in the cost of computer use ($H = 21.09237$, $p = 0.0001$) and incurring unjustified expenses ($H = 18.09804$, $p = 0.0004$).
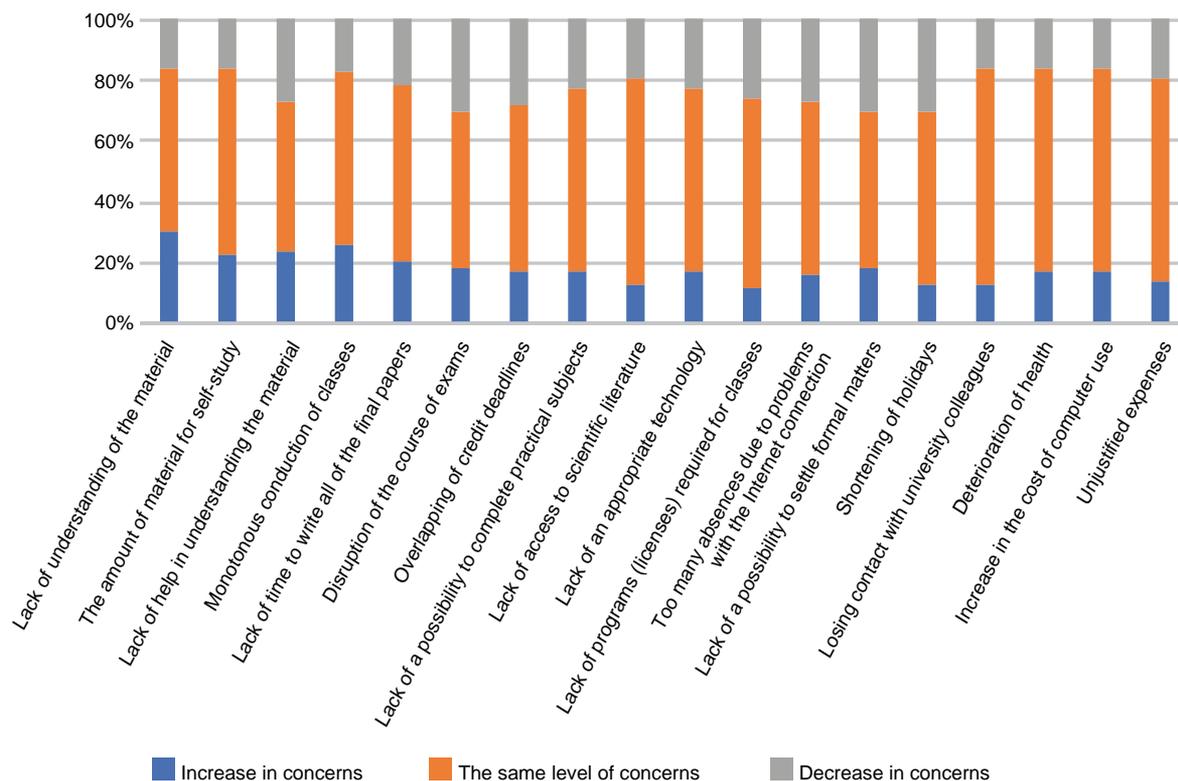
The correlations between the examined variables were also checked by calculating the Spearman's correlation coefficient. The article does not include a table presenting all of the correlations due to the fact that in the vast majority of cases, the correlation turned out to be statistically insignificant. On the other hand, the low result of the correlation analysis concerned: the possibility of co-deciding on the form of conducting classes and concerns about the time for the completion of final papers, the course of the exam, the lack of help in understanding the teaching content. These variables have been listed with the usefulness of the information for future research in mind.

Changes were identified in the concerns experienced due to the introduction of online learning. In the case of many concerns, their degree has not changed over time. A decrease in concerns was noted in the organizational area (settling formal matters, shortening of holidays) and in the area related to classes, regarding credit (disruptions of the course of an exam, overlapping credit deadlines). An increase in concerns was found, however, in the case of a lack of understanding of the teaching content and monotonous conduction of classes (Figure 4).

Figure 4
Changes in the level of concerns related to the introduced change

Legend: ■ Increase in concerns   ■ The same level of concerns   ■ Decrease in concerns

Source: authors' own work.

Interestingly, the perception of the availability of teachers during online learning positively correlated with concerns about too many absences caused by problems with the Internet connection ($r_s = 0.17$, $p = 0.05$) and the lack of possibility to complete practical subjects ($r_s = 0.15$, $p = 0.05$). The number of classes conducted remotely was also statistically significant in relation to the perception of the lack of help in understanding the material ($r_s = 0.16$, $p = 0.05$). It seems that we can talk about the learning overload with this form of learning and about a kind of anxiety caused by the availability of the lecturer when compared to participation in classes (?).

When analyzing the significance of activities undertaken by the university and lecturers, it is worth paying attention to three of them, i.e. sharing library resources, technical support (providing hardware, software, licenses and assistance in their installation) and those concerning the classes (such as extending the deadlines for submitting term papers, making the lecturers' materials available). In the first case, the results of the Mann-Whitney U test indicate the significance of differences for concerns about: the lack of understanding of the material ($Z = 1.96$, $p = 0.049$), the amount of material for self-study ($Z = 2.08$, $p = 0.037$), and about too many absences caused by problems with the Internet connection ($Z = 3.40$, $p = 0.0006$). In the second case for: lack of understanding of the material

($Z = -2.57$, $p = 0.010$), overlapping credit deadlines ($Z = -2.26$, $p = 0.024$), and lack of possibility to complete practical subjects ($Z = -2.44$, $p = 0.015$). In the third case – the support provided by the lecturers – the importance was given to making own sources available and to the possibility of more frequent contact with the teacher, for concerns about unjustified expenses ($Z = 2.56$, $p = 0.010$), and extending the deadlines for final papers – for the lack of appropriate equipment to participate in classes ($Z = 2.53$, $p = 0.011$), and monotonous conduction of classes ($Z = 2.09$, $p = 0.036$).

It is worth supplementing the presentation of the research results by showing that 32% of the surveyed students liked the online form of classes more, but 68% of the respondents preferred classes conducted in a traditional way.

Summary

Based on the presented research results, taking into consideration the reduction of the uncertainty of the participants of the change and in order to reduce their concerns, people who implement online learning at universities are recommended to:
1. Ensure communication, for example by providing information regarding the change.
2. Involve students in making decisions related to the conducted transformations.

3. Adjust the content and method of teaching to the form of online learning.
4. Take care of social presence through the use of synchronous forms.
5. Limit the tools used, preferably to choose one.
6. Provide support in the field of technologies used, which enable participation in online learning, carrying out practical subjects, and in terms of substantive matters (e.g. access to library resources), which are conducive to learning.
7. Pay attention to students who are beginning their studies.

Taking into account the context of the pandemic situation, it can be noticed that most of the respondents started learning remotely within one to two weeks from the moment of the decision to introduce this form of learning. The transition to another form of learning seems to have taken place quickly, without preparation, and therefore in a manner not conducive to change. On the one hand, the question arises: is the external factor of change, forcing transformations and taking action, conducive to the elimination of negative reactions and the imposition of change? Or maybe the reason for changing the situation and the awareness that its implementation is conducive to meeting basic human needs (such as safety, health) is important? Therefore, the value of the factor forcing the change may be important for the participants. Providing positive answers to the above questions would confirm the thesis about an easier implementation of changes resulting from a crisis. On the other hand, taking into account the subject of the change, i.e. education, a question arises about the involvement of stakeholders in its implementation as early as the moment the crisis situation arises. Although this means postponing the implementation of the change, perhaps joint decision-making would be more conducive to positive feedback from participants and the learning outcomes achieved?

It should be added that the conducted research has limitations. These include: the lack of representativeness of the research sample, the declarative nature of the answers provided and the lack of participation of part-time students.

References

AlHamad, A. Q. M. (2020). Acceptance of E-learning among university students in UAE: A practical study. *International Journal of Electrical and Computer Engineering (IJECE)*, *10*(4), 3660–3671. http://doi.org/10.11591/ijece.v10i4.pp3660-3671

Ally, H. B., Agbolade, O. K., & Adunni, A. H. (2016). Perception of change management in Nigerian Universities. *Revista de Administração FACES Journal, 15*(2), 66–80.

Armstrong, M. (1998). *Zarządzanie zasobami ludzkimi*. Wydawnictwo Profesjonalnej Szkoły Biznesu.

Aydan, Ü., & Karakaya, A. (2018). The attitude of academics to change management: A university case study. *Econder International Academic Journal*, *2*(2), 291–312. https://doi.org/10.35342/econder.498467

Ayebi-Arthur, K. (2017). E-learning, resilience and change in higher education: Helping a university cope after a natural disaster. *E-Learning and Digital Media*, *14*(5), 259–274. https://doi.org/10.1177/2042753017751712

Centkowska, M. (2015). Podstawy teoretyczne oporu wobec zmian w organizacji. *Zeszyty Naukowe Politechniki Śląskiej. Organizacja i Zarządzanie, z. 77*, 9–18. http://www.woiz.polsl.pl/znwoiz/z77/1_CENTKOWSKA%20M.pdf

Czapla, T. (1998). Taktyki wdrażania strategii. *Przegląd Organizacji, 4*, 12–13.

Czerska, M. (1996). *Organizacja przedsiębiorstw*. Wydawnictwo Uniwersytetu Gdańskiego.

Delgado-Zapero, A., & Strojny, J. (2020). Stakeholders management in a university: analysis of their importance with AHP. *Modern Management Review*, *27*(2), 15–31. https://doi.org/10.7862/rz.2020.mmr.12

Enăchescu, V. A., & Trapiel, I. R. (2014). Change management in medical university education in Romania in the context of national and European development policies. *Review of International Comparative Management*, *15*(2), 250–255.

Falqueto, J. M. Z., Hoffmann, V. E., Gomes, R. C., & Onoyama-Mori, S. S. (2020). Strategic planning in higher education institutions: what are the stakeholders' roles in the process? *Higher Education*, *79*(2), 1039–1056. https://doi.org/10.1007/s10734-019-00455-8

Ferri, F., D'Andrea, A., Grifoni, P., & Guzzo, T. (2018). Distant learning: open challenges and evolution. *International Journal of Learning, Teaching and Educational Research*, *17*(8), 78– 88. https://doi.org/10.26803/ijlter.17.8.5

Frączek, B. (2015). E-learning jako innowacyjna forma edukacji finansowej. *Studia Ekonomiczne. Zeszyty Naukowe Uniwersytetu Ekonomicznego w Katowicach, 239,* 36–50.

Geryk, M. (2018). Universities of the future: Universities in transition under the influence of stakeholders' changing requirements. In J. I. Kantola, T. Barath, & S. Nazir (Eds.), *Advances in human factors, business management and leadership* (pp. 116–124). Springer. https://doi.org/10.1007/978-3-319-60372-8_12

Gosper, M., McNeill, M., Phillips, R., Preston, G., Woo, K., & Green, D. (2016). Web-based lecture technologies and learning and teaching: a study of change in four Australian universities. *Research in Learning Technology*, *18*(3), 251–263. https://doi.org/10.1080/09687769.2010.529111

Grantins, A., Sloka, B., & Jekabsone, I. (2017). Towards effective change management in universities: case of Latvia. *Regional Review*, *13*, 17–27.

Griffin, R. (2007). *Podstawy zarządzania organizacjami*. Wydawnictwo Naukowe PWN.

Grigorescu, A., & Olteanu, L. M. (2014). Stakeholders' perception of the process of change in the Romanian pre-university education. *Review of International Comparative Management*, *15*(4), 402–422.

Grundy, T. (1997). Accelerating strategic change: the internal stakeholder dimension. *Strategic Change*, *6*(1), 49–56. https://doi.org/10.1002/(SICI)1099-1697(199701)6:1<49::AID-JSC242>3.0.CO;2-L

Hoat, L. N., Lan Viet, N., van der Wilt, G. J., Broerse, J., Ruitenberg, E. J., & Wright, E. P. (2009). Motivation of university and non-university stakeholders to change medical education in Vietnam. *BMC Medical Education*, *9*(49). https://doi.org/10.1186/1472-6920-9-49

Houshmandi, S., Rezaei, E., Hatami, J., & Molaei, B. (2019). E-learning readiness among faculty members of medical sciences universities and provide strategies to

improve it. *Research and Development in Medical Education, 8*(2), 105–112. https://doi.org/ 10.15171/rdme.2019.020

Humbert, M. (2007). Adoption of blended learning by faculty. In M. K. McCuddy, H. van den Bosch, W. B. Martz, A. V. Matveev, & K. O. Morse (Eds.). *The Challenges of Educating People to Lead in a Challenging World* (pp. 423–436). Springer. https://doi.org/10.1007/978-1-4020-5612-3_21

Jasińska, J. (2015). *Zmiany w organizacjach: Sprawne zarządzanie, sytuacje kryzysowe i warunki osiągania sukcesu*. Frel.

Legris, P., & Collerette, P. (2006). A roadmap for it project implementation: integrating stakeholders and change management issues. *Project Management Journal*, *37*(5), 64–75. https://doi.org/10.1177/875697280603700507

Leitzel, J., Corvey, C., & Hiley, D. (2004). Rated planning and change management at a research university. *Change: The Magazine of Higher Learning*, *36*(1), 36–43. https://doi.org/10.1080/00091380409605082

Lim, S. J., Khan, A. M., De Silva, M., Lim, K. S., Hu, Y., Tan, C. H., & Tan, T. W. (2009). The implementation of e-learning tools to enhance undergraduate bioinformatics teaching and learning: a case study in the National University of Singapore. *MC Bioinformatics*, *10*(15). https://doi.org/10.1186/1471-2105-10-S15-S12

Long, S. M., & Spurlock, D. G. (2008). Motivation and stakeholder acceptance in technology-driven change management: implications for the engineering manager. *Engineering Management Journal*, *20*(2), 30–36. https://doi.org/10.1080/10429247.2008.11431764

Mainardes, E. W., Alves, H., & Raposo M. (2011). The process of change in university management: from the "Ivory tower" to entrepreneurialism. *Transylvanian Review of Administrative Sciences*, *33*, 124–149.

Mainardes, E., Alves, H. & Raposo, M. (2013). Identifying stakeholders in a Portuguese university: a case study. *Revista de Educación*, *362*, 429–457. https://doi.org/10.4438/1988-592X-RE-2012-362-167

Manatos, M. J., Rosa, M. J., & Sarrico C. S. (2017). The perceptions of quality management by universities' internal stakeholders. In R. Deem, & H. Eggins (Eds.), *The university as a critical institution? Higher education research in the 21st century series* (pp. 157–172). Sense Publishers. https://doi.org/10.1007/978-94-6351-116-2_9

Matusiak, K. B. (Ed.) (2011). *Innowacje i transfer technologii. Słownik pojęć*. Polska Agencja Rozwoju Przedsiębiorczości.

Mechlińska-Pauli, M. (2008). Model kształcenia na odległość na przykładzie doświadczeń wybranych polskich i zagranicznych uczelni wyższych. In *Studia Gdańskie. Wizje i rzeczywistość*, volume 5 (pp. 123–134). Wydawnictwo Gdańskiej Wyższej Szkoły Humanistycznej.

Muluneh, G. S., & Gedife, M. T. (2018). Leading changes through adaptive design: Change management practice in one of the universities in a developing nation. *Journal of Organizational Change Management*, *31*(6), 1249–1270. https://doi.org/10.1108/JOCM-10-2017-0379

Pamuk, S. (2012). The need for pedagogical change in online adult learning: a distance education case in a traditional university. *Gaziantep Üniversitesi Sosyal Bilimler Dergisi*, *11*(2), 389–405.

Porter, W. W., & Graham, C. R. (2015). Institutional drivers and barriers to faculty adoption of blended learning in higher education. *British Journal of Educational Technology*, *47*(4), 748–762. https://doi.org/10.1111/bjet.12269

Porter, W. W., Graham, C. R., Bodily, R., & Sandberg, D. (2016). A qualitative analysis of institutional drivers and barriers to blended learning adoption in higher education. *The Internet and Higher Education, 28*(1), 17–27. https://doi.org/10.1016/j.iheduc.2015.08.003

Regulation. (2020). Rozporządzenie Ministra Nauki i Szkolnictwa Wyższego z dnia 11 marca 2020 r. w sprawie czasowego ograniczenia funkcjonowania niektórych podmiotów systemu szkolnictwa wyższego i nauki w związku z zapobieganiem, przeciwdziałaniem i zwalczaniem COVID-19 (Dz. U. 2020 poz. 405). https://isap.sejm.gov.pl/isap.nsf/DocDetails.xsp?id=WDU20200000405

Scott, K. M. (2013). Does a university teacher need to change e-learning beliefs and practices when using a social networking site? A longitudinal case study. *British Journal of Educational Technology*, *44*(4), 571–580. https://doi.org/10.1111/bjet.12072

Seres, L., Maric, M., Tumbas, P., & Pavlicevic, V. (2019, November 11–13). *University stakeholder mapping*. ICERI 2019 Proceedings 12th International Conference of Education, Research and Innovation. Seville, Spain. https://doi.org/10.21125/iceri.2019.2174

Sheiladevi, S., & Rahman, A. (2016). An investigation on impact of E-Learning implementation on change management in Malaysian private higher education institutions. *Pertanica Journal Science & Technology*, *24*(2), 517–530.

Shoham, S., & Perry, M. (2009). Knowledge management as a mechanism for technological and organizational change management in Israeli universities. *High Education*, 57(2), 227–246. https://doi.org/10.1007/s10734-008-9148-y

Skalik, J. (Ed.). (1996). *Projektowanie organizacji instytucji*. Wydawnictwo Akademii Ekonomicznej we Wrocławiu.

Smal, T. (2009). Nauczanie na odległość (e-learning). *Zeszyty Naukowe WSOWL, 3*, 105–114. http://yadda.icm.edu.pl/baztech/element/bwmeta1.element.baztech-article-BATA-0006-0093

Smart, K. L., & Cappel, J. J. (2006). Students' perceptions of online learning: a comparative study. *Journal of Information Technology Education*, *5*, 201–219. https://doi.org/10.28945/243

Sobka, M. (2014). *Zmiany organizacyjne w teorii i praktyce*. Politechnika Lubelska.

Stoltenkamp, J., & Kasuto, O. A. (2011). E-Learning change management and communication strategies within a HEI in a developing country: Institutional organisational cultural change at the University of the Western Cape. *Education and Information Technologies, 16*(1), 41–54. https://doi.org/10.1007/s10639-009-9114-z

Szewczyk, A. (2018). E-learning studentów na przykładzie uczelni wyższych w Szczecinie. *Dydaktyka Informatyki, 13*, 91–104. http://repozytorium.ur.edu.pl/handle/item/3936

Urbanovič, J., & Wilkins, S. (2013). Internationalisation as a strategy to improve the quality of higher education in small states: stakeholder perspectives in Lithuania. *Higher Education Policy*, *26*(3), 373–396.

Wasiluk, A. (2004). Menedżerowie a zmiany wprowadzane w przedsiębiorstwach, *Zeszyty Naukowe Politechniki Białostockiej. Ekonomia i Zarządzanie, z. 9*, 301–312. https://depot.ceon.pl/handle/123456789/14583

Yazon, J. M. O., Mayer-Smith, J. A., & Redfield, R. J. (2002). Does the medium change the message? The

impact of a web-based genetics course on university students' perspectives on learning and teaching. *Computers & Education*, *38*(1–3), 267–285. https://doi.org/10.1016/S0360-1315(01)00081-1

Zając, M. (2005). Rozwiązania e-learningowe wybranych ośrodków akademickich – analiza dobrych praktyk. *e-mentor, 5*(12). http://www.e-mentor.edu.pl/artykul/index/numer/12/id/223

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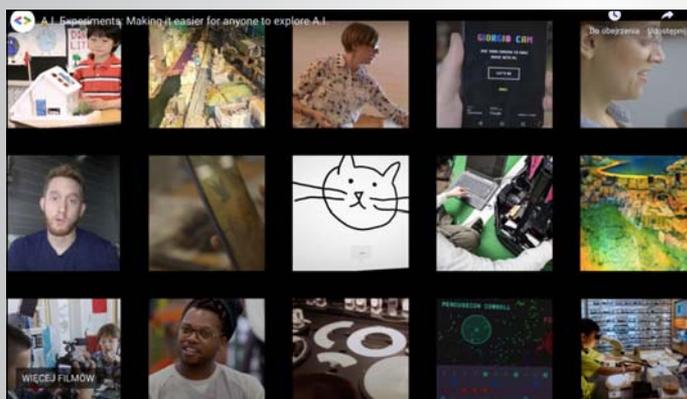
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