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# Designing MOOC User Activity

## Abstract

In recent years, xMOOC, one-way knowledge transfer have been replaced by cMOOCs which allow users to co-create knowledge. Substantive discussion forums are mainly used for this purpose. However, students use forums for more than just this type of collaboration. The aim of the study was to analyze the purpose and extent to which students enrolled in 208 MOOC courses posted on the Polish "Navoica" platform use discussion forums and how MOOC authors encourage or discourage students from participating in substantive forums. Introductory and organizational forums were excluded from this study. Discussion forums user activity on substantive issues was low. Findings of this study support findings included in the research conducted in other regions of the world. 11% of studied courses did not include discussion forums; in 31% of forums there were no posts; in 15% of forums there were a few to a dozen of posts; and in 28% of MOOCs there were entries predominantly about organizational matters. In only 15% forums there were more than 25 posts. Students, including those enrolled in language learning courses, rarely posted on forums. Number of posts did not correspond to number of participants, number of certificates issued, or popularity of the course. Participants' activity was usually triggered by question inspiring expression of their opinion, self-promotion, commenting on colleagues' entries, and also by course coordinator's participation in the discussion. Participation of Polish MOOCs platform users in discussion forums deserves further research to promote development off first and second key competences, i.e., *Literacy competence* and *Multilingual competence*. The main results may be generalized to the entire MOOC-user population.

K e y w o r d s: auto-presentation, communication, personal, post, question, story

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# Introduction

## Research Problem

xMOOCs, one-way knowledge transfer platforms, are being increasingly replaced by cMOOCs allowing users to co-create new knowledge based on peer-learning, but not by discussions with the tutor, because MOOCs are not moderated. To what extent, then, is it rational to participate in a discussion forum? Does posting in a substantive forum unequivocally contribute to the development of knowledge and competences? Or is it a waste of time or exposing self to unpleasant consequences such as *hate speech* known from social media? These doubts and fear of judgment (Bouchet, Labarthe, Bachelet, & Yacef, 2017) are not unfamiliar to MOOC participants. Yet, the conditions of their activity in discussion forums have not been sufficiently researched. This paper fills this research gap by presenting ways of encouraging as well as discouraging MOOC users to post in substantive forums, and also various strategies utilised by the authors of posts. Awareness of the verbal interaction, the ability to formulate and express arguments, awareness of the impact the words have on people have become crucial in times of social communication dominated by mainstream media and AI which create and disseminate compelling cognitive amalgamates frequently distorting the perception of reality. Moreover, mainstream media, social media and AI recurrently promote specific points of view, axiological reality assumptions, and obvious biases.

Education, on the other hand, does not only involve the process of acquiring knowledge, but it also develops key competences. The European Union classified *Literacy competence* and *Multilingual competence* as crucial key competences (2018, p. 7). This means that the aim of education is to promote subjective communication, i.e., expression of one's point of view, independent thinking, critical appraise of external messages, and also effective communication with peers and tutors.

Communication skills are necessary to interpret the world, obtain information, learning process, asking for assistance, meeting various demands, and forming healthy relationships with others. Skilled communication can be practiced verbally or in a written form, with the use of different communications styles and languages depending on the needs, contexts, and traditions of learners. Ludwig Wittgenstein's famous quote from *Tractatus Logico-Philosophisus*: *Die Grenzen meiner Sprache bedeuten die Grenzen meiner Welt* [*The limits of my language mean the limits of my world*] (5.6) captures the relationship between the extend of acquired concepts and the degree to which reality is understood. MOOCs' discussion forums promote learning by endorsing reciprocal encouragement.

The designers of cMOOCs (Siemens, 2005) rightly assume that learners' cooperation results in creation of knowledge. That is why for the next decades

discussion forums are to be mandated features of courses delivered on the American platforms "edX" and "Coursera", the European platform "Future Learn", and, partially, the Polish MOOC "Navoica" platform . These platforms offer identically structured courses in which discussion forums play an important didactic role. They also serve self-promotional purposes, bonding users with the platform, encouraging them to read fellow students' posts, post comments, and, on the principle of peer assessment, evaluating other participants' assignments. When a user posts an assignment in the "Future Learn" substantive forum, he/she immediately receive randomly selected assignments from other users for evaluation. This process is managed by Artificial Intelligence which means that the actual activity of users in discussion forums is low and AI compounds this problem. There are forums, however, moderated by instructors who offer social, educational, and cognitive presence (Goshtasbpour, Swinnerton, & Morris 2020, p. 234).

## Research Focus

In the contemporary Western world, private entities that run business activities in parallel with education are the owners of the most popular MOOC platforms such as "Coursera", "edX", "FutureLearn" or "Alison". In the other hand in some countries there are platforms managed by foundations, local governments, or educational institutions established specifically for this purpose by the relevant Ministry of Education or Science. Such platforms are for example "France Université Numérique", "EduOpen" (Italy), "Navoica" (Poland), "XuetangX" (China), or "SWAYAM" (India). Commercial platforms extensively use artificial intelligence and marketing tricks to sell educational services. Non-commercial platforms, on the other hand, better reflect national educational policies and embrace authentic ways of teaching by teachers. This happens in parallel with the users' activities which reveal their true educational expectations. The largest Western MOOC platforms managed by universities, i.e., "edX" and "EduLearn", have been purchased by private entities in the last three years. The same happens to other national and university platforms. In the face of the rapidly advancing commercialization of MOOC platforms, which were supposed to be universally available and free of charge, this study focuses on the current behavioral patterns of users of non-commercial platform administered by the Polish Minister of Science, i.e., the MOOC "Navoica" platform. It can be expected that the commercialization of Western MOOCs will continue and subjecting those platforms to marketing strategies will lead to an increased neglect of the real expectations and needs of their users. Hence, it is worth examining current expectations and needs of users of one of the increasingly uncommon non-for-profit platforms which does not utilise AI to activate discussion forums, contrary to e.g., "FutureLearn".

The aim of the research was to characterize lecturers' strategies and to analyze participants' engagement in substantive discussions in MOOCs courses available on the Polish educational "Navoica" platform as an exemplary ministerial and non-profit platform. The study focused on strategies used by the course authors aiming at encouraging participants to post on discussion forums, communication strategies used by the students and those supported by the platform.

Special attention was paid to foreign language learning courses, because posting in those courses not only develops communicative competences and supports acquisition of specialist knowledge, but also consolidates practical knowledge of vocabulary, syntax and phraseology of a given language. In language courses – both stationary and delivered in distance-education mode – verbal interaction between an instructor and participant is essential in learning basic vocabulary, phrases, and expressions. The "Navoica" platform MOOCs are not moderated. There are no verbal interactions of students with the teacher; only written interactions with peers necessary for language learning, i.e., learning effective communications, remain. Discussion forums in language learning courses play a very important role in the process of knowledge acquisition. Therefore, the presented study especially focused on the organization of language learning courses and on users' participation patterns.

## Related Research

The analysis of user activity in MOOCs aimed at identifying ways allowing for reducing students' high dropout rate, because social interactions have a positive impact on learning outcomes: *MOOCs lacking social support, social presence and peer interaction result in high dropout rates* (Loh, Martins van Jaarsveld, Masutoglu, & Baars 2024, p. 02). Correlation was observed *between the learners' course completion status and the level of their activity in the forums* (Cohen, Shimony, Nachmias, & Soffer, 2019, p. 178) and *positive correlation between forum activity and course grade* (He, Ma, Zhou, & Wu 2018, p. 1). The following activity patterns were identified: homophily (tendency to associate with similar persons), reciprocity (paired up conversation with a returned flow), transitivity (ties with participants who are the friends of the friends), and preferential attachment (participants actively involved in forum are likely to become even more engaged) (Zhang, Skryabin, & Song, 2017). It was concluded that user engagement can be promoted by *individualized tutoring, interactivity, and feedback* (Estrada-Molina, & Fuentes-Cancell, 2022, p. 1). All of which can be implemented on forums to allow participants *seek help, provide suggestions, and engage in discussions* (Naskar, Hasan, & Das 2021, p. 1). Special attention was paid to the role of social media, which propose patterns for building relationships which are subsequently adapted by contemporary students *in areas such as establishing new contacts,*

*maintaining offline relationships, mutual learning and self-presentation* (Frania, Correia, Kotecki, & Kokić 2022, p. 1).

Thus, researchers emphasize the role of a tutor who can facilitate critical thinking by engaging participants in intellectually stimulating discussions, challenging tasks, analyzing information, questioning imposed ideas, drawing conclusions (Tirthali, & Murai 2024, p. 2) and *help low-achieving students make significant progress* (Wei, Liu, Xu, Kolletar-Zhu, & Zhang 2023, p. 1). Tutor involvement is also important for enhancing users' intrinsic motivation (Tang, Xing, & Pei 2018, p. 368). Therefore, attempts have been made to develop a tool to automatically find *posts that necessitate their intervention* (Ntourmas, Daskalaki, Dimitriadis, & Avouris 2023, p. 162). Entries that require urgent teacher's response are identified from thousands of similar by the use of purposely developed tools (Khodeir 2024; Lee, D., Rothstein, R., Dunford, A., Berger, E., & Rhoads, J.F., & DeBoer, J. 2020). However, in MOOC a huge number of entries still poses a problem for a moderator.

Not receiving an answer to a question can be very discouraging to students. It is essential to support information exchange. Unmoderated general forum, apart from posts on substantive issues, often contains a number of posts covering *course-related issues such as reporting problems and suggesting* (Onah, Sinclair, & Russell 2014, p. 5). Moderation of the substantive forum by the teacher allows students to get a prompt and reliable response to a specific question (Onah, Sinclair, & Russell 2014, p. 5). However, a number of MOOC platforms function without any supervision. On such platforms, the users can only support each other, while *only a small fraction of all MOOC participants use the forum to communicate* (Hecking, T., Chounta, I.-A., & Hoppe H.U., 2017, p. 1). It seems reasonable to appoint volunteers to moderate forums, for example recruited from among graduates of a given MOOC course (Krasny, DuBois, Adameit, Atiogbe, Baih, Bold-Erdene et al., 2018; Gamage, 2021) or teaching assistants (Wang, Cheng & Cai, 2023). MOOC participants look forward to not only the acquisition of knowledge, but also social presence including emotional expression, communication, co-presence, and group cohesion.

# Methodology

## Research Gap and Research Questions

Research to date has not sufficiently addressed the factors dependent on MOOC teachers and course designers that influence participants' activity in substantive discussion forums. To fill this research gap, the following research questions were formulated:

1. To what extent are MOOCs equipped with substantive discussion forums and what is the level of users' participation in substantive discussion forums?

Two additional questions were formulated:

2. How is users' participation in substantive discussion forums supported?
3. What is the level of user's activity in language courses forums?

## Research Sample

The research sample consisted of MOOCs courses available between 21st and 22nd of May, 2024, on the "Navoica" platform. During the research period, 208 MOOCs were made available by universities, educational institutions, and other organizations. The number of offered courses is presented in Table 1.

Table 1
*Universities offering MOOCs*

| Development Unit | Number of MOOCs |
|---|---|
| Bialystok University of Technology | 32 |
| University of Economics and Human Sciences | 30 |
| The West Pomeranian Business School | 22 |
| Cracow University of Technology | 14 |
| Poznań University of Economy and Business | 12 |
| Adam Mickiewicz University in Poznań | 12 |
| National Information Processing Institute | 12 |
| University of Silesia in Katowice | 11 |
| Vistula University | 10 |
| WSB University | 7 |
| Jan Dlugosz University in Czestochowa | 6 |
| WSPiA University of Rzeszów | 6 |
| Bydgoszcz WSG University | 5 |
| Academia Humanitas | 4 |
| Jagiellonian University in Kraków | 3 |
| Ignatianum University in Kraków | 3 |
| Pawel Wlodkowic University College in Płock | 2 |
| University of Szczecin | 2 |
| Military University of Technology | 2 |
| Warsaw Institute of Banking | 2 |
| Lipinski University | 1 |
| Bydgoszcz University of Science and Technology | 1 |
| Krakow University of Economics | 1 |
| University of Gdańsk | 1 |
| University of National Education Commission in Krakow | 1 |
| Maria Curie-Skłodowska University in Lublin | 1 |
| Higher School of Information Technology in Katowice | 1 |
| Copernicus Science Centre | 1 |
| Human Doc Foundation | 1 |

S o u r c e: Own work.

Courses were designed by 27 Polish higher education institutions. This is a small percentage, because there are in total 96 public and 379 non-public universities, academies and tertiary schools, and 17 religious universities in Poland (Ministry of Science and Higher Education, 2024). This means that university academics are not specifically interested in running MOOCs, in their didactic preparation, or in the activity of users on substantive discussion forums. The entities offering MOOCs on the "Navoica" platform did not provide live moderation of discussion forums. It is technically possible, but rarely practised. In Poland, *Educational Technology* is a non-existing academic discipline or speciality. Preparing or delivering MOOC courses is, therefore, perceived by Polish university employees as a waste of their academic time which they need for conducting research in their main academic discipline, or often in two disciplines.

The "Navoica" platform facilitates participation in online discussion forums by displaying either course forums jointly or chronologically, or separate entries in individual forums. It also allows for tagging and following selected discussions.

## Hypothesis

When formulating the hypothesis, reference was made to George Siemens' connectivism, established in 2005, according to which learning is a process of creating networks on three levels: connecting neurons, ideas, and social networks with cognitive agents such as other people, applications, and smartphones. However, in 2020, Siemens stated that social media have become toxic and harmful to learning in some cases. Therefore, he recognized the value of closed learning spaces, where learners can engage in less risky interactions (Steele, 2025). Based on the findings by Siemens, a hypothesis was formulated that *most users of the Polish educational MOOC platform "Navoica" do not participate in substantive discussion forums, because they are not sufficiently encouraged to do so.*

## Instruments and Procedures

Using the Firefox browser, 208 MOOCs available on the "Navoica" platform between 21st and 22nd of May, 2024, were logged into. These were archived on the researcher's account so that they could be accessed in August, 2024, for analysis of patterns in the field of organizing substantive discussion forums by teachers and posting in them by users. The content of the *Discussion* tabs was analyzed. Those tabs provide information about all forums available in particular courses, including the introductory forum, which, however, was not included in this study. The content of the introductory forum was excluded. The number of substantive forums on each MOOC and the degree and manner of their use was studied. The number of the

forums, their names, questions posed to users, the number of substantive entries, as well as organizational comments posted by users were documented in an Excel spreadsheet.

The relationship between a forum design and user activity has not been studied. So the exploratory study was designed as it was difficult to hypothesize which variables would be of significance. An exploratory sequential mixed methods design (Creswell, & Creswell, 2018, p. 349–351) content analysis was conducted. The initial stage of the study was quantitative analysis to test the hypothesis. A qualitative analysis followed, i.e., a detailed exploration of organization of forums and of activity of sample users in selected forums. Finally, quantitative and qualitative data were combined to obtain an in-depth analysis to answer the research questions and to obtain uniform interpretation, which would allow formulation of conclusions and recommendations for MOOC designers.

The first phase of the study was conducted to compare the number and topics of entries. A categorization key was developed which included 5 categories of MOOCs:

1. With forum/forums rarely used – with several to a dozen or so user posts.
2. With forums used frequently – with 20 or more substantive user posts. There were several hundred entries in some courses, and over a thousand in case of two courses.
3. With forums used exclusively, or mainly, for organizational purposes.
4. With unused discussion forum/forums – with no user posts.
5. Deprived of substantive discussion forums.

For each MOOC academic discipline, level of course, type of organizer (university, academy, polytechnic, tertiary school, institution, foundation, etc.,), percentage of points required to obtain certificate, number of substantive forums, and number of substantive and organizational entries in each forum were specified. The data was coded in a *Microsoft Excel* spreadsheet for each course separately. The results were then analyzed first quantitatively. After this initial exploration, the qualitative analysis was conducted to generalize the results to the entire MOOC user population.

# Results of Research

## 1. Number of Posts

Number of substantive discussion forums available in MOOCs varies. This is illustrated in *Figure 1.*
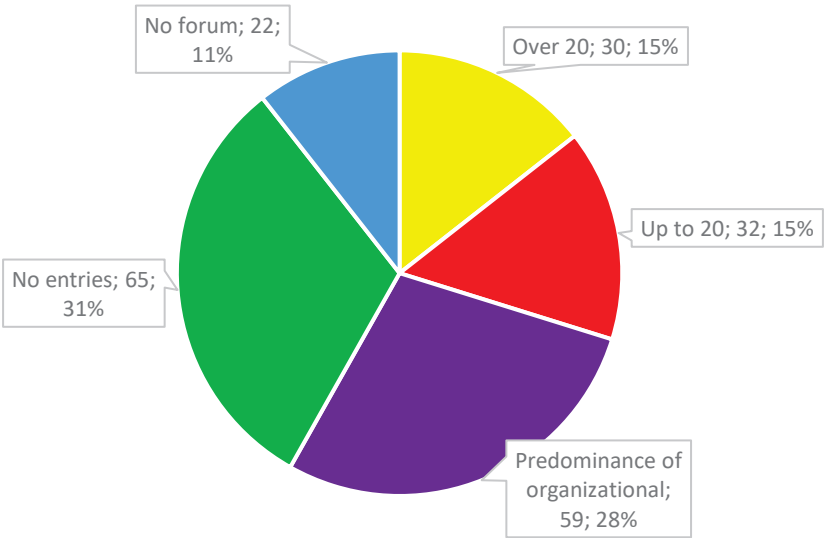
*Figure 1.* Number of entries on substantive MOOCs forums on the "Navoica" platform

S o u r c e: Own work.

This quantitative analysis of the research material provided the answer to the first part of the main research question:

1a. *To what extent are MOOCs equipped with substantive discussion forums?* Discussion forums were part of 186 of studied courses. Some courses had several dozen discussion forums, e.g., the *Suicide Prevention Course – ELLIPSE* available in 6 languages (Makara et al., 2023) contained 48 forums. There were 80 entries posted in a Polish version of this course and a single one in versions available in other languages. But on the "Navoica" platform, a large number of forums positively correlated with an increasing number of posts. There was no substantive discussion forum in 22 courses. On average, there were 6 forums per "Navoica" platform course.

The number of posts varied depending on the academic field. The most active discussions took place on substantive topics in courses in *Arts/Humanities* and *Social Sciences*; the least active were users of courses in *Natural Sciences*. The average number of posts in the forum was: 119, 43, and 2 respectively. However, the averages were positively influenced by a small number of courses, especially language courses, classified as *Humanities.* The median in *Humanities* was 5, in other groups it was 0. This is presented in *Figure 2*.
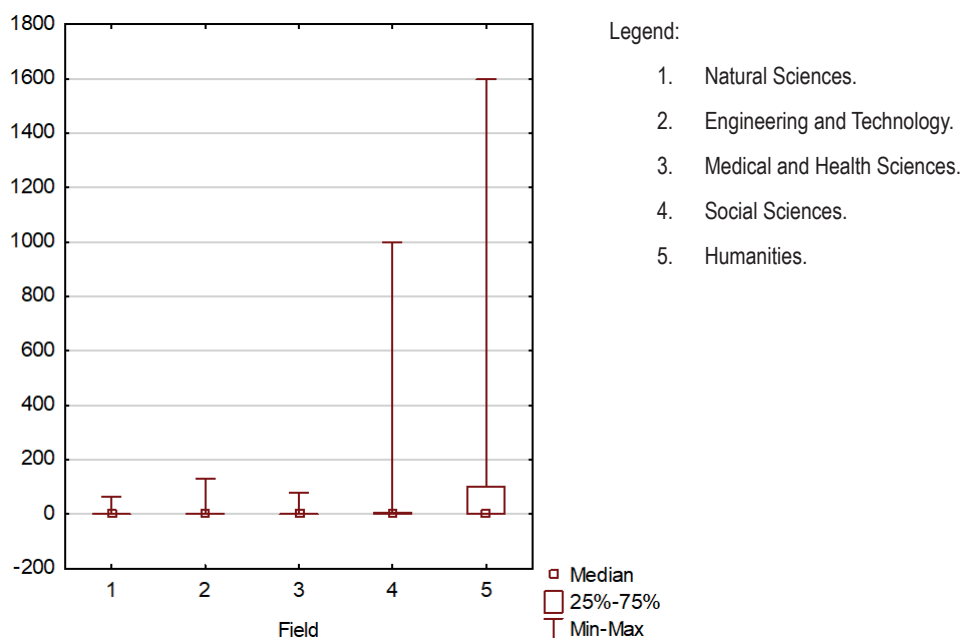
*Figure 2.* Comparison of the number of substantive entries between different fields

S o u r c e: Own work.

The answer to the second part of the main research question was formulated:

1b. *What is the level of user participation in substantive discussion forums?* Only a small number of courses were identified as having active forums. 65 of the 208 analyzed forums contained no posts; other contained diverse number of posts. In 30 courses, the number of posts ranged from a few to a dozen; only in 6 cases – it reached several hundred entries and more. It can, therefore, be said that the overall level of user engagement was low. A small number of courses positively influenced the overall high statistics in *Humanities* and *Social Sciences*.

## 2. Ways to Support Users of Substantive Discussion Forums

To answer the first additional research question, i.e., to explore the ways of supporting user activity on substantive discussion forums, the forums with a high, low, and no post level were analyzed. Additionally, forums with posts mainly on organizational topics, and forums of language courses were studied to understand the trends and diversity of participants' activity.

### 2.1. Thematic Forums with High Users' Activity

High users' activity was observed in 30 courses, i.e., the number of posts in substantive forums ranged from 20 to several hundred, in two cases it exceeded a thousand. The majority of posts (1598) were made by students enrolled in the course *Jak efektywnie uczyć się słownictwa w języku angielskim* [*How to learn English vocabulary effectively*] (Kubiak 2022). Students were eager to answer questions such as: *Czy pamiętasz jakieś słowa dotyczące podróży, które utkwiły Ci w głowie?, W jaki sposób uczysz się mniej pasjonujących tematów?, Jakie inne pomysły na naukę angielskiego sprawdziły się u ciebie?* [*Are there any travel-related words that have stuck in your head? How do you learn not so interesting topics? What other English learning ideas have worked for you?*]. This is because such questions referred to student's personal experiences and served as a tool of self-promotion, allowing them to create a positive self-image which, however, frequently was most likely not a true presentation of self – in line with the trend present in the media (Kalisz, Tyc 2018, p. 7). Therefore, substantive discussions forums were utilised by users mainly for self-promotion purposes. The forum questions were formulated in a way that prompted students to create attractive stories (making learning new words easier) and promoted presenting self as interesting discussion partners (Wyrwas 2018, p. 93), e.g.,:

> When I was on holiday two years ago, I totally forgot how to say air conditioning. I asked the lobby guy about sth with AC and I called it like in polish version – klimatyzacja. Happily, he understood what I meant and ask me „you mean AC right?". I promise you, that I will remember how to say AC for my whoole life (Anonym, 07.2024).

Sharing stories and experiences promotes forming and maintaining bonds in the spirit of common attitudes and beliefs (Wyrwas 2018, p. 101). Therefore, reading colleagues' posts might have encouraged some participants to post their own stories. In that way, answers to well-formulated questions became inspirations for some users. The posts of predecessors were read and commented upon. Thus, in this course, the forum was effectively used in teaching of foreign language writing and reading skills by triggering participants' self-presentation and integration skills.

Resignation from an introductory forum in this course was most likely carefully planned. For all MOOCs, the Mann-Whitney test showed that resignation from the introductory forum positively correlated with number of posts in the substantive forum. This is shown in *Figure 3*. In both groups, there were courses with very high users' activity, therefore the inclusion of an introductory forum does not necessarily lead to higher volume of substantive posts, but can assist in reducing the spread of statistical values.
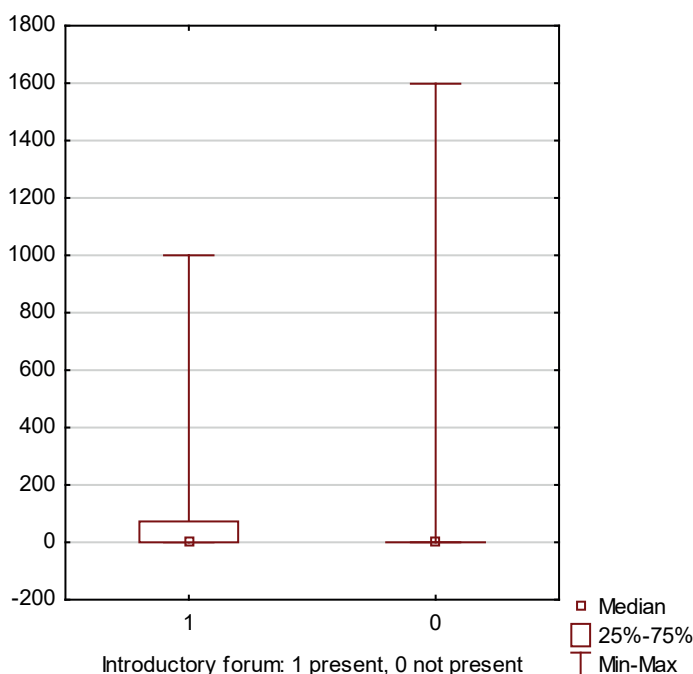
*Figure 3.* Comparison of the number of substantive entries depending on the existence of an introductory forum

S o u r c e: Own work.

There was no introductory forum in case of 19 courses (66%) with the highest number of forum users. Therefore, users accustomed to introducing themselves at the commencement of the course, due to lack of availability of introductory forum, talked about themselves, their preferences, and shared their observations, thoughts, and views on substantive forums. Lack of the introductory forum seemed to be a strategic move aimed at redirecting users' activity to the substantive forums. Similar strategies for strengthening users' activity were used by the authors of 11 other language courses.

There were 6 courses with 6 substantive forums per each, but the number of posts ranged from 24 in the course *Transport i logistyka. Kurs języka polskiego specjalistycznego dla obcokrajowców* [*Transport and logistics. Specialist Polish language course for foreigners*] (Bambrowicz 2022) to 698 in the *English for Business and IT students* course (Czarnopys 2022). The number of available forums, varied from 1 to 35. An increasing the number of forums resulted in an increase in the number of posts. However, such statistical relationship was not found for *Medical and Health Sciences*. Therefore, it can be said that a high number of substantive discussion forums does not automatically lead to increased number of substantive posts.

Some tutors responded to posts (e.g., Ślósarz 2022) which raised the level of substantive discussion and encouraged students' participation, e.g.,:

> No matter how much times will change and how much technology will advance, for me the main medium of literature will always be a hard copy book. However, having completed the course which showed me the extent to which new technologies influence literature, I want to say that video poetry made the greatest impression on me. I did not expect that poetry could be presented in such a way (Monliszka, 2023).

It seems, therefore, that increased activity of users in substantive forums was partially due by merging those forums with an introductory forum. That promoted students' self-presentation and self-promotion, encouraged them to share their stories, and also prompted them to respond to some of the posts.

### 2.2. Thematic Forums with Low Users' Activity

Courses with low users' activity, analogically, were found to be the ones with a low number of discussion forums. This is illustrated in *Figure 4*.
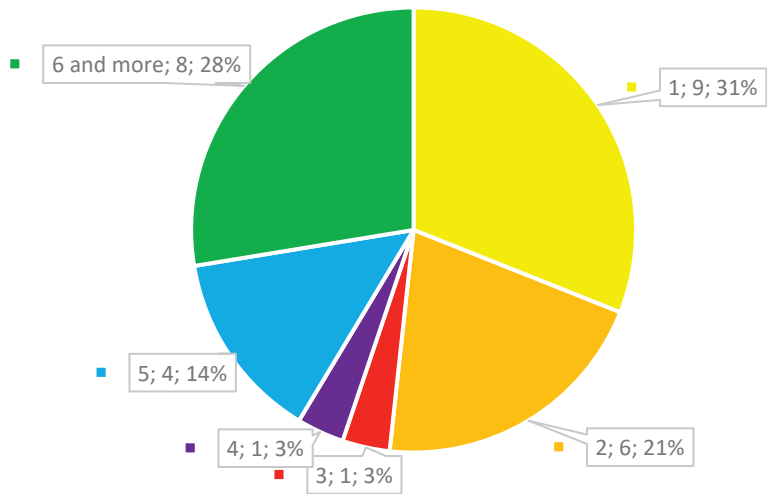


*Figure 4.* Number of forums in courses with low user's activity

S o u r c e: Own work.

The creators of this group of courses often did not title discussion forums and did not include any questions or instructions. As a result, the forum called *Ogólne* [*General*] had no entries, as for example in the course *Angielski pierwszego kontaktu dla pracowników ochrony zdrowia* [*First-contact English for healthcare workers*] (Szczepańczyk & Szczepańczyk, 2022).

Moreover, users did not show any interest in participation in the discussion forum if it was the only a course forum and titled by default: *Share your opinion about the course* (Rosińska 2022; Golec, 2022; Matyja-Chłąd, 2022). One of such forums contained 10 posts, the other – 6, another – 7, including the post with information about the error in the course material. All entries were enthusiastic, for example:

> This course helped me to learn a lot of new things from the fields of tourism and sports, which are close to me because I'm studying *Tourism and Recreation*, and also to increase my vocabulary. I really like the structure of the course with different themes, a lot of tasks of different formats. The week about airports was especially useful to me, as I plan to work as a flight attendant in the future. Thank you a lot!!! <3 (ifeelikeridinslow, 2023).

The comments were posted anonymously. In other words, the students did not consider these opinions binding. It is possible that they did not identify with them. However, having perceived a request for a positive opinion in the stereotypically formulated question, they fulfilled it. This is because people submit to persuasion: they respond in a socially expected way and make effort to behave in a socially desirable way (Goldstein, Martin, Cialdini, p. 73). In this case the students understood the instructors' question as a request for support in the form of a positive opinion. Therefore, they might have not only expressed it, but also internalized it. The few but homogeneous and exaggerated posts created a social proof (Cialdini 2009, 87–126) of the thesis that courses were *engaging, enjoyable, fantastic, fascinating, very interesting, and well-structured.* Thus, the strategy of prompting participants to provide a positive feedback was effective. However, it was successful only in case of a small number of MOOC users. It discouraged many others students from participating in forum designed in such a way.

The course *Specyfika pracy psychologa* [*The specificity of a psychologist's work*] (Brol, Janowski, 2023) did not have an introductory forum, but 27 other forums, titled e.g. *Psycholog na onkologii* [*Oncology psychologist*], or *Psycholog policyjny* [*Police psychologist*] did have. Those forums did not encourage users to make a substantive post. The forum *Kurs – krytyka, pochwała, sugestie* [*Course – criticism, praise, suggestions*] had only two positive feedbacks about the course. Due to the lack of an introductory forum, personal stories were posted in those forums, e.g.:

> As a former oncology patient, I listened to this interview with great pleasure. I am an example of a patient who claimed that psychological help was nonessential, but later on it occurred to me how wrong I was. I greatly appreciate the work of psycho-oncologists. (Joanna43, 2024)

The reasons for the small number of posts might have been the language barrier combined with the need to answer a complex, multi-level questions, such as: *How to reduce aggressive behaviours (recommended activities?) 1. in a group of children (under the age of 10) 2. in a group of teenagers (aged 11–17) 3. parents towards children.* In the course *Psychologia społeczna* [*Social psychology*] (Dobińska, 2021), 25 users answered the above question, but in an English-language version of the course, there was only one post made.

Users also seem to be discouraged by the lack of responses to their questions. MOOCs are not live moderated, while spontaneous comments from other users are infrequent.

Thus, the low user's activity seemed to be not the result of a small number of discussion forums, but lack of forum moderator, lack or poor-quality stimuli for expression, and language barrier.

### 2.3. Thematic Forums with No User's Posts

There were 65 courses (31%) in which the users did not post a single substantive entry on the forums. They did not make any comments on organizational issues either. In this group of courses, only 6 incorporated a built-in introductory forum. This may indicate that the tutors were not interested in the content of users' posts, which led to the latter being inactive.

One discussion forum, with no entries, was found in case of 43 courses (21%). Two courses had 12, while other – 4, 5, 6, 8, or 27 discussion forums. The *ELLISE Gatekeeper + Course in Suicide Prevention* (Makara-Studzińska 2023) delivered in English, Dutch, German, Norwegian, Swedish, and Hungarian included 48 discussion forums, which was the largest number of forums identified in any of the studied courses. However, despite such a large number of forums, there was not a single entry made. The reason for the lack of entries could have been the language barrier, but also the lack of questions or discussion forum headings. These were labelled e.g., *C.05 Contact*, *C.09 Contact*. Such a way of naming aimed at organizing the extensive course content consisting of about 200 elements, but did not encourage user participation in discussion. The course was designed by co-authors from 5 countries as part of the Erasmus+ program and of duration of just over 6 months, i.e., a very short time period. This MOOC might have implemented requirements of an international project aiming at certifying a predefined number of participants. The main task was, most likely, the preparation of the course, with non-obligatory participation in the discussion forums. Meanwhile, for the users (not involved in the running of the project) the six-month was, probably, not sufficiently long for familiarising themselves with its content to a degree that would allow them to participate in a substantive discussion. There were also lack of questions inviting students to share their thoughts, observations, etc.. on the forum.

The majority of the forums with no posts contained neither questions that would inspire participants to make posts, nor were labelled in a way encouraging

discussion. For example, *Zadaj pytanie* [*Ask a question*] forum in *Moduł powitalny* [*Welcome module*] had only one entry: *Dzień dobry, zaczynam kurs dziś* [*Good morning, I'm starting the course today*] (Filipczukd 2024). Majority of forums followed standard naming pattern: *Ogólne* [*General*]. Names of the forums were also very general e.g., *Topic of discussion* (Białowąs, Szyszka, & Skikiewicz 2024). To maintain the coherence of the course, specific module topic titles were used, e.g., *Forum – matrices (basic level), Forum – sets of equations (basic level)* (Witczak, 2022). Such naming made it easier for the instructor to navigate the course, but did not encourage course users to post, because forums did not include questions about their personal experience.

In conclusion, it can be said that to encourage participants to post on the forum, it is worth designing the course to be run over a longer period of time, giving forums attractive names, and posting questions that inspire discussion. Ideally, such questions should refer to users' experiences, thoughts, or observations and encourage self-promotion.

### 2.4. Substantive Forums with a Predominance of Organizational Posts

On the forums of 58 courses (28%), users posted only, or mainly, comments on organizational issues. This value is similar to that provided in the study by Spanish researchers: *less than a quarter of the analyzed comments contain suggestions* (Sánchez, Serrano, Gómez, & Heras, 2024, p. 1).

Analyzed posts from the "Navoica" platform concerned errors in the course materials and remained without a response from the course leader, e.g.:

> Hello Professors from WSB, I did the post-test for basic level and found some mistakes in your answers. 1. Question 6, no answers are correct. The correct answer is y=–59.4+5.89x 2. Final question, no answers are correct. The correct answer is –0.83. (Nguyet, 2023).

In the courses of this group, substantive posts were infrequent. Entries were found only on forums of 8 courses; 2 courses had only one substantive post per each. Lack of personal involvement in discussions led participants to focus not on substantive issues, but on the technical details of the course and the problems associated with this (freezing videos, being unable to download video clips, problems with audio tracks/subtitles, requests to extend the course completion deadline, etc.,) which did not occur in courses with the highest users' activity secondary to their involvement in the course subject matter.

Posts on organizational matters concerned not only errors, but also deadlines for completing tasks, ways of obtaining a certificate of completion, etc. The instructors did not create an organizational forum and frequently there was no introductory one either. Therefore, posts on organizational topics were posted on substantive forums.

The second possible reason for the lack of substantive posts was the subject matter of the courses. 24 courses were from the field of *Natural Sciences*, i.e., they covered mathematics, algorithms, statistics, and programming. Formulas, rules, and principles presented in those courses were not a subject to discussion, contrary to the content of courses from *Social sciences* or *Humanities*. The users of courses from *Natural Sciences* category expected to be presented with "knowledge in a nutshell", a one-way transfer of knowledge. They were unwilling to spend time on posting their comments on the forum.

The third possible reason for the lack of substantive and organizational activity on the forums in courses from this category could be overall a low substantive level of the courses. The group was dominated by courses for beginners (42 courses or 71.2%). The remaining courses were addressed to the intermediate level users. There was not one course for the advanced level users in this group. The number of substantive posts in the courses for beginners and intermediates statistically differed significantly (significance level of $p < 0.05000$). This was mainly due to the large number of posts in six courses, three of which were for beginners and three other for advanced learners. This is shown in *Figure 5*.
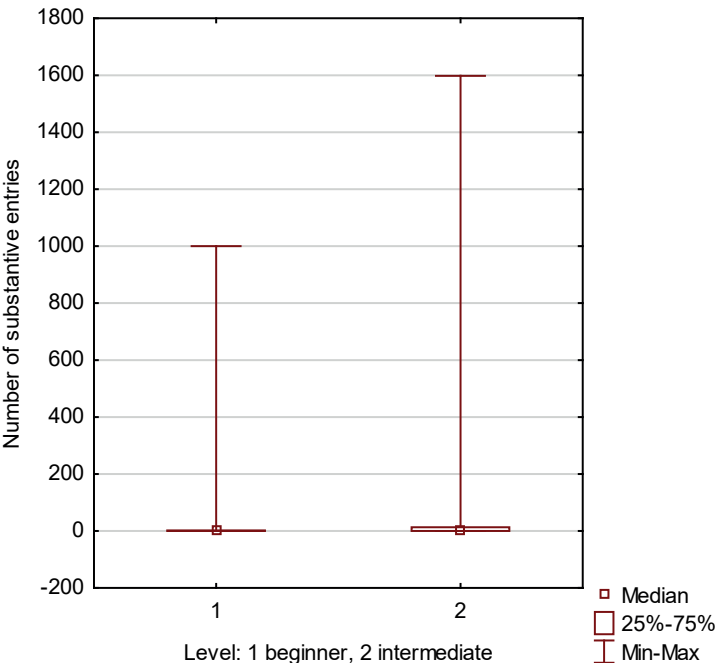


*Figure 5.* Comparison of the number of substantive entries between beginners and intermediates

S o u r c e: Own work.

Therefore, the correlation between entry statistics and points required to obtain a certificate was analysed. Again, significant differences in the number of entries were found. They are presented in *Figure 6*.
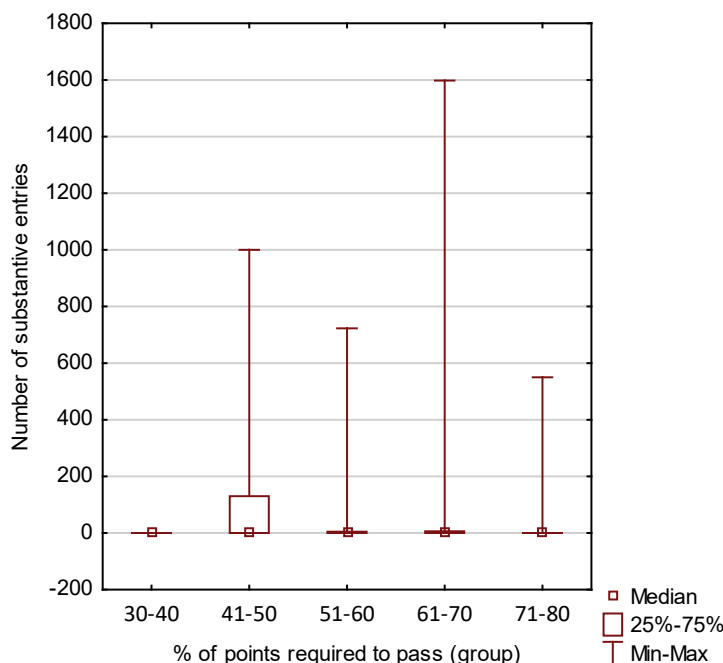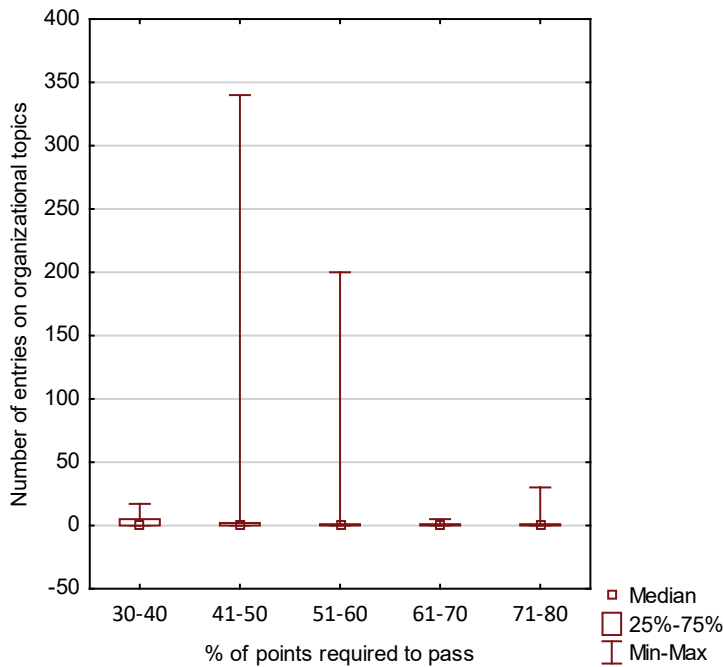


*Figure 6*. Comparison of the number of substantive entries between the ranges of points required to pass

S o u r c e: Own work.

Among the courses with the dominant number of organizational posts was *Kurs polskiego języka migowego* [*Polish sign language course*] (Irasiak 2023). The completion certificate could be obtained most easily of all courses offered on the platform – for just 30% of points. In this group, there were also 7 courses with required pass level of 40%, while on the entire platform there were just 12 courses with such a low pass level.

In the group of courses with a predominance of organizational posts, on average, the pass level was set at 54.3%. Therefore, users had time to analyze the course's content and, as majority were university students, most likely they had a solid knowledge base which covered far more than the content of the course. Therefore, they were able to spot errors and mistakes easily. This correlation is presented in *Figure 7*. The highest volume of posts, within 41-50 and 51-60 points ranges, resulted from the fact that the majority of offered courses had a low passing threshold (46 and 121, respectively).

*Figure 7.* Comparison of the number of organizational entries between the ranges of points required to pass

S o u r c e: Own work.

Posts on organizational matters are a very good indicator of both the substantive knowledge of the participants as well as of their communication skills, including their ability to effectively express their own opinions, which might be contrary to the way of thinking imposed by the course coordinators, organizers, project executors or course leader. One of the participants suggested, among others, to:

> raise the number of points required for obtaining a completion certificate. The threshold can stay as it is but with a condition that the certificate can be obtained only after completing the entire course, and not, as it is now, as soon as after completion of 1/3 of the course. (KosmicznyInzynier 03.2024)

Therefore, it can be said that users of courses with a dominant number of posts on organizational issues want to raise the substantive level of the courses. However, lowering the course requirements followed the rules of the competitions within which courses were developed and made available on the platform. These rules usually oblige the organizers to award a certain number of certificates in each edition of the course. For fear of falling to meet this expectation, the course requirements are set at a low level so that the required number of users would

complete the course within the specified time frame. Obtaining course completion certificates is free of charge because "Navoica" is financed by Ministerstwo Edukacji Narodowej [Ministry of National Education]. By lowering the substantive requirements of the course, the instructors aim at removing the other, non-financial obstacles to achieve this goal. It seems that, in their opinion, these obstacles include insufficient commitment and a low skill level of the users. Meanwhile, this belief is unjustified and discourages more ambitious users.

Thus, the reasons for the overrepresentation of posts on organizational matters seem to be students' expectation of a one-way knowledge transfer, lack of inspirations for starting or joining substantive discussions, and a low substantive level of requirements. All these result in users' being bored with the course and sharing their ideas for course improvement on forums.

After analyzing the relationship between the activity of participants in discussion forums and the ways the courses were designed, the answer to the research question *Is, and how, user participation in substantive discussion forums supported?* was formulated. It turned out that users' activity in substantive forums was the highest when there was no introductory forum and the course coordinator responded to at least some posts. Users' activity also increased in forums with specific names, simple and inspiring opening questions, and lack of barriers such as the need to use a foreign language. Users also found encouraging to post in courses having been delivered for a prolonged period time, an attractive forum title, and inspiring questions, especially regarding users' experiences and observations. On the other hand, posting in organizational topics is stimulated by the lack of incentives for substantive discussions and low course requirements.

### 2.5. Language Courses Discussion Forums

The third, additional research question, *What is the level of users' activity in language courses' forums?* concerned courses that specifically require verbal interaction between the course co-ordinator and course participants. In unmoderated courses the users are left with the option to interact on the forums with one another, which is necessary for learning a foreign language, i.e., for developing communication skills. According to Chinese researchers (Wei, Liu, Xu, Kolletar-Zhu, & Zhang, 2023) peer-peer interactions in linguistic MOOC *help them advance the learning and obtain new information and linguistic knowledge from peer-made learning materials in the discussion forum.*

28 language courses were available on the "Navoica" platform in the research period. They could be divided into seven thematic categories, as presented in *Table 2*.

Table 2
*Thematic categories of language courses*

| Category | Number of MOOCs |
| --- | --- |
| English | 2 |
| English for Specific Purposes (ESP) | 12 |
| Polish | 6 |
| Polish for Specific Purposes | 3 |
| German for Specific Purposes (GSP) | 1 |
| Phraseology and didactic courses in Italian, Spanish, and French | 3 |
| Polish sign language course | 1 |
| **Total** | **28** |

S o u r c e: Own work.

English language courses dominated the platform. Yet, as it should be on a Polish educational platform, several MOOCs for learning the Polish language were also offered. There were also singular courses for learning: German, Italian, Spanish, and French. In addition, there was the Polish sign language course available (Irasiak, 2023) – the most popular language course. As of the 22nd of May, 2024, 7710 users obtained 1208 certificates of this course completion (Kolankowski 2024, p. 2).

Foreign language courses for beginners and for advanced students aim at developing vocabulary, pronunciation, and expanding knowledge of grammatical rules. Phrase-didactic courses aim at consolidating phraseological expressions characteristic of a given language. Language courses *for Specific Purposes* (SP), on the other hand, are designed to teach words and expressions needed for effective functioning in specific academic fields, professions, industries, and specializations, such as *English for Academia*, *English for Business and IT students*, *English for Architecture*, *Sprachhandbuch für Ingenieure*, *English for Legal Professionals*, *English in Culture, Art and Media*, *English for Work, Career, and Job-hunting*. All of these MOOCs courses focus on specialized communication structures characteristic of a given area of communication. The course user learns the language by listening, speaking, reading, and writing. Meanwhile, listening and speaking, activities primary for learning foreign language, encounter problems in the unmoderated and asynchronous MOOCs. Discussion forums, on the other hand, are in a good position to develop reading and writing skills. Consequently, all language courses included discussion forums. However, the level of users' activity varied, as illustrated in *Figure 8*.

*English for business and IT students* course (Czarnopys & Coldron, 2022) included 6 forums, which contained almost 700 posts. A high user activity seemed to result from the instructions referring to user's personal experiences, e.g., *Your career, Constructive discussion about working at home* (a hot topic during the pandemic), *Using e-learning*. Most posts (375) were found in the introductory forum *Two sentences about me*. This is because the topic concerned

user's personal experiences, it called for self-promotion, and the instruction was precise. The introductory forum of the language courses can be considered to have substantive functions.
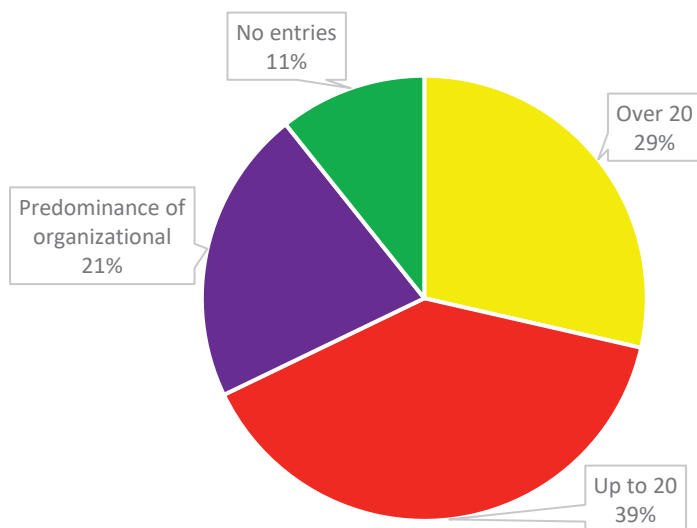


*Figure 8.* Number of posts on language course forums

S o u r c e: Own work.

The users were also active in the course *Uczymy się polskiego! Przygotowanie glottodydaktyczne dla osób z Ukrainy.* [*We are learning Polish! Glottodidactic preparation for people from Ukraine.*] (Zduniak, Wieczorek, Bambrowicz, Hofmański, & Bondarovych, 2024). There were 310 posts on 34 forums. Questions on every forum inspired the users-lecturers participating in the course to share their musical tastes and didactic reflections, or to attentively watch movies, e.g.: *Jaki tekst kultury (książka, film, piosenka, spektakl…) zaproponujesz uczniom dorosłym na poziomie B1, którzy chcą lepiej poznać polski folklor? Uzasadnij swój wybór. Jakie są twoim zdaniem słabe strony metody bezpośredniej? Które osoby w jury mówią tym samym językiem?* [*What cultural text (book, film, song, play…) would you suggest to adult students at B1 level who want to learn more about Polish folklore? Justify your choice. What do you think are the weaknesses of the direct method? Which people in the jury speak the same language?*]. Moreover, the course was developed in response to the social need for learning Polish language and culture by millions of immigrants from Ukraine.

However, the communicative function of language was infrequently practiced on the forums. The phraseology and didactic courses in French, Italian, and Spanish created as part of a project aimed at developing a phraseology and exercises database (Sułkowska, et al,. 2022) did not include an introductory forum. In the

substantive ones, on the other hand, users did not post a single substantive entry. This could have been due to the high degree of specialization of these courses. The transfer of knowledge turned out to be one-way also because each of these courses contained only *Ogólne* [*General*] forum, which did not contain a question or a command, inspiring discussion. These courses did not contain any video clips either. The transfer of didactic content in those courses was based on the structure of the three-volume script *Frazeologia somatyczna w ćwiczeniach* [*Somatic phraseology in exercises*] (Sułkowska, 2019). The picture on its cover was used as the logo in each of the three courses.

The above analysis allowed to answer the research question *What is the activity of users on language course forums?* It was found that the most posts were made in response to questions about user's personal experiences, allowing for self-creation (with which users are familiar from social media), and when the course met the general demand for learning a given language. On the other hand, the courses which focused on theoretical issues, restricting interaction, adopting one-way communication approach (using the script that was the prototype of the course) limited the activity of users on discussion forums.

# Limitations

The sample of 208 MOOCs is not representative because the number, topics and associated authorship of courses may change as MOOCs are closed after a designated period of activity, some are launched in new editions, and new courses are added.

The "Navoica" platform courses have an exceptionally high completion rate. This is partially due to many universities utilising them as learning materials for their students. By May 2024, 192 853 users were registered on the platform, and 141 603 (>73%) of those received graduation certificates. Global Western MOOCs platform graduation rate, for comparison, is as low as a few percent. Polish students complete courses at American "Coursera" platform almost as frequently as they use "Navoica" (Geryk 2024, p. 36). But the pattern of use of the discussion forums studied in this paper is characteristic of Polish users of the "Navoica" platform, i.e., mainly of students from the above-mentioned universities which publish courses on the "Navoica" platform.

# Conclusion

The hypothesis that *most users of the Polish educational MOOC platform "Navoica" do not participate in substantive discussion forums because they are not sufficiently encouraged to do so* turned out to be true. The activity of MOOC's users on discussion forums was very low. They often expected a one-way knowledge transfer. However, the users' activity on the forums could be increased by posting in each module questions that refer to users' experiences related to the topic of the module and their views on the presented subject. This would invite the participants to self-promote and integrate, with which they are familiar with from a social media. The inclusion of discussion forums after each module is also advantageous. It encourages users to comment on their peers' posts and eliminates the need for an introductory forum.

The MOOCs on the "Navoica" platform are updated on average every two years, but some are available for only a few months. This is too short a period for users to familiarize themselves with the content and know each other well enough to participate in forums to co-create new knowledge. All courses should be made available on the platform for at least two years.

The users' activity may also be promoted by the course coordinator's moderation and commenting on at least some users' posts. On the other hand, designing MOOCs a part of international projects, translating them into other languages, and developing exercises based on written forms is unsuccessful for promoting users' activity. This is because those methods are characterized by communication strategies non-compatible with social media approaches.

It can be concluded that the activity of users in substantive MOOC discussion forums is largely modelled by their experiences with social media. Therefore, precisely formulated questions and the availability of a moderator are crucial to directing the joint activity towards truly substantive goals. Users seem to be highly discouraged by not receiving responses to their posts related to substantive matters.

The resignation from the introductory forum, a large number of forums and a higher pass threshold for the course do not guarantee an increase in students' activity in the substantive forum, but may promote it. The large dispersion of the statistical results suggests that also some other didactic, organizational or cultural factors influence students' activity. What other factors influence users' activity in substantive discussion forms is a topic that needs to be developed in further research. It is also worth conducting interviews with MOOC users from different fields of science, different levels of advancement and with different pass thresholds, as well as with the authors of these types of MOOCs.

The above findings provide important insights for designers of MOOCs in the 21st century, that is, short questions should be asked that allow users to express their own opinions in a few words and promote self-creation, discussion forums

should be precisely named to properly connect them to the course content, at least some posts should be moderated, substantive content of some should be commented on, and user questions should be answered in a meaningful way. When these requirements are met, substantive discussion forums are more likely to actually fulfill their mission of collaborative knowledge seeking and developing key competencies for the entire population of MOOC users.

# Data Availability

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Anna Ślósarz

## Projektowanie aktywności użytkownika MOOC

S t r e s z c z e n i e

W ostatnich latach jednokierunkowy transfer wiedzy w xMOOC został zastąpiony kursami cMOOC, które pozwalają użytkownikom współtworzyć wiedzę. W tym celu wykorzystuje się głównie merytoryczne fora dyskusyjne. Jednak studenci wykorzystują fora do czegoś więcej niż tylko tego typu współpracy. Celem badania była analiza celu i zakresu, w jakim studenci zapisani na 208 kursów MOOC opublikowanych na polskiej platformie edukacyjnej „Navoica" korzystają z forów dyskusyjnych oraz w jaki sposób autorzy kursów MOOC zachęcają lub zniechęcają studentów do udziału w forach merytorycznych. Z badania wyłączono fora wprowadzające i organizacyjne. Wyniki: aktywność użytkowników forów dyskusyjnych w kwestiach merytorycznych była niska, co potwierdza rozpoznania ustalone w badaniach przeprowadzonych w innych regionach świata. 11% badanych kursów nie zawierało forów dyskusyjnych; 31% forów nie zawierało żadnych postów; 15%

zawierało od kilku do kilkunastu postów; a 28% kursów MOOC zawierało wpisy głównie o sprawach organizacyjnych. Tylko 15% forów zawierało ponad 25 postów. Studenci rzadko zamieszczali posty nawet na kursach językowych. Liczba postów nie odpowiadała liczbie uczestników, liczbie wydanych certyfikatów ani popularności kursu. Aktywność uczestników była zazwyczaj wywoływana przez pytania zachęcające do wyrażania opinii oraz autopromocji, komentowanie wpisów kolegów, a także przez udział koordynatora kursu w dyskusji. Aktywność użytkowników polskich kursów MOOC w forach dyskusyjnych zasługuje na dalsze badania jako sposobu na rozwijanie pierwszej i drugiej kluczowej kompetencji, tj. w zakresie posługiwania się informacją oraz kompetencji wielojęzycznych. Główne wyniki badania można uogólnić na całą populację użytkowników kursów MOOC.

S ł o w a  k l u c z o w e: autoprezentacja, komunikowanie, osobisty, post, pytanie, opowiadanie

Anna Ślósarz

## Diseño de la actividad del usuario en MOOC

R e s u m e n

En los últimos años, los MOOC x, que eran cursos unidireccionales de transferencia de conocimiento, han sido reemplazados por los MOOC c, que permiten a los usuarios co-crear conocimiento. Los foros de discusión sustantivos se utilizan principalmente para este propósito. Sin embargo, los estudiantes usan los foros para algo más que este tipo de colaboración. El objetivo del estudio fue analizar el propósito y el grado en que los estudiantes matriculados en 208 cursos MOOC publicados en la plataforma polaca "Navoica" usan foros de discusión y cómo los autores de los MOOC alientan o desalientan a los estudiantes a participar en foros sustantivos. Los foros introductorios y organizativos fueron excluidos de este estudio. Resultados: la actividad de los usuarios de los foros de discusión sobre temas sustantivos fue baja. Los hallazgos de este estudio respaldan los reconocimientos incluidos en la investigación realizada en otras regiones del mundo. El 11% de los cursos estudiados no incluían foros de discusión; el 31% de los foros no tenía publicaciones; el 15% tenía unas pocas o una docena de publicaciones; y el 28% de los MOOC contenían entradas predominantemente sobre asuntos organizativos. Solo el 15% de los foros tenían más de 25 publicaciones. Los estudiantes rara vez publicaban, incluso en cursos de idiomas. El número de publicaciones no se correspondía con el número de participantes, el número de certificados emitidos o la popularidad del curso. La actividad de los participantes se desencadenaba generalmente por preguntas que alentaban la expresión de su opinión, la autopromoción, los comentarios sobre las publicaciones de los colegas y también por la participación del coordinador del curso en la discusión. La participación de los usuarios de MOOC polacos en los foros de discusión merece una mayor investigación como una forma de desarrollar las competencias clave primera y segunda, es decir, la competencia de alfabetización y la competencia multilingüe. Los principales resultados se pueden generalizar a toda la población de usuarios de MOOC.

P a l a b r a s  c l a v e: autopresentación, comunicación, personal, post, pregunta, historia

Designing MOOC User Activity

Anna Ślósarz

## Проектирование активности пользователей MOOC

А н н о т а ц и я

В последние годы односторонняя передача знаний хMOOC была заменена сMOOC, которые позволяют пользователям совместно создавать знания. Для этой цели в основном используются форумы для обсуждения по существу. Однако студенты используют форумы не только для этого типа сотрудничества. Целью исследования было проанализировать цель и степень, в которой студенты, зачисленные на 208 курсов MOOC, размещенных на польской платформе „Navoica", используют форумы для обсуждения, и то, как авторы MOOC поощряют или отговаривают студентов от участия в форумах по существу. Вводные и организационные форумы были исключены из этого исследования. Результаты: активность пользователей форумов для обсуждения по существенным вопросам была низкой. Результаты этого исследования подтверждают признание, включенное в исследование, проведенное в других регионах мира. 11% изученных курсов не включали форум для обсуждения; на 31% форумов не было сообщений; на 15% было от нескольких до дюжины сообщений; и 28% MOOC содержали записи, в основном по организационным вопросам. Только на 15% форумов было более 25 сообщений. Студенты редко размещали сообщения даже на языковых курсах. Количество сообщений не соответствовало количеству участников, количеству выданных сертификатов или популярности курса. Активность участников обычно была вызвана вопросом, побуждающим к выражению своего мнения, саморекламой, комментированием записей коллег, а также участием координатора курса в обсуждении. Участие пользователей польских MOOC в дискуссионных форумах заслуживает дальнейшего исследования как способ развития первой и второй ключевых компетенций, т. е. компетенции грамотности и многоязычия. Основные результаты могут быть обобщены на всю популяцию пользователей MOOC.

К л ю ч е в ы е   с л о в а: самопрезентация, общение, личное, пост, вопрос, рассказ