

# Factors Determining Students Activity in Virtual Discussion

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**Abstract**—Debates and discussions have long been essential in university education, yet technological advancements have transformed their preparation, organisation, and evaluation. Historically, public discourse was limited to experts or those with social status. Today, digital platforms provide this opportunity to everyone, aligning with the creative society paradigm. However, this accessibility has blurred the distinction between free expression and structured debate skills. Although freedom of speech is a democratic right, it does not guarantee the ability to engage in meaningful discussions. Therefore, it is especially important to pay attention to teaching of debates and discussions or learning through discussion and debating in universities.

Various digital platforms incorporate algorithm-based tools for learning and discussion, but they often lack effectiveness, adaptability, and popularity. Mechanised tools developed without research are not effective and do not address the needs of the target audience. Therefore, the development of any machine learning tool, algorithm or platform should start with an experiential study of the target group. This study investigates what motivates students to actively engage in virtual discussions and what platform features encourage their sustained participation.

An empirical study was conducted with 61 first-year PhD students (average age: 31). They watched three movies, formulated discussion questions, and participated in online debates via Moodle. Subsequently, they reflected on their experiences and identified key engagement factors, which were categorized into seven themes: Meaning Construction; Topic Features; Task-Related Requirements; Requirements for Virtual Discussion Platform; Virtual Discussion Activity; Nature and Structure of Communication; Social Interaction.

The findings indicate that students are more active when the discussion topics are clear, directly related to their

studies, and thought-provoking. Some students participate only due to assessment requirements, preferring in-person interactions. The study also highlights the growing issue of digital loneliness and the importance of fostering strong social connections in online learning environments. Additionally, an intuitive and visually appealing platform strengthens engagement, as students prefer tools that require minimal effort to navigate. Emotional connection with other PhD students, prompt responses from peers, and visible participant profiles further contribute to active participation.

These insights are essential for designing effective virtual learning environments. The study highlights the necessity of user-centred design, which ensures that online platforms are not only functional but also foster meaningful engagement, social interaction, and enriching learning experience.

**Keywords**—Student Engagement, Tools and Techniques, Virtual Discussions and Debates.

## I. INTRODUCTION

Debate and discussion are among the oldest methods in university education [1] - [3]. Dialogical methods are low in material resource requirements, and therefore various forms of debate can be organised in educational institutions with limited material resources [4]. Skilful teachers have turned people's oral communication practices into a skilful form of education. The dialogical method of study requires not only communicative skills, but also creative thinking, critical thinking, intellectual expression, etc. [5] - [4]. Debate allows for the integration of different cultures, perspectives and values in the analysis of many topics from different perspectives [7] - [11]. It should be noted that there are various forms of debate and discussion, but all of them are dominated by the principle of expressing different

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points of view. In many cases, the ability to think critically, to articulate one's point of view, and to respond effectively to an opponent's statements is extremely important in debate. However, it is quite rare for the discussion of the debate or the explanation of the method itself to emphasise philosophical thought or the philosophical consensus, which is the fundamental basis of the debate. Different people have different views. This creates diversity and even added value. However, debate helps to make people with different points of view aware that they are in the same philosophical field, which eliminates arguments, anger and unhealthy competition [12], [13]. Although debates can take various forms and offer multiple undeniable benefits, they are classified as traditional educational methods, rooted in the logic of print and based on the notion that there is only one true view of reality. In practice, the use of the Internet disrupts this traditional educational logic. This new logic of education is dialogical and describes education as learning to learn, think and thrive with multiple perspectives and in a context of the greatest uncertainty [13], [14]. As technology advances, the preparation, organisation, and evaluation of debates are also changing. At the same time, there appear more and more opportunities to bring dialogical methods of study into the virtual space. The modernisation of traditional educational methods raises problematic questions and increases the need for research.

One problematic area of research is the shift in who can publicly express opinions. Technological advances have removed social barriers to expressing opinions and have made it possible for everyone to express their opinions in various forms: comments, social networks, reels, influencers, social networking groups, etc. This correlates with the paradigm of a creative society, which encourages even young children to have and express their opinions. And there are many communication channels for the expression of opinions [15], [16], [17]. This allows for the conflation of opinion with the ability to learn, create knowledge, discuss or debate [18], [19]. The expression of opinions is linked to the freedom to express a point of view, the freedom to hold an opinion. A democratic society encourages free expression; however, not all forms of expression constitute a debate. Expressing an opinion is not equivalent to engaging in discussion, much less in debate. The authors of the article have analysed the relationship between debate, discussion and controversy in more detail in another scientific article [20]. However, it is worth mentioning that the discussed problem field of research is intertwined with another problem field of research, i.e., opinion leadership. In this field, not only leadership, but also the problems of information reliability, sources of information, lies, dilettantism, the need for critical thinking, the ability to search for information, to recognise and interpret it, and similar problems are closely related.

Another problematic area of research concerns the organisation of discussions and debates. Debates originated from philosophical discussions in open urban spaces,

where listeners gathered freely. The leader's arrival in the town square is also his free choice of that day and of that moment. Thus, in their nature, discussion and debate have the freedom to choose to engage in these activities. Academic freedom is often seen as the absolute value of modern higher education institutions. "*Academic freedom is often regarded as an absolute value of higher education institutions*" [21]. The concept of freedom and its exploration becomes central to existential philosophical education in the works of Kierkegaard, K. Jaspers, P. Sartre, Albert Camus, M. Heidegger, J. Girnus, A. Maceina and others [22]. Although the philosophical texts of the latter thinkers offer different and subjective approaches to the problem of freedom, all these thinkers undoubtedly agreed that freedom is the fundamental and most important value of human life, which is closely linked to the self-creation and development of the personality, to responsibility, to the search for meaning, to the ability to understand and control oneself and to fulfil the purpose of the individual's life. Value-related issues encourage free thinking and the aspect of individual experience, which invariably increases student engagement and motivation; research shows that the "Socratic method" enhances student engagement and attendance [23]. In the age of technology, face-to-face communication has been replaced in many places by remote and virtual communication. Along with communication, debate and discussion are moving into virtual space. One of the channels for virtual debate is the university lecture. Universities are moving some of their studies to virtual space to make them more attractive. This is due to the technological competences, flexibility, etc. of lecturers. However, virtual communication has also opened up another problem area: participant activation. To maintain students' voluntary participation in virtual space, it is essential to identify and create an environment that appeals to them. This fact becomes particularly important when we are on the verge of integrating artificial intelligence into learning processes. When designing learning platforms, we need to know what kind of platform is needed for the student to choose it for the learning process. The global pandemic of COVID-19 has enabled virtual space to flourish [24], [25], [26]. And today we have a really wide variety of learning, entertainment and other platforms that already have algorithm-based tools built into them, but they are not effective, they are not popular, they are hard to use, etc. Therefore, the problem of this paper is formulated in terms of the following questions: What motivates students to actively participate in a virtual discussion? This problematic question aims to be answered by referring to the authentic experiences of students and insights based on experience. What kind of virtual platform would encourage students to stay in the virtual space as long as possible? Mechanised tools developed without research are not effective and do not address the needs of the target audience. Therefore, the development of any machine learning, algorithm or platform should start with an experiential study of the target group.

Research question: what are the factors that contribute to the activity of virtual discussion in the educational process?

The object of the study: doctoral students' opinion on the factors determining the activity of virtual discussion in the educational process.

## II. MATERIALS AND METHODS

A qualitative study was conducted to disclose the determinants of students' participation in the virtual discussion. During the initial teacher training (the subject is called Academic Communication), PhD students performed the following task: they watched three films specified by the lecturer and created their own discussion questions and topics, as well as participated in the discussions raised by each other in the virtual space (Moodle). After the task was completed, the PhD students anonymously answered some questions about virtual discussions in the study process posed by the lecturer. One of the questions asked is: *Please list the factors that make a virtual discussion active.* The latter is the question analysed in this paper.

The study involved 61 first-year PhD students. The average age of the informants was 31 years, with the youngest being 25 and the oldest 51 years old. The survey was carried out in autumn 2021 and 2022.

For the data analysis, the informants' responses were grouped according to their meaning, and sub-categories were created and combined into categories. Seven categories of factors influencing virtual discussion activity were identified: Constructing Meaning; Topic Features; Task-related Requirements; Requirements for Virtual Discussion Platform; Virtual Discussion Activity; Nature and Structure of Communication; Social Interaction.

## III. RESULTS AND DISCUSSION

The form of the task is chosen for the implementation of the study process, the formulation of the task considers the aim and learning outcomes of the study programme, the mission of the University, the needs of the labour market and the needs expressed and identified by the students. The selection and formulation of the task is the basis for the student's activity, which contributes to preparation of a well-trained professional. Therefore, the requirements for the student performance in the task are really high. This is supported by the two categories identified during the research: Constructing Meaning (Table 1) and Task-Related Requirements (Table 2). The category of Meaning Construction is made up of five subcategories: idea; theme; object; keywords; and wording (Table 1).

TABLE 1. THE CONSTRUCT OF THE CATEGORY OF MEANING CONSTRUCTION

Category	Subcategory	Statements
Constructing Meaning	Idea	"idea" (2022D61);

Theme	"The topic of the debate determines activity" (2021D9);
Object	"Detailed description of the subject of the debate. Formulated discussion questions." (2022D44);
Keywords	"challenging keywords" (2021D11);
Wording	"and the presentation (if interestingly worded, it will automatically increase activity in the topic)" (2022D42);

The results of qualitative research show that participants need clarity and meaning to engage in a virtual discussion. A considerable number of activities start with an "idea" (2022D61) and then participants' "engagement is determined by the topic of discussion" (2021D9). The preparation for the discussion is likely to take place using virtual space. In this case, keywords are very important. Keywords facilitate information retrieval [27], help to stay on-topic with a variety of information, and eliminate the student from thinking about topic frames and the wording of information search queries. The ability of the research participants to analyse the topic is indicated by the expressed need to have a distinct object. Interestingly, the wording of the task is also important for PhD students: "a well formulated question that reflects the topic and current issues" (2021D26); "a simple and clear wording of the topic, with the topic formulated as a question" (2021D28); "and the presentation (if interestingly formulated, automatically more activity on the topic)" (2022D42). The demanding nature of the participants in constructing the meaning of the task creates high expectations for the lecturer in terms of the student's outcome.

The results of the qualitative study show the exceptional importance of the task for students' engagement in the task. A category of Task-Related Requirements (Table 2) has been identified, consisting of six subcategories: task requirements; lecturer requirements; necessity of the task; link to assessment; limited time and absence of restrictions on the expression of opinion.

TABLE 2. THE CONSTRUCT OF THE CATEGORY OF TASK-RELATED REQUIREMENTS

Category	Subcategory	Statements
Task-Related Requirements	Task requirements	"task requirements" (2021D34);
	Lecturer requirements	"lecturer requirements" (2021D4);
	Necessity of the task	"The thing that drives activity the most is the need to report" (2021D30);
	Link to assessment	"direct link to assessment" (2021D19);
	Limited (restricted) time	"limited time for discussion" (2022D57);
	Absence of restrictions on the expression of opinions	"can be answered afterwards, without forgetting what the

		discussion question is" (2022D46);
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To engage PhD students in a virtual discussion, the lecturer needs to think carefully about each stage of the discussion or criterion, and to prepare the task very carefully. Moreover, learners want to be given a grade for their participation: "a direct link to the grade" (2021D19). It is likely that several PhD students are not willing to engage in virtual discussions. They prefer to exchange the latter for live interaction: "direct link to the grade. The films are very interesting, thought-provoking. We discussed in the family, but on Moodle, only as much as needed" (2021D19). Engagement in virtual communication is pre-determined by the need to complete a task and receive evaluation. It may even be a pre-determined self-limitation to spend a limited amount of time in virtual space. Discipline in scheduling time spent on the computer and being physically active is a conscious choice [28].

The virtual discussion method should be part of the cumulative score, as the participants have a clear extrinsic motivation. Personal or professional improvement is not a sufficient reason to participate in an activated learning activity: "the fact that the discussion is part of the overall assessment is what makes it active. If it were just an optional thing and not compulsory, I think there would be very few participants" (2021D12). Further research is required to obtain data on the limited time available for the task: "limited time for discussion" (2022D57). Identifying the reasons behind the request for a limited time can be challenging. They may originate from external discipline that prevents task delays or from a reluctance to engage with a single topic for an extended period. Other possibilities exist, but in this case they remain speculative. However, the data from the study allow us to identify the learners' need not to do all the learning activities here and now, but to choose a more convenient time: "the possibility of expressing an opinion over a period of time, rather than having to discuss it here and now, as in a lecture" (2021D2).

The findings confirm the results of other studies that show the convenience of virtual learning. And learners value convenience. This issue may also be the subject of further research, as at this point we can only speculate on the reasons for this demand. It may be necessary to create a learning environment that is conducive to self-directed learning and to be able to immerse oneself in the analysis of a topic without interference. However, it could also be the inability to concentrate on a lecture for a variety of reasons, or even the avoidance of active learning activities, or the tendency to procrastinate on work, etc. Identifying these reasons would help the lecturer to formulate tasks taking into account more students' needs. This results in a coherent system of the study process.

The largest category of this qualitative study is Theme Features (Table 3), which includes as many as twenty-one sub-categories.

TABLE 3. THE CONSTRUCT OF THE CATEGORY OF TOPIC FEATURE

Category	Subcategory	Statements
Topic Features	Topic uniqueness	"topic uniqueness" (2021D18);
	Topic depth	"topic depth" (2022D41);
	Topic width	"topic breadth" (2022D45);
	Provocative topic	"a question that should provoke a person to have an opinion <...>" (2021D1);
	Controversial topic	"Objects that raise many topics for discussion are selected. Discussion is active when a lot of controversial issues are encountered, best of all when the views do not coincide." (2022D43);
	Intriguing topic	"intriguing topic" (2021D36);
	Interesting topic	"interesting topics" (2021D29);
	Engaging topic	"hooks from the first sentence" (2021D38);
	Interesting topic	"appropriate and interesting selection of the task" (2021D31);
	Relevant topic	"relevance of the topic" (2022D42);
	Timely topic	"and certainly a timely discussion" (2021D13);
	Important topic	"the importance of the topic" (2022D54);
	Topic understandable to everyone	"<...> and understandable to everyone (2021D1) "
	Clear topic	"clarity of topic" (2021D34);
	Straightforward topic	"Clear parallel of topic with the film, so that it is clear what to connect the examples with" (2021D18);
	Specific topic	"specificity of the topic <...>" (2022D54);
	Simple topic	"The topic should be simple" (2022D47);
	Easy topic	"easy topic" (2021D7);
	Superficial topic	"superficial topic" (2021D7);
	Emotional topic	"emotional impact" (2022D45);
	(In)compatibility of the topic with the person's point of view	"Does this align with my own interests, personal values" (2022D50);

The qualitative research data allowed us to construct a category with several internal contradictions. This category suggests the distinct individuality of the modern learner. At the same time, it also refers to the unattainable ambition of creating a task and a topic that are suitable for all students. The lecturer's work has become obviously complicated and complex, requiring active, continuous listening, and empathy.

Classically, the topic to be analysed must be very clear, simple ("the topic must be simple" (2022D47)) and understandable ("understandable to all" (2021D1)). Interpretations and puzzles are not desirable. Clarity of the topic is preferred to a straightforward level: "1) clarity and simplicity of the topic of discussion 2) uniqueness of the

topic 3) clear parallelism of the topic with the film, so that it is clear to which to relate examples" (2021D18). The data suggest that learners are not inclined to interpret, analyse and find new meanings or to search for a philosophical source. Extrinsic motivation and the need for quick answers dictate that the topic must be interesting ("interesting idea" (2021D25)), engaging ("hooked from the first sentence" (2021D38)), relevant ("relevance of the problem or issue" (2021D22)), and important ("importance of the topic" (2022D54)). A number of participants in the study do not want easy and/or simple topics. They dislike "superficial topic" (2021D7) or "uncomplicated (populist (in the good sense of the word)) issues" (2021D7). Some of the informants' statements even contradict the idea of the debate method. It is argued that activity in a virtual discussion should be stimulated by the relevance of the topic to the student's existing point of view ("does it fit with my own interests, personal values" (2022D50)).

As a contradiction to a simplified topic, the need expressed by other research participants includes a complex topic. Learners are interested in the "uniqueness of the topic" (2021D18), the "depth of the topic" (2022D41), the "breadth of the topic" (2022D45). Additionally they value "intriguing topic" (2021D36) and provocation. Human curiosity to know, discover, and explore leads to such topics [29]. The provocation of a question is associated with the need to have an opinion [13] ("a question should provoke someone to have an opinion. It has to be relevant and understandable to everyone" (2021D1)). When provoked, there is an implicit pressure to have something to say or to offer a reaction. However, the study did not find any indication of the need of the participants to know the topic, to have practical experience or to have inside experience. It can be argued that the PhD students in the study are more focused on the outcome of the teacher's work (the topic and the task presented) rather than seeking to build their own competence or experience with the topic. The study did not reveal the learner's self-demanding nature.

The learning process, especially the discussion method, requires "emotional impact" (2022D45). Discussions can be organised to stimulate physically expressed reactions to the ongoing discussion. For example, clapping, tapping feet, shouting contribute to the positivity, attractiveness and even the quality and success of the discussion in achieving the goal. They are also a symbolic reminder that the aim of the debate is to eliminate ignorance and reduce misunderstanding of reality. In such cases, silence is treated as a lack of debate [30]. It should be noted that such physical expression of emotions must be agreed upon in advance of the debate method. Instead, in response to the research participants' need for emotions, an agreement can be reached on expressing emotions in a virtual discussion.

A virtual debate is organised on a platform. The functionality and interactivity of this platform is revealed in the category of Requirements for Virtual Discussion

Platform, which is made up of seven sub-categories: accessibility; usability of the platform; simplicity of the platform; interactivity; visuality; anonymity; and participant information (Table 4).

TABLE 4. THE CONSTRUCT OF THE CATEGORY OF REQUIREMENTS FOR VIRTUAL DISCUSSION PLATFORM

Category	Subcategory	Statements
Requirements for Virtual Discussion Platform	Accessibility	"convenient time and place" (2022D60);
	Platform usability	"usability of the system (some features were very cumbersome and unclear to use)" (2021D3);
	Simplicity of the platform	"ease of engagement" (2022D45);
	Interactivity	"interactivity" (2021D15);
	Visuality	"visual aids" (2021D15);
	Anonymity	"anonymity" (2022D55);
	Participant information	"participant's photo and short info about him/her" (2021D27);

The results of the qualitative study show that the user-friendliness of the platform also determines the engagement of a person in virtual discussions: "ease of use of the platform" (2021D27). Virtual space has made people feel free to use the virtual world without any preparation. Virtual space is work, leisure, play, learning and simply communication and it should provide a sense of freedom and comfort. If there is a need to spend extra time learning the rules, people tend to refuse to use such a platform.

Various rules, tips, manuals, and etiquette books have been developed to facilitate lively communication. People care about who they interact with, so research is conducted and recommendations are developed on how to make a good impression, how to present oneself, and how to bring out one's best side during the first meeting. In a virtual space, many things are different, but people remain the same. In the virtual world, it is still important who we engage with, who we learn from, and whose thoughts or ideas we encounter. The results of the qualitative study show that participants in a virtual discussion are more engaged in the discussion when they have visual and verbal information about other participants in the virtual discussion: "A picture of the participant and a short info about him/her" (2021D27). When designing machine learning, it is important to note that to engage the learner in the proposed activity, it is necessary to have a user-friendly (intuitive) platform; visual and verbal information about the participants, and maybe a robot that will become a full participant in the discussion. Based on this information, it is possible to create information about the participants in virtual interaction in a variety of different expressions: photos, video footage, textual and auditory information, etc., as the available technologies allow. However, other informants express a contradictory wish to remain anonymous on the virtual discussion platform (2022D55). This is another contradiction that complicates the creative

processes for both the participants in the virtual discussion and the lecturer.

The category of Virtual Discussion Activity is made up of three subcategories: learner motivation; interested audience and peer engagement (Table 5).

TABLE 5. THE CONSTRUCT OF THE CATEGORY OF VIRTUAL DISCUSSION ACTIVITY

Category	Subcategory	Statements
Virtual Discussion Activity	Learner motivation	"students' own motivation to engage in the discussion" (2021D9);
	Interested audience	"interested audience" (2021D29);
	Peer engagement	"engagement of other colleagues" (2022D41);

Research participants observe that engagement in a virtual discussion requires "interest in the presented topic" (2021D10). When there is interest, curiosity and the joy of discovery lead to active participation [29]. This, in turn, encourages greater involvement from learners ("peer engagement" (2022D49)). While a number of students are driven by motivation ("intrinsic motivation to complete the task" (2022D51)), others may feel uncomfortable staying on the sidelines. Following a positive example creates conditions for deeper learning, exploration, and experience. Therefore, the dissemination of good practices, analysis of successful examples, student activation, and publicising student engagement are key factors in promoting student activity.

The category of Nature and Structure of Communication consists of seven subcategories: ability to analyse; ability to express an opinion; formulation of answers; colleague responses; diversity of opinions; receiving a response promptly; and opportunity to think about the answer (Table 6).

TABLE 6. THE CONSTRUCT OF THE CATEGORY OF NATURE AND STRUCTURE OF COMMUNICATION

Category	Subcategory	Statements
Nature and Structure of Communication	Ability to analyse	"interest in analysing various situations" (2022D56);
	Ability to express an opinion	"ability to express an opinion freely" (2021D2);
	Formulation of answers	"current matters: "<...> short and clear answers" (2022D39);
	Colleague responses	"reasoned, interesting answers..." (2021D26);
	Diversity of opinions	"the topic must be debatable, there can be several correct points of view" (2022D55); "find like-minded people" (2021D33);
	Prompt response	"quicker response" (2022D46);
	Opportunity to think about the answer	"It is not necessary to reply at once, you can think about your answer or opinion" (2021D14);

Similarly as in real life, the need to belong to a community and find like-minded individuals persists in virtual spaces: 'interest in virtual communication, the desire to express one's opinion, and to find like-minded individuals' (2021D33). According to the principles of A. Maslow's hierarchy of needs [31], [32], once physiological and safety needs of a person are met, the need for belonging emerges. This is a key factor when integrating machine learning into education. It is essential to consider how the learner's sense of security will be established and maintained. Otherwise, the learner may be inclined to perform only the necessary actions and quickly move to other platforms or return to the real world. The students show interest in thoughts and opinions of each other: "Key factors: a 'hook' on the topic, a short and clear question, short and clear answers" (2022D39).

Any form of communication requires emotional engagement. If an activity does not evoke emotions, it does not encourage interaction. The results of the qualitative study indicate that emotions can be triggered not only by the topic itself but also by the arguments presented by peers. It is the diversity of arguments that can spark interest in participating in a virtual discussion: "personal interest in the topic, its relevance, and arguments that provoke a desire to either contradict or expand upon them" (2022D53); "the alignment or misalignment of participants' viewpoints. It is important that people do not simply respond but express their opinions with reasoning, sometimes even with enthusiasm" (2022D58).

This perspective aligns with the essence of the discussion method, which aim to acquire knowledge and analyse phenomena from multiple viewpoints [13]. Socratic pedagogy is particularly significant, as it teaches participants not to shy away from contradictions, encouraging them to delve deeper into their own arguments and fostering self-reflection. According to Maceina, modern pedagogy "follows the path paved by Socrates" [33: 493].

Research participants state that they appreciate when others respond quickly and provide immediate answers; however, they also value the opportunity to respond later at their own pace: "responses are given quickly, but there is also the possibility of replying later without forgetting the discussion question" (2022D46). These findings reflect the needs of contemporary learners, who seek fast results and prefer a rapid exchange of information.

The category of Social Interaction consists of six subcategories: opportunity to communicate; lack of face-to-face interaction; irreplaceability of face-to-face communication; virtual communication; availability of free time; and benefits received (Table 7).

TABLE 7. THE CONSTRUCT OF THE CATEGORY OF SOCIAL INTERACTION

Category	Subcategory	Statements
Social Interaction	Opportunity to communicate	"desire to communicate" (2022D56);

Lack of face-to-face communication	"The lack of live communication between people is one of the reasons" (2021D20);
Indispensable nature of face-to-face communication	"I think the discussions would have been more engaging if we had discussed live" (2022D40)
Virtual communication	"interest in communicating virtually" (2021D33);
Having free time	"having extra free time" (2022D42);
Received benefit	"A clear understanding of the value, what it gives you, for what purpose I do it" (2022D50);

The qualitative study reveals the issue of loneliness: "The lack of face-to-face communication is one of the reasons" (2021D20). Loneliness in the age of technology is widely discussed by researchers in various fields [34], [35], [36]. Although technology has been found to reduce loneliness among older adults [37], [38], virtual communication among young people remains a topic of debate. According to Scott Lash (2002) [39], the growing popularity of the internet contributes to the experience of loneliness. Constant online activity significantly impacts people's interactions with their families and friends, reducing direct participation in community life. Lash argues that the internet can be seen as a technology of complete separation, promoting isolation, individualism, and anti-socialization [39], [40]. In the 21st century, the cycle of transmitting valuable wisdom from generation to generation has changed. Today, certain competencies necessary for survival, life, and self-realisation are higher in young people. This may reduce the need for a young person to communicate with an older person, drawing on experience and wisdom. This fact not only reduces communication between generations but also increases the gap and stronger desire to communicate virtually. Paradoxically, "although people are together online, they remain alone" [41: 5634]. Doctoral students studying at university can compensate for the lack of live communication by participating in virtual discussions: "desire to communicate" (2022D56); "interest in communicating virtually" (2021D33). Such involvement in virtual communication can encourage writing comments, expressing opinions, and thus spending more and more time in the virtual space.

An interesting fact is that the activity of the study participants in the virtual space can be determined by the availability of free time: "the presence of additional free time" (2022D42). Participation in the virtual space is not treated as a learning process. Only the remaining time from other life activities will be allocated to this task. Also, activity is encouraged by the perception of meaning in the activity: "a clear understanding of the value, what it gives you, for what purpose I do it" (2022D50). It is difficult to find the motivation to invest time in activities whose value and benefits are questionable.

#### IV. CONCLUSIONS

Virtual discussions have an undeniable advantage over live discussions when it comes to individualising tasks. The form and nature of virtual discussions respond to the diversity of individualised needs, ensuring flexibility and the ability to choose the time and pace of participation. Virtual discussions, by their nature, adapt to the needs, desires, and lifestyle of the student without additional effort on the part of the teacher.

Effective virtual discussions depend on clear topics, a convenient platform, emotional engagement and social interaction, and participants' engagement is often determined by their motivation and time. The demands of research participants on the topic are so contradictory that it is almost impossible for the teacher to respond to all the needs of the learners with a formulated task. Some students need an engaging, timely, provocative topic, while others ask for a clear, concise, specific or even straightforward one. The motivation of doctoral students is often based on getting evaluation rather than deep learning.

Students value emotional connection and the opportunity to get to know other participants, so it is important to create a platform that allows them to express themselves and their emotions in various forms. The need for learners to experience emotions is evident in several aspects. Students want to have the opportunity to experience emotions on the virtual discussion platform itself by receiving information about other discussion participants. When designing future prospects, it is also worth considering the personalisation of virtual learning environment robots. This can be compared to the process of getting to know each other during live communication. A virtual learning platform can provide various forms of self-presentation: photo, video, text, etc. Having attractive formats can give the platform a competitive advantage over other virtual learning environments. The participants in the study would like to express their emotions during the discussion itself. The search for diversity and attractiveness of emotional expression can provide many benefits to virtual learning platform developers in creating the attractiveness of the platform and the active involvement of participants in learning activities. It should be noted that some participants in the study are active in the virtual discussion only if they can remain anonymous. In addition, the opportunity to find like-minded people and hear different opinions during the discussion also raises emotions for the learners. The gathering of communities and/or like-minded people is an emotional and important moment for the expression of personality.

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