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Changes In Higher Education Communication Practices And Tools - Through The Pandemic Towards New Communication Models

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CHANGES IN HIGHER EDUCATION COMMUNICATION PRACTICES AND TOOLS – THROUGH THE PANDEMIC TOWARDS NEW COMMUNICATION MODELS

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The COVID-19 pandemic has significantly impacted traditional modes of communication in higher education institutions, leading to a shift towards remote communication and digital tools. This scientific paper examines the changes in higher education communication practices and tools resulting from the pandemic. The paper analyzes the challenges and opportunities presented by this shift and the ways in which teachers have applied communication models familiar from contact teaching to distance education. A previous review of published literature on adaptations in higher education

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institutions identified key factors for a successful transition to novel distance education communication practices and tools. These factors included effective use of digital platforms, skillful faculty with additional training and support available, and consistent efforts to maintain engagement and community building in the online environment. To determine how teachers have been able to adapt their communication practices and tool use at both the course and curriculum levels in response to the pandemic and whether they see these changes as welcome and lasting, a questionnaire survey was conducted at Tampere University. The results of the survey demonstrated how local experiences reflected the broader changes and contribute to the ongoing discussion about teachers adopting new communication models. However, some teachers expressed a desire to return to pre-COVID-19 practices, as they perceived contact learning as more engaging and effective. Therefore, the authors propose the creation of communication models by teaching staff for their own contexts as a tool for discussing and designing teaching-related communications.

1 INTRODUCTION

Global studies conducted by the International Association of Universities (IAU) have revealed how the COVID-19 pandemic has strongly impacted teaching and learning in higher education institutions (HEIs). (Marinoni, Vant Land, and Jensen 2020)(Jensen, Marinoni, and van't Land 2022) The pandemic effectively forced most universities and other HEIs to extensively adapt to online distance teaching methods and tools, supplanting the more traditional contact teaching on campuses. The comparison of results from two global studies shows that the move to online distance teaching intensified as the pandemic wore on, with the number of surveyed institutions offering online distance teaching increasing from 67% in 2020 to 89% in 2022. The move to distance learning was not complete, as even in 2022, 11% of these institutions still did not offer remote teaching.

The COVID-19 pandemic has brought unprecedented challenges and disruptions to higher education institutions worldwide. As institutions scrambled to adjust to new realities, traditional modes of communication were significantly impacted, leading to a shift towards remote communication and digital tools. This shift has caused significant changes in higher education communication practices and tools, resulting in a need for analysis and evaluation of the challenges and opportunities presented by this change.

In this study, we aim to examine the emergence of communication practices that have been adopted or evolved in response to the pandemic in higher education institutions. To gain insight into the local experiences of higher education institutions in response to the pandemic, we conducted a questionnaire survey at Tampere University. This survey aimed to determine how teachers had adapted their communication practices and tool use at both the course and curriculum levels in response to the pandemic.

Overall, the use of remote communication and digital tools in higher education institutions has resulted in significant changes in communication practices and tools. This paper aims to provide motivation and initial steps for creating context-specific communication models based on the emergent communication practices. The paper aims to contribute to ongoing discussions about the future of communication in higher education institutions.

2 RELATED WORK

Modern higher engineering education includes courses or course elements in which students learn transversal skills related to communication. Oral debates are presented by Mackay et al. (Mackay, Miller, and Benson 2022) as an interesting example of a course element aiming to improve students' communication skills. The focus of our study was on online tools since, due to the inherent nature of transversal skills, students can apply these skills to online communication as well. Students benefit from communication skills in their studies, and these competences are readily transferable to working life. Jalali et al. provide initial work towards a framework for categorizing transversal skills, and as part of their work, they strive to represent transversal skills as overlapping relationships of five themes: thinking skills, ethical reasoning, collaboration (teamwork), communication, and management skills.(Jalali et al. 2022) One of the categories in the list is the communication category, which could include skills related to speaking, writing, and foreign languages. When students acquire these skills, they can coherently and effectively convey their message to others using the appropriate methods and tools. Another category related to communication and thus this study is the collaboration category since collaborative tools such as GitHub or Teams include communication capabilities. Students learn the local organizational cultures of the higher education institutions they are part of, and they are likely to learn the appropriate methods and style of communication implicitly as they interact with other members as part of their studies. Thus, the communication models in these HEIs, either implicit or explicit, influence the students' understanding of appropriate and effective communication.

The work by Vlachopoulos et al. provides an interesting survey of previous research on finding definitions for communication and online communication.(Vlachopoulos and Makri 2019). Communication in the context of higher education includes communication between several roles, including students, teachers, and administrators. Matters that are communicated and methods and tools used to convey these messages differ widely, for example, from administration sending emails to market new programs to prospective students, to teachers and students discussing specifics of an exercise on a course.

Modelling communication processes is a complex undertaking, but this task is aided and guided by a rich history of general communication theories and models from the field of communication studies (Mats Bergman, Kęstas Kirtiklis, and Johan Siebers 2020). Broadly speaking, general communication models have evolved along with advancements in communication theories and technologies. They have evolved from early work theorizing and modelling spoken communication between people to include, for example, linear transmission models useful for modelling mass media and interactive and transaction communication models which include a feedback channel. Asemah et al. provide a concise description of the usefulness of communication models. (Asemah, Nwammuo, and Uwaoma 2022) Communication models enable us to abstract away less important details from the communication processes in real-world contexts to highlight their essential features. Communication is a complex process, and modeling it in any set context, like higher education, requires selecting elements, like communication flows and roles, to be included in the created model. The selections the modellers make highlight what they see as important and thus wish to emphasize. Some common elements present in communication models include:

Sender: The person or entity who initiates the communication and sends the message
Message: The content of the communication that is being conveyed by the sender.
Encoding: The process of converting the message into a form that can be transmitted through a particular communication channel.
Channel: The means by which the message is transmitted from the sender to the receiver. Channels can be verbal, nonverbal, written, or electronic.
Decoding: The process of interpreting the message by the receiver, which involves extracting meaning from the message based on their own knowledge, experience, and context.
Receiver: The person or entity who receives the message from the sender.
Feedback: The response or reaction of the receiver to the message, which is communicated back to the sender. Feedback can be either verbal or nonverbal.
Noise: Any factor or element that can interfere with the communication process and affect the accuracy or clarity of the message. Noise can be physical, physiological, psychological, or semantic.
Context: The environmental and situational factors that can influence the communication process, including the physical setting, cultural norms, social roles, and power dynamics.
Purpose: The reason for the communication, which can include sharing information, expressing emotions, persuading others, or building relationships.

Selected elements are combined to create a high level model of the communication process. An example of a communication model created for the higher education context is the model of learner–learner interaction using video communications (Smyth 2011).

3 METHODOLOGY

A questionnaire survey was conducted at the University of Tampere's Faculty of Information Technology and Communication Sciences to gather data on teaching staff's communication practices and communication tool use, focusing on online communication during courses. The faculty comprises four units: Languages, Electrical Engineering, Computing Sciences, and Communication Sciences.

The questionnaire was designed to provide enough data on communication at the course and curriculum levels and was relatively extensive, with 77 questions and an estimated minimum of 35 minutes required to answer it. The survey questionnaire was designed with optional questions to allow staff members the flexibility to choose which questions they wanted to answer. While this design choice carried the risk of creating a data set including several incomplete answers, it was done to ensure that the answers provided by the staff members were an indication of their interest and perceived value in the subject matter of the questions. The questionnaires' 77 questions were under 10 categories, listed here with the number of questions in each category in parentheses.

- Background information (5 questions)
- General considerations on communication (10)
- Communication tool use during courses (32)
- Face-to-face communication during course (6)
- Communication with TUNI colleagues and contacts outside Tampere University (5)
- Communicating curriculum level matters (6)
- Changes on your use communication tools and your communication practices caused or influenced by COVID-19 pandemic (5)
- File sharing (6)
- Have your say (1)
- Do you want to be contacted for a interview on communication tools and practices? (1)

The categories were selected and the questions were written to cover the aspects of communication models that were presented in the related work section. Other considerations for forming the categories and questions included the findings of previous work on the COVID-19 related global changes in teaching and learning, especially in online communication and tools (Nurminen et al. 2023). The questionnaire was designed to

extensively cover matters related to teaching staff's communication practices and their use of communication tools on course and curriculum levels, as well as the changes caused by COVID-19.

To categorize the communication tools and assist in deciding which tools to cover in the "Communication tool use during courses" category of questions, we used a taxonomy for online-based communication technologies presented by Santos et al. in (Santos, Batista, and Marques 2019). This taxonomy was also the motivation behind the inclusion of a separate "File sharing" category.

4 RESULTS

The questionnaire yielded a total of 7 completed submissions from the esteemed teaching staff at our faculty, accompanied by an additional 31 participants who engaged in perusing the questionnaire. In this section, we present the primary findings derived from the answers provided by the 7 respondents pertaining to the initial 8 question categories within the questionnaire.

Background information The responses were provided by a group of highly experienced teaching staff members, comprising three professors and three seasoned teachers and lecturers. Their roles encompassed a wide range of educational responsibilities, including curriculum design for study programs and the planning and instruction of weekly exercise sessions. With regards to communication tools and practices, all but one respondent had the authority or influence to participate in the selection process. According to their feedback, the selection criteria were primarily based on the effectiveness of student engagement and the competencies of the course staff.

General considerations on communication When queried about the total number of hours spent on communication-related tasks per week, the majority of respondents indicated a range between 1.5 and 4 hours. However, it is noteworthy that a respondent from the Communication unit reported dedicating up to 30 hours weekly to communication-related tasks. Interestingly, all respondents except one did not perceive any direct impact of the utilized communication tools on students' learning outcomes.

Communication tool use during courses Email continues to reign as the primary tool for communication with students during courses. Its versatility as an asynchronous communication medium is highly regarded, making it an indispensable choice.

Face-to-face communication during course The participating teachers revealed that face-to-face encounters with their students occurred sporadically and less frequently than on a weekly basis. However, it is worth noting that one respondent reported having weekly meetings with students, indicating a higher level of engagement. Conversely, face-to-face meetings with colleagues were more frequent, with weekly gatherings being the most commonly reported occurrence.

Communication with TUNI colleagues and contacts outside Tampere University Regarding communication on course-related matters with university colleagues, respondents reported engaging via email, Teams, or face-to-face interactions on a daily basis (one respondent) or weekly basis (four respondents), while others indicated more sporadic exchanges. In addition to university colleagues, respondents mentioned interacting with various stakeholders, such as colleagues from other universities, conference organizers, and visiting lecturers from both academic institutions and industry. Communication with these stakeholders involved a range of methods, including email,

phone calls, Teams, social media, as well as file sharing through platforms like Google Docs or Dropbox.

Communicating curriculum level matters Participants indicated that discussions regarding curriculum-level matters take place during planning meetings, face-to-face orientation sessions, and through email and Teams communication. The Information Systems department also publishes an annual IS Reviews report, providing a comprehensive summary of research in the field. Additionally, one respondent mentioned utilizing informal reminders during class sessions, such as highlighting skills that are beneficial for students seeking employment in specific countries.

Changes on your use communication tools and your communication practices caused or influenced by COVID-19 pandemic One participant expressed that they have largely reverted to pre-COVID-19 practices, indicating a return to the previous mode of operation. However, another participant highlighted that the current setup remains organized in a manner that facilitates remote student participation. An interesting outcome of the COVID-19-induced changes mentioned by participants was the heightened familiarity with communication technologies like Zoom, which have been extensively utilized as substitutes for in-person meetings.

File sharing Respondents reported utilizing various platforms for file sharing with their students, including Plussa, Moodle, Microsoft's shared documents, and Funet filesender. These platforms served as effective means for disseminating files and materials to their students. On the other hand, when it came to file sharing with colleagues, respondents primarily relied on Teams as the preferred platform.

5 DISCUSSION

Considering that the faculty to which the questionnaire was sent employs approximately 800 individuals, including about 200 teaching staff, the number of submissions received was relatively low. This may be attributed to some staff members perceiving the act of responding as time-consuming. Unfortunately, due to the limited number of responses, it is not feasible to draw broader generalizations from the results. However, it is important to note that the teaching staff members who did participate in the questionnaire predominantly comprised accomplished and experienced professors and teachers from the faculty, with the exception of one teacher at the early stage of their career. As such, the results can be seen as reflective of a deeper understanding of communication tools, practices, and related trends among this particular cohort.

The data collected through the questionnaire reflected the impact of COVID-19 on communication practices and tool usage, aligning with earlier research such as the study conducted by Siegel et al. (2022). (Siegel et al. 2022)'s findings highlighted that many teachers perceived the increased utilization of online teaching and communication tools for distance education as a positive outcome. Furthermore, they expressed a willingness to continue employing these newly adopted practices and tools. However, it is worth noting that the questionnaire data presented a somewhat contrasting perspective. Certain respondents expressed a strong desire to revert to pre-COVID-19 teaching and communication methods. In their responses, these individuals emphasized that face-to-face teaching is more engaging and effective. They highlighted the importance of contact learning, which not only carries a sense of tradition but also enables teachers and students to interact in a natural, human manner, utilizing a wide range of verbal and non-verbal cues to convey information and context. Some respondents

expressed concerns that the limited interaction inherent in online settings may lead to disengagement among students.

The development of context-specific communication models by teaching staff for individual courses or curricula can serve as a valuable tool for educational personnel. Such models provide a platform for instructors to discuss and design communication practices and tools that align with their teaching style and specific context. This approach ensures that selected methods and tools effectively reach and engage students. While many general communication models used in communication studies operate at a high level, creating context-specific communication models empowers staff to define communication elements, actions, and requirements at a level that suits them best. This includes defining roles and interactions, establishing timetables, and selecting precise communication tools to be utilized. Staff members can employ familiar terminology and design tools to develop diagrams that visually represent the communication model, making best practices and potential challenges evident for upcoming teaching sessions.

In the authors' experience, communication practices and tool usage related to teaching are often not explicitly designed or discussed. Instead, they tend to rely on what individual teachers have found effective or have grown accustomed to over time. This observation is reflected in the questionnaire findings, where, aside from the widespread use of emails, teachers' responses indicated preferences for communication practices they had developed on their own. Notably, only one respondent had recently received guidance from the university regarding these matters, highlighting the potential impact of institutional support and guidance on communication practices.

When creating context-specific communication models, it is important to determine an appropriate scope for each model. To illustrate this, let's consider the example of lectures within a course, which offers a sufficiently narrow scope for modeling. Prior to the COVID-19 pandemic, these lectures were typically conducted as in-person teaching sessions. However, during the transition to emergency distance teaching, the lectures were moved online. This shift presents teachers with design choices, wherein considerations related to pedagogy and practicality come into play. It is essential to also consider communication aspects within the course design. The move to online lectures can involve the use of either synchronous or asynchronous communication tools, each with their own benefits and challenges (Hrastinski 2008). Selecting between asynchronous or synchronous tools implies the adoption of different communication models. If we start with established general communication models from communication studies, synchronous video conferencing lectures can be described using interaction models, focusing on real-time engagement between instructors and students. On the other hand, asynchronous communication utilizing pre-recorded lecture videos can be modeled using more linear transmission models, where information is transmitted to students in a one-way manner.

In the case of synchronous communication, lecturers have the ability to invite students to participate in lecture sessions through video conferencing platforms, as indicated by some of the questionnaire responses. While this communication model requires real-time interaction, it enables a level of engagement similar to that of traditional in-person lectures, albeit with certain limitations imposed by the features of the chosen video conferencing tool. By creating an interaction model for this scenario, we can identify several key elements.

The basic elements of this interaction model include messages, senders/receivers, encoding/decoding of messages, channels, feedback channels, and noise. Both the lecturer and students act as senders and receivers of messages, as students can communicate by talking or writing messages during the live lecture. The messages exchanged encompass spoken words, non-verbal cues, as well as text, images, and videos shared using the communication tool at hand. The available communication channels vary depending on the features of the tool being used, which typically include video, audio, and screen-sharing capabilities. The lecturer can select specific features to facilitate feedback channels as per their preference. Noise may arise due to technical issues during transmission or ambiguities in the message's terminology.

Some respondents from the questionnaire opted to distribute their lectures as video recordings using asynchronous tools, such as video distribution platforms. Asynchronous e-learning, in this context, requires students to be self-reliant as it does not facilitate real-time interaction. However, it allows students to access the lecture recordings at their convenience. Linear transmission communication models, which do not include a feedback channel, are suitable for describing this form of communication. In the resulting model, the lecturer serves as the sender, designing and recording the lecture (encoding), and submitting it to the video distribution platform (channel). The students act as receivers, accessing and viewing the lecture on the platform. Noise may still occur due to technical issues or difficulties in decoding the message.

To enhance this communication model, it is possible to incorporate a separate communication tool as a feedback channel. This addition can promote student engagement with the lecture by allowing them to provide comments, ask questions, or discuss the content asynchronously. By including this feedback channel, the communication model can better support interaction and foster a sense of engagement between the lecturer and students, even in the absence of real-time communication.

6 FURTHER STUDIES

Based on the findings of this research, there is scope for future work aimed at gathering additional data to enhance communication models in higher education. The current iteration can be viewed as a preliminary step toward developing widely applicable communication models. One potential area for improvement lies in the internationalization of these models, considering the cultural differences in communication practices worldwide. Expanding the research to include collaborations with research partners from other countries would be advantageous in achieving this goal. By doing so, the applicability and effectiveness of the communication models can be enhanced on a global scale.

Another potential avenue for future research lies in the development and utilization of artificial intelligence (AI) systems within higher education communications. The growing trend of AI implementation presents an opportunity to introduce new elements into future communication models. As highlighted by Yang et al. (Yang and Evans 2020) in their work, AI systems, such as conversational chatbots, have already been employed in higher education communications. Training these chatbots using existing chat discussions from previous implementations can enhance their effectiveness in providing timely and accurate responses. Exploring the use of AI systems in higher education communications can lead to advancements in streamlining and enhancing communication processes for the benefit of both students and educators.

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