

## ІНФОРМОЛОГІЯ. СОЦІАЛЬНІ КОМУНІКАЦІЇ

УДК 316.77:004.738.5:378

DOI 10.32461/2409-9805.2.2025.350076

### Цитування:

Chekhturina V., Homotuk O., Patriak O. (2025). Features of Asynchronous Digital Communications in Educational and Professional Clusters. *Library Science. Record Studies. Informology*, 2, 36–47 [in English].

Чекштуріна В. М., Гомотюк О. Є., Патряк О. Т. Особливості асинхронних цифрових комунікацій в освітніх та професійних кластерах. *Бібліотекознавство. Документознавство. Інформологія*. 2025. № 2. С. 36–47.

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## FEATURES OF ASYNCHRONOUS DIGITAL COMMUNICATIONS IN EDUCATIONAL AND PROFESSIONAL CLUSTERS

***The purpose of the research*** is to examine the features of asynchronous digital communications in a professional environment. The study focuses on the search for effective forms of digital communication in the context of rapid technological progress, focusing on improving the quality of the communication process, with an emphasis on the component 'feedback from the recipient'. ***Research methodology.*** The research methodology was based on three blocks, such as meta-scientific (paradigmatic understanding of the phenomenon of 'communication' as a vital phenomenon of human functioning and development); theoretical (an analysis of the essence of the definitions of 'asynchronous' vs 'synchronous' communication, with a focus on highlighting the features and specifics of asynchronous digital communications in educational and professional clusters); empirical research methods (the analysis of statistical data, diagnostic methods, questionnaires and surveys, digital data processing methods) were used. ***The scientific novelty*** consists in the theoretical substantiation of the specific features of asynchronous digital communications and the development of differentiated recommendations for their effective use in professional environments, distinguishing between communication formats based on the nature of tasks and quality requirements for feedback from recipients. Diagnostics were carried out on the topic of 'Features of Asynchronous Digital Communications', and a content analysis of the diagnostic data was performed. Recommendations for improving the efficiency of asynchronous digital communications were developed. ***Conclusions.*** The specific features of asynchronous communication are considered, it is proposed that recipients use asynchronous digital communication for thorough answers of a technological, recommendation and strategic nature and synchronous communication in solving operational tasks, which will help to increase the efficiency of the communication process in a professional environment.

***Keywords:*** asynchronous communication, digital communications, synchronous communication, professional environment, educational clusters, feedback, communication process, information technologies.

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## **ОСОБЛИВОСТІ АСИНХРОННИХ ЦИФРОВИХ КОМУНІКАЦІЙ В ОСВІТНІХ ТА ПРОФЕСІЙНИХ КЛАСТЕРАХ**

**Метою дослідження** є вивчення особливостей асинхронних цифрових комунікацій у професійному середовищі. Дослідження зосереджене на пошуку ефективних форм цифрової комунікації в умовах стрімкого технологічного прогресу, акцентуючи на підвищенні якості комунікаційного процесу з наголосом на компоненті «зворотний зв'язок від реципієнта». **Методологія дослідження** трунутувалася на трьох блоках: метанауковому – осмислення феномену «комунікація» як життєво важливого явища функціонування та розвитку людини; теоретичному – аналіз сутності дефініцій «асинхронна» й «синхронна» комунікація з акцентом на виокремленні особливостей і специфіки асинхронних цифрових комунікацій в освітніх та професійних кластерах; емпіричних методів дослідження – використано аналіз статистичних даних, діагностичні методи, анкетування та опитування, методи цифрової обробки даних. **Наукова новизна** полягає в теоретичному обґрунтуванні специфічних особливостей асинхронних цифрових комунікацій та розробленні диференційованих рекомендацій щодо їх ефективного використання в професійному середовищі, з розмежуванням форматів комунікації залежно від характеру завдань та вимог до якості зворотного зв'язку від реципієнтів. **Висновки.** Розглянуто специфічні особливості асинхронної комунікації, запропоновано реципієнтам використовувати асинхронну цифрову комунікацію для трунтових відповідей технологічного, рекомендаційного та стратегічного характеру, а синхронну комунікацію – у вирішенні оперативних завдань, що сприятиме підвищенню ефективності комунікаційного процесу в професійному середовищі.

**Ключові слова:** асинхронна комунікація, цифрові комунікації, синхронна комунікація, професійне середовище, освітні кластери, зворотний зв'язок, комунікаційний процес, інформаційні технології.

Relevance of the research topic. Technological progress affects all areas of human life, including communication within the educational process. Digitalisation is also evident in all areas of professional activity, making the implementation of innovative communication formats in the training of qualified personnel relevant for existing professional clusters. To justify the relevance of the study in more detail, we will analyse statistics showing growth in the number of digital interactions.

Analysis of research and publications. ‘According to the Digital 2025 overview report, the number of social media users is growing rapidly. 5.56 billion people worldwide now use the internet, indicating a penetration rate of 67.9%. Social media is now used by 5.24 billion people – 63.9% of the global population. This figure has grown by 4.1% over the past 12 months. The most common reason for using the internet is to search for information (62.8%), followed by staying in touch with friends and family’ (Digital 2025: overview report).

According to text messaging statistics, the frequency of texting varies between different age groups. The average number of texts sent per day is highest among 35- to 44-year-olds. Adults under 45 send and receive an average of over 85 texts per day, although those over 45 also send and receive a significant number of texts. For instance, individuals aged 45–54 send an average of 33 texts daily, whereas those aged 55 and over send an average of 16. Additionally, the average consumer sends three messages per hour, totalling 72 per day (Texting statistics).

Statistical data clearly demonstrates the need for people to communicate. Social media enables you to expand your circle of communication and interact with a large number of people throughout the day.

Research purpose. The purpose of the research is to examine the features of asynchronous digital communications in a professional environment. Every communication interaction strives to be effective a priori, and every communicator who initiates communication with a recipient seeks to achieve a

certain goal. For example, they may wish to express their opinion and be understood, or create a request and receive information. In other words, the communicative goal can be to provide or receive information. When a communicator starts communicating to satisfy their information needs, an important criterion for effective communication is the format and timing of the communication, allowing the recipient sufficient time to provide the necessary data (such as statistics, professional explanations, topographic coordinates, and other important information that the communicator expects to receive urgently).

In some cases, the communicator may aim to share personal information and seek an emotional response rather than a cognitive one. In such cases, the communicator may deliberately delay communication and wait for an interaction to convey their psychological and emotional state, with the aim of achieving empathic understanding with the recipient. Digital communications provide an opportunity to ask communicators informational questions or to indirectly request emotional support through social media messages. However, the recipient may not respond immediately due to various circumstances, so such communication will not be synchronous.

These examples of the different communicative goals of those initiating the communication process require in-depth study within the communication paradigm. This paradigm has been developed more within an interdisciplinary framework, and the most scientifically developed theories are found in the following disciplinary areas:

Pedagogical communications: the transfer of knowledge from a teacher to students. A separate, well-developed subfield is foreign language teaching. Christian Puren notes that: 'The communicative approach is based on the idea that successful language learning comes from the need to convey certain messages and express thoughts, and this allows you to learn to use the language faster' [19, 4].

Psychological communications: interaction with a client or group. This includes communications during psychological counselling and communicative, client-centred therapy between a psychologist and client, as well as doctor-patient communications.

Religious communications between church representatives and believers;

- Marketing communications between producers of consumer products and services and customers;

- Journalistic communication involves journalists and users of an information product.

Our research focuses on professional communication between colleagues. By identifying the most effective ways to achieve communication goals, we can contribute to more efficient work processes in humanitarian and industrial spheres.

Let us now take a closer look at the theoretical developments concerning the methodological approaches to studying the essence of communication. Communication science 'attempts to reveal facts about messages, including their content, context, causes, processes, and consequences' [13, 18]. 'Within communication science, Anderson and Baym (2004) distinguish three main traditions for explaining communication phenomena in society: 'the sociological approach, the interpretive approach and the critical research approach. These three traditions differ in their epistemological, methodological, and ontological assumptions, or in other words, their ways of knowing. The social science approach is also known as the dominant paradigm of mass communication research. In this paradigm, communication is defined as mediated communication for social change, emphasising media effects and using social science methods, particularly surveys' [13, 19–20]. Researchers Lock, I., Wonneberger, A., Verhoeven, P. and Hellsten, I. conducted a thorough study to categorise communication theories. 'The resulting list of 91 theories was grouped into three categories: the dominant social science paradigm, the interpretive/cultural/critical studies paradigm, and the rhetoric paradigm. Each theory was assigned to one of these categories based on classification in the literature and/or its main features and characteristics' [13, 21].

Of the three categories of paradigm, we focus on the interpretive-cultural paradigm due to its emphasis on the content and timing of the recipient's response, which enriches the communication process. Our research is also based on formal and procedural approaches to social communication theory. In this theory, we identify and refine the traditional components of the communication process for asynchronous communication.

Many studies in the conventional communication model rely on these components [9; 10; 18; 26; 27].

Communicator – message – recipient – feedback to the communicator

*Figure 1. Communication process*

Our research focused on a component of the communication process: 'feedback'[Figure 1]. When initiating communication, the sender seeks to receive quality feedback – an emotional reaction and information – as soon as possible. However, in the context of digital communication on social media, the recipient's response is often delayed and asynchronous. In other words, the communication process shifts from real-time synchronous interaction to a background process. There can be many such acts of initiated communication, and responses from recipients can come at any time of day. The communication process involves time intervals. This type of communication

is called asynchronous.

In a professional environment, effective communication is crucial for exchanging up-to-date information, developing ideas, making decisions and responding to crises. The importance of effective communication is evident from the numerous queries on the Google search engine. We analysed the dynamics of queries in April 2025 using combinations of the following words: 'effective communication', 'communication theories' and 'communication technologies'. The results of the analysis, obtained using the Google Trends service, are presented below [Figure 2–5].



Figure 2. Analysis of the number of queries for the phrase: 'effective communication'

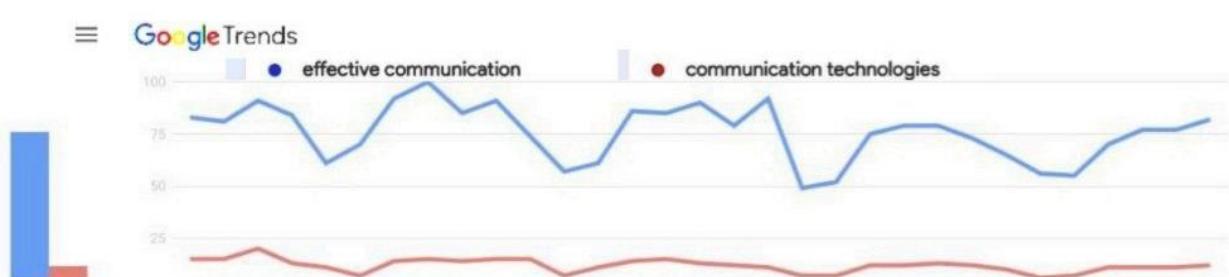


Figure 3. Comparative analysis of the number of phrase queries: 'effective communication' and 'communication technologies'

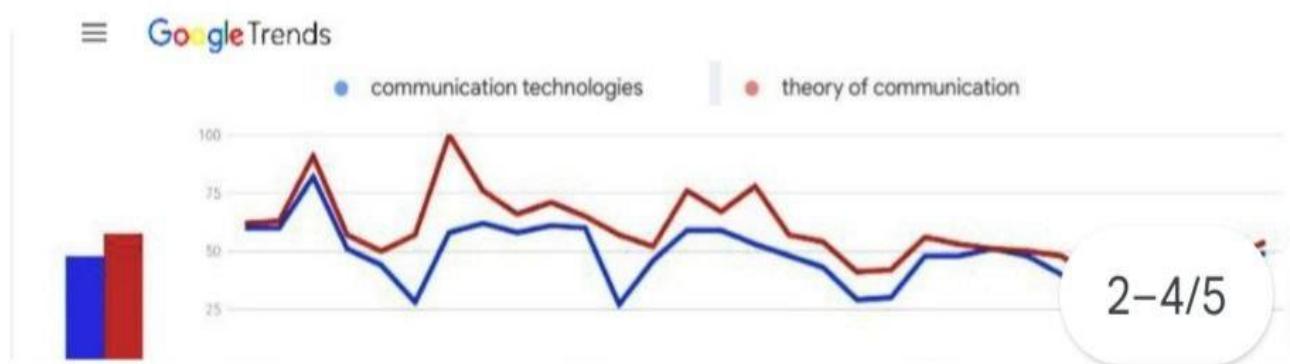
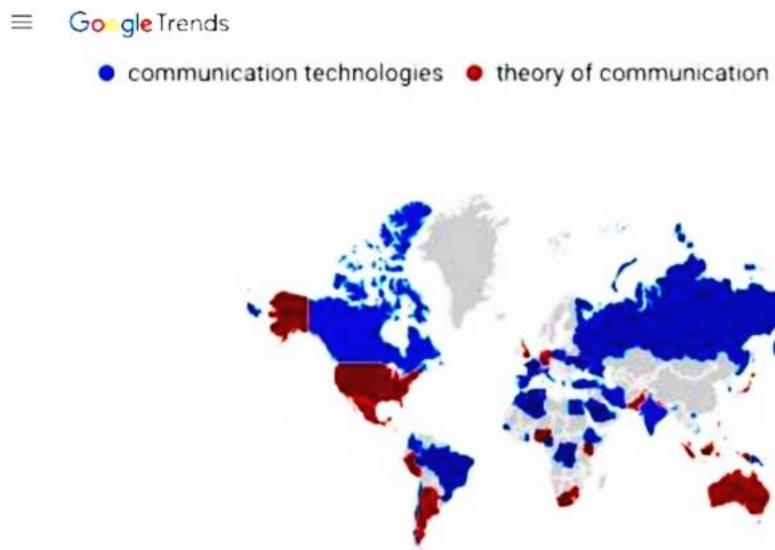


Figure 4. Comparative analysis of the number of phrase queries: 'communication technologies' and 'theory of communication'



*Figure 5. Comparative analysis of the number of searches for phrases: 'communication technologies' and 'theory of communication' by regions of the world*

The aforementioned analytical data demonstrate that there is a great demand among digital network users, not only for effective communication technologies, but also for further development of communication theories. According to our observations, one of the aspects of further deepening the communication theory of effective social interactions is to focus on asynchronous digital communication. Every day, social media users initiate communication processes in professional and personal spheres, and the goal of each initiator is to receive quality feedback from the recipient. However, the process of communication in the digital space can be delayed and become asynchronous. Awareness of the advantages and disadvantages of asynchronous communication and conscious emotional and cognitive preparation of messages for delayed communication will help to build effective communication in a professional environment.

Presentation of the main material. The theoretical part of the research. Scientists have begun to note that the pandemic and wars are contributing to the increasing digitalisation of communication interactions between different professional clusters: 'The use of modern technological equipment and their connection to the pandemic situation began to be of interest in the professional and research investigation of scientists working in various areas of life. In addition to the use of modern technological equipment, other more abstract ideas have begun to be explored, reflecting and commenting on, comparing the advantages and disadvantages of using equipment on the basis of age, ability and industry' [2, 215].

However, the rapid movement of professional processes, the need for managers to urgently solve operational problems, also develop technological

capabilities for digital synchronous communications, such as video calls, group digital meetings. But we have time, and for certain objective reasons, technological, security, or time, not all professional communication interactions can be synchronous. A group of scientists led by L. Nagel has written about a combined communication approach in professional clusters:

'However, stakeholders may have misaligned mental models of the same system, resulting in conflicting requirements. For this reason, a shared understanding of the project vision is essential for the success of software projects. While it is already challenging to achieve shared understanding in synchronous contexts, such as meetings, it is even more challenging when only asynchronous contexts, like messaging services, are possible [15, 55].'

'The advantages of asynchronous communication tools is that its availability anytime and anywhere. Because students can access these tools 24/7, it provides them more time to study and reflect on the topics of discussion. The modern learning management systems incorporate various asynchronous communication tools in order to have evidences of collaboration which may form part of the grading system. This type of communication is very useful even if there are too many students in the online classroom. The sad part here is that, some students may not get immediate feedback thus prolonging their agony in unclear terms. Learners may have the tendency to be irregular in participation and sometimes students that are not well disciplined may tend to copy paste some assignment from the internet, thus making them liable for plagiarism. Written ideas may sometimes be interpreted, and again it is hard to get immediate feedback for clarification purposes' [12, 232–233].

Noteworthy is the article by the authors, who emphasise the need to prepare students for effective communication in a professional environment. Communication is one of the most important aspects of our lives. It influences the way people connect in both their personal and professional lives. Good communication is the foundation on which respect and trust are built. It also helps people to understand each other and the context of a discussion. Although communication seems straightforward, most of what people say is misread, leading to conflict and distress. To communicate effectively, you must understand the emotional basis of what you are saying. Learning how to communicate effectively at home, at work and in social situations can strengthen your relationships. Communication skills such as active listening, reading non-verbal cues and managing stress can all help you improve your relationships with others. In their article, the authors address their readers — namely, students — and explain the importance of communication skills in professional life. ‘Effective communication can help you progress in your career. In order to do your job properly, you will need to solve problems, gather information, interact with others and demonstrate strong interpersonal skills. All of these elements are important for exchanging ideas and will benefit you in the future’ [23].

A group of authors Kirstie McAllum, Joshua B Barbour, Stephanie Fox, Frederik Matte cites the article: ‘Considering “the professional” in communication studies’: Implications for theory and research within and beyond the boundaries of organisational communication’, communication scholars George Cheney and Karen Ashcraft advocated shifting the focus of the study of professionalism, professionals, and the professions towards accounting for performance and performativity. They also asserted the value of communication studies in facilitating this change. This assertion appears to be supported by the facts. Over the past two decades, there has been a surge in interest in professionalism and professionalisation within communication and organisational studies. Additionally, significant changes have occurred in the way communication scholars theorise and empirically study professionalism during this period. The enthusiasm around what can rightly be called the “professional turn” in communication studies has been driven by research focusing on the role of privilege, power and dominant meanings in established, emerging and alternative professions’ [5, 101–102].

A growing number of researchers are focusing on developing employees’ professional competencies, emphasising the importance of communication in modern training programmes. In this regard, research into communication theories and practices is

advancing, particularly in terms of developing methods to improve communication efficiency.

‘Effective communication is crucial for fostering healthy and productive relationships in both personal and professional contexts. Miscommunication or unclear interaction can lead to misunderstandings, conflict and reduced collaboration. This study investigates how effective communication strategies impact relationship quality and productivity, aiming to identify the key elements that enhance interaction and understanding. Employing a mixed-methods approach, the research integrates quantitative surveys to measure communication effectiveness and qualitative interviews to gain deeper insights into participants’ experiences. The study was conducted in various settings, including workplaces and interpersonal relationships, to ensure a comprehensive analysis of the phenomenon. The findings emphasise the importance of clarity, active listening, empathy and feedback in effective communication’ [22, 664].

‘The authors of the research article state that significant progress has been made in terms of communication tools and methods, which have improved collaboration between creative professionals. They provide an historical overview, exploring the transition from traditional to digital communication methods. They examine modern tools such as instant messaging platforms, video conferencing, collaborative design tools, and project management software. They also highlight the impact of these tools on creative workflows. They also describe effective workplace collaboration methods, including remote working strategies, brainstorming techniques, feedback processes, time management and the potential of VR/AR’ [1, 67].

The practical part of the research. The observation method revealed that receiving an increased number of social messages per day leads to oversaturation of social contacts on social networks. More and more recipients try to postpone responding to messages or ignore them completely. Meanwhile, the sender of the message may experience different emotions and have unmet cognitive and emotional needs if they do not receive a response. A questionnaire was developed to draw young people’s attention to the phenomenon of asynchronous communication and study it in more detail: ‘Students’ attitudes towards asynchronous communication’. A total of 51 students took.

Questionnaire form:

- Survey topic: Asynchronous and synchronous social digital communication.
- Synchronous communication involves quick responses or reactions in real time. Formats: Offline (online) conversations, conferences, quick chats.
- Asynchronous communication involves delayed responses in a digital environment. Formats:

Email, messages, comments and reactions on social media.

- The aim of the questionnaire is to explore the advantages and disadvantages of asynchronous communication.

Questions:

1. In order of priority (from 1 to 5), choose the most important feature of asynchronous communication.

- more time to think about the answer;
- the ability to describe an opinion in detail;
- time to fact-check information;
- there is time to regulate one's emotional state and respond calmly;

- time to check the grammar and ethics of the message.

2. In your opinion, does asynchronous communication help to avoid conflicts? Yes/No.

3. In your opinion, this form is better suited to discussing organisational issues: synchronous or asynchronous communication.

4. Have you ever felt irritated when a response to your question or message was delayed? Yes/No.

5. Which of the following types of communication do you trust more:

Synchronous or asynchronous communication?

6. What advantages do you think asynchronous communication offers?

7. What disadvantages does asynchronous communication have?

Thank you for taking part in the survey.

We wish you successful synchronous and asynchronous communications!

Survey results [Figure 6–12]:

Results of answers to the first question (Figure 6).

1. More time to think about the answer.
2. The ability to formulate an accurate and comprehensive opinion.
3. Time to check information.
4. Time to regulate emotions and respond carefully.
5. Time to check for errors and ethical compliance.

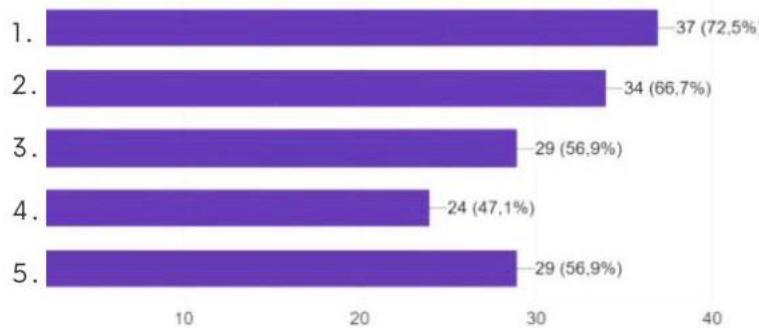


Figure 6. Results of answers to the first question

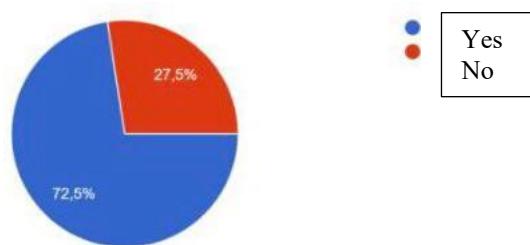


Figure 7. Results of answers to the second question

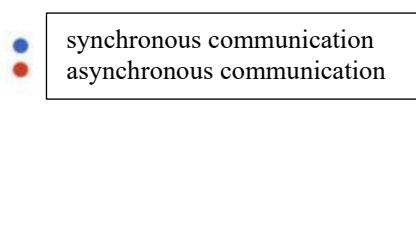


Figure 8. Results of answers to the third question

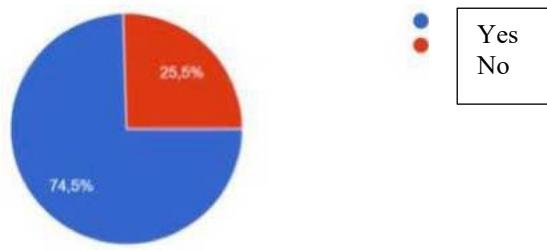


Figure 9. Results of answers to the fourth question

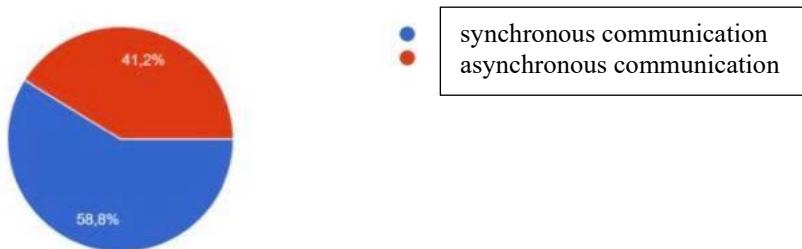


Figure 10. Results of answers to the fifth question

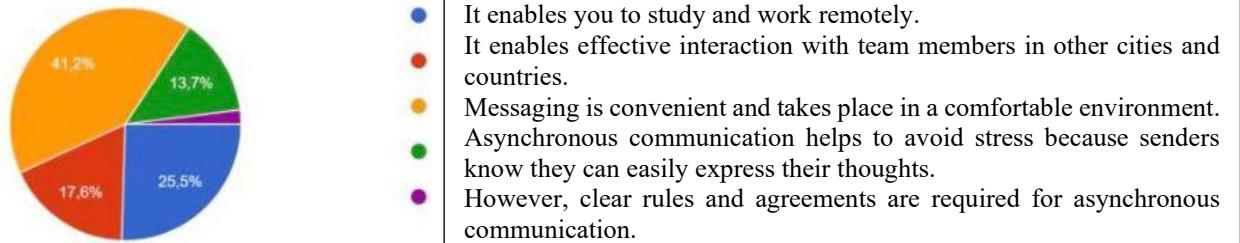


Figure 11. Results of answers to the sixth question

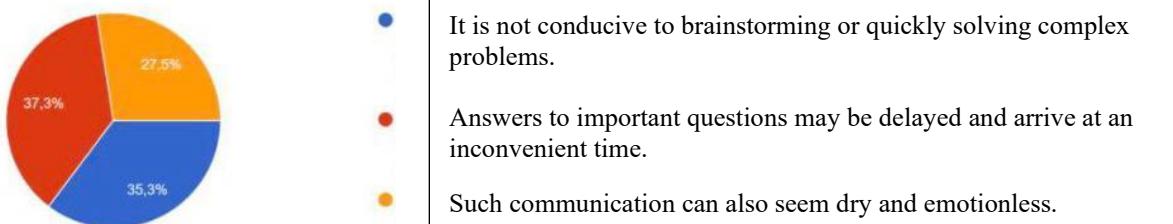


Figure 12. Results of answers to the seventh question

Based on the survey results, we developed recommendations for improving communication interaction in asynchronous digital communications:

- The following principles serve as a methodological basis for our recommendations:

- The principle of environmental friendliness: do not harm others in the process of communication.

- The principle of effective management: keep the organisation's goals in the forefront.

The recommendations for organising effective asynchronous digital communication are aimed at two participants in the communication process, namely the communicator and the recipient.

Recommendations for the communicator as the initiator of a communication action:

- Formulate questions logically.

- Try to be understandable to the recipient, focus on the linguistic and educational 'world model' of the recipient.

- Specify the time frame for which you expect a response. This will ensure more comfortable communication.

- Mark very important questions with the phrase 'this is urgent', but use it only in really important cases. Do not create tense relationships.

- Value your recipients' time and the information you have received. Ask only about what you

cannot find in other sources, delegate some questions to large language models, this will save your recipients time.

- Clarify details calmly if you need more information.

- Do not overload business messages with emotional content, but cognitive content alone will not ensure a positive atmosphere during communication.

- Structure your question, divide the message into cognitive and emotional components.

Recommendations to the recipient:

- Avoid ignoring messages from important communicators. Set priorities.

- Think about the text of the response, answer briefly but thoroughly

- Keep the chain of command in your responses

- Maintain a business-like style of communication with colleagues

- Always be prepared for your response to be seen by others.

- Answer unambiguously to be better understood.

- Even in private correspondence with colleagues, stay in a professional discourse.

- Check the facts, answer reasonably on controversial issues.

- Check the literacy and logic of your answers.

Scientific novelty. The scientific novelty of the research lies in the theoretical substantiation and empirical confirmation of the specific features of asynchronous digital communications in professional environments. For the first time, a comprehensive approach to studying feedback quality in asynchronous communication has been proposed, combining meta-scientific, theoretical, and empirical methods. The research establishes a differentiated approach to using synchronous and asynchronous communication formats depending on the nature of professional tasks: asynchronous communication is recommended for thorough responses of a technological, advisory, and

strategic nature, while synchronous communication is optimal for operational issues. Practical recommendations have been developed for both initiators and recipients of communication interactions, aimed at improving the efficiency of the communication process in educational and professional clusters in the context of digital transformation.

Conclusion. Technologisation of communication links expands potential opportunities for communication with more people during the working week. The analysis of statistical data has shown that professionals in different clusters need effective communications and create a demand for further development of social communication theories and technologies, among which digital communications are taking an increasing share.

A detailed examination of the components of the communication process allowed us to dive into its structure and focus on the 'feedback' component and ways to improve its quality. The study emphasised the peculiarities of asynchronous communication, determined that asynchronous communication is a secondary priority for communicators, but time-delayed responses are more balanced, which contributes to improving the quality of feedback, which is suitable for solving complex issues.

The developed recommendations are aimed at promoting the effectiveness of asynchronous digital communications and will help optimise professional relationships and organise more productive communication interactions between actors in different professional clusters.

Theoretical and applied research on the study of the specifics of asynchronous digital communications requires further discussion in terms of other scientific approaches of the humanities, namely psychology, cultural studies, and pedagogy.

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Стаття надійшла до редакції 07.11.2025

Отримано після доопрацювання 08.12.2025

Прийнято до друку 17.12.2025

Опубліковано 29.12.2025