Media Systems as a Communicative Model of Current Educational Practices

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Media communication systems are actively used in the current educational practice in the prevailing conditions of distance education and various blended learning forms. Since the pandemic began, media systems have been significantly improved and integrated into the educational process as digital tools that fully define the communication models of educational stakeholders. This article aims at a practical evaluation of the media systems' use as communicative models of educational practices. The research methodology included a qualitative content analysis of educational media (platforms, social media, educational services) to classify communication models by the type of media systems used in education. The results show the dynamic of media systems development as the basis of communicative models of current educational practices. The study offers a classification of communicative models by the media type used in education: based on platforms, online services such as Student Response Systems (SRS); based on platforms – virtual educational services; based on social media; based on video conferences. Each communicative model has different communication goals and tools.

Keywords: media systems in education, media in education, communication model, educational networks, online education platforms

INTRODUCTION

Media communication systems are actively used in modern educational practice with the prevalence of distance education and various blended learning forms. Since the pandemic began, media systems have been significantly improved and integrated into the educational process as digital tools that fully define the communication models of educational stakeholders. The spread of the pandemic has led to rapid development in the use of media: universities are developing and improving media-based communicative learning spaces, which combination ensures the effectiveness of different types of educational activities. The media developers suggest combining the most effective media for a particular type of educational activity to increase student engagement/motivation and ensure effective communication and learning outcomes. Such educational practices require further study and highlight the media's role in the communications of different stakeholders in educational practice.

Communicative models are essential for learning through interactive engagement in dialogue, discussion, and debates, due to their incorporation into the educational process for an open and proactive learning environment. The study of media systems is crucially relevant to the communication and digital skills importance context.

This article aims at a practical assessment of the media systems' use as communicative models of educational practices.

LITERATURE REVIEW

The literature actively discusses communication models based on the implementation of digital technologies in educational practice (Kohnke, 2019; Mayhew, 2019; Bertolini, Brömmelstroet & Pelzer, 2019). For example, the use of platforms, which function is to collect students' feedback, is defined as Student response systems (SRS). It is a web-based system that allows students to respond to digital queries by using a mobile phone device (Moorhouse & Kohnke, 2020; Mayhew et al., 2020; Mohin, Kunzwa & Patel, 2020; Hill, 2020; Gokbulut, 2020; Pichardo, et al., 2021). Such audience-response systems are a tool for instant inclusive dialogue with students during class time (Mayhew et al., 2020), a communication resource, and an online educational service that allows for real-time interactive engagement.

The research also considers the most used media by educators in teaching:

1) Learning Management System-based websites (LMS, e. g., Google Class and Edmodo);
2) video conferencing as the second most important and most frequent tool (Zoom and Skype).

In the context of the communication models study, it is necessary to identify the learning models. The researches by Tirziu & Vrabie (2015), Thai, De Wever & Valcke (2017), Asarta & Schmidt (2020), Ożadowicz (2020) consider the main learning models based on the e-learning and distance learning methods, which provide a different way of dynamic interaction between the teacher and the student, as:

1. Traditional face-to-face classes (f2f) enhanced with digital technologies and tools (e. g., PowerPoint or Prezi presentations, online tests, quizzes). This approach is very conservative and characterized by a low level of student attachment. Thus, this distance learning model is limited in the media systems' use of traditional digital tools.
2. Hybrid courses and blended learning (BL), where the lecturer and / or assistants combine different online learning types and traditional classes, providing students with access to virtual sessions. This model will combine online and offline learning methods, the learning environment, and the use of digital technology to provide content to students. Within this model, group and individual activities of synchronous and asynchronous interaction between the learning process participants are possible. The model is effective due to the different structure possibilities of the courses, the high level of students' involvement in interaction, and the active role of the teacher. Such a model uses classical learning platforms for transferring learning materials, assessment, and homework checking mainly through asynchronous interaction. There is no synchronous communication (discussions, debates, online teamwork).

3. Flipped classroom (FC) is considered as a form or a part of blended learning (BL), where a significant section of learning materials and its technical content are available offline at any time through virtual platforms, providing exchange through cloud services or online learning management systems (LMS). Traditional lectures are replaced by classroom meetings organized as brainstorming sessions or problem-solving discussions and facilitating active learning with a teacher/mentor presence. Synchronous communication appears in this learning model and is the most effective communication educational model.

Thus, there are no full-fledged media systems studies as communicative models, and there is no definition of the "media system" concept.

METHODOLOGY

The research methodology includes a qualitative content analysis of educational media (platforms, social media, and educational services) to classify communication models according to the media systems used in education. The article uses a comparative analysis to highlight the goals of communication and communication tools of different communication models due to the media type.

RESULTS

In communication, media are the means of transmitting, storing, and reproducing information aimed at delivering it across spatial, temporal, or other barriers. The media system should be defined as a set of communication tools for all stakeholders in educational practice to transmit, share, store, reproduce, and learn about information (educators, students, school authorities and administrators, education departments and local governments, etc.) in the context of the communication model's study. Media systems can also be seen as a set of media technologies, which, in turn, are a combination of different learning modes: text, graphic images, music, interactive videos, and animations.

During the pandemic, the media performed the following functions:

1) communication, providing feedback, evaluation, control of students' learning progress;
2) sharing learning materials, information, knowledge, or experience;
3) increasing the motivation, students' interactivity, learning, and knowledge acquisition.

After the pandemic, the media functions are greatly expanded because they are integrated into platforms that ensure the complete digitalization of education and take into account the interests of different stakeholders. The media not only serve the function of communication between teacher and student but also among educational departments and school administrations that monitor the teachers' performance. Media became the educational institution tools for various stakeholders' functions, forming media systems, in particular, learning management system, analytics system, school social networks, students, students' reflexion systems, etc.

Communication models can be classified according to the set of media used by stakeholders to provide, share, and store information (learning materials) and according to the purpose of using the media (Table 1). The first group of media should include online platforms (Mentimeter, Classtime, Kahoot, Nearpod, Online Test Pad, Quizalize, Quizizz, Quizlet, Plickers, GoSoapBox, Poll Everywhere – Student response systems' (SRS) that provide surveys, quizzes, presentations, and collecting student feedback on learning. Such platforms provide an effective knowledge check and teacher-student feedback, establish teacher-student contact and increase students' interactivity and their involvement in learning activities. The second group of media should include media integrated into educational platforms – services that provide distance learning and contain chats, social communication networks, groups for communication between faculties, special functions of information, knowledge, and file exchange integrated into such platforms. The third group of media should include social networks, which have long been used in educational practice as the easiest tools for communication.

TABLE 1
CLASSIFICATION OF COMMUNICATION MODELS IN EDUCATION BY MEDIA TYPE

Communication model	Media type	Purpose of communication	Communication tools
Based on platforms and online services such as Student response systems' (SRS)	Mentimeter, Classtime, Kahoot, Nearpod, Online Test Pad, Quizalize, Quizizz, Quizlet, Plickers, GoSoapBox, Poll Everywhere	Interactivity, feedback to check the students' knowledge and their involvement during the class	Using tools such as surveys, feedback collection, presentations, quizzes, and polls
Based on platforms – virtual education services	Human School, "Novi Znannia" distance learning system, information and communication system Unified School, Moodle learning platform, Google Classroom web service	Immediate instant communication; interactivity; bringing together different groups of students; discussions, exchanges, discussion of academic disciplines, resources; commenting on grades and work	Surveys, photo galleries, events announcements, communication through school announcements, chat rooms, optional activity groups, in-school social networks, video communication
Based on social media	Facebook Messenger, Instagram, Viber, WhatsApp, Telegram, Signal	Quick communication between teachers and students, homework review, task clarification, questions to teachers, dealing with learning group questions	Instant messaging, polls, images, video messaging, voice messaging, sending files (study materials, assignments)
Based on video conferences	Zoom and Skype, Google Meet, Google Chat	Remote communication for submitting contents, lectures, seminars, debates, discussions, group work	Direct communication through the specified tools, the ability to submit presentations, messaging, and file sharing

Source: author's elaboration.

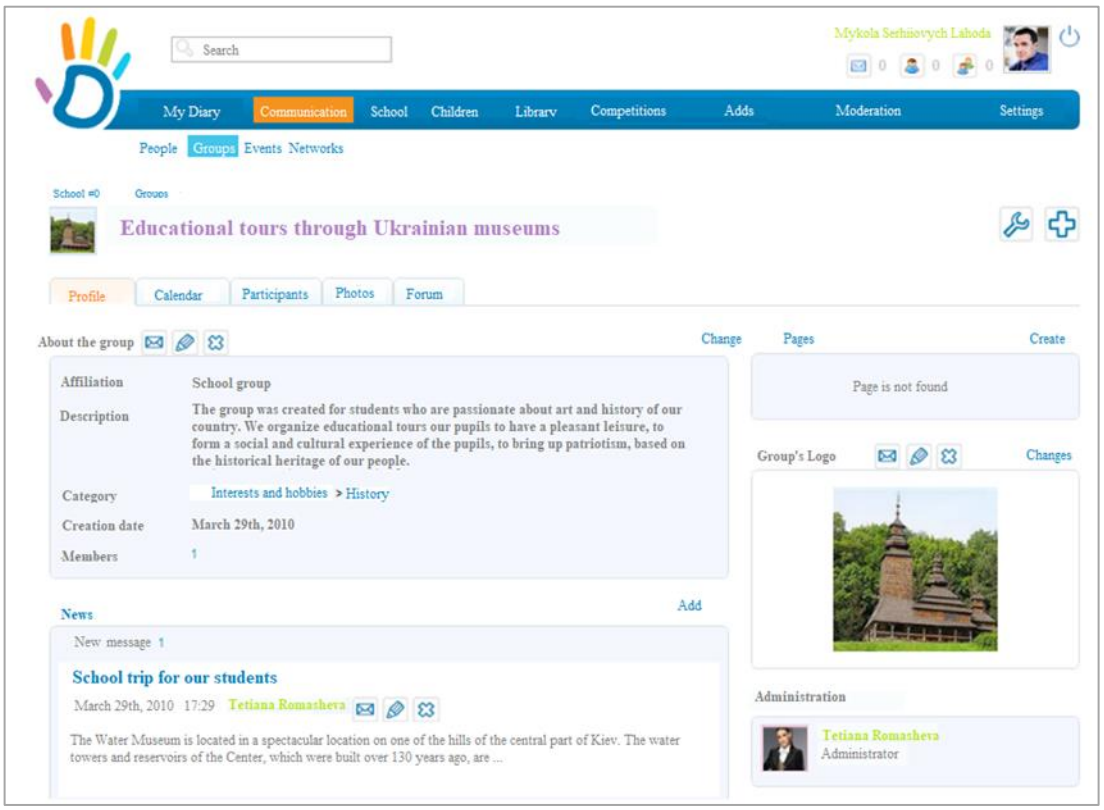
These media are often combined to provide an effective combination of synchronous and asynchronous media in instruction depending on the class type (lecture, seminar, group, teamwork, discussion, communication between specific students, instructors). Educational institutions have provided an opportunity for educators to combine different means of communication to convey knowledge, learning materials, and tasks based on the media developed and recommended by the education departments. According to the developed recommendations in the use of media, instructions for their use have been created, and answers to possible technical problems in working with them have been given. It minimizes teachers' difficulties in choosing and using different media and, at the same time, personalizes the needs of teachers, pupils, and students accordingly. For example, one of the recommended and approved by the Ministry of Education and Science of Ukraine is an interactive online platform GIOS (https://gioschool.com/ua), which contains lessons, assignments, and tests to help organize blended and online learning. During the quarantine period, GIOS provided free use of the platform for teachers, students, login, and technical support.

The next example is Shodennik.ua (http://shodennik.ua) – an all-Ukrainian educational network for teachers, students, and their parents, supported by the Ministry of Education and Science of Ukraine, regional administrations, and departments of education. The goal is to unite all teachers, students, and parents into a single community, modernize the educational process and introduce modern computer

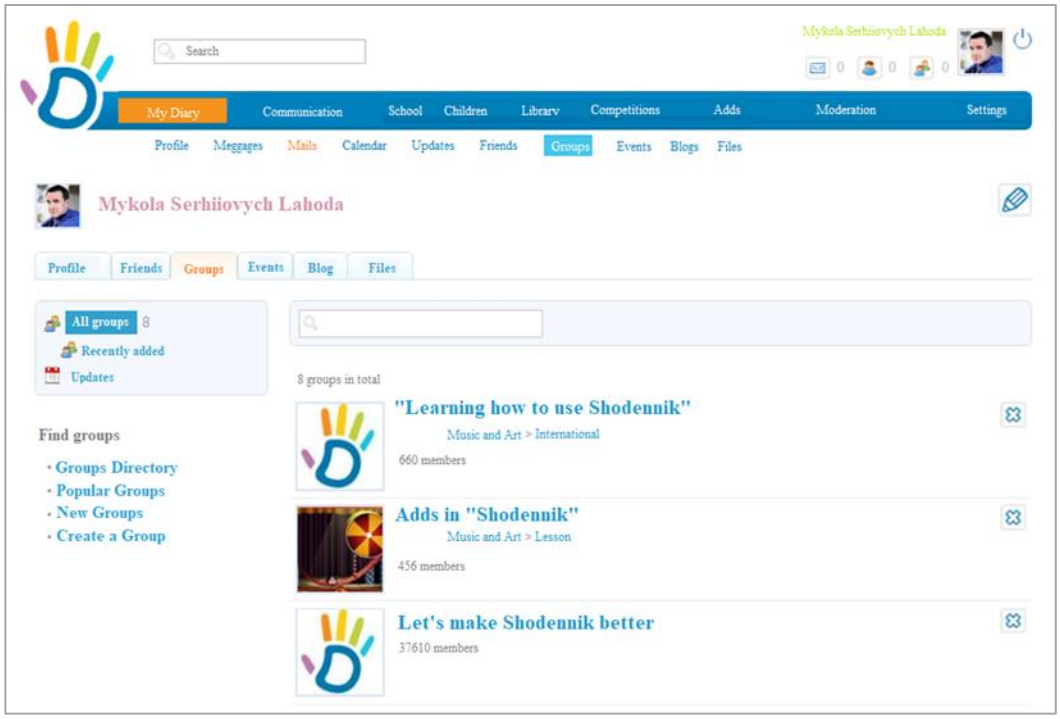
technology in schools. There are 10 620 schools, 1 028 430 students, 148 514 teachers, and 253 060 parents connected to this network (Figure 1). Shodennik has all the basic social networking features that are adapted for use in schools. Each Shodennik user has their page, where they can talk about themselves and their interests, publish photos, music, videos, documents, and keep their blog. Shodennik also integrates:

1) thematic groups and events – for communication on interests, and each group or event has a page with various necessary functions: news, pages (Wiki), wall, files, forum;
2) function for communication between schools, allowing schools to communicate more closely with each other;
3) file-sharing functions: all Shodennik social network objects (users, groups, events, schools, networks) have their file storage, where users can upload photos, audio, video, documents, and other file types.

FIGURE 1
THE OFFICIAL WEBSITE OF SHODENNIK.UA EDUCATIONAL NETWORK



a) Catalogue of groups or events



b) Group or event page
Source: http://shodennik.ua.

Another example is MySchool.ua (https://app.moiashkola.ua) – an online learning environment for students, parents, teachers, and district education administrators. The system brings together people related to the school process through the automation of school document management, online libraries with multimedia materials for students, outlines for teachers in all subjects, topics for all grades, and various SMS services. For school administrators, there is a school textbook register, an electronic test builder, and thematic social networks. It is appropriate for school administrators and teachers.

DISCUSSION

Media systems, as the basis of the communicative model, are very important in education because they provide instant communication among different educational process stakeholders (educational institutions' administration, teachers, parents, students, and pupils). The media provide many important functions through an optimal combination (platforms such as virtual educational services and networks, social networks, video conferencing):

- interactivity, feedback to check the students' knowledge, their active involvement in a dialogue in class;
- direct instant distance communication;
- uniting on the interests of different academic groups of students; discussions, views exchange, discussion of academic disciplines and homework, study materials;
- commenting on grades and works.

During the pandemic, one of the main trends in the media systems development is the creation of educational networks for the communication of different participants in the new activity, which has completely changed the communication mode. Thus, one of the main online learning problems by Ferri et al. (2020) is a lack of interactivity / feedback and parental involvement in the communication process. Despite the numerous interaction problems in blended learning, Verawardina et al. (2020) believe that support for the interaction of direct contact with others is needed. This support is provided by new

educational platforms that offer communication in interest groups, between individual institutions, parents, and educators. Interaction and communication can critically impact learning outcomes and educational goals (Slipchuk et al., 2021). Communication and the skills developed through the communication process are useful for different stakeholders in the educational system, especially in situations that require discussing different perspectives on educational issues. During the complete transition to online learning, pupils and students feel lonely and isolated. Their ability to form interpersonal relationships and socialization (vital for personal development) is reduced. The media systems, especially educational networks and services, improve interpersonal relationships and communication by creating interest groups, group or event listings, opportunities for discussion, personal pages for file sharing, etc. Although, it is impossible to replace direct communication with online communication completely. Online interaction remains beneficial for all parties involved, especially through good planning of group communication in educational networks.

Rinekso & Muslim (2020), in their study of synchronous online discussions in HEIs English teaching, found a high level of student satisfaction with this method due to the discussion ease, the ability to express opinions, task scheduling, and the ability to get real-time answers to questions posed. The authors proved a high level of students' social support due to synchronicity in the complete transition to digital learning. Media systems (especially videoconferencing) allow for synchronicity and improved communication. Video conferencing allows for discussions (virtual, hybrid, in-person), students' group and teamwork, proactive learning, and student engagement. As Carius' (2020) study on emergency distance learning at the School of Telecommunications Engineering (Universidad Politécnica de Madrid) shows, effectively organized synchronous communication through a media combination affects student performance. The authors also identified the influence of learning-related variables (number of students' group, synchronous/asynchronous learning) and the use of digital technologies. The study results suggest that students' academic performance improved in an emergency distance learning environment due to the effective media systems organization.

CONCLUSIONS

This study proves the dynamic development of media systems as the basis of communicative models of modern educational practices. This dynamism is manifested in the development and adoption at the national educational platforms' legislative level that serves as services and networks for communication of various stakeholders in the educational process (educational administrations, teachers, parents, students, students). Before the spread of the pandemic, traditional media were most often used in educational practice, especially the Moodle learning platform, which performed the function of transferring educational materials from the teacher to the student. Since 2020, platforms-based media systems (virtual educational services) such as the distance learning systems Human School and "Novi Znannia", the information and communication system Unified School, and the web service Google Classroom have evolved significantly. Such services offer different functions for communication, as a result of which they form hybrid communication models. Hence, new functions of such platforms are:

1) thematic groups and events to communicate by interest, where news, pages (Wiki), walls, files, and forums are covered;
2) function for communication between schools, allowing schools to communicate more closely with each other;
3) file-sharing functions: all Diary social network objects (users, groups, events, schools, networks) have their file storage, where can be uploaded photos, audio, video, documents and other types of files.

The study offers a classification of communicative models according to the type of media used in education: based on platforms, online services like Student Response Systems (SRS); based on platforms – virtual educational services; based on social media; based on video conferencing. Each communicative model has different communication goals and tools of communication.

Media, due to their optimal combination (platforms as virtual educational services and networks, social networks, video conferencing), perform many main functions:

- interactivity, feedback to check the students' knowledge, their active involvement in the dialogue in class;
- direct instant distance communication;
- uniting different students' groups by interests;
- discussions, views exchange, discussion of academic disciplines and homework, materials;
- comments on grades and works.

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