МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
Глухівський національний педагогічний університет
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MODERN EDUCATIONAL TECHNOLOGIES IN HIGHER EDUCATION INSTITUTIONS

Study manual for Master's degree undergraduates

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У посібнику висвітлено теоретичні та методичні засади застосування сучасних освітніх технологій у закладах освіти України. Схарактеризовано основні інноваційні технології навчання, описано особливості їх застосування в освітньому процесі.

Посібник створено з метою забезпечення викладання освітнього компонента «Modern Educational Technologies in Higher Education Institutions», що викладається англійською мовою.

Видання адресовано здобувачам вищої освіти, науковим працівникам та викладачам закладів вищої освіти, аспірантам, вчителям та іншим особам, зацікавленим питаннями використання інноваційних технологій під час освітнього процесу.

ISBN

ЗМІСТ

ПЕРЕДМОВА

Переорієнтація сучасної вищої освіти на європейські стандарти передбачає підготовку компетентного фахівця, спроможного до особистісного і професійного зростання, активної самореалізації, підґрунтям яких є іншомовна комунікативна компетентність. Тому, сьогодні особливо важливим для сучасних фахівців, є оволодіння професійно спрямованою іншомовною комунікативною компетентністю з метою конкурентоздатності на світовому ринку праці.

Посібник є на часі, оскільки присвячений аналізу актуальних тем, що висвітлюють інформацію про сучасні освітні технології. Враховуючи сучасне становище України є потреба в оновленні підходів до формування компетентних фахівців нашої держави, зокрема кваліфікованих конкурентноспроможних освітян, які підготують молоде покоління до викликів сьогодення.

Згідно з цільовими установками спеціальної підготовки магістрантів-освітян змістом курсу є оволодіння сучасними інноваційними технологіями викладання в майбутній сфері професійного зростання. Посібник має на меті подальший розвиток і вдосконалення компетентностей, отриманих здобувачами освіти під час навчання за ОС «Бакалавр» з урахуванням їхньої специфіки. Управління процесом засвоєння забезпечується чіткою постановкою цілей на кожному конкретному етапі навчання.

Майбутні магістри педагогіки цілеспрямовано готуються до здійснення професійної діяльності в галузі освіти, у тому числі, до науково-дослідницької роботи, що потребує поглибленої фундаментальної загальної та фахової підготовки. Таким чином, запропонований посібник відповідає на запити сьогодення й містить спеціальний курс англійською мовою, спрямований на розвиток навичок використання сучасних інноваційних технологій у фаховій діяльності педагогів, що передбачено програмою підготовки магістрів.

Видання буде корисним педагогам, науковцям, здобувачам вищої освіти – всім, хто прагне професійного розвитку через читання й аналіз інформації англійською мовою.

Abstract of the course

The integration of the educational system of Ukraine into the European and world educational space actualizes the need to increase the level of mastery of modern educational technologies. Modern requirements for the training of pedagogical personnel require them, first of all, to be fruitful participants in intercultural communication and to have the necessary skills and ability to apply innovative teaching technologies for the purpose of productive learning. All this increases the demand for qualified graduates of higher education institutions.

The academic course "**Modern educational technologies in higher education institutions**" belongs to the special disciplines of Master's training, deepens the knowledge of education seekers about modern innovative teaching technologies, the peculiarities of training teachers to work with them in general secondary education institutions, and the use of modern approaches in the course of professional activity. The course is aimed at forming a competent teacher, whose activities are based on the principles of academic integrity and individual linguistic and scientific competence, which will ensure the competitiveness of intending specialists in the modern labour market, and professional growth.

The place of the course in the curriculum and the prerequisites for its study or selection. "Modern educational technologies in higher education institutions" occupies an important place in the professional training of intending educators, since its purpose and tasks are aimed at the formation of a competent educated personality, capable of appropriately using the means of modern technologies in various working conditions and depending on the purpose and the content of the activity. The course is based on the knowledge and skills of "Bachelor" educational degree holders in the following courses: English language (professionally oriented), teaching methods, fundamentals of scientific research. The prerequisites for studying the course are students' knowledge of approaches, methods, and principles of teaching; the skills to analyze reference, scientific and methodical literature.

The **aim** of the course is to master modern educational learning technologies, to know the structure of innovative learning technologies, to be able to apply different teaching technologies in accordance with the educational environment and individual characteristics of students.

The tasks of studying the course:

- to form students' general and professionally oriented competencies to ensure their effective learning of students in a modern educational environment;
- − to form students' general competences, which will contribute to the development of self-assessment skills and the ability to study independently, which will allow them to continue their studies in an academic and professional environment both during their studies in higher education institutions and after their graduation;
- to involve students in such academic activities that activate and develop the entire range of soft skills and cognitive abilities;
- to help students in the formation of general competences in order to develop their personal motivation and strengthen their confidence in professional activity;
- to contribute to the formation of critical self-awareness and the ability to be competitive in the constantly changing international professional environment;

- to achieve a broad understanding of important and diverse international socio-cultural issues in order to act appropriately in culturally diverse professional and academic situations.

The study of an academic course involves the formation of the following competencies:

As a result of studying the educational component, the applicant must acquire the following general competencies (GC):

General competences:

GC 4. Ability to work in an international context. Mastering a foreign language (English) in an amount sufficient to present and discuss the results of one's scientific work in oral and written form, full understanding of foreign language scientific texts in accordance with the specialty.

GC 9. The ability to act on the basis of ethical considerations, to observe scientific integrity in professional and scientific research activities

GC 10. Ability to generate new ideas (creativity), show initiative (leadership) and entrepreneurship.

Previous competencies required for studying the educational component: knowledge of English not lower than at the B2 level according to the recommendations of the Council of Europe.

2. Organization of training

Preference is given to innovative forms of classes and methods of learning, teaching, and assessment. Among the teaching methods: verbal (explanation, narration, conversation, discussion), practical methods (working with information sources, texts), methods of innovative technologies (problem-based learning methods, multimedia).

Forms of course assessment: oral (conversation, report, message, etc.), written (independent work), final control (credit).

The structure of course credits

Moduls	Hours :			
	Classroom work		Self study work	
	Lectu -res	Practica l classes		
Modul 1. Innovative teaching technologies in modern education.				
1. Information and communication technologies.	**2**	**2**	**8**	
2. Multi media technologies.	**2**		**8**	
3. Collaborative learning approaches.	**2**	**2**	**8**	
4. Technologies of conflicts prevention and overcoming.		**2**	**6**	
Разом	**6**	**6**	**30**	
Modul 2. The integration and multidisciplinary approaches in forming professional competence of an intending teacher				
5. Metacognition and self-regulation in education.	**2**		**8**	
6. Reading comprehension strategies		**2**	**8**	
7. Social and emotional learning strategies.	**2**	**2**	**6**	
8. Critical thinking development.		**2**	**8**	
Разом	**4**	**6**	**30**	
РАЗОМ	**10**	**12**	**60**	

Lecture course content

№	List of topics of lectures, their annotations	Hours	
	Modul 1. **Innovative teaching technologies in modern education.**	**6**	
1.	**Information and communication technologies**. *1. ICT in education.* *2. The main components of ICT* *3. The key ICT tools in using in Pedagogy.*	2	
2.	**Multi media technologies**. *1. Multimedia technologies in education.* *2. Adventages and disadvantagies.* *3. The examples of multi media technologies using in education.*	2	
3.	**Collaborative learning approaches**. *1. What is Collaborative Learning?* *2. Major Types of Collaborative Learning.* *3. Managing of Collaborative Learning*	2	
	Modul 2. **The integration and multidisciplinary approaches in forming professional competence of an intending teacher**	**4**	
4.	**Metacognition and self-regulation** *1. Metacognition and self-regulated learning.* *2. Development of metacognition.* *3. Assessment of metacognition and self-regulation skills.* *4. What types of metacognitive/self-regulated learning strategies are effective at improving outcomes?* *5. Teaching SRL and metacognition* *6. Differential effectiveness by subject, age and domain.*	2	
5.	**Social and emotional learning strategies** *1. SEL in Practice* *2. Conditions for effective SEL* *3. Practice and instructional elements of SEL*	2	
	Разом	**10**	

Practical classes content

№	List of topics of practical classes, their annotations	Hours	
		Д	З
	Modul 1. **Innovative teaching technologies in modern education.**	**6**	
1.	**Information and communication technologies**. 1. ICT in education. 2. What are the 7 components of ICT? 3. The key ICT tools in using in Pedagogy.	2	
2.	**Collaborative learning approaches**. 1. What is Collaborative Learning? 2. Major Types of Collaborative Learning. 3. Managing of Collaborative Learning	2	
3.	**Technologies of conflicts prevention and overcoming.** 1. Risks related to the use of digital technologies. 2. Technologies of conflicts prevention and overcoming. 3. The practice of mediation. 4. Managing risks in education	2	
	Modul 2. **The integration and multidisciplinary approaches in forming professional competence of an intending teacher**	6	
4.	**Reading comprehension strategies** 1. Using Prior Knowledge/Previewing. 2. Predicting. 3. Identifying the Main Idea and Summarization. 4. Questioning. 5. Making Inferences. 6. Visualizing. 7. Story Maps. 8. Retelling.	2	
5.	**Social and emotional learning strategies** *1.* SEL in Practice 2. Conditions for effective SEL 3. Practice and instructional elements of SEL	2	
6.	**Critical thinking development.** 1. What is critical thinking? 2. Critical thinking skills. 3. The stages of critical thinking. 4. The benefits of critical thinking..	2	
	Разом	**12**	

The system for evaluating students' educational achievements

(evaluation criteria and evaluation scale)

The system of monitoring and evaluating the educational achievements of students covers:

- current monitoring and evaluation of students' educational activities;
- testing and final assessment of students' educational activities.

Current monitoring of students' progress is carried out during the term. During the mastery of the educational material, the student's classroom work, extra-auditory independent work of the student and modular control work are evaluated. The current assessment of all types of students' educational activities is carried out in the national 4-point system - "5", "4", "3", "2". Non-fulfillment of tasks of independent work, non-attendance of practical classes are marked with "0".

The main objects of control: methodical knowledge and professional skills.
The main forms of control:

- solving methodological problems;
- oral discussion of methodical problems;
- performance of practical tasks;
- analysis of fragments of lessons;
- development of fragments of lessons;
- performance of control works;
- tests.

Special attention is paid to the control and assessment of extracurricular independent work of students, which involves the preparation of educational material, preparation for practical classes, preparation and presentation of a report, preparation of methodological support, etc.

Table 1

№	**Types of educational activities, number of topics**	**The maximum number of points for one topic**	**Total points**	**Final control form**
1.	Lectures (5)	3	15	
2.	Practical classes (6)	5	30	
3.	Self study work (8)	5	40	
4.	Module control (2)	7.5	15	
5			100	Credit

Table 2

ECTS	**100 point scale**	**The value of assessment by levels of general competences formation**
A	90-100	High level
B	82-89	Sufficient level
C	74-81	Average-adequate level
D	64-73	Average level
E	60-63	Below average level
FX	35-59	Low level
F	1-34	Very low level

LECTURES

Lecture 1

INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)

PLAN

1. ICT and soft skills.
2. UNESCO's principles on ICT in education
3. The main components of ICT.
4. The key ICT tools in Education.

1. ICT and soft skills.

ICT tools are the set of currently developed technologies that allow more efficient communication of information, which have modified the way of accessing knowledge and, in turn, human relations. Its acronym stands for Information and Communication Technologies and today it is playing a key role in the development of new educational policies and projects.

ICT has become an essential tool in offering students a comprehensive education at all times, enabling them to develop all their digital skills and abilities, thus enriching the teaching-learning process with dynamic and innovative methodologies.

After the pandemic and beginning the war in Ukraine, there is impossible for us to go to class to work normally, so teleworking and online classes were promoted. It was at that time that ICT tools took on a much more important role in education.

Being able to continue working remotely has been essential to maintain the academic level of the students and, within all this chaos, to maintain a bit of normality. The instantaneousness of these tools has made it possible to continue working at the same pace, carrying out virtual classes, uploading deliveries to different educational platforms, and even taking exams from home with quizzes.

Since the profession of teacher is public, especially important are the skills of self-presentation, the ability to build relationships with all participants in the educational process, the ability to creatively solve pedagogical problems, to show leadership, to have self-management, critical thinking as a capacity for productive activity.

Equally important in this context are situational awareness, adaptability, flexibility, tact.

These skills and abilities are of particular relevance in an era characterized by the processes of transformation of both society as a whole and education in particular.

The development of soft skills today is defined as the process of dynamic transformation of personality throughout life. This leads to a motivated development of existing personal qualities in accordance with the environment and surrounding people. The future specialist should focus their attention and activity on improving their own efficiency, promoting themselves and their own individual trajectory of professional development. The development of soft skills is

a personal motive of each person, on which the effectiveness of pedagogical activity depends [1].

Tony Wagner, Research Fellow at Harvard University's Center for Innovative Educational Programs, researching education and upbringing for a generation that will change the world for the better, identifying the traits of a successful innovator, driving the progress:

1. Interest - The habit of asking the right questions for the sake of gaining a fuller understanding.
2. Collaboration ("collaboration"), which begins with the ability to listen and learn from someone who has a different experience and has other skills.
3. Associative or integrative thinking.
4. Propensity for active action and experimentation.

According to T. Wagner, these qualities can and should be developed through the following interrelated elements: play, capture and purpose. In order to be able to develop these traits in the child, the teacher himself must have basic “soft skills”. According to T. Wagner's research, the main of these skills are as follows:

1. Critical thinking and problem-solving skills.
2. The ability to collaborate and influence others.
3. Agility and adaptability.
4. Initiative and enterprising.
5. Effective oral and written communication.
6. The ability to evaluate and analyze information.
7. Curiosity and imagination.

ICT encompasses both the internet-enabled sphere as well as the mobile one powered by wireless networks. It also includes antiquated technologies, such as landline telephones, radio and television broadcast - all of which are still widely used today alongside cutting-edge ICT pieces such as artificial intelligence and robotics.

ICT is sometimes used synonymously with IT (for information technology); however, ICT is generally used to represent a broader, more comprehensive list of all components related to computer and digital technologies than IT.

The list of ICT components is exhaustive, and it continues to grow. Some components, such as computers and telephones, have existed for decades. Others, such as smartphones, digital TVs and robots, are more recent entries.

ICT commonly means more than its list of components, though. It also encompasses the application of all those various components. It's here that the real potential, power and danger of ICT can be found.

2. UNESCO’s principles on ICT in education

1) Global education challenges, especially the EFA goals, are greatest in the developing world. The development of a methodology for ICT in education indicators, thus, deliberately places more emphasis on major policy issues for these countries. It is assumed that developed countries have the resources, manpower and knowledge required to address their own emerging policy or

research information needs on the integration of ICT into their education systems.

2) Old and new technologies need to be used in a balanced way. On-the-air and off-the-air radio/radio-cassette, television and offline video-assisted technologies are still considered valid and cost-effective modes of education delivery, as important as more interactive computer/Internet-based virtual education or online distance learning.

3) Meeting the international education goals will require huge investments in teacher training institutions (UNESCO-UIS, 2006b). According to experts, this is a major challenge that the conventional face-to-face delivery mode will not be able to address. The frequent need to adapt school curricula also requires huge in-service training for existing teachers, where the support of ICT is likely to play an essential role.

4) The demand for higher education cannot be met in both the developed and developing world without distance or virtual modes of learning.

5) Vocational training needs cannot be met without virtual classes, virtual laboratories, etc.

6) Educational goals cannot be met without gender sensitivity. Wherever possible, the proposed indicators will address the need to measure the gender gap.

3) The main components of ICT.

ICT (Information and Communication Technology) encompasses a wide range of components that work together to facilitate the management, processing, storage, and communication of information. Some of the key components of ICT include:

Hardware: This includes physical devices such as computers, servers, routers, switches, storage devices, and peripherals like printers, scanners, and input/output devices.

Software: ICT relies on software applications and programs to perform various tasks. This includes operating systems, productivity software (word processors, spreadsheets), database management systems, communication software, and specialized applications for specific industries or purposes.

Networks: ICT relies on network infrastructure to facilitate communication and data transfer. This includes local area networks (LANs), wide area networks (WANs), wireless networks, and the internet. Network components include routers, switches, cables, wireless access points, and network protocols.

Data Management: ICT involves the management of data and information. This includes database systems for storing and organizing data, data analytics tools for extracting insights, data backup and recovery solutions, and security measures to protect data from unauthorized access or loss.

Internet and Communication Technologies: The internet plays a vital role in ICT, enabling global connectivity and information exchange. Communication technologies encompass email, instant messaging, video conferencing, VoIP (Voice over Internet Protocol), and other collaborative tools.

Cybersecurity: Given the increasing reliance on ICT, cybersecurity measures are essential to protect systems, networks, and data from unauthorized access, data breaches, and cyber threats. This includes firewalls, antivirus software, encryption, access controls, and security policies.

Digital Media and Content: ICT involves the creation, storage, and distribution of digital media and content. This includes multimedia content (images, audio, video), websites, social media platforms, digital publishing tools, and content management systems.

ICT Services and Support: This includes the services and support necessary for the effective implementation, maintenance, and troubleshooting of ICT infrastructure. It involves IT professionals, help desks, technical support, system administration, and training.

These components of ICT work together to enable the efficient and effective processing, storage, and communication of information in various domains, including business, education, healthcare, and entertainment, among others.

4) The key ICT tools in using in Pedagogy

ICT tools for teaching and learning cover everything from digital infrastructures such as printers, computers, laptops, tablets, etc., to software tools such as Google Meet, Google Spreadsheets, etc.

However, we won't cover any of these basic software or hardware tools such as laptops and computers. It's because everyone already knows about them.

Instead, we'll talk about some amazing software, applications, or platforms specifically meant for teachers.

Word processing – a basic and important skill to have for students through their formal schooling. Students are expected to progress in their skills through primary school and should be able to save documents, save them in different formats and understand what those formats mean. You should effectively help students to develop key typing skills and provide them with access to printers.

Spreadsheets – as with word processors, to be able to save documents and to have sufficient typing skills. Primary exit skills include being able to set up columns, using basic formulas, inserting and deleting rows, changing font size etc.

Information literacy skills – web searching is an essential skill in the information age. Students need to know practical skills and critical skills such as understanding domain names and what they mean; knowing which are more trustworthy; knowing which are more useful for information and research.

Animation (clay or drawing) – stop motion is the best for students to practice and they can craft a story and develop their higher-order skills as they plan, monitor and evaluate their own work.

Presentation software – you could use Prezi or PowerPoint, whichever one you prefer and are familiar with the most. Ensure that by the end of primary school, they leave with skills such as being able to create handouts and notes pages, setting up animations, designing their own slide design and inserting tables, images, and smart art graphics.

Blogging – this is a type of website or part of a website that can be updated with new content from time to time. Most are interactive and allows students to have a controlled online presence.

Web 2.0 – one of best ways to develop higher-order skills for students. It includes Twitter, Facebook where you can create a class page and Tumblr which is awesome for digital images with short titles.

Publishing programs – the most familiar of these is MS Publisher which is great for developing literacy skills which makes it extremely useful in primary education.

Making a video – students can create a video, edit it, and evaluate it as most iPads contain a recording camera. Students can transfer it to a program where can continue to piece together their work.

Web design – students can do this anywhere and at any time these times. Did you know that if they have MS Word that they can create a single web page using this program? Awesome right!

Top 6 ICT Tools for Teaching and Learning

1. BlackBoard

BlackBoard is a popular teaching tool that comes with numerous capabilities. Teachers can easily administer tests, monitor performance, manage syllabus and even upload grades. This can save you from the hassle of writing everything on paper, and also from an aching wrist. Students can equally benefit from this tool because they can access all the information, including grades, assignments, attendance, that you upload on the platform. The best part is that all this comes in one platform. So, you won't need multiple applications to manage it all.

2. Google Classroom

Google Classroom, as the name suggests, is a virtual classroom that makes learning easy and fun. Teachers can integrate educational apps or websites and create interactive assignments. You can include a slideshow, a small game, or an entertaining YouTube video full of information. This way, kids learn better and enjoy their learning experience. Also, Google Classroom allows you to go paperless. You can easily create paperless assignments and grade students within a few minutes. This way, you can save time and focus more on improving the learning experience. Furthermore, you can create a separate drive folder for assignments, grade sheets, attendance sheets, etc. And you can access all this on the go, even from your mobile or laptop. What's more, Google Classroom allows virtual meetings. You can host parent-teacher meeting sessions online from your home. It's beneficial both for you and the parents, especially during the lockdowns. All in all, Google Classroom offers a complete solution for online teaching.

3. Trello

Trello is a collaborative tool that is used widely in IT companies with large teams. Fortunately, it has several applications for you educators as well. If you prefer project-based learning for students, Trello is for you. Trello has these digital boards. You can create different boards for assignments, test papers, etc.

And in those boards, you can create cards. Furthermore, you can discuss a particular topic in that card. You can invite your students to view that card. And the students can put in comments, doubts, or ask questions and even attach images, videos, etc. Also, students can easily look at their projects, set deadlines, and track progress online. In a nutshell, Trello takes a lot of burden off your shoulder while enriching the learning experience for kids.

4. Microsoft Teams

Microsoft Teams is another popular tool for IT professionals. And similar to Trello, it has several applications for teachers and educators. Microsoft Teams is a Microsoft Office 365 product. It simply means you can host meetings, chat, share files, and use every Microsoft Office app using Teams. One of the best features Teams comes with is the Class Notebooks from One Note. Class Notebooks resemble individual student notebooks(physical) but come with additional features and ease of use. Teachers can assign individual notebooks to students and provide them with real-time feedback. You can easily distribute exams, handouts, quizzes, and homework instantly to your students. Also, the students can use amazing tools within Teams for taking notes and highlighting important things. This helps the students engage more and enjoy learning. All in all, Teams can reduce the manpower and can completely replace the use of paper. It's yet another amazing tool that ensures effective education online.

5. Online Coding Websites such as DataCamp, HackerRank, Coderbyte

No minimum age exists when it comes to learning how to code. Mark Zuckerberg, the owner of Meta (formerly Facebook), said that his daughter, who's just three, has started coding already. Now, how can you beat that? If you want your students/kids to learn how to code, make sure it's practical. Practicing code on paper is simply a waste of time. And it also kills the creative talent of the students. This is where the websites such as DataCamp, HackerRank, Coderbyte, etc., come into play. Using such websites, your students can implement what they've learned instantly. Also, such websites feature several tricky problems that your students will enjoy. The best part is that most websites are free and accessible from any device. It simply means none of your students will need particular hardware (laptop/PC) to code. A normal PC or a mobile with an internet connection would do. Recommended Read: How to Teach Kids Coding: A Comprehensive Guide for Parents

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Lecture 2

MULTI MEDIA TECHNOLOGIES.

PLAN

1. Multimedia technologies in education.
2. Features of Multimedia
3. Adventages of Multimedia
4. Disadvantagies of Multimedia.
5. Uses of Multimedia in Society.
6. Future of Multimedia

1. Multimedia technologies in education.

Multimedia technologies (MMT) are tools that make it possible to transmit information in a very large meaning, transforming them into knowledge through leveraging the learning power of senses in learners and stimulating their cognitive schemes. This kind of transformation can assume several different forms: from digitalized images to virtual reconstructions; from simple text to iper-texts that allow customized, fast, and cheap research within texts; from communications framework like the Web to tools that enhance all our senses, allowing complete educational experiences (Piacente, 2002b).

MMT are composed by two great conceptually-different frameworks (Piacente, 2002a):

• Technological supports, such as hardware and software: this refers to technological tools such as mother boards, displays, videos, audio tools, databases, communications software and hardware, and so on, that make it possible to transfer contents;

• Contents: this refers to information and knowledge transmitted with MMT tools. Information is simply data (such as visiting timetable of museum, cost of tickets, the name of the author of a picture), while knowledge comes from information elaborated in order to get a goal. For instance, a complex iper-text about a work of art, where several pieces of information are connected in a logical discourse, is knowledge. For the same reason, a virtual reconstruction comes from knowledge about the rebuilt facts. Contents can also be video games, as far as they are conceived for educational purposes (Egenfeldt-Nielsen, 2005; Gros, 2007).

It is relevant to underline that to some extent technological supports represent a condition and a limit for contents (Wallace, 1995). In other words, content could be expressed just through technological supports, and this means that content has to be made in order to fit for specific technological support, and that the limits of a specific technological support are also the limits of its content.

For instance, the specific architecture of a database represents a limit within which contents have to be recorded and have to be traced. This is also evident when thinking about content as a communicative action: Communication is strictly conditioned by the tool that we are using.

Essentially, we can distinguish between two areas of application of MMT (Spencer, 2002) in Education:

1. Inside the Educational Institution (schools, museums, libraries): this refers to all the tools that foster the value of lessons or visiting during the time that they take place. Here we mean "enhancing" as enhancing moments of learning for students or visitors: hypertexts, simulation, virtual cases, virtual reconstructions, active touch-screen, video, and audio tools;

2. Outside the Educational Institution: this refers to communication technologies such as Web, software for managing communities, chats, forums, newsgroups, for long-distance sharing materials, and so on. The power of these tools lies in the possibilities to interact and to cooperate in order to effectively create knowledge, since knowledge is a social construct (Nonaka & Konno, 1998; Von Foerster, 1988; Von Glasersfeld, 1988).

Behind these different applications of MMT lies a common database, the heart of the multimedia system (Pearce, 1995). The contents of both applications are contained in the database, so the way that applications can use information recorded in the database is strictly conditioned by the architecture of the database itself.

We can distinguish two broader frameworks for understanding the contributions of MMT to teaching and learning.

The first pattern concernes the place of teaching: While in the past, learning generally required the simultaneous presence of teacher and students for interaction, now it is possible to teach long distance thanks to MMT.

2. Features of Multimedia

Multimedia has many features that make it an effective and engaging medium for communication and entertainment.

Here are some common features of multimedia:

Text: Multimedia can include text in the form of written words, captions, or subtitles.

Audio: Multimedia can include audio in the form of music, sound effects, or spoken words.

Video: Multimedia can include video in the form of full-motion footage or animated sequences.

Images: Multimedia can include static or animated images, such as photographs, drawings, or graphics.

Interactivity: Multimedia can be interactive, allowing users to interact more actively and engagingly with the content.

Adaptability: Multimedia can be adapted to different devices and platforms, such as computers, smartphones, and tablets.

Accessibility: Multimedia can be designed to be accessible to users with disabilities, such as by providing closed captions or audio descriptions for users who are deaf or hard of hearing.

Overall, multimedia features make it a powerful and effective tool for communication and entertainment. It allows for the creation of engaging and immersive experiences that can be tailored to a wide range of audiences and platforms

3. Adventages of Multimedia.

Multimedia uses various forms of media, such as text, audio, video, and graphics, to create a single, integrated presentation. It has become an integral part of our daily lives and is used in various contexts, including education, entertainment, and business. In this article, we will explore the advantages and disadvantages of multimedia and its impact on society.

Multimedia uses multiple forms of media, such as text, audio, video, and images, to communicate information or tell a story. Multimedia has become an important part of modern communication and entertainment, and it is used in a wide range of applications, including the internet, television, film, and video games.

One of the main advantages of multimedia is that it allows for creating more engaging and immersive experiences. For example, a multimedia presentation can include videos, images, and audio to illustrate a point or tell a story more dynamically and engagingly than a simple text-based presentation.

Multimedia is often used to create interactive experiences, such as video games and websites. These experiences allow users to interact with the content more actively and engagingly rather than passively consuming information.

In addition to its use in communication and entertainment, multimedia is also used in education and training. For example, multimedia can create interactive learning modules that allow students to learn at their own pace and engage with the material more effectively.

Overall, multimedia has become an important part of modern life, and it is used in a wide range of applications to create more engaging and immersive experiences.

Integrating technology into the classroom is therefore a goal for educators who want to teach and communicate with students more effectively. The so-called generation Z has been raised on computers, mobiles, and other tech with a huge amount of instantly accessible information at their fingertips. Most students are comfortable with the technological delivery of learning materials, so teachers now have to cope with the needs of Gen Z.

There are some advantages of multimedia

1. Improved Learning and Retention

One of the main advantages of multimedia is its ability to improve learning and retention. Research has shown that multimedia presentations are more effective at engaging students and helping them to retain information than traditional methods such as lectures or textbooks. Multimedia helps in learning because multimedia presentations use a combination of different media, which

can appeal to different learning styles and make the material more interesting and engaging.

2. Enhanced communication.

Multimedia can also be used to enhance communication and make it more effective. It allows people to convey complex ideas and concepts through various media, such as text, audio, and video. Multimedia can also make it easier for people to understand the message and can help to engage the audience more effectively. Multimedia can be an effective tool for communication, as it allows for the integration of various forms of media, such as text, audio, and video. Multimedia can help make complex concepts easier to understand and add a visual element to a presentation, which can be more engaging for the audience.

3. Increased Accessibility

Multimedia can also increase accessibility, particularly for people with disabilities. For example, multimedia presentations can be made more accessible for people with hearing or vision impairments through closed captions, audio descriptions, and other features.

4. Increased Interactivity

Multimedia can also increase interactivity and engage the audience more effectively. For example, multimedia presentations can include interactive elements such as polls, quizzes, and games, making the material more engaging and encouraging people to participate.

5. Improved learning outcomes

Multimedia has improved learning outcomes, especially compared to traditional instruction methods. It allows learners to engage with content more interactively and engagingly. Multimedia also allows learners to learn at their own pace, which can be especially beneficial for visual or auditory learners.

6. Increased efficiency

Multimedia can save time and improve efficiency in a variety of contexts. For example, in business, multimedia presentations can be used to communicate complex ideas or products to clients more efficiently. In education, multimedia can be used to deliver course materials, allowing students to access information at their own pace and on their own time.

7. Greater Flexibility

Multimedia offers greater flexibility than traditional media, as it can be accessed on various devices and platforms. The flexibility means that people can access multimedia content at a convenient time and place for them, which can be particularly useful for those who are busy or have limited time.

8. Greater impact

Multimedia can impact the audience more, as it can appeal to multiple senses and engage the viewer in a more immersive way. Multimedia can be especially useful in marketing and advertising, as it can help to create a more memorable and effective message.

Moreover, advantages of using multimedia and technology in teaching and learning are:

1. MM can demonstrate complex ideas better than simply speaking.

Video demonstration of a laboratory experiment.

2. Student have greater engagement with the content.

Video case analysis (e.g. business or social science)

simulation game

3. Students access the MM content outside class, so class time can be used for better and more useful teacher-student interaction.

Flipped classroom (video teaching at home + homework in class with teacher support)

Group project (students collaboration in class with the supervision of teacher)

4. Provide opportunities for immediate feedback in class

Online polling for a mini survey

Formative assessment

5. Facilitate greater interaction among students in class

Breakout rooms in Zoom

Group members interact with social media in class or out of class

6. Provide immediate feedback to students in assessment

Online interactive test with feedback

4. Disadvantages of Multimedia

Multimedia uses multiple forms of media, such as text, audio, video, and images, to communicate information or tell a story. While multimedia has many advantages and is widely used in various applications, there are also some potential negatives.

1. Cost

The production of multimedia materials can be expensive, as it requires specialized equipment and skills. Multimedia gadgets and their sources can be a barrier for those who do not have the resources to produce high-quality multimedia content.

2. Technical issues

One disadvantage of multimedia is that it can be complex to create and use. It requires various skills and technologies and can be time-consuming and costly to produce. Multimedia can be a barrier for those who do not have the necessary skills or resources and may limit the accessibility of multimedia content. There is a risk of technical issues occurring when using multimedia, such as problems with audio or video quality or compatibility issues with different devices. These issues can be frustrating for users and can interfere with the effectiveness of the content.

3. Limited accessibility

Multimedia can also be limited by the quality of the audio and video, which can affect the overall experience for the user. For example, poor-quality audio or video can make it difficult for people to understand the content, reducing its effectiveness. While multimedia can be more accessible for some individuals with disabilities, it can also present barriers for others. For example, poorly designed or labeled multimedia content may be difficult for individuals with cognitive disabilities to access.

4. Dependence on technology

The use of multimedia relies on technology, which can be a disadvantage in situations where technology is not available or not functioning properly. Dependence on technology can be frustrating for users and may limit the accessibility of multimedia content. Dependence on technology can limit the use of multimedia in certain contexts, such as in remote or rural areas where access to technology may be limited. Another disadvantage of multimedia is that it relies on technology and can be affected by issues such as internet connectivity and device compatibility.

5. Increased demand for skilled professionals

The production of multimedia content requires specialized skills and expertise, which can be in high demand. Increased demand for skilled professionals can create competition and lead to a shortage of qualified individuals in certain areas.

6. Distraction

Multimedia can be distracting, and overuse can lead to problems such as addiction and lack of face-to-face communication skills. Multimedia can also be distracting and make it more difficult for people to focus on the content. Distraction can be particularly problematic in educational settings, where students must concentrate and retain information.

7. Security concerns

Finally, there are also security and privacy concerns to consider when using multimedia, particularly when it is shared online. Multimedia content can be vulnerable to security breaches and piracy, which can concern creators and users. It is important to ensure that personal information is not shared and that appropriate security measures are in place to protect against cyber attacks and other threats.

8. Quality

The quality of multimedia content can vary, and low-quality content can be unengaging or misleading.

While multimedia has many advantages, it is important to consider the potential negatives and take steps to mitigate any potential issues.

Ways to limit the disadvantages of multimedia

Here are some ways to limit the disadvantages of multimedia:

Careful Planning: Planning carefully before creating or distributing multimedia content can help to minimize potential problems. Careful Planning can include considering compatibility issues, budgeting for necessary equipment and software, and identifying potential security concerns.

Quality control: Ensuring that multimedia content is of high quality can help to minimize problems such as low engagement or misleading information. Quality Control can include using high-quality equipment, following best practices for media production, and fact-checking information.

Responsible use: Using multimedia responsibly can help to minimize negative effects such as addiction or lack of face-to-face communication skills.

Responsible use can include setting limits on media consumption and prioritizing face-to-face interactions.

Security measures: Implementing security measures can help to protect multimedia content from breaches and piracy. Security measures can include encryption, password protection, and other measures to secure content.

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5. Uses of Multimedia in Society

Multimedia has had a significant impact on society and has transformed the way we communicate and access information. From education and entertainment to advertising and news, multimedia has become integral to modern life.

One of multimedia's main impacts on society is how it has improved learning and retention. Multimedia presentations, which combine text, audio, video, and other elements, are more effective at engaging students and helping them to retain information than traditional methods such as lectures or textbooks. These features had a significant impact on education and have changed the way that information is delivered and consumed.

Multimedia has also greatly impacted how we communicate and access information. With the rise of the internet and social media, multimedia has become essential for sharing ideas and connecting with others. It has also made it easier for people to access a wide range of information and resources, changing how we learn and access knowledge.

In addition to its impact on education and communication, multimedia has significantly influenced the entertainment industry. The rise of streaming platforms and online video has transformed how we consume entertainment and has made it easier for people to access a wide range of content. These advancements also impacted the advertising industry, as companies have been able to reach larger audiences through multimedia platforms.

Overall, the impact of multimedia on society has been significant, and it has transformed how we communicate, learn, and access information. While

there are some disadvantages to consider, such as the complexity of creating and using multimedia and the potential for distraction, the overall impact has been largely positive. As technology continues to evolve, multimedia will likely continue to play a central role in society.

Multimedia has become an important part of modern society and is used in many applications.

Here are some common ways that multimedia is used in society:

Communication: Multimedia is widely used in communication, including social media, messaging apps, and websites. It allows users to share information, photos, and videos more engaging and immersively.

Entertainment: Multimedia is used extensively in the entertainment industry, including movies, television shows, and video games. It allows for the creation of more engaging and immersive experiences for audiences.

Education: Multimedia creates interactive learning experiences like online courses and educational videos. It can make learning more engaging and interactive for students.

Advertising: Multimedia is often used to create more engaging and effective advertisements, such as TV commercials, online ads, and billboards.

Persuasion: Multimedia can persuade an audience to take a certain action, such as purchasing a product or supporting a cause.

News: Multimedia is used in the news industry to present information in a more engaging and immersive way, such as through news websites, TV news programs, and online video news reports.

Overall, multimedia is an important part of modern society and is used in various applications to communicate, entertain, educate, and advertise. It has revolutionized how we consume and share information and has become an integral part of our daily lives.

Multimedia Gadgets

Multimedia gadgets are designed to create, consume, or interact with multimedia content.

Here are some common gadgets of multimedia:

Smartphones: Smartphones are multifunctional devices that allow users to access the internet, make phone calls, send texts and emails, and consume and create multimedia content such as photos, videos, and music.

Tablets: Tablets are portable devices that have a touch screen and are designed for consuming multimedia content, such as movies, TV shows, and books. They can also be used for creating multimedia content, such as drawing and writing.

Laptops: Laptops are portable computers that allow users to access the internet, create and consume multimedia content, and perform various other tasks.

Smart TVs: Smart TVs are television sets connected to the internet and allow users to access streaming services, such as Netflix and Hulu, and consume other multimedia content.

Game consoles: Game consoles are devices designed specifically for playing video games. They often have powerful processors and graphics capabilities and the ability to connect to the internet and access multimedia content such as movies and TV shows.

Many multimedia gadgets are designed to create, consume, or interact with multimedia content. These devices have become an important part of modern life and have revolutionized how we access and share information and entertainment.

6. Future of Multimedia

Multimedia has become an important part of modern communication and entertainment, constantly evolving and adapting to new technologies. Here are some possible developments in the future of multimedia:

Virtual and augmented reality: Virtual and augmented reality technologies are already being used in multimedia applications, and these technologies will likely become more widespread. Virtual and augmented reality technologies could allow even more immersive and interactive multimedia experiences.

Artificial intelligence: Artificial intelligence is used in various multimedia applications and will likely become even more prevalent. For example, AI could create personalized multimedia content or automatically transcribe and translate audio and video content.

5G and other high-speed networking technologies: The widespread adoption of 5G and other high-speed networking technologies will likely lead to faster and more reliable multimedia content delivery. Such high-speed networking technologies could allow seamless video and other high-bandwidth content streaming.

Increased use of streaming services: The popularity of streaming services, such as Netflix and Hulu, is already increasing, and more people will likely choose to access multimedia content through streaming services. The increased use of streaming services could lead to changes in how multimedia content is produced and distributed.

Overall, the future of multimedia is likely to be shaped by advances in technology, such as virtual and augmented reality, artificial intelligence, high-speed networking, and streaming services. These developments could lead to even more immersive and interactive multimedia experiences.

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Lecture 3
COLLABORATIVE LEARNING APPROACHES
PLAN

1. Collaborative learning.
2. The benefits of collaborative learning.
3. Examples of collaborative learning activities.
4. Collaborative vs. cooperative learning.

1. Collaborative learning

As teachers, 21st Century skills should be embedded in all aspects of teaching and learning. These skills encompass the 7C's: communication, collaboration, critical thinking, and problem solving, creativity and innovation, change, citizenship, character, 3R's: reading, writing and arithmetic and 2M's: motivation and meta-cognition.

This is imperative for teaching and learning as students require the life skill of being an active participant in an inclusive and global community. As collaboration is one of the 21st Century skills, the merits of collaborative play provide students with life skills such as taking turns, sharing, following rules, negotiating, and compromising (How to Encourage Collaborative Play in the Preschool Classroom, 2023).

With this being said, collaborative learning is a twenty-first-century education trend with its main characteristic being the interaction among classmates (Zisopoulou, 2019: 337).A collaborative (or cooperative) learning approach involves pupils working together on activities or learning tasks in a group small enough to ensure that everyone participates. Pupils in the group may work on separate tasks contributing to a common overall outcome, or work together on a shared task. This is distinct from unstructured group work.

Some collaborative learning approaches put pairs, groups or teams of mixed attainment to work in competition with each other in order to drive more effective collaboration. There is a very wide range of approaches to collaborative and cooperative learning involving many different kinds of organization and tasks. Peer tutoring can also be considered as a type of collaborative learning.

Collaborative learning can occur peer-to-peer or in larger groups. Peer learning, or peer instruction, is a type of collaborative learning that involves students working in pairs or small groups to discuss concepts or find solutions to problems. Similar to the idea that two or three heads are better than one, educational researchers have found that through peer instruction, students teach each other by addressing misunderstandings and clarifying misconceptions.

The impact of collaborative approaches on learning is consistently positive, with pupils making an additional 5 months' progress, on average, over the course of an academic year. However, the size of impact varies, so it is important to get the detail right.

Collaborative learning can describe a large variety of approaches, but effective collaborative learning requires much more than just sitting pupils together and asking them to work in pairs or group; structured approaches with well-designed tasks lead to the greatest learning gains.

There is some evidence that collaboration can be supported with competition between groups, but this is not always necessary, and can lead to learners focusing on the competition rather than the learning it aims to support. Most of the positive approaches include the promotion of talk and interaction between learners.

The evidence indicates that groups of 3–5 is most effective for collaborative learning approaches – there are smaller positive impacts for both paired work and collaborative learning activities with more than 5 pupils in a group. There is also some evidence that collaborative learning approaches are particularly promising when used to teach science.

1. Collaborative learning approaches have a positive impact, on average, and may be a cost-effective approach for raising attainment.

2. Pupils need support and practice to work together; it does not happen automatically. Professional development can support the effective management of collaborative learning activities.

3. Tasks and activities need to be designed carefully so that working together is effective and efficient, otherwise some pupils may struggle to participate or try to work on their own. It is important to ensure that all pupils talk and articulate their thinking in collaborative tasks to ensure they benefit fully.

4. Competition between groups can be used to support pupils in working together more effectively. However, overemphasis on competition can cause learners to focus on winning rather than succeeding in their learning.

5. The most promising collaborative learning approaches tend to have group sizes between 3 and 5 pupils and have a shared outcome or goal.

Collaborative learning is the educational approach of using groups to enhance learning through working together. Groups of two or more learners work together to solve problems, complete tasks, or learn new concepts.

This approach actively engages learners to process and synthesize information and concepts, rather than using rote memorization of facts and figures.

Learners work with each other on projects, where they must collaborate as a group to understand the concepts being presented to them.

Through defending their positions, reframing ideas, listening to other viewpoints and articulating their points, learners will gain a more complete understanding as a group than they could as individuals.

Key Features of Collaborative Learning

Purpose of the Activity - Collaborative Learning helps to satisfy the purpose of the activity with equal and distributed efforts of all team members.

Individual Learning Goals - It helps the students to accept new challenges and work on different parts of the projects with help of other students.

Enhancing Friendships and Teamwork - This helps the students to make friends across the institute having same interests and build a series of network

Building of New Relationships - Helps students to meet new students, learn about their ways, cultures and work with them.

Delegation of skills - Distributing the responsibilities of work with the team members as per their experiences, expertise and interest.

2. The benefits of collaborative learning

Research shows that educational experiences that are active, social, contextual, engaging, and student-owned lead to deeper learning. The benefits of collaborative learning include:

1. Development of higher-level thinking, oral communication, self-management, and leadership skills.
2. Promotion of student-faculty interaction.
3. Increase in student retention, self-esteem, and responsibility.
4. Exposure to and an increase in understanding of diverse perspectives.
5. Preparation for real life social and employment situations.

Considerations for using collaborative learning

- Introduce group or peer work early in the semester to set clear student expectations.
- Establish ground rules for participation and contributions.
- Plan for each stage of group work.
- Carefully explain to your students how groups or peer discussion will operate and how students will be graded.
- Help students develop the skills they need to succeed, such as using team-building exercises or introducing self-reflection techniques.
- Consider using written contracts.
- Incorporate self-assessment and peer assessment for group members to evaluate their own and others' contributions.

Getting started with collaborative learning

Shorter in-class collaborative learning activities generally involve a three-step process. This process can be as short as five minutes, but can be longer, depending on the task at hand.

✓ Introduce the task. This can be as simple as instructing students to turn to their neighbor to discuss or debate a topic.

✓ Provide students with enough time to engage with the task. Walk around and address any questions as needed.

✓ Debrief. Call on a few students to share a summary of their conclusions. Address any misconceptions or clarify any confusing points. Open the floor for questions.

For larger group work projects, here are some strategies to help ensure productive group dynamics:

✓ Provide opportunities for students to develop rapport and group cohesion through icebreakers, team-building, and reflection exercises.

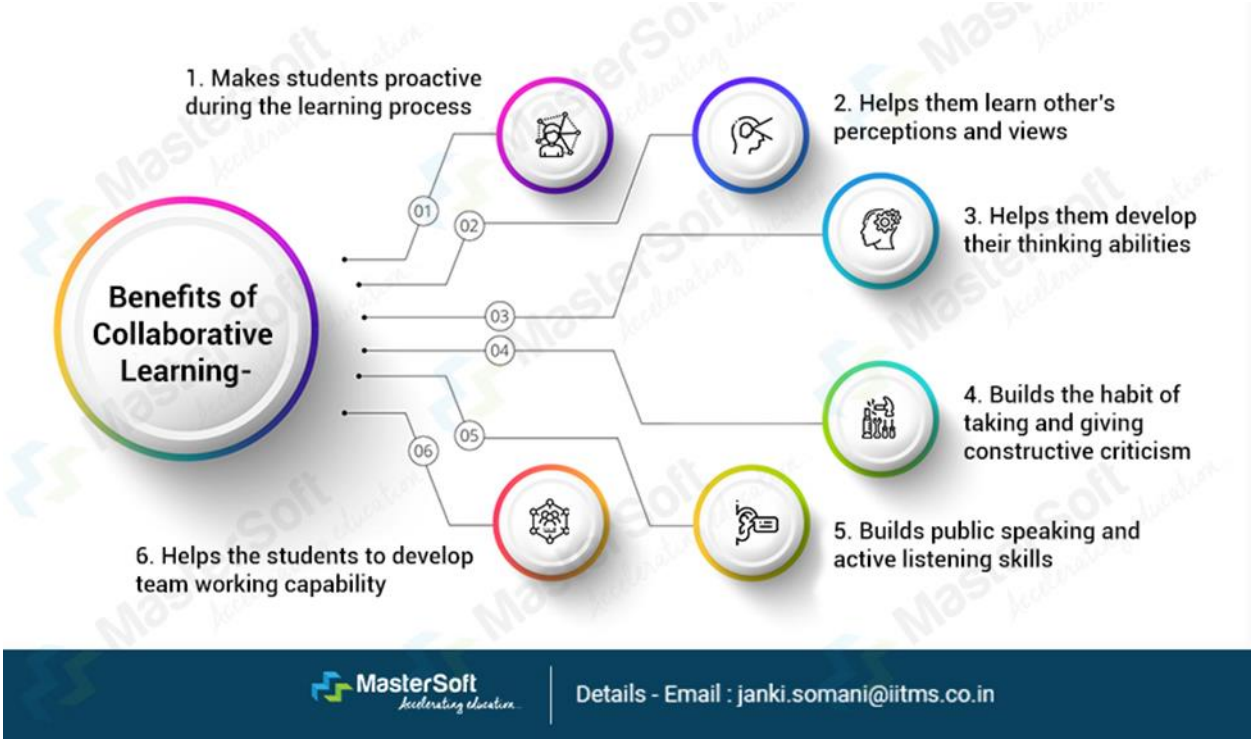
✓ Give students time to create a group work plan allowing them to plan for deadlines and divide up their responsibilities.

✓ Have students establish ground rules. Students can create a contract for each member to sign. This contract can include agreed-upon penalties for those who fail to fulfill obligations.

✓ Assign roles to members of each group and change the roles periodically. For example, one student can be the coordinator, another the note-taker, another the summarizer, and another the planner of next steps.

✓ Allow students to rate each other's quality and quantity of contributions. Use these evaluations when giving individual grades, but do not let it weigh heavily on a student's final grade. Communicate clearly how peer assessment will influence grades.

✓ Check in with groups intermittently but encourage students to handle their own issues before coming to you for assistance.



3. Examples of collaborative learning activities

There are many ways to foster collaborative learning within an organization:

1. *Evaluating training systems*

Within teams or departments, pair newer employees with more senior ones.

Have them work together to evaluate the training systems currently in place, assess flaws in the system, and develop recommendations on how to effectively update the training to better serve the organization and its employees.

2. *Solving problems across teams*

Bring together various teams and present them with a problem to solve.

This might be how to develop a new feature for a product, what changes should be actioned on an existing software, or instituting a new training program.

Outline what results you would like to see in broad terms, then let the teams work.

At the end, the teams will present what they have developed, justify their choices, and outline their plans to accomplish the task.

3. *Developing new products*

When it comes to developing new products, collaborative learning can be a massive asset.

Teams can work together to identify relevant niches, brainstorm solutions, and create product concepts.

After presenting their products, a question and answer session can help develop the idea further, as they defend their ideas, respond to criticism, and sharpen their pitch.

4. *Explaining concepts to other departments*

Have departmental teams create a presentation that teaches their work to the other departments.

They should present the work that they do, the problems that they solve, and present some ongoing concepts that they are working on.

Other departments will participate in a question and answer session, giving the benefit of their experience to help solve ongoing issues while also learning more about how the organization works as a whole.

5. *Build a collaborative learning community*

A collaborative learning community is an environment that fosters working together to solve problems, prioritizes open communication and gives individuals many opportunities to both learn from and teach others.

An organization that chooses to provide these opportunities on a regular basis will create a collaborative learning community, in which individuals will actively participate in collaborative learning.

Good examples of collaborative learning activities will have clear instructions, a set goal, mid-sized groups of three to five individuals and flexible rules, so that groups can experiment within themselves and work with open communication.

6. Working On Projects

Projects involve people working together in groups carrying out different activities, discussing ideas, forming opinions, justifying opinions, and other communication aspects. It also improves the listening abilities of the students as they understand other people's perspectives on the same topic and give them feedback.

7. Conducting Plays/Drama

Conducting plays, playing characters, understanding various parts, and roles, and understanding the depth of various responsibilities to make the play successful helps the students to work in teams, distribute responsibilities and take necessary decisions. It makes them responsible adults for the future.

8. Games And Competitions

Conducting games and competitions forming various groups or individuals increase team spirit and competitiveness among the students. Further, forming teams and playing or performing together makes them trust other students, build compatibility and ensure excellent group ethics in the teams.

9. Group Discussions

Group discussions on a topic help the students to improve their communication skills. It enables them to express their ideas and put those ideas in proper words and make them understandable to others. Further, it helps them become better listeners.

4. Collaborative vs. cooperative learning: What is the difference?

There is some confusion about what the difference is between these two types of learning.

In fact, cooperative learning is a type of collaborative learning, which is why at first glance, the two might seem similar.

The difference between cooperative learning and collaborative learning is that, in cooperative learning, participants are responsible for a specific section of their own learning and success, and also that of the group as a whole.

They must use their knowledge and resources to make sure that all team members understand the concepts that they are learning.

The roles and structure of cooperative learning are predefined, and are often likened to the cast and crew of a theatre production: the success of the show depends on all of the interconnected roles supporting each other, but there is a director overseeing the project closely.

To think about collaborative learning in terms of roles within an organisation, in software development, a group of junior developers has a task to learn a new framework, then develop part of a program while using it. Each developer has their own part of the code to develop, but their work will only be successful if everybody learns and performs their part properly. Even though each person has a separate role in the work, the entire group has a stake in the success of others.

In collaborative learning, individual participants must also take responsibility for their team learning and succeeding, but their roles, resources, and organisation is left up to them. There is no director to administer the rules of engagement, so the group itself must self-direct.

5. Strategies For Collaborative Learning

1. Clarifying The Group Responsibilities

Before starting the work assignment, it is better to define everyone’s goals in the group which will later help them to take accountability for the tasks.

2. Encourage Open Communications

Open and honest conversations and trust among the group members will help them understand the concepts better and learn thoroughly

3. Conduct A Pre-Test And Post-Test

The instructors can evaluate the students before and after the group learning sessions to understand the outcomes of collaborative learning.

4. Assess The Learning Process

It is well known that the students grow and learn during the process of collaborative learning through discussions and arguments. Hence, they can be evaluated to encourage high-quality discussions.

5. Use Strategies Like The Jigsaw Technique

It involves sharing of knowledge and information obtained in the sessions to other teams. This allows one to become thorough in their subject and help others.

6. Allow Group Activities To Reduce Anxiety

Allow some humor and entertainment activities in collaborative learning to reduce the tension and anxiety among the students. This will help in creating a friendly environment among the learners.

7. Make Use Of Real-World Problems

Instead of creating artificial scenarios and issues, the students can use real-life examples to find solutions. This will improve project-based learning among the students.

8. Focus On Enhancing Problem-Solving And Critical Thinking Skills

Give assignments to the students in such a way that they give provision for varied solutions and perceptions.

9. Form Diverse Groups

Groups with mixed people from different countries, genders, and races, give scope for new ideas, varied talents, and learning styles. Further, it helps the students to expand their learning horizons.

10. Make Use Of Technology For Better Learning Outcomes

Integration of education with technology increases opportunities for the students to indulge in various teaching methods and helps them work efficiently.

This is ***the most common type of collaborative learning*** in which the students work independently before and then they engage in discussions in such a way that it exchanges information and ideas among them.

Informal Collaborative Learning Groups

In this type, the class is divided into groups and they are assigned a project to handle. This leads to spending less time on classroom lectures and improves the material retained by students.

Formal Collaborative Learning Groups

In this way of collaborative learning, the group members are required to stay together for weeks or months working on projects. Here, the students study together and apply various approaches to working together.

Problem-Based Learning

In this approach, a problem is given for learners in groups, to assess and solve. Here, the students are required to understand a problem before proposing a solution.

Collaborative Base Groups

Collaborative base organizations consist of groups that are formed to last for at least a year. It includes teams with different perspectives and mindsets so that they can contribute their ideas towards a project.

Conclusion

Collaborative learning is gaining importance in various institutions as it helps to focus on various learning aspects of the students. It helps them to improve teamwork, cognitive skills, public speaking skills, and critical thinking. Further, the students are responsible for the ideas and concepts that they build along with better learning outcomes.

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Lecture 4
METACOGNITION AND SELF-REGULATION
PLAN

1. Metacognition and self-regulated learning.
2. Development of metacognition.
3. What types of metacognitive/self-regulated learning strategies are effective at improving outcomes?
4. Teaching SRL and metacognition

1. Metacognition and self-regulated learning.

Metacognition and self-regulated learning (SLR) have been advocated by many, and have significant support being seen as a potentially effective and low cost way of impacting learning. Fundamentally, the underlying supposition is that metacognition and SRL are important to learning, and thus raise attainment, and various studies have established that SRL, and in particular metacognition, has a significant impact on students' academic performance, on top of ability or prior achievement found that metacognitive skills and intelligence are moderately correlated.

Essentially, self-regulation is about the extent to which learners are aware of their strengths and weaknesses, the strategies they use to learn, can motivate themselves to engage in learning, and can develop strategies and tactics to enhance learning.

Metacognition, in turn, is specifically about the ways learners can monitor and purposefully direct their learning, for example by deciding that a particular strategy for memorisation is likely to be successful, monitor whether it has indeed been successful, and then deliberately change (or not change) their memorisation method based on that evidence.

Some studies consider self-regulation to be a part of metacognition, while others see metacognition as a part of self-regulation (Veenman et al, 2006). In recent years, however, the latter view has largely prevailed, so for clarity it is this definition that we will follow in this report.

The concept of self-regulated learning is based on the premise that students should take responsibility for their own learning and should play an active role in the learning process (Zimmerman, 2001). It is a cyclical process wherein learners regulate their learning in three phases: the forethought phase (i.e. processes that precede the learning act), the performance phase (i.e. processes during the learning act) and the self-reflection phase (i.e. processes after the learning act). These phases are cyclical as self-regulated learners use feedback from previous learning acts and attempt to make adjustments to future acts (Zimmerman, 2000).

As is evident from Dinsmore et al's (2008) review, self-regulation has been conceptualized as comprising three areas of psychological functioning: cognition, metacognition, and motivation. Cognition refers to the cognitive information-processing strategies that are applied to task performance, for example attention,

rehearsal and elaboration. Metacognition refers to strategies to control and regulate cognition. Motivation and affect include all motivational beliefs about oneself related to a task, for example self-efficacy beliefs, interest, or emotional reactions to oneself and the task (Boekaerts, 1999).

What is metacognition? Like self-regulation, metacognition is generally conceptualized as consisting of different components. A common distinction made between the components is that between *metacognitive knowledge* and *metacognitive skills* (Veenman et al, 2006). Metacognitive *knowledge* is what a learner knows about the way they learn or how they can engage most efficiently with a particular task, while *skills* refer to the ability regulate these activities. Both are of key importance and interact with one another. Effective use of metacognitive skills entails the application of metacognitive knowledge which includes pupils' ability to assess or evaluate their progress on cognitive tasks as well as their ability to use strategies to regulate progress in a systematic manner (Karably & Zabrucky, 2009).

Schraw et al. (2006) call the two main components the *knowledge* of cognition and the *regulation* of cognition. Knowledge of cognition includes three subcomponents:

(1) Declarative knowledge: knowledge about oneself as a learner and about the factors that influences one's performance

(2) Procedural knowledge: knowledge about strategies and procedures such as reviewing, interleaving, organization strategies, elaboration strategies such as the creation of analogies, and selecting main ideas (Dent & Koenka, 2015)

(3) Conditional knowledge: knowledge of why and when to use a particular strategy.

Regulation of cognition includes at least three main components: *planning, monitoring and evaluation*:

(1) Planning relates to goal setting, activating relevant prior knowledge, selecting appropriate strategies, and the allocation of resources.

(2) Monitoring includes the self-testing activities that are necessary to control learning.

(3) Evaluation refers to appraising the outcomes and the (regulatory) processes of one's learning.

Essentially, then, metacognition can be seen as the instructions we give ourselves on how to do a particular learning activity or task, while cognition is the way we actually do them. Metacognition then returns as the monitoring of the success of these activities.

Some theorists have proposed that learners bring metacognitive knowledge and metacognitive skills together in metacognitive theories. These integrate knowledge about cognition and regulation of cognition. Shraw and Moshman (1995) suggest that there are three types of metacognitive theories. *Tacit* theories are those acquired or constructed without any explicit awareness that one possesses a theory. *Informal* theories are to some degree explicit but still fragmentary, with emerging recognition and control of learning processes. *Formal* theories are highly systematized accounts involving explicit theoretical structures.

According to Shraw and Moshman (1995), greater expertise is associated with greater formalisation of theory.

A key question in the field is the relationship between metacognition and cognition. While metacognition is the knowledge of cognition and strategies to regulate it, it would be mistaken to see metacognition as somehow 'higher order' hierarchically than cognition. Indeed, as Pressley (2006) has pointed out, it is very hard to have knowledge about how competent one is in a domain or how best one can learn in that domain without solid domain-specific knowledge. We need to know, for example, what key concepts are in a subject area, and how they relate to one another, not least in terms of difficulty. Likewise, it isn't possible to know what (metacognitive) skills to use to solve a problem without having a (cognitive) method to do so, for example by knowing a particular sequence in which to tackle the problem. The idea that metacognition is a higher order skill is also bought into question by the finding that some elements classified as metacognition, such differentiating between what one knows and what one doesn't know, are present in animals as well as humans. Like humans, animals opt out of difficult trials; avoid tests they are unlikely to answer correctly and take greater risks when their memories are accurate than they do when their memories are inaccurate (Kornell, 2009).

An important point is to remember that metacognitive knowledge can be wrong (we can underestimate the time we need to memorize something, for example), and metacognitive skills we use can be suboptimal in terms of effectiveness and efficiency. As such SRL can be either adaptive or maladaptive (Boekaerts & Cascallar, 2006). This is where schooling comes in, as we can improve both knowledge and skills through teaching and practise (Veenman et al, 2006). Recently, neuroscientists have attempted to look at the neural basis of metacognition, with findings suggesting that metacognitive activity is linked to activity in the anterior pre-frontal cortex. Experimental studies suggest that activity in this area of the brain is dependent on both sensory input and pre-existing knowledge, strategies and rules, and is closely connected to the other parts of the brain (Clark & Dumas, 2016).

Metamemory and metacognition

An important concept that is closely related to metacognition is *metamemory*. Metamemory has two main components. The first is *stable knowledge* of the variables that affect one's memory, such as an understanding that the size and/or quality of a person's memory is affected by individual 8 ability, the relative difficulty of a task, and the relative effectiveness of different strategies. The second component of metamemory involves *monitoring*. Memory monitoring involves an individual's ability to judge how well he/she is performing on a memory task and the ability to use strategies to improve performance (Karably & Zabrucky, 2009; Flavell, Miller, & Miller, 2002). A key contribution to theory and research on metacognition and memory was made by Nelson & Narends (1996) who distinguish between an object-level (which can be equated to cognition) and a metalevel, which governs the object level. The meta-level controls and monitors the object level, and has a dynamic model of how the object level

works. We can easily translate these levels into the cognition and metacognition levels as follows:

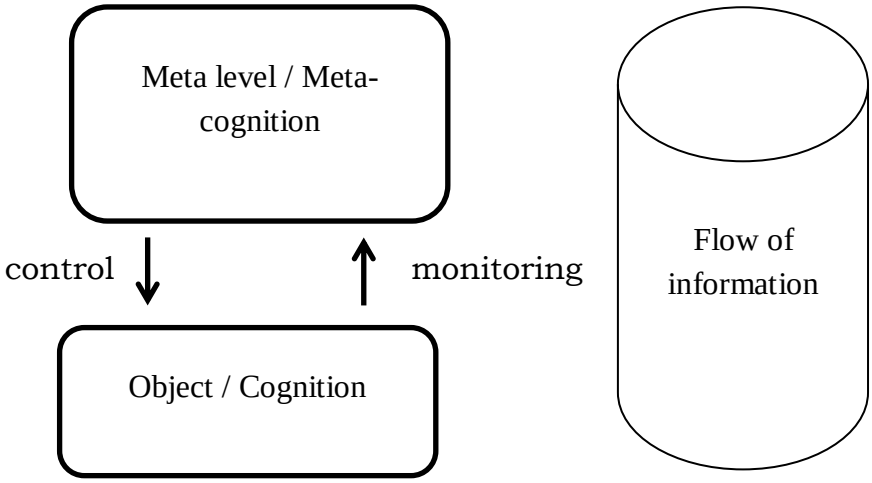

Figure 1. Meta level and object level (adapted from Nelson and Narends)

Nelson and Narends (1996) relate these processes closely to the working of memory, and the acquisition and memorization of knowledge, in which they see the meta and object level constantly interacting. They illustrate this through the example of a learner memorizing or acquiring a piece of knowledge (for example for a test). The meta-level is involved in the control and monitoring of the process throughout. Thus, before learning, the learner will make a judgement of the 'Ease of Learning' (EOL) of a particular piece of content. This will then lead her/him to select a particular strategy for processing the information. The learner will also make a '*Judgement of Knowing*', by deciding how well s/he knows the content already, and allocating study time accordingly. A *Feeling-of-Knowing* judgement will then lead to a decision as to when to stop study. Once they have to retrieve the information on a test, their feeling of knowing judgement will lead them to select a search strategy to retrieve the information from long-term memory, or terminate the search. This is in part dependent on their confidence in the retrieved answer. All these elements are of course prone to error, so a task for schooling is to increase the accuracy of EOL, JOL and FOL, and get students to align these with appropriate strategies and study times.

2. Development of metacognition

Early development and progression

Veenman et al. (2006, p. 8) state that until recently there was a general consensus that metacognition is a relatively late-developing capability, emerging at the age of 8-10 years, and expanding quite rapidly during the years thereafter up to around the age of 15. Moreover, certain metacognitive skills, like monitoring and evaluation, appear to mature later than others such as planning. Whitebread et al (2009), however, consider this an increasingly untenable position. They argue that even very young children (below 6 years of age) may reveal elementary executive functions that are closely related to metacognition. Moreover, younger

children can predict and Strength of evidence. In terms of the evidence a lot of the material reviewed here is theoretical, so doesn't fit the criteria as clearly as empirical studies. We have, for empirical data, not had to go below level 4, which suggests that the evidence is extensive. There also appears to be a growing consensus on the key characteristics of SRL and metacognition. 14 evaluate their own performance more accurately than older children when the tasks are ecologically valid and meaningful to them. Younger children also can engage in strategic behaviours in the context of meaningful and age-related tasks. According to Whitebread et al (2009) young children's metacognitive skills are often obscured by their lack of their verbal abilities to respond to hypothetical questions or to report on their own metacognitive activities, though verbalisation itself has also been linked to the development of metacognition (Clark & Dumas, 2016).

Recent studies, though admittedly limited in number and suffering from some of the methodological issues identified by Whitebread in terms of measuring metacognition at young ages, suggest that the view of early onset of metacognition is supported. In particular, procedural metacognition develops early, with children as young as 3 being able to opt out of tasks based on their understanding of ease of task and level of uncertainty. Children can thus both judge their own level of certainty about a task and use this to decide on whether to engage in it. They also show greater accuracy on tasks they accept to do than on tasks they don't (Bernard et al, 2015). It is also clear that children at an early age start to develop what is known as *Theory of Mind* (ToM), which is the ability to impute mental states such as beliefs, desires, and intentions to oneself and others in order to explain and predict behaviour. ToM is a key precursor of metacognition, as illustrated by the emergence of the ability to realise that people can hold mistaken beliefs which emerges at around 3-4 years of age. The extent of development of ToM at age 3 has been found to be a predictor of reading comprehension at age 6 (alongside decoding skills and linguistic competence) in at least one study (Atkinson et al, 2017). Not all studies show similar effects, and there is clear evidence that the level of security and selfknowledge remains rather inaccurate until about 8 years of age, with children being overoptimistic about their levels of knowledge (Clark & Dumas, 2016), but the overall trend suggests forms of metacognition emerge early on in the lifespan. According to Brinck and Liljenfors (2013) the origins of metacognition lie in the infant's interaction with others, which allow the infant to first experience and then respond to the other's reactions. In this way they start to develop early onset of monitoring and control skills during the crucial 2-4 months developmental stage. An important part of early metacognitive development is therefore co-regulation, where the child develops selfregulation by sharing practices and thinking with a more knowledgeable other (e.g. a parent) (Hadwin & Oshigo, 2011).

Though metacognition emerges among children quite early on, different aspects develop at different rates. First to develop is Theory-of-Mind, which emerges between 3 and 5 years of age (Lockl & Schneider, 2006). By about age 3 (children of course differ in their developmental trajectory), children have some

awareness of themselves as knowers, and can distinguish between thinking about an object from actually perceiving it, and they start to use words like 'think'. By around age 4 they are able to understand that others also have thoughts and beliefs, and that these may differ from their own (Kuhn, 2009). From around 5 to 8 metamemory and metacognitive knowledge first start to emerge (Alexander et al, 1995), and metacognitive skills start to develop between 8 and 10 (Veenman et al, 2004; 2006). However, children of this age still show little awareness of mistakes and adaptability without adult assistance (Pappas et al, 2003). Some declarative knowledge such as factual knowledge of different strategies, already exists in preschool. It develops rapidly once a child enters formal schooling, and continues to develop reasonably linearly at least into early adulthood, with even adolescents and young adults lacking knowledge about some powerful and important memory strategies (Schneider, 2008)). The same is true of metamemory, the start of which emerges early on. Young children (3 years and below) have some metamemory skills, but they have difficulty 15 understanding the many influences on memory and find it hard to monitor their own memory. They also find it hard to choose which strategy to use. When confronted with a sorting task, for example, they find it hard to decide whether to use a shape or colour rule, notwithstanding that they have mastered both (Zelazo & Fruye, 1998). Metamemory develops over time, but instruction can enhance and speed up the process (Karably & Zabrucky, 2009). Planning appears to emerge sooner than monitoring and evaluation, and monitoring earlier than control (Pappas et al, 2003; Bryce & Whitebread, 2012). In one study of 133 children, for example, it was found that by age 9 children had developed good monitoring skills, and could reliably distinguish between correct and incorrect answers in a test-taking task. However, in terms of control 11- and 12-year-olds were better able to improve their performance by selectively withdrawing answers that would have been incorrect than the 9- to 10-year-olds (Roebers et al, 2009).

Veenman et al (2006) conclude that it is likely that metacognitive knowledge and skills already develop at a very basic level during pre-school and early-school years, but become more sophisticated and academically oriented whenever formal education requires the explicit utilization of a metacognitive repertoire. Furthermore, metacognitive skills seem initially to develop in separate domains and later on become generalized across domains (Veenman & Spaans, 2005).

Quantitative or qualitative development?

A number of questions remain somewhat unresolved in the field of development of SRL and metacognition. One of these is the extent to which development occurs linearly. Veenman et al (2006) argue that metacognition develops along a monotonic incremental line through the school years, parallel to the development of intellectual abilities. Others. However, disagree, claiming these developments do not follow a clear linear progression. Results of a number of studies suggest that most forms of metacognition which appear present in at least an embryonic form in early years simply become more sophisticated over time (Pappas et.al, 2003; Whitebread, 1999). According to Kuhn (2000), the

development of metacognition does not go in stages, rather there is a shift from using a lesser to a greater number of metacognitive processes and strategies over time (Kuhn, 2000).

A second question that has been seen as hard to answer in terms of the development of metacognitive skills is whether development is primarily quantitative (i.e. children do more of the same), or qualitative (i.e. do children develop different and more sophisticated skills). In children from ages 5 to 7, Bryce and Whitebread (2012) developed an observational method to study 66 English children during a problem-solving task involving construction of a rail track. Results suggested both higher rates of monitoring and control among the older children as qualitative changes, in that types of monitoring used differed between the older and younger groups, with older children 50% more likely to check their plans, and younger children more likely to check their construction. There were also differences in planning behaviours, in that young children's planning was explicitly stated, whereas older children's planning was reflected in more internalized preparatory behaviours.

The role of instruction

Children will develop SRL and metacognition through maturation, interaction and imitation of adults and older learners whether or not they receive targeted instruction in metacognition. Most students develop metacognition spontaneously, picking it up from their parents, peers, and teachers, but 16 there is considerable variation between students in their level of metacognition, and a relatively large group of students does not acquire a sufficient level of metacognition, due to a lack of opportunities, role models, or effort put into acquiring it.

As with other aspects of knowledge and skills, this means that they will develop differentially, with the extent to which skills are acquired in part dependent on the opportunities they receive to develop these skills in the home, which is likely to be correlated with social background (Veenman et al, 2006). There is corroborating evidence that the acquirement and use of metacognition is dependent on gender and socioeconomic background, to the advantage of females and students from culturally-rich environments (Leutwyler, 2009). Not all children will automatically develop metacognition, and it is for these children, and especially those from less stimulating backgrounds, that instruction is most important. Instruction can also help develop more effective metacognition faster than relying on spontaneous development. In part, developing metacognitive skills is about increasing processing fluency, the experienced ease with which a mental operation is performed, which will increase as domain knowledge and metacognitive skills increase, and lead to greater speed in processing and greater feeling of ease as well as more accurate judgements of knowing (Reber & Greifeneder, 2017). As metacognitive skills and self-regulation develop and strengthen over time, authors have suggested that the relationship between SRL and achievement is likely to be stronger in the later (i.e. secondary) years of schooling than in the primary years, though in their meta-analysis Dent and

Koenka, (2015) actually found stronger correlations in primary schools than in middle and high schools.

3. What types of metacognitive / self-regulated learning strategies are effective at improving outcomes?

There is extensive evidence that metacognition and SRL can be improved through educational interventions. Dignath and Büttner, for example, in their meta-analysis, found that interventions to improve SRL showed positive effect sizes in relation to pupils' strategy use following the intervention, with average effect sizes of .72 in primary and .88 in secondary. That SRL can be improved through education is not just true for metacognition, but has been found to be the case for other parts of SRL as well. For example, emotional self-regulation has been found to be improved through classroom level interventions around social-emotional learning (e.g. Smith et al, 2016; Muijs et al, 2016).

The key question then are what exact skills and knowledge learners need, and what forms of instruction are best suited to ensuring that learners acquire them. The former question will be discussed in this section, the latter in the following section of this report.

There are three key types of strategies included in self-regulated learning:

- Cognitive strategies, which are to do with the activities a student will undertake while learning, such as rehearsal, reviewing, retrieval practise and spacing;
- Metacognitive strategies, to do with the monitoring and regulation of learning, such as planning, deciding which strategies to use, monitoring how successfully a learning activity is going, and adapting strategies based on that assessment; and
- Social-emotional strategies, to do with regulating motivation and relations with others, such as delay of gratification, developing self-efficacy and help-seeking (Zimmerman, 1990; Veenman et al, 2006; Ardasheva et al, 2017).

These three elements are closely interrelated, and effective development of SRL should ideally address all three. Cognitive strategies are needed so learners have an array of means to address particular learning tasks such as memorization, but in order to effectively choose a strategy they will need to develop metacognitive strategies. They will also require sufficient motivation and perseverance to tackle the problem and apply the strategies in the first place. This interaction can be exemplified by a five-year study in Philadelphia primary schools, in which 10 treatment groups (8 controls) were given an intervention on conflict resolution and related social skill development, which was found to lead to improved metacognitive skills (Heydenberk & Heydenberk, 2005). Similarly, in a study in the Netherlands in which almost 500 grade 7 students were measured at three time points across a school year, growth curve analyses showed that changes in positive emotions were systematically associated with improvements in self-regulated learning and achievement (Ahmed et al, 2013). A two-year study

of 300 9th graders meanwhile found that selfefficacy predicted use of learning strategies (though not the other way around) (Berger & Karabenick, 2011).

In terms of *cognitive strategies*, the three main types are:

- Rehearsal strategies, aimed repeating material for memorisation, e.g. spaced practice;
- Elaboration strategies, which focus on building connections in long-term memory by connecting new to existing knowledge, for example through paraphrasing; and
- Organisation strategies to help select information, for example by creating conceptual maps (Pintrich, 1991).

Metacognitive strategies are most commonly distinguished as:

- Planning strategies, such as making a plan or deciding how much time to spend on an activity;
- Monitoring strategies, used to check understanding and learning during a task, for example through self-testing and questioning;
- Evaluation strategies, used to analyse performance (Shraw & Dennison, 1994).

Metacognitive knowledge has in turn been described as constituting knowledge of:

- making generalisations and drawing rules regarding a thinking strategy;
- naming the thinking strategy;
- explaining when, why, and how such a thinking strategy should be used and when it should not be used;
- what the disadvantages are of not using appropriate strategies; and
- what task characteristics call for the use of the strategy (Ben-David & Zohar, 2009).

In Donker et al's (2014) meta-analysis, cognitive and metacognitive strategies showed significant positive effect sizes. These were similar in strength (moderate) with the exception of rehearsal strategies, which showed a stronger effect size. When combined in regression analyses, planning showed a stronger effect size than the other two dimensions of metacognitive strategies. This suggests that interventions should not just focus on one element, with Perry et al's (2012) metaanalysis of SRL interventions, for example, showing stronger effect sizes where interventions include both monitoring and strategy instruction than when they only include monitoring, and Glaser & Burnstein's (2007) study in Germany showing that 4th graders taught both self-regulation and compositional strategies outperformed groups taught only compositional strategies, while Mevarech et al (2017) showed that interventions including the development of cognition, motivation and metacognition had more positive effects than interventions focusing solely on motivation or on a combination of cognition and metacognition in primary mathematics. As these strategies only partially develop spontaneously, and only do so in some students and not others, instruction in strategy use is essential.

4. Teaching SRL and metacognition

The evidence suggests that effective teaching of SRL and metacognition has two main elements:

- The direct approach, through explicit instruction and implicit modelling by the teacher
- The indirect approach, through creating a conducive learning environment, with guided practise, including dialogue and (scaffolded) inquiry

Direct approaches

Direct approaches are deliberate actions to teach pupils SRL and metacognitive strategies. A key distinction made in the literature is that between implicit and explicit instruction of self-regulatory and metacognitive strategies, where implicit strategies refer to, for example, the teacher modelling a behaviour such as verbalising her thought processes without telling pupils why she is doing so, while in explicit teaching the teacher will tell the students that she is modelling a learning strategy, what it is and why it matters (Kister et al, 2010).

Explicit instruction

The key strategies mentioned in the previous section are not spontaneously developed, but require explicit instruction. Explicit instruction is not to be confused with a lecturing approach, but combines explicit teacher input with interactive questioning and feedback and a mastery approach to acquiring content (Brophy & Good, 1986).

Strategy instruction is a key part of the development of SRL and metacognition, and has shown significant effect sizes in meta-analytic studies, with de Boer et al (2014) reporting moderate to large effects depending on subjects (largest on writing, moderate on maths, science and reading)

Strategy instruction has most typically been done using a four-step procedure consisting of awareness raising (why do these strategies matter), modelling of the appropriate strategy, practise of the strategy and evaluation and goal setting. Research on the effectiveness of this approach does show some differential findings, with not all studies showing successful implementation.

However, in a meta-analysis of the impact of strategy instruction on language learning Ardasheva et al (2017) did report strong positive effect sizes on both the use of self-regulation strategies (.87) and language learning outcomes (.78), with the effect being larger for younger than for older learners. Cognitive and metacognitive strategies require explicit instruction with through explanation, modelling and guided practise (Allen & Hancock, 2008). While much of the research focusses on cognitive strategies, knowledge, both of cognition and metacognitive strategies, is equally important. Meta-strategic Knowledge (MSK) is a sub-component of metacognition that is defined as general, explicit knowledge about thinking strategies. One study of 8th graders showed strong effects on students' strategic and meta-strategic thinking following explicit instruction on MSK, especially for low achieving students. (Zohar & David, 2008).

In a study comparing the use of metacognitive training to worked-out examples in mathematics among 8th graders in Israel, pupils who had received

metacognitive training did significantly better, both on a post-test and a delayed post-test the following school year (Mevarech & Kramarsky, 2003). The issue of overconfidence of the accuracy of responses observed in many learners (overestimated judgements of learning) has also been found to be amenable to the inclusion of explicit standards. In one study researchers providing various standards to middle school students as they evaluated their recall responses by scoring the accuracy of their responses, for example by adding a correct definition when they scored their response, and this was found to significantly increase the accuracy of their corrections, though they were still on average overconfident of their accuracy (Lipko et al, 2009).

As well as explicit instruction, teacher modelling of metacognitive and cognitive strategies has been found to have positive effects (Allen & Hancock, 2008). This can, for example, take the form of the teacher verbalizing their metacognitive thinking as they demonstrate a maths/writing/reading task. While demonstrating the solving of a problem, a teacher could talk through how plan, monitor and evaluate their thinking by reflecting on a series of question such as what is this problem asking, what approaches to solving it did I try and were they successful, what approach should I take to solving this problem, does my answer make sense when I reread the problem and do I need to try solving the problem with a different approach?

Implicit strategies

In addition to explicit instruction, implicit strategies such as modelling have been used to promote SRL. Using analysis from a video observation study of 20 German secondary maths school teachers and their pupils (n=538) Kister et al (2010) found that explicit but not implicit strategy instruction through modelling was associated with learning gains over time. Such explicit strategy instruction was, however, relatively infrequent in this sample. A caveat with these findings is the small sample size of teachers. Worked examples can be particularly useful in developing cognitive and metacognitive skills. Teachers can go through a problem step-by-step, demonstrating and verbalising their thought processes, and then gradually withdraw scaffolding so pupils develop more independence.

A number of interventions that have used explicit instruction have shown positive effects.

One project that used a very systematic approach was the ReflectED project, that was found to have moderate positive albeit non-significant effect size in maths, but a weak non-significant negative effect in reading among primary school pupils. In this programme pupils receive a weekly ReflectED lesson from their teacher who follows a series of lesson plans. Pupils are expected to reflect individually on their learning in other lessons and record these reflections electronically once a week. The lesson plans include tasks for the week, to support pupils to practice their metacognitive skills throughout their normal lessons. Children code their reflections to record their thoughts on a lesson and their performance. This enables them, and the teacher, to read previous reflections to inform future teaching and learning (Motteram et al, 2016).

A successful intervention with a large positive effect size in writing in late primary funded by EEF was the Improving Writing Quality project, which was trialled among year 6/7 pupils. This was based on the principle of self-regulated strategy development (SSRD) in which students are encouraged to plan, draft, edit and revise their writing by providing a clear structure to assist writers which can be used for most genres of writing. There are six basic stages of instruction and four strategies for self-regulation, which include self-monitoring and goal setting, thus providing pupils with ownership for improving their own writing (Torgerson et al, 2014). The approach makes use of key cognitive and metacognitive skills such as graphic organisers, mnemonics, self-talk, self-scoring and graphing and pre-and post-topic assessment.

An example of an approach that integrates explicit instruction in strategies with individual practice is the Self-Regulated Strategy Development (SRSD) approach. This approach, often used in reading instruction, has a number of steps:

• Develop preskills. Students' prior knowledge about the task and strategy is assessed and remediation is provided when needed.

• Discuss the strategy. The strategy to be learned is described, a purpose for using the strategy is established, and the benefits of using the strategy are presented.

• Model the strategy. The teacher cognitively models (models while thinking out loud) how to use and apply the strategy for the task.

• Memorize the strategy. Students memorize the strategy steps until they are fluent in understanding any mnemonic and meanings.

• Guided practice. Instruction is scaffolded from student–teacher collaborative practice to independence.

• Independent practice. The teacher provides independent practice across task and settings to foster generalization and maintenance.

This approach has shown positive results in a number of evaluations, albeit of variable quality and rigour (Mason, 2013; Festas et al, 2015; Mason et al, 2013).

Accuracy of judgements of learning, and of the effectiveness of particular strategies, may also require further instruction. Thus, students are often unaware of the benefits of spaced practise, and their judgements of learning can suggest that they feel massed practise is as, or more, beneficial than spaced practise, notwithstanding ample evidence to the contrary. Instruction can help alleviate this, one experimental study for example finding that that Direct Instruction on the benefits of spaced practise decreased underestimation (though it did not eliminate it), while this was not the case for simply providing feedback (Logan et al, 2012).

While there is, therefore, substantive evidence on the effectiveness of explicit instruction and modelling of cognitive and metacognitive strategies, this is not the only effective strategy, and there may be issues in transfer if only this approach is used. In a study in Dutch primary schools De Jager et al (2005) compared Direct Instruction of metacognitive skills with a Cognitive

Apprenticeship approach which employed coaching, modelling, scaffolding, articulation and reflection, and a nonintervention control group in which metacognition was not explicitly addressed. The results showed that both the DI and CA approaches improved pupils' metacognition compared to the control group, but that the two approached did not differ significantly in outcomes.

Practise, dialogue and inquiry

As well as instruction, it is of course essential that SRL and metacognition are applied and practised. Here, there are a number of key differences to instruction in other areas, related to the reflective nature of metacognition, in particular, which necessitate greater use of dialogue and inquiry.

Specifically with regards to metacognitive strategies, there is a need to ensure that guided practise happens so that pupils actively employ metacognitive reflection on completed tasks. Typically, the more successful approaches use structured activities or templates that allow pupils to do so. One example comes from a reading comprehension intervention among middle school students which required pupils to reflect on the day's reading activity by focussing on one trained cognitive strategy, such as summarising or making connections, by making a judgement of learning on the use of the strategy, answering a set of comprehension questions focused on the cognitive strategies and memory processes (ST recollection, LT retrieval fluency, and processing speed), rechecking the text read to test accuracy and update their judgement of learning, and then receive teacher feedback (Allen & Hancock, 2008). The intervention, though limited in scope to 16 classes in one school, was successful with the treatment group outperforming both an alternative treatment group and a nochange control group.

According to Adey et al (2002) in their development of CASE, metacognitive reflection needs to follow the task, and not occur concurrently, as task completion needs to fully engage cognition. This receives support from an experimental study in Israel, in which providing metacognitive instruction after reading a scientific text was more effective than doing so either before or during reading the text among 4th graders (Michalsky et al, 2009).

As an important element of metacognition is to develop more conscious awareness of thinking around learning, dialogue and discussion can have an important role to play. This view is also based on the importance of the social element of metacognition and interaction to the development of learning.

One example of an intervention that has developed this is dialogic teaching. Dialogic teaching emphasises dialogue through which pupils learn to reason, discuss, argue and explain, and was recently enacted in an intervention in year 5 of primary school in 38 schools in England and evaluated (a control group of 38 schools was used as comparison sample). The key element of the dialogic approach is to encourage both greater quantity and quality of teacher talk, by going beyond the closed teacher question – pupil response - teacher feedback sequence. In particular, the principle behind dialogic teaching is cumulation, wherein teachers listen to and follow-up on what pupils have said, and use questions to elicit further thought, thus creating chains of ideas into coherent

and cumulative lines of thinking (Alexander, 2015). Teachers need to be trained to develop such lines of questioning, as dialogue needs to be purposeful and not just conversation. In a recent trial funded by EEF the approach showed a significant moderate positive effect in English and science (effect sizes around .12-.15) and a weak and non-significant positive effect in maths. The fact that the intervention was only assessed over two terms may have limited effects found.

Another set of interventions that rely quite heavily on dialogue are the Let's Think secondary Science which is based on the CASE approach, and Thinking, Doing, Talking Science (TDTS), which is a primary approach tested in year 5. In the Let's Think… intervention, teachers start by providing pupils with a hook and materials, then pupils work together on solving increasingly complex problems with the teacher acting as facilitator. Towards the end of the session the teacher encourages them to reflect on their learning and to broaden their focus from the lesson specifics to other contexts (Hanley et al, 2016). The primary intervention aimed to develop teachers' questioning skills, but also to include discussion slots in their lessons aimed at discussing big questions. The approach also emphasised practical work and experiments. In the EEF evaluations, the secondary intervention was not found to have an impact in and showed poor levels of implementation in many schools, but the primary intervention showed modest positive effects, especially for pupils eligible for Free School meals (Hanley et al, 2015; Hanley et el, 2016). An approach that aimed both to develop teachers use of metacognitive strategies through a one-day workshop, and to promote metacognitive thinking in child-parent interaction through a series of animation workshops in which both were involved, the 'Mind the Gap' project, showed no significant impact on pupil outcomes, though a large reason for this may be the fact that many parents did not fully participate or dropped out of the workshop programme (Dorsett et al, 2014). Reciprocal teaching of reading strategies was found to be effective in one study of German primary school pupils, though effectiveness increased if it was combined with explicit instruction in self-regulated learning, especially with regards to longer term retention (Schunemann et al, 2013).

One aspect of dialogue that is highlighted in some successful programmes, such as Cognitive Acceleration in Science Education (CASE) is cognitive conflict, which happens when a pupil comes across a problem that cannot be solved with existing cognitive structures or processes (Adey et al, 2002). This can be developed through the use of novel and difficult problems and questions, but does require significant scaffolding from teachers. This is related to the idea of working in a pupil's 'Zone of Proximal Development', defined as the difference between what a child can do unaided and what s/he can do with the help of an adult or more informed peer.

Inquiry can also play an important role in developing self-regulation and metacognition, provided tasks are sufficiently challenging, build on firm pupil subject knowledge, are realistic, and are suitably guided and supported by the teacher. In science, for example, once they have sufficient knowledge, students can be encouraged to develop hypotheses and test these within suitable

theoretical frameworks using appropriately scientific methods. This is to be distinguished from simple inquiry, where students merely observe and describe, which is often the case if their subject knowledge is not yet sufficient in the area studied (Schaw et al, 2006). Even as late as early adolescence students have been found to lack cognitive and metacognitive skills to effectively engage in inquiry learning, and in these cases it is necessary to first develop these skills, or to provide suitable guidance as demonstrated in Lazonder & Harmsen's (2016) meta-analysis on inquiry learning. In one study intended to address deficits in causal understanding detrimental to inquiry learning, students in 6th grade who received explicit instruction in making predictions based on multiple factors were able to more effectively predict and develop understanding of the relationship between variables in a system, and also did better on a transfer task than the control group (Keselman, 2003).

Scaffolding, through teacher prompting and visuals for example, are important in the individual and group practice and inquiry phases (Pratt & Urbanowski, 2016). There is some evidence that, at least in terms of metacognition, such scaffolding should not be too specific as this may inhibit reflection. In a study of middle school students in the US, Davis (2003) found that students provided with generic prompts asking them to reflect and think developed more understanding and were more productive reflectively than those provided with hints indicating potentially productive directions for their reflection. This may in part reflect the somewhat older age group of the pupils in this study, who may therefore have been able to build on substantial knowledge and developed self-regulation skills. Using so-called 'metacognitive prompts', to encourage students to engage in monitoring and reflection on the task performance, can be a useful strategy to support students during task completion (Peters & Kitsantas, 2010).

An interesting, albeit small scale experimental study among student teachers and 8th graders compared use of an open problem as proposed by inventing and productive failure approaches to use of a worked example problem. Results showed that across the two groups transfer was better supported by a worked solution, though the open problem increased interest in the trainee teacher group (Glogger-Frey et al, 2015).

An important issue is to ensure that metacognitive and SRL instruction should take a suitable stepwise approach and not overburden the learner. An interesting example of the potential issues here comes from a study of an intervention in science education among 128 German 8th graders. In this intervention the aim was to develop both students' data interpretation and self-regulation skills. Results, however, showed that students who received either only instructional support for data interpretation or only for self-regulation achieved better learning outcomes while a combination of instructional support for data interpretation and self-regulation seemed detrimental for knowledge acquisition. The students who received the combined intervention also showed the highest level of cognitive load, suggesting a potential reason for the ineffectiveness of the combined intervention compared to the individual ones (Eckhardt et al, 2013).

There is therefore clear evidence that while creating a learning environment conducive to dialogue and transfer through inquiry can help develop self-regulated learning and discussion, this in itself will not be effective, in that unguided forms of instruction have been found to lead to poorer learning outcomes than guided instruction (Harris et al, 2008; Kirschner et al, 2006).

Summary

The evidence suggests that a mix of approaches is necessary to effectively develop SRL and metacognitive knowledge and skills. Explicit teaching of strategies and teacher modelling, not least through verbalising while problem solving are an essential element of effective teaching in this area. However, in order to develop metacognitive reflection, it is also necessary to develop practise through dialogue and more open-ended, albeit guided, inquiry work in which pupils are given more autonomy over tasks within a framework of scaffolds, prompts and teacher guidance. The extent to which such inquiry activities require teacher guidance will itself depend both of the prior subject knowledge of the pupils and their self-regulatory and metacognitive skills.

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Lecture 5
SOCIAL AND EMOTIONAL LEARNING
PLAN

1. What is social and emotional learning?
2. Five areas that effective SEL strategies should cover.
3. Priorities of SEL learning.
4. The benefits of social and emotional learning

1. What is social and emotional learning?

We define social and emotional learning (SEL) as an integral part of education and human development. SEL is the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions.

SEL advances educational equity and excellence through authentic school-family-community partnerships to establish learning environments and experiences that feature trusting and collaborative relationships, rigorous and meaningful curriculum and instruction, and ongoing evaluation. SEL can help address various forms of inequity and empower young people and adults to co-create thriving schools and contribute to safe, healthy, and just communities.

Social and emotional learning (SEL) strategies seek to improve learning and wider child development by improving children's social and emotional skills. They can be contrasted with approaches that focus explicitly on the academic or cognitive dimensions of learning. SEL strategies might seek to improve the ways in which children interact with their peers, parents or other adults and are often linked with self-regulation strategies and behavioural interventions.

The statutory framework for the Early Years Foundation Stage includes early learning goals in Personal, Social and Emotional Development (PSED). SEL strategies are linked to this aspect of the framework and may support pupils to develop in PSED

SEL is the process through which students develop and apply the knowledge, attitudes, and skills necessary to understand and manage their emotions, set and achieve positive goals, understand and show empathy for others, establish and maintain positive respectful relationships, and make responsible decisions.

Durlak et al.'s (2011) analysis of 213 rigorous studies of SEL in schools indicates that students receiving quality SEL instruction demonstrated:

- better academic performance: achievement scores an average of 11 percentile points higher than students who did not receive SEL instruction;
- improved attitudes and behaviours: greater motivation to learn, deeper commitment to school, increased time devoted to schoolwork, and better classroom behaviour;

- fewer negative behaviours: decreased disruptive class behaviour, noncompliance, aggression, delinquent acts, and disciplinary referrals;
- reduced emotional distress: fewer reports of student depression, anxiety, stress, and social withdrawal.

2. Five areas that effective SEL strategies should cover.

The ACT Education SEL approach, which identifies the following five areas that effective SEL strategies should cover:

- self-awareness;
- self-management;
- social awareness;
- relationship skills;
- responsible decision making.

Social and emotional learning is a foundation for many of our most pressing priorities: SEL helps young people – and adults – learn and practice skills that set them up for academic success, fulfilling careers, healthy relationships, and responsible civic engagement.

The research is clear: Social and emotional learning in schools leads to positive outcomes, including better academic performance, and decreases in stress and anxiety.

There's no one-size-fits-all approach: Social and emotional learning brings families, schools, and communities together to make sure every child has caring relationships and what they need to learn, grow, and thrive.

3. Priorities of SEL learning.

Social and emotional learning (SEL) is part of a high-quality education for all students that supports academic performance, school climate, graduation rates, and other important developmental outcomes and life goals.

Schools, in partnership with families and communities, also navigate and set other priorities based on their local strengths, needs, and culture. SEL can provide a foundation that supports and connects those various priorities and goals.

In order to make the critical connections between SEL and relevant areas, we offer priorities in your local communities.

School Safety

Across the country, schools and communities are having conversations about how to ensure the safety and wellbeing of every child. While there is no single solution, we know that SEL plays a critical role. Evidence-based practices that build supportive relationships and promote social and emotional skills can help reduce bullying and isolation, promote belonging, boost engagement, and curb future violence.

Mental Health

States, districts, and schools looking to support the mental health and well-being of their young people and adults often turn to SEL. SEL can promote positive mental health in many ways. SEL should be implemented as part of a

system of mental wellness supports and resources that include promotion, prevention, early-intervention, and treatment strategies and programs.

Civic Learning

Today's increasingly dynamic and multicultural society will call on the next generation of civic leaders to use a wide range of social and emotional skills—including deep levels of self-awareness, collaborative problem-solving, and cultural competence. By integrating SEL into civic learning, students have opportunities to develop the skills and relationships needed to participate as caring and engaged members of their local community and the broader society.

Workforce Preparation

Like academic skills, social and emotional competencies create a foundation for students to pursue their career and life goals. By aligning and integrating SEL and workforce preparation efforts through an equity lens, states and districts can more intentionally promote the competencies and environments that will prepare youth to thrive and succeed in the workplace.

Response to the COVID-19 Pandemic

SEL offers a powerful means to support one another as our school communities work to address the impact of the pandemic on students' learning and development. Now, more than ever, we understand how important it is to demonstrate empathy and resilience, build relationships across distance, and call upon our collective resolve to strengthen our schools and our communities. (https://casel.org/fundamentals-of-sel/how-does-sel-support-your-priorities/)

4. The benefits of social and emotional learning

The benefits of social and emotional learning (SEL) are well-researched, with evidence demonstrating that an education that promotes SEL yields positive outcomes for students, adults, and school communities.

The findings below come from hundreds of independent studies across multiple fields and sources that show SEL leads to beneficial outcomes related to: social and emotional skills, academic performance, mental wellness, healthy behaviors, school climate and safety, and lifetime outcomes.

The Benefits of SEL

SEL leads to improved academic achievement

When students have supportive relationships and opportunities to develop and practice social, emotional, and cognitive skills across many different contexts, academic learning accelerates.

- Hundreds of studies involving more than 1 million students worldwide across PreK-12 offer consistent evidence that SEL has a positive impact on students' academic achievement.
- Students participating in SEL at school have higher levels of "school functioning," as reflected by their grades, test scores, attendance, and homework completion.
- SEL builds social and emotional skills that increase student engagement and lead to improved academic performance.

- SEL interventions that addressed the five core competencies increased students' academic performance by 11 percentile points, compared to students who did not participate.
- The positive impact on academics lasts long-term: Years after students participated in SEL, their academic performance was an average of 13 percentile points higher than students who didn't participate.

We take a systemic approach that emphasizes the importance of establishing equitable learning environments and coordinating practices across key settings of classrooms, schools, families, and communities to enhance all students' social, emotional, and academic learning. Quality implementation of well-designed, evidence-based, classroom programs and practices is a foundational element of effective SEL. We believe it is most beneficial to integrate SEL throughout the school's academic curricula and culture, across the broader contexts of schoolwide practices and policies, and through ongoing collaboration with families and community organizations. These coordinated efforts should foster youth voice, agency, and engagement; establish supportive classroom and school climates and approaches to discipline; enhance adult SEL competence; and establish authentic family and community partnerships.

Students, families, schools, and communities are all part of broader systems that shape learning, development, and experiences. Inequities based on race, ethnicity, class, language, gender identity, sexual orientation, and other factors are deeply ingrained in the vast majority of these systems and impact student and adult social, emotional, and academic learning. While SEL alone will not solve longstanding and deep-seated inequities in the education system, it can create the conditions needed for individuals and schools to examine and interrupt inequitable policies and practices, create more inclusive learning environments, and reveal and nurture the interests and assets of all individuals.

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https://osf.io/mk35u/

Practical class 1

INFORMATION AND COMMUNICATION TECHNOLOGIES (ICT)

PLAN

1. ICT and soft skills.

2. The main components of ICT.

3. The key ICT tools in Education

Tasks for self-studying.

Task 1.

Answer the questions:

What is information and communication technology?

Why is information and communication technology important? (name at least 5 reasons)

What skills are useful to work in ICT? (name at least 5 points)

What careers are available in ICT?

How can we use ICT in education?

Task 2.

Make up a presentation about ICT in education.

Task 3.

Watch the video "UNESCO - Supporting Teachers to Succeed with ICT for Education" ***and answer the question***

What are main problems in using ICT in education?

https://learningportal.iiep.unesco.org/en/issue-briefs/improve-learning/information-and-communication-technology-ict-in-education

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Practical class 2

COLLABORATIVE LEARNING APPROACHES.

PLAN

1. Collaborative learning.
2. The benefits of collaborative learning.
3. Methods of collaborative learning activities.
4. Skills identification in collaborative learning.

Tasks for self-studying.

Task 1.

Fill in the table

Examples of collaborative learning	**Advantages**	**Disadvantages**
Study groups		
Project groups		
Problem-solving or puzzle groups		
Writing groups		
Discussion groups		
Debate or Socratic circle groups		
Peer editing groups		
Role-playing groups		

Task 2.

Watch the video and answer the question

How can collaborative learning be implemented in the classroom?
https://www.structural-learning.com/post/collaborative-learning

Task 3.

Create a scheme "**Collaborative vs. cooperative learning**" and present it at the practical class.

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Practical class 3

TECHNOLOGIES OF CONFLICTS PREVENTION AND OVERCOMING

PLAN

1. Risks related to the use of digital technologies.

2. Technologies of conflicts prevention and overcoming.

3. The practice of mediation.

4. Managing risks in education

Tasks for self-studying.

Task 1.

Answer the questions:

What is the practice of mediation?

Why is managing risks?

What skills are important for madiator? (name at least 5 points)

Task 2.

Watch the video and answer the question

What are 14 conflict resolution strategies for the workplace?

https://positivepsychology.com/conflict-resolution-in-the-workplace/

Task 3.

Watch the video "Cyber Hygiene and Digital Risk Management E-Learning Platform for Mediators" ***and answer the question***

What are main strategies in digital risk management?

https://peacemaker.un.org/digitaltoolkit

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Practical class 4

READING COMPREHENSION STRATEGIES

PLAN

1. *Using Prior Knowledge/Previewing.*
2. *Predicting.*
3. *Identifying the Main Idea and Summarization.*
4. *Questioning.*
5. *Making Inferences.*
6. *Visualizing.*
7. *Story Maps.*
8. *Retelling.*

Tasks for self-studying.

Task 1.

Draw the model of reading comprehension according to the source below https://www.structural-learning.com/post/reading-comprehension-in-the-primary-classroom

Task 2.

Watch the video and answer the question

What are the main strategies to improve reading comprehension?

https://www.google.com/search?q=READING+COMPREHENSION+STRATEGIES+&sca_esv=564158632&rlz=1C1GCEA_enUA977UA977&biw=1280&bih=881&tbm=vid&sxsrf=AB5stBgn6XtIlSq8X53qFoWv_9COKY57tw%3A1694360883599&ei=M-X9ZN6MJJDHwPAP7_eNwA0&ved=0ahUKEwie8tmUsqCBAxWQIxAIHe97A9gQ4dUDCA0&uact=5&oq=READING+COMPREHENSION+STRATEGIES+&gs_lp=Eg1nd3Mtd2l6LXZpZGVvIiFSRUFESU5HIENPTVBSRUhFTlNJT04gU1RSQVRFR0lFUyAyBRAAGIAEMgYQABgWGB4yBhAAGBYYHjIGEAAYFhgeMgYQABgWGB4yBhAAGBYYHjIGEAAYFhgeMgYQABgWGB4yBhAAGBYYHkjVFVDBDVjBDXABeACQAQCYAWmgAWmqAQMwLjG4AQPIAQD4AQH4AQKoAgTCAgcQIxjqAhgniAYB&sclient=gws-wiz-video#fpstate=ive&vld=cid:980dfd23,vid:1VK6soGLulY,st:0

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Practical class 5
SOCIAL AND EMOTIONAL LEARNING
PLAN

1. *What is social and emotional learning?*
2. *Five areas that effective SEL strategies should cover.*
3. *Priorities of SEL learning.*
4. *The benefits of social and emotional learning.*

Tasks for self-studying.

Task 1.

Think of a young person in your life. What skills will they need to achieve their hopes and dreams?

Chances are, you just named social and emotional skills – like staying motivated, communicating effectively, practicing curiosity, and working with others to solve problems. Social and emotional learning, or SEL, helps develop the skills we need for life.

https://casel.org/fundamentals-of-sel/

Answer the question after watching the video.

Why do students, parents, and educators want SEL in schools?

Task 2.

Watch the video and answer the question

What are core competences and key settings?

https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/

Task 3.

Study the interactive wheel and describe every part of it.

https://casel.org/fundamentals-of-sel/what-is-the-casel-framework/#families-caregivers

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https://osf.io/mk35u/

Practical class 6
CRITICAL THINKING DEVELOPMENT
PLAN

1. *What is critical thinking?*
2. *Critical thinking skills.*
3. *The stages of critical thinking.*
4. *The benefits of critical thinking.*

Tasks for self-studying.

Task 1.

Answer the questions

What is critical thinking development?
How do you develop a critical thinker?
What are the 5 steps of critical thinking?
Why is critical thinking important in development?

Task 2.

Read the article and answer the question

What are main critical thinking killers?

https://thedevelopmentmanager.com/professional-personal-development-skills-critical-thinking/

Task 3.

Give the examples of main stages of critical thinking.

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ADDITIONAL MATERIAL

Technology is causing massive changes in all sectors of the economy. These changes have been felt in the health sector, financial world, entertainment, and even government. The good news is that these changes will make the world a better place! One of the key sectors that has been affected by this disruption is education. These innovations are giving classrooms a new look and have changed the ways in which lessons are conducted. Here are the top six technology innovations that are causing major changes in education.

TECHNOLOGIES OF CONFLICTS PREVENTION AND OVERCOMING IN EDUCATION

Conflicts in education can arise among students, educators, administrators, and even parents. These conflicts can disrupt the learning environment and hinder the educational process. To prevent and overcome conflicts in education, various technologies and strategies can be employed. Here are some technologies and approaches to conflict prevention and resolution in education:

Online Communication and Collaboration Tools: Technology provides various platforms for students, teachers, and parents to communicate and collaborate. Tools such as email, messaging apps, discussion forums, and video conferencing can facilitate constructive dialogue and problem-solving, reducing misunderstandings that may lead to conflicts.

Learning Management Systems (LMS): LMS platforms like Moodle, Canvas, and Blackboard offer features for managing assignments, grading, and communication. They provide a centralized hub for course-related information, reducing confusion and potential conflicts over course materials and deadlines.

Conflict Resolution Apps: Some apps are specifically designed to facilitate conflict resolution. These apps guide users through structured conversations and mediation processes, helping parties involved in a dispute find common ground and reach a resolution.

Feedback and Assessment Tools: Technology can enable more transparent and fair assessment processes. Tools that allow for anonymous peer and self-assessment can reduce conflicts related to grading and evaluation.

Parent-Teacher Communication Apps: Apps and platforms that allow parents to easily communicate with teachers and stay informed about their child's progress can prevent conflicts by fostering a collaborative and supportive home-school relationship.

Digital Documentation and Records: Maintaining digital records of student performance, behavior, and communication can be invaluable in resolving conflicts. These records provide an objective reference point for discussions and decision-making.

Data Analytics and Early Warning Systems: Advanced data analytics can identify early warning signs of potential conflicts. For example, tracking attendance, performance, and behavior patterns can help educators intervene before conflicts escalate.

Digital Citizenship Education: Technology itself can be a source of conflicts, particularly in terms of online bullying and harassment. Digital citizenship education programs teach students how to use technology responsibly and respectfully, reducing online conflicts.

Mediation and Conflict Resolution Training: Online courses and resources can provide training in conflict resolution skills for educators, administrators, and students. These skills are valuable for preventing and managing conflicts.

AI-Powered Chatbots: AI chatbots can provide immediate responses to common queries and concerns, reducing the workload on educators and administrative staff and preventing potential conflicts arising from delays in communication.

Digital Storytelling and Empathy Building: Technology can be used to create empathy-building experiences through digital storytelling and virtual reality. These experiences can help students understand different perspectives and reduce conflicts related to bias and prejudice.

Online Peer Mediation Programs: Some schools implement online peer mediation programs where trained students help their peers resolve conflicts in a structured and supportive manner, often using digital platforms.

Anonymous Reporting Systems: Technology can enable students and educators to report conflicts, bullying, or safety concerns anonymously, fostering a safe and confidential way to address issues.

Real-Time Translation and Language Support: In diverse educational settings, language barriers can contribute to conflicts. Real-time translation and language support tools can facilitate communication and understanding among students from different linguistic backgrounds.

While technology can be a valuable tool in conflict prevention and resolution in education, it's essential to remember that human involvement, empathy, and effective communication remain critical components of successfully managing and preventing conflicts in educational settings. Technology should complement, not replace, these fundamental aspects of conflict resolution.

METACOGNITION AND SELF-REGULATION IN EDUCATION.

Metacognition and self-regulation are crucial cognitive processes in education. They involve the ability to monitor and control one's own thinking, learning, and behavior. These processes play a significant role in academic success and lifelong learning. Let's explore metacognition and self-regulation in education in more detail:

Metacognition:

Metacognition refers to thinking about one's own thinking. It involves the awareness and understanding of cognitive processes, strategies, and knowledge related to learning. Metacognitive skills include:

Planning: Students set goals, select appropriate strategies, and create a plan for learning. For example, they might decide to outline a research paper before writing it.

Monitoring: Learners assess their understanding and progress during a learning activity. They ask themselves questions like, "Do I understand this concept?" or "Am I on track to complete this assignment?"

Self-Assessment: Students evaluate their own performance and adjust their strategies based on their self-assessment. They might recognize when they need to seek additional help or when they've mastered a concept.

Reflection: Reflection involves thinking back on what was learned, how it was learned, and what could be improved in the future. It encourages deeper understanding and long-term retention.

Self-Regulation:

Self-regulation is closely related to metacognition and involves the ability to manage one's own behavior and emotions to achieve specific goals. In education, self-regulation includes:

Time Management: Students manage their time effectively, allocate sufficient time for studying, and meet deadlines.

Goal Setting: Learners set specific, achievable goals for their academic performance and monitor their progress toward these goals.

Focus and Attention: Students control their attention, avoid distractions, and maintain concentration during learning activities.

Motivation: Self-regulated learners are motivated to achieve their goals and persist in the face of challenges. They may use strategies like setting rewards for completing tasks or finding intrinsic motivation in the subject matter.

Adaptability: Self-regulated learners can adapt their strategies and approaches when they encounter difficulties or when the context changes.

Importance in Education:

Metacognition and self-regulation are crucial for effective learning in several ways:

Enhanced Learning: When students are aware of their learning processes and can adjust their strategies based on their understanding, they are more likely to grasp and retain information effectively.

Independence: Developing metacognitive and self-regulation skills fosters independent learning. Students can take charge of their own education and become lifelong learners.

Problem Solving: These skills help students become better problem solvers. They can assess their understanding, identify gaps in knowledge, and take appropriate steps to fill those gaps.

Academic Success: Self-regulated learners tend to perform better academically. They are more likely to complete assignments on time, excel in exams, and achieve their educational goals.

Transfer of Learning: Metacognitive and self-regulation skills are transferable to various subjects and contexts. Students who develop these skills can apply them to new challenges and situations.

Teaching Metacognition and Self-Regulation:

Educators can play a vital role in fostering metacognition and self-regulation in students by:

- Explicitly teaching metacognitive strategies, such as self-questioning, summarization, and self-explanation.
- Encouraging reflection through journals, discussions, and debriefings.
- Providing opportunities for students to set goals, plan their learning, and self-assess.
- Offering constructive feedback that helps students identify areas for improvement.
- Creating a supportive learning environment that values autonomy and independence.

Incorporating metacognitive and self-regulation strategies into the curriculum can empower students to take control of their learning and become more effective and motivated learners.

READING COMPREHENSION STRATEGIES

Reading comprehension strategies are techniques and approaches that readers use to understand and make sense of what they are reading. These strategies help readers engage with the text, extract meaning, and retain information. Effective reading comprehension is crucial for academic success and lifelong learning. Here are some key reading comprehension strategies:

Previewing or Preview Reading: Before diving into the text, skim it briefly to get an overview. Read headings, subheadings, captions, and any bold or italicized text. This helps activate prior knowledge and provides context for what you're about to read.

Activate Prior Knowledge: Connect what you're about to read to what you already know. This helps you make associations and better understand the text. Ask yourself what you already know about the topic.

Set a Purpose for Reading: Determine why you are reading the text. Are you reading for information, entertainment, analysis, or a specific purpose? Knowing your purpose can guide your approach to the text.

Annotate and Take Notes: As you read, underline or highlight key points, unfamiliar terms, and important passages. Write brief summaries or questions in the margins to aid comprehension and later review.

Ask Questions: Generate questions about the content as you read. This can include questions about the main idea, supporting details, author's purpose, and implications. Answering these questions as you read can deepen your understanding.

Visualize: Create mental images of what you are reading. Visualizing can help you make connections, remember details, and engage more deeply with the text.

Monitor Comprehension: Continuously assess your understanding of the text. If you realize you're not comprehending, stop and reread, rephrase, or seek clarification.

Use Context Clues: When encountering unfamiliar words or phrases, rely on the context of the sentence or paragraph to infer their meanings.

Identify the Main Idea: Determine the central message or theme of the text. Look for the author's main argument or purpose in writing the text.

Recognize Text Structure: Pay attention to how the text is organized. Identify patterns such as cause and effect, compare and contrast, chronological order, and problem-solution.

Summarize: After reading a section or the entire text, summarize the main points in your own words. This reinforces your understanding and retention.

Make Inferences: Draw conclusions based on information presented in the text. Infer relationships between ideas and make educated guesses about implied information.

Evaluate the Text: Consider the credibility of the source, the author's bias, and the quality of evidence presented. Evaluate the arguments and conclusions critically.

Revisit and Review: After completing the reading, review your notes, annotations, and summaries. Reflect on the key takeaways and how they relate to your purpose for reading.

Discuss and Share: Engage in discussions with peers or educators about the text. Sharing insights and perspectives can deepen comprehension and provide different viewpoints.

Practice Active Reading: Be an active and engaged reader. Avoid passively skimming or reading without thinking. Engage with the text actively by using the strategies mentioned above.

Remember that reading comprehension is a skill that can be developed and improved with practice. Different texts may require different strategies, so it's important to be flexible and adapt your approach as needed. Developing strong reading comprehension skills can benefit your academic and professional pursuits and enhance your overall understanding of the world.

SOCIAL AND EMOTIONAL LEARNING STRATEGIES

Social and emotional learning (SEL) is the process of acquiring and applying the knowledge, attitudes, and skills necessary to understand and manage emotions, set and achieve positive goals, feel and show empathy for others, establish and maintain positive relationships, and make responsible decisions. SEL is vital for personal well-being, effective social interactions, and success in various aspects of life, including education. Here are some strategies for promoting social and emotional learning:

Emotion Recognition: Teach students to recognize and label their own emotions and the emotions of others. Use activities like "emotion charades" or "emotion journals" to enhance emotional awareness.

Mindfulness and Relaxation: Introduce mindfulness exercises and relaxation techniques to help students manage stress, anxiety, and strong emotions. Breathing exercises and guided meditation can be valuable tools.

Emotion Regulation: Teach students strategies for regulating their emotions, such as deep breathing, taking short breaks, counting to ten, or using positive self-talk. Encourage them to identify healthy coping mechanisms.

Conflict Resolution: Provide students with conflict resolution skills, including active listening, assertive communication, and negotiation. Encourage them to practice resolving conflicts in a safe and respectful manner.

Empathy Development: Promote empathy by discussing and sharing stories or experiences from different perspectives. Encourage students to "walk in someone else's shoes" to better understand the feelings and perspectives of others.

Relationship Building: Create opportunities for students to build positive relationships with their peers. Cooperative learning activities, team-building exercises, and group projects can foster collaboration and relationship skills.

Self-awareness: Help students develop a strong sense of self-awareness by encouraging self-reflection. Have them journal about their feelings, strengths, weaknesses, and values.

Goal Setting: Teach the importance of setting and working toward achievable goals. Guide students in setting both short-term and long-term goals, and help them create action plans to reach those goals.

Responsible Decision-Making: Encourage students to think critically and make responsible decisions by weighing the potential consequences of their actions. Discuss ethical dilemmas and decision-making frameworks.

Empathy Circles: Organize empathy circles or small group discussions where students take turns sharing their feelings and experiences. This can foster a sense of connection and empathy within the group.

Conflict Mediation: Train students to become peer mediators who can help resolve conflicts among their peers. This empowers students to take on leadership roles and develop conflict resolution skills.

Character Education: Incorporate character education into the curriculum by discussing values such as honesty, respect, integrity, and responsibility. Explore how these values guide behavior and decision-making.

Literature and Media Analysis: Analyze books, movies, or news stories that portray complex social and emotional situations. Discuss the characters' emotional journeys and the choices they make.

Role-Playing: Use role-playing exercises to practice various social and emotional skills, such as effective communication, active listening, and empathy.

Parent and Caregiver Involvement: Involve parents and caregivers in SEL initiatives by providing resources and hosting workshops to promote SEL at home.

SEL Curriculum Integration: Consider adopting a structured SEL curriculum that aligns with educational standards and can be integrated into various subject areas.

Promoting social and emotional learning is essential for creating a supportive and positive learning environment where students can thrive academically, emotionally, and socially. These strategies can help students develop the skills and attitudes necessary to navigate the complexities of life and become well-rounded individuals.

CREATING A POSITIVE AND SUPPORTIVE ENVIRONMENT STRATEGIES

Creating a positive and supportive environment for learning is crucial for fostering student engagement, well-being, and academic success. Such an environment encourages students to feel safe, motivated, and empowered to explore, learn, and grow. Here are strategies to help educators and institutions establish such an environment:

1. **Build Positive Relationships:**
    - Cultivate positive teacher-student relationships based on trust, respect, and empathy.
    - Foster a sense of belonging by acknowledging and valuing each student's unique identity and contributions.
2. **Clear Expectations:**
    - Communicate clear and achievable expectations regarding behavior, assignments, and classroom rules.
    - Provide students with a syllabus or course outline to set clear learning objectives.
3. **Safe and Inclusive Space:**
    - Create a physically and emotionally safe learning environment where students feel comfortable expressing themselves without fear of judgment or discrimination.
    - Celebrate diversity and promote inclusivity by integrating diverse perspectives, cultures, and experiences into the curriculum.
4. **Active Listening:**
    - Listen actively to students' questions, concerns, and feedback. Show genuine interest in their thoughts and ideas.
    - Encourage open communication and provide opportunities for students to express their opinions and ask questions.
5. **Encourage Collaboration:**
    - Promote collaborative learning by incorporating group projects and activities that require teamwork.
    - Teach conflict resolution skills to help students navigate disagreements in a constructive manner.
6. **Feedback and Support:**
    - Provide timely and constructive feedback on students' work, highlighting their strengths and suggesting areas for improvement.
    - Offer additional help and support for struggling students through tutoring, office hours, or study groups.
7. **Choice and Autonomy:**
    - Give students choices in their learning, such as allowing them to select topics for projects or offering multiple assignment options.
    - Encourage autonomy by letting students take ownership of their learning process.
8. **Engaging Teaching Methods:**

- Use a variety of teaching methods and materials to cater to diverse learning styles and interests.
- Incorporate active learning strategies, such as discussions, debates, and hands-on activities.

9. **Celebrate Achievements:**
   - Recognize and celebrate students' achievements and milestones, both big and small.
   - Create a positive and affirming atmosphere that motivates students to excel.
10. **Set Realistic Goals:**
   - Help students set achievable short-term and long-term goals related to their academic and personal development.
   - Encourage self-reflection to monitor progress toward these goals.
11. **Professional Development:**
   - Provide ongoing professional development opportunities for educators to enhance their teaching skills, including training in creating a positive classroom environment.
12. **Well-Being and Mental Health Support:**
   - Promote student well-being by offering resources and support for mental health and stress management.
   - Recognize signs of student distress and connect them with appropriate resources when needed.
13. **Parent and Community Involvement:**
   - Engage parents and caregivers in the learning process by keeping them informed about student progress and involving them in school activities.
   - Collaborate with community organizations to provide additional resources and support.
14. **Consistency and Fairness:**
   - Apply rules and policies consistently and fairly to create a sense of equity and justice in the learning environment.
15. **Continuous Improvement:**
   - Continuously seek feedback from students and colleagues to identify areas for improvement in the learning environment.
   - Be open to adapting teaching methods and strategies based on feedback and evolving needs.

Creating a positive and supportive learning environment is an ongoing process that requires commitment, flexibility, and a genuine dedication to the well-being and success of every student. When educators and institutions prioritize these principles, they can create an environment where students thrive academically and personally.

VIRTUAL REALITY IN EDUCATION

Virtual Reality technology is already the hottest thing in the tech world. Big companies are gearing up for a brutal war over this technology including Google,

Sony, Oculus (backed by Facebook), Samsung, and more. One of the areas of application of VR technology is education. With VR, students can learn via interacting with a 3D world. Google has been on the forefront of introducing experiential learning in schools through VR technology.

Virtual Reality (VR) has made significant inroads into education, offering immersive and engaging learning experiences across various subjects and age groups. Here are some key ways VR is being used in education:

1. **Immersive Learning Environments:** VR creates immersive 3D environments that allow students to explore places, concepts, and historical events firsthand. For example, students can virtually visit historical sites, explore the human body, or journey through space.
2. **Enhanced Engagement:** VR makes learning more engaging and interactive, keeping students motivated and attentive. It appeals to different learning styles, particularly visual and kinesthetic learners.
3. **Experiential Learning:** VR provides experiential learning opportunities, allowing students to actively participate in simulations and scenarios that mimic real-life situations. This is particularly valuable for vocational training and skills development.
4. **Accessibility:** VR can make education more accessible by accommodating diverse learning needs. It can be used to create inclusive learning environments and offer personalized learning experiences.
5. **Medical Training:** Medical schools use VR to simulate surgeries and medical procedures, allowing students to practice and refine their skills in a risk-free environment.
6. **STEM Education:** VR can help students better understand complex STEM concepts by visualizing abstract theories. Virtual laboratories and physics simulations are examples of its applications in STEM education.
7. **Language Learning:** Language learners can practice speaking and listening skills in a virtual environment where they interact with native speakers and navigate real-world scenarios.
8. **Cultural Immersion:** VR can transport students to different cultures, helping them gain a deeper understanding of global perspectives, languages, and traditions.
9. **Historical Reenactments:** History classes can use VR to recreate historical events, allowing students to witness critical moments in history as if they were there.
10. **Geography and Geography Exploration:** VR enables students to explore geographical locations and ecosystems around the world. They can dive into the ocean, climb mountains, or traverse the Amazon rainforest virtually.
11. **Art and Creativity:** VR tools and platforms enable students to create and interact with art in three dimensions, fostering creativity and artistic expression.

12. **Soft Skills Development:** VR can be used to develop soft skills like teamwork, communication, leadership, and problem-solving through immersive team-building exercises and scenarios.
13. **Special Education:** VR offers personalized and multisensory experiences for students with special needs. It can help them overcome physical or cognitive challenges in the learning process.
14. **College and Career Readiness:** VR can simulate job interviews, workplace environments, and professional scenarios to prepare students for the workforce.
15. **Museums and Cultural Institutions:** Cultural institutions can use VR to offer virtual tours and exhibitions, making art, history, and science accessible to a global audience.

While VR has immense potential in education, there are some challenges to consider, such as the cost of VR hardware and content development, technical issues, and ensuring that VR experiences align with educational objectives. However, as technology advances and becomes more affordable, VR is likely to become an increasingly valuable tool in education, providing students with new ways to explore, learn, and engage with the world.

ARTIFICIAL INTELLIGENCE AND MACHINE LEARNING IN EDUCATION

Artificial intelligence is being applied in all levels of technology, from the lowest to the most advanced levels. AI is used in schools to automate key activities such as grading of subjects and providing feedback on areas that need improvement. It is also used to enhance personalized learning among students, especially those with special needs. Through machine learning, adaptive programs have been developed that care for the individual needs of students. AI tutors have been developed to teach students subjects such as mathematics and writing.

Artificial Intelligence (AI) and Machine Learning (ML) are two closely related fields of computer science that have gained significant attention and practical applications in recent years. While they share some common principles, they have distinct focuses and applications. Here's an overview of each:

Artificial Intelligence (AI): AI is a broad field of computer science dedicated to creating machines and software that can perform tasks that typically require human intelligence. These tasks include reasoning, problem-solving, understanding natural language, recognizing patterns, and making decisions. AI systems aim to mimic human cognitive functions.

Key components of AI include:

1. **Expert Systems:** These are AI systems designed to mimic the decision-making abilities of human experts in specific domains, such as medicine or finance.
2. **Natural Language Processing (NLP):** NLP focuses on enabling computers to understand, interpret, and generate human language. It's used in chatbots, language translation, and sentiment analysis, among other applications.

3. **Computer Vision:** Computer vision involves teaching machines to interpret and understand visual information from the world, such as images and videos. It's used in facial recognition, object detection, and autonomous vehicles.
4. **Machine Learning:** Machine learning is a subset of AI that involves training algorithms to learn from data and make predictions or decisions without explicit programming. It's a core component of AI.

Machine Learning (ML): ML is a subset of AI that focuses on the development of algorithms and models that can learn and improve from experience (data). ML systems can recognize patterns, make predictions, classify data, and automate decision-making processes based on historical and real-time data.

Key concepts in ML include:

1. **Supervised Learning:** In this type of ML, algorithms are trained on labeled data, meaning the input data is paired with the correct output. The algorithm learns to make predictions based on these labeled examples. Common applications include image classification and spam email filtering.
2. **Unsupervised Learning:** Unsupervised learning involves training algorithms on unlabeled data. The goal is to discover hidden patterns or structures within the data. Clustering and dimensionality reduction are examples of unsupervised learning techniques.
3. **Reinforcement Learning:** In reinforcement learning, algorithms learn to make sequential decisions by interacting with an environment. They receive feedback in the form of rewards or penalties, allowing them to optimize their actions over time. Reinforcement learning is used in autonomous robotics and game-playing AI, such as AlphaGo.
4. **Deep Learning:** Deep learning is a subfield of ML that uses neural networks with many layers (deep neural networks) to model complex patterns and representations in data. It has revolutionized fields like computer vision, speech recognition, and natural language processing.

Applications of AI and ML are wide-ranging and include:

- **Healthcare:** AI can assist in diagnosing diseases, drug discovery, and personalizing treatment plans. ML is used in medical image analysis and predicting patient outcomes.
- **Finance:** AI-driven algorithms are employed for fraud detection, algorithmic trading, and credit scoring.
- **Autonomous Vehicles:** Self-driving cars rely on AI and ML to perceive their surroundings, make driving decisions, and improve safety.
- **Recommendation Systems:** AI is used in recommendation engines, such as those found on streaming platforms and e-commerce websites.
- **Customer Service:** Chatbots and virtual assistants powered by AI provide customer support and answer queries.
- **Education:** AI and ML can personalize learning experiences, identify areas where students may need additional help, and automate administrative tasks.

- **Manufacturing:** AI-driven robots and automation enhance efficiency and quality control in manufacturing processes.

Both AI and ML are rapidly evolving fields, and their applications continue to expand into various sectors, transforming industries and creating new opportunities for innovation and problem-solving.

Artificial Intelligence (AI) has the potential to transform education in numerous ways, making learning more personalized, efficient, and effective. Here are some key ways AI is being applied in education:

1. **Personalized Learning:** AI can adapt learning materials and experiences to individual students' needs, abilities, and learning styles. It can provide customized assignments, recommend resources, and adjust the pace of instruction to help each student succeed.
2. **Intelligent Tutoring Systems:** AI-powered tutoring systems offer immediate feedback and support to students, helping them understand and master challenging concepts. These systems can provide hints, explanations, and practice exercises tailored to each learner.
3. **Automated Grading:** AI can automate the grading of assignments, quizzes, and exams, freeing up educators' time to focus on more valuable tasks, such as providing personalized feedback and support to students.
4. **Predictive Analytics:** AI algorithms analyze student data to predict potential challenges and identify students who may be at risk of falling behind. Educators can then intervene early to provide extra support.
5. **Natural Language Processing (NLP):** NLP technology can be used to develop chatbots and virtual assistants that answer students' questions, offer guidance, and provide explanations in a conversational manner.
6. **Language Learning:** AI-powered language learning platforms can assess a student's language proficiency, adapt lessons accordingly, and provide pronunciation feedback.
7. **Content Recommendation:** AI algorithms can recommend relevant educational content, such as books, articles, videos, and courses, to help students explore their interests and expand their knowledge.
8. **Classroom Management:** AI tools can assist educators in managing classroom tasks, such as attendance tracking, scheduling, and communication with students and parents.
9. **Data Analysis:** AI can analyze vast amounts of educational data to identify trends and patterns, helping institutions make data-driven decisions to improve teaching and learning outcomes.
10. **Accessibility:** AI technologies, such as speech-to-text and text-to-speech, can assist students with disabilities, making educational materials and resources more accessible.
11. **Learning Analytics:** AI-driven learning analytics provide insights into students' progress and engagement, helping educators tailor their teaching strategies and interventions.

12. **Educational Games and Simulations:** AI enhances the development of interactive educational games and simulations, which engage students and facilitate experiential learning.
13. **Teacher Professional Development:** AI can provide personalized professional development recommendations for educators, helping them refine their teaching skills and stay up-to-date with the latest pedagogical approaches.
14. **Automated Content Generation:** AI can generate educational content, such as quizzes, practice problems, and lesson plans, to supplement classroom materials.
15. **Adaptive Assessments:** AI can create adaptive assessments that adjust the difficulty of questions based on a student's performance, providing a more accurate measure of their knowledge and abilities.
16. **Ethical and Bias Considerations:** It's important to address ethical concerns and biases in AI applications in education, ensuring fair and equitable access and outcomes for all students.

While AI holds great promise in education, it's essential to implement these technologies thoughtfully and ethically, taking into account privacy and security considerations and ensuring that educators play a central role in designing and using AI-powered educational tools. When used effectively, AI can enhance the educational experience, improve learning outcomes, and help students and educators achieve their goals.

CLOUD COMPUTING FOR EDUCATION

Educational resources can be accessed from any part of the world thanks to cloud computing technology. Vital resources such as written lessons, audio lessons, videos, and video assignments can be stored on a school's cloud terminal. Students can access these resources from the comfort of their homes and complete and submit the assignments back to their tutors. Flimsy excuses that students give for not doing assignments may be a thing of the past. Cloud computing will eliminate the hassle of carrying tons of books or practically living at your local library. This technology also allows students to chat live with their tutor.

Cloud computing has revolutionized the field of education by providing flexible, scalable, and cost-effective solutions for institutions, educators, and students. Here are some key ways cloud computing is used in education:

1. **Scalable Infrastructure:** Cloud computing allows educational institutions to scale their IT infrastructure as needed. This is especially valuable during peak times, such as registration periods or when hosting online exams, without the need for significant on-site hardware investments.

2. **Remote Learning:** Cloud-based learning management systems (LMS) and virtual classrooms enable students to access educational materials, participate in discussions, and submit assignments from anywhere with an internet connection. Popular cloud-based LMS platforms include Canvas, Moodle, and Google Classroom.

3. **Collaboration:** Cloud-based productivity and collaboration tools, like Google Workspace (formerly G Suite) and Microsoft 365, enable real-time document sharing, collaboration on projects, and communication among students and educators, whether they are on or off campus.

4. **Data Storage and Backup:** Cloud storage solutions, such as Google Drive, Dropbox, and Microsoft OneDrive, provide a secure and convenient way to store and back up educational materials, research, and coursework. This reduces the risk of data loss.

5. **Cost Savings:** Cloud computing eliminates the need for educational institutions to invest heavily in maintaining and upgrading on-premises servers and infrastructure. Instead, they can pay for the resources they use on a subscription basis, reducing capital expenses.

6. **Security:** Cloud providers typically offer robust security measures, including encryption, access controls, and authentication mechanisms, to protect sensitive student and institutional data. Institutions can also implement their own security policies.

7. **Disaster Recovery:** Cloud services often include disaster recovery capabilities, ensuring that data and applications can be quickly restored in case of unexpected events, such as natural disasters or hardware failures.

8. **Analytics and Insights:** Cloud-based analytics tools help educational institutions analyze data on student performance, engagement, and learning outcomes. This information can inform curriculum improvements and support student success initiatives.

9. **Accessibility:** Cloud-based resources and services are accessible from a wide range of devices, including smartphones and tablets, making education more accessible to students with diverse technology access.

10. **Global Collaboration:** Cloud computing facilitates global collaboration among educational institutions, researchers, and students. Collaborative projects, research initiatives, and international partnerships become more feasible and efficient.

11. **Customization and Integration:** Cloud platforms often offer application programming interfaces (APIs) and integration capabilities, allowing institutions to customize and integrate various educational tools and services to meet their specific needs.

12. **E-learning Platforms:** Cloud-based e-learning platforms, such as Coursera, edX, and Udacity, enable educational institutions to offer online courses and degrees to a global audience without the need for extensive infrastructure.

13. **Resource Sharing:** Educational content and resources can be shared more easily among institutions and educators through cloud-based repositories and platforms, promoting collaboration and resource sharing.

While cloud computing offers numerous benefits for education, institutions must consider data privacy, security, and compliance regulations when adopting cloud solutions. Additionally, ensuring digital equity and accessibility for all

students, regardless of their technology access, is an ongoing challenge that educators and institutions need to address.

3D PRINTING IN EDUCATION

3D printers are already causing ripples in the education sector and students are loving them. Content that was previously taught via text books can now be expressed through 3D models. Through this printing technique, students can have a better understanding of something that was thought to be complex. In higher educational institutions, 3D printing is used by engineers and system designers to develop prototypes to be used in the development of final systems. 3D printing takes concepts and makes them real.

3D printing, also known as additive manufacturing, has gained significant popularity in education due to its potential to enhance learning experiences and prepare students for future careers in technology and engineering. Here are several ways 3D printing is used in education:

1. **Hands-On Learning:** 3D printing allows students to turn abstract concepts into tangible objects. This hands-on experience fosters a deeper understanding of complex ideas in subjects such as math, science, and engineering.
2. **Prototyping and Design:** Students can use 3D printers to create prototypes and models, enabling them to test and refine their design ideas. This is particularly valuable in engineering, product design, and architecture programs.
3. **STEM Education:** 3D printing aligns with STEM (Science, Technology, Engineering, and Mathematics) education by providing a practical and creative way to explore STEM concepts and careers. It can inspire students to pursue STEM-related fields.
4. **Customization:** Educators can customize educational materials, such as teaching aids, models, and visual aids, to better meet the specific needs of their students.
5. **Art and Creativity:** 3D printing can be used in art and design classes to create sculptures, jewelry, and other artistic creations. It encourages students to explore their creativity in new ways.
6. **Historical and Scientific Replicas:** Students can recreate historical artifacts or scientific specimens using 3D printing, allowing them to study and interact with objects that may not be available otherwise.
7. **Medical and Anatomy Education:** In medical schools and biology classes, 3D printing is used to create anatomical models of the human body, organs, and other biological structures, enabling a better understanding of anatomy and medical procedures.
8. **Geography and Geography Exploration:** 3D printing can help students create topographical maps and geographic models, enhancing their understanding of geography and earth sciences.
9. **Robotics:** Students can design and print custom parts for robotics projects, fostering innovation and hands-on learning in robotics and mechatronics programs.

10. **Problem-Solving Skills:** 3D printing challenges students to think critically and creatively to solve real-world problems. It encourages them to iterate on designs and improve their solutions.
11. **Entrepreneurship:** 3D printing can introduce students to entrepreneurship and the basics of product development. They can design and manufacture their own products or prototypes.
12. **Cultural Preservation:** In anthropology and cultural studies, 3D printing can be used to preserve and recreate cultural artifacts and historical objects.
13. **Special Education:** 3D printing can assist students with disabilities by creating custom assistive devices, tactile learning aids, and Braille materials.
14. **Environmental Awareness:** Students can use 3D printing to create environmentally friendly products, explore sustainable design concepts, and reduce waste in their projects.
15. **Global Collaboration:** 3D printing enables students to collaborate with peers from around the world, sharing designs and collaborating on projects, fostering global perspectives and teamwork.

To incorporate 3D printing into education effectively, institutions may need to invest in 3D printers, materials, and training for educators. It's also essential to emphasize safety, responsible use of resources, and ethical considerations when using 3D printing technology in the classroom. As technology continues to advance, 3D printing is likely to become an even more integral part of educational curricula, preparing students for the future workforce and encouraging innovation and creativity.

SOCIAL MEDIA IN EDUCATIONAL INSTITUTIONS

Educational institutions have not been left behind in capitalizing on the impact of social media. In fact, most of these social networking sites were developed on campuses and the first users were college students. Universities and colleges can connect with each other through social networking sites even if they are several continents apart. Through these sites, they are able to organize contests, meetings, and parties. Students from different schools use social media to exchange ideas which can change lives.

Social media has become a prominent and valuable tool for educational institutions, including schools, colleges, and universities. When used thoughtfully, social media can enhance communication, engagement, marketing, and learning experiences within educational communities. Here's how social media is used in educational institutions:

1. **Communication and Engagement:**
    - **Announcements:** Institutions can use social media to share important announcements, such as school closures, event updates, and academic deadlines, in real-time.

- **Two-Way Communication:** Social media platforms enable open and direct communication between students, parents, educators, and administrators, fostering a sense of community and transparency.
- **Feedback and Surveys:** Institutions can collect feedback and opinions from their stakeholders through surveys and polls on social media, helping them make informed decisions.

2. **Marketing and Branding:**
    - **Recruitment:** Colleges and universities can use social media to attract prospective students by showcasing campus life, academic programs, and success stories.
    - **Promotion:** Educational institutions can promote events, conferences, workshops, and fundraising campaigns to a broader audience through social media platforms.
    - **Storytelling:** Sharing stories of student achievements, faculty research, and community involvement can help build a positive brand image and engage alumni.
3. **Professional Development:**
    - **Networking:** Educators and administrators can use social media platforms like LinkedIn and Twitter to connect with colleagues, share resources, and participate in professional discussions.
    - **Educational Resources:** Teachers can discover and share educational resources, lesson plans, and teaching strategies with their peers.
4. **Enhanced Learning Experiences:**
    - **Classroom Integration:** Some educators use social media as a part of their teaching strategy. For example, they may create private groups on platforms like Facebook to facilitate class discussions, share resources, or assign projects.
    - **Global Connections:** Students can connect with peers from around the world, fostering cultural awareness and collaboration through platforms like Skype, PenPal programs, or international student exchange programs.
5. **Recruitment and Alumni Engagement:**
    - **Student Recruitment:** Colleges and universities can use social media advertising to reach prospective students with targeted messaging.
    - **Alumni Relations:** Educational institutions can engage alumni through social media to promote events, fundraising campaigns, and networking opportunities.
6. **Emergency Communication:**
    - **Crisis Management:** Social media platforms can be a rapid and effective means of communicating during emergencies, such as natural disasters or campus incidents, to ensure the safety of students and staff.

7. **Data Analytics:** Educational institutions can use data analytics tools to gain insights into social media engagement, audience demographics, and the effectiveness of their campaigns.
8. **Online Learning Communities:**
    - **Discussion Forums:** Educational institutions can create online discussion forums or groups for students and faculty to discuss coursework, share ideas, and seek help with academic challenges.
    - **Knowledge Sharing:** Faculty members can share research findings, articles, and relevant resources with students and peers.
9. **Ethical Considerations:** Educational institutions must address privacy and ethical concerns when using social media, especially when interacting with minors. It's crucial to have clear policies and guidelines in place to protect students' data and privacy.

While social media offers numerous benefits to educational institutions, it's essential to use these platforms responsibly, adhere to privacy regulations, and ensure that communication remains respectful, professional, and aligned with the institution's goals and values.

THE USE OF BIOMETRICS IN SCHOOLS

No more truancy and cheating! The introduction of biometric systems in schools has helped to streamline the education and enhance discipline. Facial recognition, fingerprints, voice recognition, and eye tracking are some of the biometric methods that schools have implemented to streamline their operations. Apart from being used to monitor a student's class attendance, they are used when borrowing school properties such as books in the library. Teachers use eye tracking methods to monitor how students are absorbing content that they have been taught.

The use of biometrics in schools has gained attention as a way to enhance security, streamline administrative processes, and provide convenient access to various services. However, it also raises privacy and ethical concerns that must be carefully considered and addressed. Here are some common applications of biometrics in schools, along with associated benefits and considerations:

Common Applications:

1. **Access Control:** Biometric systems can be used to control access to school buildings, classrooms, or specific areas. This can enhance security by ensuring that only authorized individuals can enter.
2. **Attendance Tracking:** Biometric attendance systems, such as fingerprint or facial recognition scanners, can automate the process of recording student and staff attendance, reducing manual paperwork and errors.
3. **Library Services:** Biometrics can be used for library management, allowing students to check out books and resources using their biometric data instead of library cards.
4. **Cafeteria Services:** Biometric authentication can be used for cashless payment systems in school cafeterias, making it convenient for students to purchase meals and reducing the risk of lost cards or cash.

5. **Student ID Verification:** Biometrics can serve as a secure method for verifying students' identities during exams, especially in higher education settings.
6. **Secure Data Access:** Biometric authentication can protect sensitive student and staff data, ensuring that only authorized individuals can access confidential information.

Benefits:

1. **Enhanced Security:** Biometrics can provide a high level of security, as it is difficult for someone to replicate another person's biometric data.
2. **Efficiency:** Biometric systems can streamline administrative processes, such as attendance tracking and library management, saving time and reducing errors.
3. **Convenience:** Students and staff can benefit from the convenience of biometric authentication, as they don't need to carry physical ID cards or remember passwords.
4. **Accuracy:** Biometric systems can provide accurate data, reducing the risk of fraud or identity theft.
5. **Cost Savings:** Over time, biometric systems may lead to cost savings by reducing the need for physical ID cards and related administrative tasks.

Considerations and Concerns:

1. **Privacy:** Collecting and storing biometric data raises privacy concerns. Educational institutions must establish strict data protection policies and ensure compliance with relevant privacy laws and regulations.
2. **Consent:** Schools must obtain informed consent from students and parents before collecting and using biometric data, especially for minors.
3. **Data Security:** Biometric data must be securely stored and protected against unauthorized access or breaches.
4. **Accuracy and Reliability:** Biometric systems may not always be 100% accurate and may result in false positives or negatives.
5. **Alternative Solutions:** Schools should consider alternative authentication methods, such as smart cards or PINs, for individuals who may not wish to use biometrics or for whom biometrics are not suitable.
6. **Laws and Regulations:** Educational institutions should be aware of and comply with local, state, and national laws and regulations governing the use of biometrics in educational settings.

In conclusion, the use of biometrics in schools can offer several benefits in terms of security, efficiency, and convenience. However, careful consideration of privacy, consent, data security, and ethical concerns is essential when implementing biometric systems in educational environments. Transparent communication with students, staff, and parents is also crucial to address any concerns and ensure compliance with legal and ethical standards.

Widespread access of the Internet is one factor that has accelerated the implementation of technological innovations in the education sector. Ideas spread fast and people can research the best methods for using technology in education. Hardware companies are producing devices such as laptops and tablets which

are customized to meet specific education needs. Cut-throat competition among different technology firms is another factor that is will accelerate the rate of technology innovations. The future of education certainly looks bright!

The materials of scientific articles

THE EFFECTIVENESS OF USING MOBILE APPLICATIONS FOR STUDYING ENGLISH AT HIGHER EDUCATION INSTITUTIONS

The integration of Ukraine into the world community requires perfect mastery of foreign languages from intending professionals. As the modern information society develops, the requirements to its participants become higher every year. These demands concern not only high level of the modern employee's competitiveness, but also to the comprehensive training and development of the individual for participation in all spheres of social life. So, foreign language proficiency becomes an important ability and additional educational skill of the individual.

At the same time, teaching practice at higher education institutions proves that the number of hours allocated to studying a foreign language is insufficient for the formation of foreign language communicative competence. The formation of undergraduates' foreign language communicative competence requires the creation of conditions for their positive professional development, psychological comfort, and creative realization. It is important to build and develop the ability to use a foreign language in order to express a personal view of the professional issue in oral and written speech. Therefore, the question of finding the ways and means of developing professionally oriented English proficiency is one of the most urgent problems.

A large number of scientific works devoted to the problem of using information and communication technologies in the process of learning a foreign language in higher education institutions confirms the fact of linguistic didactics informatization. In particular, K. Beatty (2015) studies the problem of mobile language learning; M. Bernacki, J. Greene, H. Crompton (2020) focus on the issue of advances and the role of mobile technology in education. In addition, D. Assanova and A. Prlepessova (2020) pay attention to the role of educational mobile apps in learning English by non-linguistic specialties students. A. Irawan, A. Wilson, Sutrisno (2020) develop the problem of the implementation of Duolingo mobile application in English vocabulary learning. A. Basal (2016) proves the effectiveness of mobile applications in vocabulary teaching. D. Huynh, L. Zuo, H. Lida, (2018) research the assessment of game elements in Duolingo language-learning platform.

So, we can point out the development of mobile technologies along with numerous mobile applications contributes to the innovative use of mobile technologies in higher education. The introduction of mobile applications for rapid and effective learning a foreign language is the key to the needs of every Ukrainian undergraduate.

However, Ukrainian establishment teaching practice shows that, despite the availability of mobile phones among students, English mobile learning is not widespread enough in Ukrainian institutions of higher education. Therefore, it is relevant to study the theoretical and practical aspects of the introduction of

mobile applications as a means of English mobile learning in the educational process for the development and acquisition of foreign language communicative competence by students.

In modern methods of teaching foreign languages, there are already a number of works related to mobile learning. Some Ukrainian researchers have addressed the issue of mobile technologies usage in the process of foreign language teaching with the aim of quality improvements. They proved that mobile teaching as innovative approach of e-learning has significant advantages over traditional teaching methods due to the intensification of self-sustainable activities, individualization, expanded cognitive learning and learning motivation (Gorbatiuk, Kravchenko, Alekseeva, Rozumna, 2019).

In addition it is determined that educational robotics is appropriate at all educational levels, starting from primary school. The use of robotics elements in primary school, which allow to diversify the educational process through the introduction of games and practical activities, is characterized. The concept of "robotics" is also characterized as interdisciplinary, which allows the use of interdisciplinary links in the educational process of primary school. (Rakhmanina et al., 2022). The problem of using computer and Internet technologies in public administration was researched by the Ukrainian scientists (Akimov, Troschinsky, Karpa, Ventsel, & Akimova, 2020; Aleinikova et al., 2020; Kotenko, Nitsenko, Hanzhurenko, & Havrysh, 2020; Levytska et al., 2020; Popovych, Ragimov, Kornienko, Ivanova, & Buryk, 2020; Kryshtanovych, Akimova, Akimov, Kubiniy, & Marhitich, 2021; Kryshtanovych, Akimova, Akimov, Parkhomenko-Kutsevil, & Omarov, 2022; Akimova, Akimova, & Akimova, 2022; Semenets-Orlova et al, 2022).

It is equally important to study using mobile information technologies abroad. This problem was studied by such foreign researchers as Y.-C. Hsu, Y.-H. Ching (2013), V. Frank, S. Freinik, D. Richardson (2014), K. Betti (2015), M. Hanus and J. Fox (2015), M. Sarrab (2017), Q.-K. Fu and G.-J. Hwang (2018) and others.

J. Sandberg, M. Maris, K. Geus (2011) study the importance of mobile technology for learning English as a second language for primary school students. They conclude that formal school learning can be augmented by learning in an informal context, away from school.

Unique in its overall approach to implementing and supporting mobile learning in education was the MoLeNET project, according to the results of which the general definitions, technical and pedagogical recommendations for support, development of methodical materials were provided (Attewell, Traxler, Riordan, & Dennett, 2008).

American scientists proved the effectiveness of technology use in foreign language learning and teaching, with a focus on empirical studies that compare the use of newer technologies and more traditional methods (including network-based social computing, mobile and portable devices). They believe strong support for English learning came from studies on computer-assisted pronunciation training, in particular, automatic speech recognition (Golonka,

Bowles, Frank, Richardson, Freynik, 2014). D. Hamdani (2013) studies the possibility of using mobile devices to enhance teaching and learning, implement resource based learning activities in teaching communicative language teaching course for forth year English teachers.

Y.-T. Sung, K.-E. Chang, J.-M. Yang (2015) present meta-analysis of 44 peer-reviewed journal articles and doctoral dissertations that were written over a 20-year period. The work proves that mobile-device-assisted language instruction has produced a meaningful improvement. The authors reveal different factors effect on educational process, such as learning stages, hardware use, software used, intervention settings, teaching methods, intervention durations, learning skills, target languages, and L1/L2, were also reported. Liu P. L. and Chen C. J. (2015) investigate the impact of taking photos using mobile phones on the English phrase-learning performance of English as a second-language learners in Central Taiwan. They proved the process of students' taking photos assist to engagement in phrase learning. The newly acquired phrases were associated with the sentences they constructed and students could learn them better.

One of the important study was aimed at developing a mobile phone application for autonomous learning of English. This study employed design and development research method, which was a product and tool research. Developed English mobile learning was proved to be interesting, motivating and useful to improve English (Rohani, Suyono, & Rozi, 2019).

It is important to note the systematic review presents an overview of the state of the use of digital gamification for learning English as a second language in digital environments. The results of this study provide suggestions on how to design digital gamification for students' learning English and their corresponding learning experiences and outcomes. (Dehghanzadeh, et. al., 2019).

D. Assanova, A. Prlepessova (2020) study the practical significance of using educational mobile applications as a productive component that affects the content of the material, its systematization and assimilation in the process of teaching a foreign language. The authors prove the need mobile applications in the educational process and describe the most useful application for learning English.

The Malaysian scientists have developed E-Glossary application (a bilingual English-Indonesian glossary). This glossary is essential for non-English Department students and lecturers in seven departments of both commerce and engineering schools at State Polytechnic of Malang. Pictures are also displayed for easy understanding of the vocabulary. Testing proves that the android application is quite effective in helping users in comprehending English texts better. (Rohani S, A Suyono, (2021).

Mobile applications for studying English

Currently, our country is undergoing great changes in the national educational system. This is due to the transition to distance learning because of war in Ukraine. One of the tasks of modern higher education is to reveal the potential of all participants in the educational process, providing them with opportunities to display their English speaking communicative abilities.

The development and the promotion of modern society is influenced by information technologies, which plays a huge role in all areas of the world's population, ensuring the distribution and transmission of information around the world. Mobile devices are rapidly developing in technical terms: speed, reliability, and modernity. Information technology is closely related to the field of linguistics. Previously, information technology was not required to improve the education of foreign languages, but now it is necessary for linguists and teachers to know this area (Assanova D. and Prlepessova A. (2020)).

Teaching foreign languages to students of non-linguistic specialties faces many different problems. These problems are both technical and educational in nature. Using mobile applications can speed up the process of learning English, but it will take time for both the students and the teachers to adapt to distance learning.

A foreign language mobile app is an application that can be installed on the mobile device, such as a smartphone or tablet, to help learning a foreign language. These apps usually have various features and tools to help improving the speaking level, understanding grammar, expanding the vocabulary and interacting with other learners. This is a good tool for accessing information over the Internet, but not everyone uses this feature. The reason is that educational and cognitive motives are not in the first place, but rather entertainment.

Based on the analysis of scientific literature and the educational process on English at higher education institutions, we determined the main functions of mobile applications. Apps provide access to study materials that can be used to learn new words, grammar and phrases. They can contain interactive exercises, tests and video lessons. So, they are powerful means for *training and exercises*. Many apps have audio files with conversations, phrases and pronunciation to help improving the *listening and pronunciation* skills. Most apps have built-in dictionaries and translators that allow students to quickly look up word meanings and translate sentences. Therefore, they can serve as *dictionary* and help in *translating*. Some apps use game elements to make learning more engaging. They can offer tasks, challenges, competitions and achievements to stimulate motivation and continue learning. Then they are the tool of developing *interactivity and gamification.* Moreover, mobile apps assist to *social interaction.* Some of them aimed at communicating with other learners, for example through forums, chat rooms or virtual classrooms. It can be useful to practice speaking, share experiences and get feedback from other users. One more function that is important is *personalization*. Some apps allow undergraduates to customize the training to the level, purposes and interests. They can offer individual recommendations for materials and exercises based on individual's progress and needs.

As the experience of teaching English shows, using mobile applications for learning a foreign language can be quite an effective and convenient way. Several advantages of using such applications were determined by means of survey and pedagogical observation. Mobile gadgets are always with undergraduates, which allow them to learn English at any convenient time and place. They can use the

app during breaks at the university, travel, or free time. So, we singled out *accessibility* as a positive of mobile apps. Many mobile applications offer different types of exercises, video lessons, audio materials, interactive tasks, etc. This allows practicing English in different ways and choosing the materials that suit students best. As a result, we can name *a variety of content* among the advantages. *Interactivity* means that many apps offer the ability to complete exercises and tasks, answer questions, use speech recognition, and receive instant feedback. This allows an education seeker to actively interact with the materials and improve listening, speaking, reading and writing skills. *Flexibility* provides choosing the topics and the level of difficulty students want to work with. Apps often offer structured courses or modules with different levels, helping them progress based on the level of expertise. Many mobile applications provide a system of achievements, awards and incentives that help to maintain *motivation* and interest in learning English.

The use of mobile applications provides a solution to a number of problems related to the methodology of teaching a foreign language to students of non-linguistic specialties. Among the most popular educational applications in the field of learning foreign languages are: Lingualeo, Duolingo, Babbel, Rosetta Stone, Memrise, Easy Ten, Pussle English, Polyglot, etc. The most of them are designed to everyday communication. However, our aim was to analyse the apps that aimed at developing professionally oriented English speaking communicative competence of undergraduates at higher educational institutions. So, we study and describe the features of the most popular apps that can be useful in studying English to intending specialists of some important professions (see in the table 1).

Table 1

Professionally oriented mobile applications for studying English

App title	Advantages
Medscape	A popular medical app provides healthcare professionals with access to medical news, clinical reference tools, drug information, and medical education resources. It offers a wide range of features, including articles on medical topics, drug interaction checker, medical calculators, and continuing medical education (CME) courses. It is known for its comprehensive and up-to-date content, making it a valuable resource for healthcare professionals.
Legal English Vocabulary	This app is designed to help individuals improve their vocabulary in the field of legal English. It likely provides a collection of legal terms and their definitions, along with example sentences and usage tips. It may also include exercises and quizzes to test and reinforce vocabulary knowledge specific to the legal domain. Such an app can be beneficial for law students, legal professionals, and anyone seeking to enhance their legal English language skills.
FluentU Business English	It is an app aimed at helping users improve their English language skills specifically for business purposes. It offers a range of interactive video lessons that cover various business topics, such as presentations, negotiations, and professional communication. The app provides real-world examples and exercises to enhance listening, speaking, reading, and writing skills in a business

	context. It can be useful for professionals looking to enhance their English language proficiency for business settings.
Business English Pod	An app focuses on teaching English language skills for business professionals. It provides audio and video lessons covering a wide range of business-related topics, including meetings, interviews, presentations, and business writing. The app offers practical examples, dialogues, and exercises to improve listening comprehension, speaking fluency, vocabulary, and grammar. It can be a valuable resource for individuals seeking to enhance their English communication skills in the business domain.
Engineering Vocabulary	This app is designed to support individuals in expanding their vocabulary specific to the field of engineering. It may include a comprehensive collection of engineering terms, definitions, and usage examples. The app might also offer exercises or quizzes to help users reinforce their understanding of engineering vocabulary. Such an app can be beneficial for engineering students, professionals, and enthusiasts aiming to improve their technical communication skills.
Technical English Practice	An app provides resources for individuals to practice and improve their English language skills in a technical context. It offers a variety of exercises, such as reading passages, listening comprehension tasks, writing prompts, and vocabulary drills, tailored to technical subjects. The app may cover topics like engineering, IT, sciences, or other technical fields, enabling users to develop their language proficiency in specialized areas.
Aviation English	It is an app that focuses on improving English language skills specifically for aviation professionals, such as pilots, air traffic controllers, and aviation maintenance personnel. It includes aviation-specific vocabulary, phraseology, and communication exercises. The app may cover topics like aviation regulations, weather reports, emergency situations, and cockpit communication. It aims to enhance the English proficiency required for effective communication within the aviation industry.

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DIGITAL COMMUNICATIONS AS IMPORTANT COMPONENTS OF MODERN HIGHER EDUCATION

Recent circumstances in higher education have led to various changes that affected building the strategies of social management. The events of last years surpassed consumer behavior 10 years ahead in Ukraine. Most of the citizens had to learn using digital communication. They quickly learned to implement computer technologies not only in the work, but also to conduct business, shop, donate to the army, use digital services, etc.

Nowadays social management and digital communications usage has increased drastically among the educational process participants of higher educational institutions in Ukraine. In this context of change, using the digital means aimed at socialization generates new challenges and opportunities that influence different areas of the university's organization. They promote engagement, accessibility, collaboration, and global connectivity while providing a range of benefits for students, faculty, and institutions. Leveraging these tools effectively allows higher education institutions to adapt to the evolving needs of learners and establish a strong online presence, fostering a vibrant and connected educational community.

Now it's time for universities to leap ahead into digital-first practices. Institutional leaders and communicators should redefine the value proposition for the universities because there are a lot of risks: adaptation to distance learning, differentiation from other establishments and how they will sustain quality education in agile, hybrid and even virtual environments. While different departments have been accelerating digital communications usage for last two years, there is no turning back for higher education institutions. The behavior of educational process participants has changed (Johnson & Walker, 2021).

A lot of scientists from different countries touch on this issue, in particular – economic changes, changes in the regulation of the education system, or the internationalization of education (Uslu, 2018). However, today's educational need is universities are also expected to respond to societal changes, shouldering relatively new responsibilities such as skills training among older workers, improving education attainment levels among disadvantaged populations, and spurring economic development and innovation (Lumina Foundation, 2015).

Modern higher education institutions have become increasingly entrepreneurial, often pursuing income-generating opportunities while eschewing activities that may produce social benefits. Some researches touch the problem of trending toward "privatization and accountability" (Hearn et al., 2016) and prove that there is declining public funding, university entrepreneurial behavior, and increasing regulation.

The debate on the purpose of higher education is placed under the context of the most recent developments of increasing social inequalities in higher education and some scientists suggest that the current policy focus on labor market have led to an ever growing competition transforming this social institution to an ordinary market (Kromydas, 2017). In order to attract and maintain a higher number of students higher education establishments adapt marketing strategies to foster their education offer and differentiation factors For that purpose, various tools of research are conceptualized and implemented. So, the rapid proliferation of communication technologies affect the recruitment of new students and the communication strategies of universities. (Arlindo).

Nowadays digital means have become essential tools for modern higher education institutions. By embracing these components, institutions can enhance

undergraduates' engagement, streamline communication, strengthen their brand, and create a dynamic and inclusive learning environment.

A subsequent review of scientific literature provided in the next section also justified the need to resolve the research gaps and extracted problems by attaining the formulated objectives in this research study. Therefore, it has been observed that there is a need to understand digital communications usage for social management in higher education.

Scientists about digital communications.

The past decade has seen a renewed importance in the issue of digital communications usage with the purpose of social managing in higher education. A lot of foreign scientists studied the issue of social management in higher education.

American scientist emphasizes that colleges and universities receive many valuable privileges from local and national governments in support of the social responsibilities. Most higher education institutions are designated as non-profit organizations and enjoy exemptions from income, property, and sales taxes; preferred eligibility for federal grants and contracts; favorable treatment of charitable giving; and – in the case of public universities – regular (albeit declining) state subsidies (Cahoy, 2015). Specific social responsibilities such as providing educational opportunities to recently disenfranchised populations (O'Malley, 2016) may emerge and evolve more rapidly.

H. Donelan (2016) pays attention to social media for professional development and networking opportunities in academia. The group of other American researches describes the process of privatization, accountability trends, and policies in the public higher education (Hearn et al., 2016). In the overview, D. Lambić (2016) investigates the need of correlation between Facebook use for educational purposes and academic performance of students. N. Patel (2016) calls into question some aspects about social media management. Q. Zhang et al. (2016) highlight exploring the communication preferences of MOOC learners and the value of preference-based groups. In contrast to this, S. Sharma et al. (2016) mention a multi-analytical approach as a means of predicting the Facebook usage in higher education. A. Sobaih et al. (2016) discuss about importance of using social media in higher education in developing countries.

Australian authors C. Sadowski et al. (2017) affirm university students' perceptions of social networking sites in their educational experiences at a regional university. Other scientists drew our attention to analysis of social media usage in higher education institutions implementing the technology acceptance model (Dumpit & Fernandez, 2017). F. Moreira and co-workers (2017) study social networks and knowledge-sharing as a means of customized X-learning environment. N. Muscanell and S. Utz (2017) make the analysis on the reasons academics use different social networking, in particular ResearchGate. The purpose of higher education and its institutional characteristics, various pedagogical traditions are critically reviewed and used as examples, which can potentially inform today's university policy making (Kromydas, 2017). Next study examined the digital and social media communication practices of urban universities and compared those to known corporate best practices. (Drake, 2017). C. Assimakopoulos and others (2017) suggest effective social media marketing strategy and describe the importance of Facebook for universities. V. Balakrishnan (2017) has shown key determinants for intention to use social media for learning in higher education institutions. H. Meishar-Tal and et al. (2017) discuss about the reasons of using academic social networking sites by

scientists.

A number of studies have found the impact of social media on international student recruitment on the example of Lebanon (Vrontis et al., 2018); the usage of social media by social scientists for scholarly communication (Al-Daihani et al., 2018); a content analysis of university marketing on social media, in particular Facebook post types and formats (Peruta & Shields, 2018); the peculiarities of modelling an interplay of adoption determinants with respect to social Web applications used in massive online open courses (Orehovački et al., 2019); the impact of social media on learning behavior for sustainable education in Pakistan (Abbas, et al., 2019); the information from social media electronic that are searched by intending students during the university choice process (Le et al., 2019).

Since 2020, much more information on the topic has become available: the influence of individual innovativeness on technology and social media usage in higher education (Aldahdouh et al., 2020); the empirical study on electronic word of mouth engagement in social commerce platforms (Ali et al., 2020); researching the alternative approaches of online learning during COVID-19 pandemic crisis and impact of digital social media on Indian higher education (Dutta, 2020); a systematic review on professional development through social media in higher education (Luo et al., 2020); the importance of social networks in higher education management (Melián-Alzola, 2020).

Many attempts have been made in order to investigate challenges of implementing digital communication in higher education institutions (Santos et al., 2021); describe the process of integration of social media for smart pedagogy in high school students in Ghana (Barfi et al., 2021); point out the pedagogical instruments of social media adoption framework in higher education classrooms (Hamadi et al., 2021); study managing digital accessibility at universities during the COVID-19 pandemic (Lazar, 2021); argue the global perspective of higher education for sustainability (Žalėnienė & Pereira, (2021); outline the determinants of social media based learning in higher education (Rahman et al., 2021); make a scoping review on social media usage by higher education academics (Chugh et al., 2021).

Changes in the Higher Education paradigm in Portugal, have made the sector competitive where different higher education institutions adapt marketing strategies to foster their education offer and differentiation factors in order to attract and maintain a higher number of students. The rapid proliferation of communication technologies affected the recruitment of new students and the communication strategies in higer education. For that purpose, various tools of research were implemented in the reserch (Santos et al., 2021).

A recent review of the literature on the topic found the checklist of sustainable digital communication in higher education (Sumedrea et al., 2022); the study on social networking platforms and social media in higher education institutions during the COVID-19 pandemic (Sengupta et al., 2022, 2023).

The importance of social management and digital communications in modern higher education

Social management and digital communications play a crucial role in higher education in today's interconnected world. These aspects have gained immense importance due to the rapid advancement of technology and the widespread use of digital platforms.

Social management refers to the processes, strategies, and techniques used to guide, influence, and control university social systems and groups. It involves

the application of principles and practices to address various social issues, promote social well-being, and achieve desired outcomes within an institution.

The concept of social management encompass a wide range of areas. The managers of higher education establishments should take into account such directions of social management: *social policy* (developing and implementing policies that aim to improve social conditions, such as healthcare, education, welfare, and employment); *social services and development* (facilitating the growth and empowerment of an institution by promoting social cohesion, participation, and sustainable development. Planning and delivering social programs and services that meet the needs of individuals, and vulnerable populations); *social justice* (advocating for fairness, equality, and human rights, addressing issues related to discrimination, inequality, and marginalization); *conflict resolution* (managing and resolving social conflicts within groups or between different societal entities in the university, promoting dialogue, negotiation, and reconciliation). However, it is worth noting that social management is not limited to the above-mentioned directions. Moreover, its understanding and application may vary across different academic contexts and establishments.

One of the most powerful means of social management is digital communications. They have become increasingly important in the modern era, transforming the way information is shared, disseminated, and accessed. Digital communications refer to the transmission, exchange, and storage of information using electronic devices and technologies. This encompasses a wide range of platforms and channels, including the internet, email, social media, instant messaging, video conferencing, and various other digital tools and applications.

Key aspects and trends related to digital communications.

Based on the research we can define some key aspects and trends related to digital communications.

1. Digital communications *connectivity* gives the opportunity individuals, organizations, and communities to connect and interact across geographical distances, facilitating global collaboration and knowledge sharing.

2. Digital platforms provide efficient and widespread *information dissemination* of scientific research, scholarly articles, and other forms of academic information. Online databases, digital libraries, and open-access journals have made scientific knowledge more accessible to a broader audience.

3. Digital communication means foster *collaboration and networking* among researchers, enabling them to connect, share ideas, and collaborate on projects regardless of their physical location. Online platforms and social networks have become popular spaces for scientific communities to interact and engage in discussions.

4. Digital communications facilitate the *sharing and analysis of large datasets*, supporting scientific research in various fields. Researchers can exchange data, collaborate on data analysis, and utilize advanced computational techniques for complex research inquiries.

5. Digital platforms play a crucial role in *science communication*, allowing scientists to engage with the public, share research findings, and promote scientific literacy. Science blogs, podcasts, videos, and social media platforms have become channels for scientists to communicate their work and interact with a broader audience.

The survey of participants in the educational process made it possible to determine the main reasons for improving the social management at the university through digital communications (figure 1).

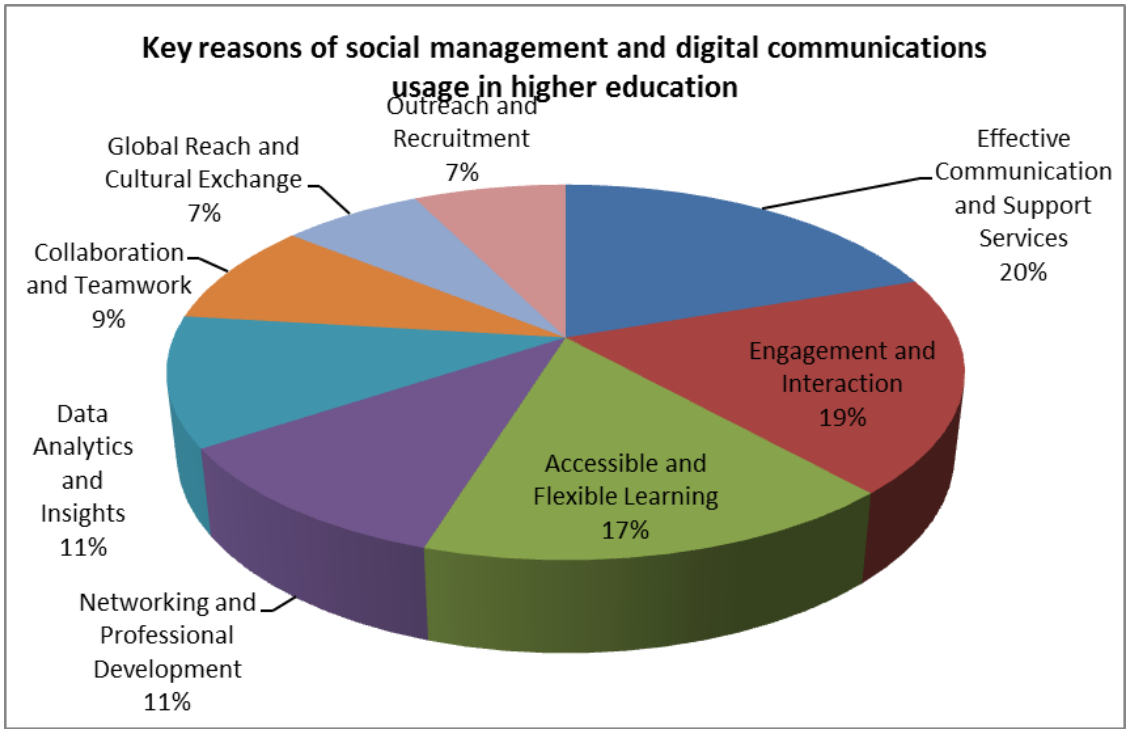

Figure 1. Key reasons of social management and digital communications usage in higher education

The main reasons of digital communications usage in higher education.

Let' s dwell in more detail on the analysis of the key reasons of digital communications usage in higher education.

Effective Communication and Support Services. Social management and digital communications enhance communication channels between students, faculty, and administrative staff. Instant messaging, email, and online portals allow for efficient and timely communication of important information, such as course updates, deadlines, and administrative procedures. Additionally, digital platforms can provide access to support services like academic advising, counseling, and career guidance, ensuring students receive the assistance they need to succeed academically and personally. Educational institutions can create dedicated groups or networks where current students, alumni, and faculty can connect, share resources, and exchange professional opportunities. This fosters a sense of community, facilitates mentorship, and opens doors for future collaborations and career advancement.

Engagement and Interaction. Social media platforms, online forums, and collaborative tools allow for seamless communication and foster a sense of community within the higher education environment. This engagement enhances student learning experiences, encourages active participation, and facilitates networking opportunities. They provide an effective way to engage with students outside the traditional classroom setting. Educational institutions can use social media channels to share important updates, news, and events, fostering a sense of community among students. These platforms also allow for two-way communication, enabling students to ask questions, provide feedback, and collaborate with their peers.

Data Analytics and Insights. Digital communications allow institutions to

collect valuable data and insights. By analyzing engagement metrics, social media reach, and website analytics, institutions can assess the effectiveness of their communication strategies and make data-driven decisions for improvement. This data can also help identify trends, preferences, and areas where additional support may be required.

Accessible and Flexible Learning. Digital communications enable the delivery of educational content and resources in a variety of formats, making education more accessible and flexible. Online learning platforms, virtual classrooms, and video conferencing means provide undergraduates' to access lectures, course materials, and discussions at their own pace and from any location. This flexibility accommodates diverse learning styles and helps overcome geographical barriers, enabling individuals to pursue higher education regardless of their location or personal circumstances.

Global Reach and Cultural Exchange. Social management and digital communications have expanded the reach of higher education institutions beyond traditional boundaries. Through online platforms, universities can attract international students, offer remote learning programs, and foster cross-cultural collaborations. This global reach promotes cultural exchange, diversity, and a broader understanding of different perspectives, enriching the educational experience for all participants.

Collaboration and Teamwork. Digital communications tools facilitate collaboration and teamwork among students, faculty, and researchers. Through virtual project management platforms, shared documents, and communication apps, students can work together on group assignments, share ideas, and exchange feedback. This collaborative approach mirrors real-world professional environments and prepares students for future careers that often involve remote collaboration. Digital tools facilitate seamless communication and collaboration between students, faculty, and staff members. Online platforms, such as learning management systems, enable the delivery of course materials, assignment submissions, and discussions. Collaborative tools and video conferencing platforms promote teamwork and enable virtual meetings, facilitating effective communication regardless of physical location.

Networking and Professional Development. Social management and digital communications facilitate networking and professional development opportunities within the higher education community. Platforms like LinkedIn and online professional forums allow students to connect with graduates, industry professionals, and potential employers. These interactions can lead to mentorship opportunities, internships, and job placements, enhancing students' career prospects.

Marketing, Branding and Reputation. Higher education institutions rely on social management and digital communications to market their programs, attract prospective students, and enhance their brand image. Social media platforms, websites, and online advertising campaigns are effective channels for promoting the institution's unique offerings, showcasing faculty expertise, and highlighting student achievements. This visibility is crucial in a competitive higher education landscape. Social media platforms offer opportunities for institutions to build and manage their brand reputation. By sharing success stories, achievements, and unique aspects of their programs, colleges and universities can create a positive image and differentiate themselves from competitors. Additionally, they can promptly address any concerns or negative feedback through social media channels, showcasing their commitment to student satisfaction.

Outreach and Recruitment: Digital communications play a vital role in the recruitment process for higher education institutions. Many students now turn to online resources, such as university websites and social media profiles, to gather information about potential colleges and universities. Institutions that effectively utilize digital platforms can show case their programs, campus culture, and student achievements, thereby attracting and reaching a wider pool of prospective students.

Advantages and disadvantages of digital communication tools in higher education institutions

The most commonly used digital communication tools in higher education institutions in Ukraine include: learning management systems (LMS), email, online collaboration tools, instant messaging, and chat applications, social media platforms, online discussion forums. Reporting results from questionnaires and interviews make it possible to rate the main digital communications used in higher education in Ukraine nowadays (Table 2).

Table 2

Key digital communication means used in higher education in Ukraine

Digital communication means	Advantages
Learning Management Systems (LMS)	LMS platforms, such as Moodle, Blackboard, or Canvas, are commonly utilized by higher education institutions in Ukraine. LMS platforms provide a central hub for online course materials, assignments, discussions, and communication between faculty and students.
Email	Email remains a widely used digital communication tool in higher education institutions worldwide, including Ukraine. It is used for official communication between faculty members, administration, and students.
Online collaboration tools	Tools like Microsoft Teams, Google Workspace (formerly G Suite), and Zoom are frequently used for online meetings, video conferencing, and collaboration among faculty, staff, and students. These tools facilitate synchronous and asynchronous communication and enable virtual classrooms, group work, and academic discussions.
Instant messaging and chat applications	Applications like Telegram, WhatsApp, and Viber are popular for quick and informal communication among students, faculty, and staff. They are often used for group discussions, sharing information, and coordinating activities.
Social media platforms	Social media platforms like Facebook and Instagram are widely used by higher education institutions in Ukraine. They are used for various purposes, including disseminating information, promoting events, engaging with students, and building online communities.
Online discussion forums	Higher education institutions may have their own online discussion forums or platforms where students and faculty can engage in academic discussions, ask

	questions, and share resources.

The most commonly used social and digital communication tools in higher education institutions in Ukraine include: Moodle, Microsoft Teams, Google Workspace, Zoom Google+, Telegram, WhatsApp, Viber, Facebook, Instagram and YouTube showed the highest ranks. Most students have contacted a friend or a university staff for university course information by using social media sites.

It's important to note that the specific usage of digital communication means may vary among institutions, faculties, and individual professors. Furthermore, the adoption of digital communications can evolve over time, and new platforms may emerge as technology advances.

Social management and digital communications have indeed become important components of modern higher education. With the rapid advancement of technology and the widespread use of social media and digital platforms, educational institutions are recognizing the need to adapt and incorporate these tools into their strategies.

Key barriers of digital communications usage in higher education

Nevertheless, there are several barriers that may prevent university lectures from using social media as a means of scholarly communication. These barriers can vary depending on individual preferences, institutional policies, and disciplinary norms (table 1).

Table 1.

Key barriers of social management and digital communications usage in higher education

Perception of credibility	Some academics may view social media platforms as less credible or less academically rigorous compared to traditional scholarly communication channels. There can be concerns about the accuracy, quality, and peer review process of information shared on social media.
Time constraints	Engaging with social media requires time and effort, which can be a challenge for busy academics who already have numerous responsibilities such as teaching, research, and administrative tasks. Many academics may feel that they cannot allocate sufficient time to maintain an active and meaningful presence on social media.
Privacy and data security concerns	Social media platforms often collect and utilize personal data, which can raise privacy concerns for academics. Sharing research findings or engaging in discussions on social media may require disclosing information that some academics prefer to keep private.
Institutional policies and guidelines	Some universities may have policies and guidelines that restrict or discourage the use of social media for scholarly communication. These policies may be based on concerns about reputation management, data security, or conflicting interests.
Lack of incentives and recognition	In many academic institutions, traditional forms of scholarly communication, such as peer-reviewed journals and conference presentations, are highly valued for career

	progression and recognition. Engaging with social media platforms for scholarly communication may not be incentivized or recognized in the same way, leading to a lack of motivation for academics to use these channels.
Technical barriers and digital literacy	Some academics may face technical barriers and feel less comfortable with using social media platforms. Lack of digital literacy or limited knowledge of how to effectively navigate and leverage social media for scholarly purposes can be a significant obstacle.
Disciplinary norms and traditions	Different academic disciplines have distinct communication practices and norms. Some disciplines may have a more conservative approach to scholarly communication and may not consider social media as a suitable platform for academic discourse.

It's important to note that while these barriers exist, many academics are embracing digital communications as a valuable means for social management and scholarly communication. Over time, as the benefits of digital communications become more apparent and institutional attitudes evolve, these barriers may be overcome or mitigated.

As we can conclude there are a lot of both advantages and disadvantages of using digital communications for improving the social management at the university. While digital communications offer numerous benefits, they also present challenges such as information overload, misinformation spread, data privacy, and cybersecurity risks. Researchers and organizations need to address these challenges to ensure the reliability, integrity, and security of digital communications. To our mind, it should combine the using digital communications with other ones to provide powerful social management in higher educational establishments in Ukraine.

We see the prospects for further research in the study of the peculiarities of the impact of artificial intelligence usage in the course of scientific researches.

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PRAGMATICS AND LINGUISTIC COMMUNICATION: THE STUDY OF LANGUAGE USE IN REAL COMMUNICATIVE SITUATIONS, INCLUDING LINGUISTIC POLITENESS, CONVERGENCE, AND MUTUAL UNDERSTANDING

Language communication is a complex process that involves the transfer of information between interlocutors. Effective communication is essential in the legal profession, as it involves conveying complex legal concepts and information accurately and clearly. Pragmatics, as a subfield of linguistics, studies how language is used in context and how people use language to achieve communicative purposes. We will focus on the study of pragmatics in real communicative situations, taking into account the aspects of linguistic politeness, convergence, and mutual understanding. This paper delves into the study of pragmatics in real communicative situations within law faculties, focusing on the various pragmatic aspects that impact legal communication.

The modernization of law educational process at a university involves increasing the requirements for the communication of intending lawyers' professional level. So, it is necessary to train competent lawyers of the new generation, who are able to act productively and purposefully in modern conditions, to be active participants in international communication, to have the necessary communicative experience in the spheres of professional and situational communication. Considering this, the problem of developing pragmatic and communicative competence of pre-service lawyers while studying at higher education institutions is relevant. It will contribute to increasing their competitiveness.

Most of higher education institutions in Ukraine today work in a mixed or distance format. At the same time, the requirements for graduate students" competencies are only growing due to the need to find a job and compete in the labor market. Therefore, higher education institutions students should work additionally individually to improve their own level of communicative competence.

Scientists about pragmatic and linguistic communication.

In the research R. Kempson (2003) shows pragmatics as the application of conversational principles according to sentence meanings, describes the process of reasoning to choose the right interpretation and the interaction between linguistic processing and general processing.

G. Kasper and S. Rose (2013) claim that interlanguage pragmatics examines how nonnative speakers comprehend and produce actions in a target language, and how foreign language learners develop the ability to understand and perform actions in a target language. More recently, K. Bardovi-Harlig (2013) underlines that pragmatics and pragmatic acquisition in interlanguage pragmatics encompasses both form and use. She writes: "[pragmatics] bridges the gap between the system side of language and the use side, and relates both of them at the same time. Interlanguage pragmatics brings the study of acquisition to this mix of structure and use".

Situating interlanguage pragmatics in a broader scope of intercultural studies is timely, because in today's multilingual society, the goal of language learning is not to become a native speaker, but to become an intercultural speaker who is linguistically and interculturally competent – a person who is sensitive to other cultures and aware of his/her own cultural position to mediate across linguistic and cultural boundaries (Byram 2012; Wilkinson 2012). Pragmatic competence can serve as are source that assists in this process of

mediation. Reconceptualising pragmatic competence to reflect this notion of the intercultural speaker will elevate the practice to the area of global citizenship. At the same time, pragmatic insights into intercultural interaction will help move beyond the current practice of description of intercultural competence to the analysis of acquisition of that competence.

M. Blömer (2012) overviews structural features of legal language as a special language. It differs from everyday language in many ways. Although the overall language with which lawyers operate is standard, not every term of legal language would be tolerated in general . Therefore, legal language cannot be called a special kind of official language.

Some scientists draw their attention to problem of mutual understanding and disagreeing between speakers. In particular Jo. Angouri (2012) maintains managing disagreement in problem solving meeting talk; C. Maíz-Arévalo (2014) outlines the ways of expressing disagreement in English and the pragmatic rules; M. Marra (2012) describes the ways of disagreeing and negotiating workplace communities without being disagreeable. M. Sifianou (2012) studies the means of politeness and mutual understanding.

H. Netz and A. Lefstein (2016) make a cross-cultural analysis of disagreements in classroom discourse on the example of studies from England, the United States, and Israel. He claims cultural and institutional factors interact in shaping preference structures. The author explores the influence of cultural communicative norms on the one hand and pedagogical goals and norms on the other. The study highlights culture-specific discursive patterns that emerge as the teacher and students manage a delicate balance between often clashing cultural and educational motives.

C. Bryan and co-workers (2016) analyzing the discourse of personalization in online sermons, investigates the discourse of an American evangelical church. The study is based on the transcripts of a five-year period of online preaching . The goal was to apply the framework of critical discourse analysis to digital sermons, particularly focusing on examining the elements of personalization in this relatively new form of “net” evangelism.

By categorizing speech act expressions across languages using a single coding framework, the researchers were able to reveal culturally specific features of speech acts by investigating contrastively how many types of expressions exist in a language, which expressions are considered direct or indirect and how they vary in different situations. The coding framework and DCT instrument facilitated many replication studies, which provided empirical descriptions of speech acts across cultures. This trend continues today (Netz and Lefstein, 2016)

The author from Switzerland S. Assimakopoulos (2017) investigate the notion of context from a relevance-theoretic perspective. Endorsing the idea that, in cognitive terms, contexts for utterance interpretation are best viewed as sets of assumptions that are brought to bear during the processing of an utterance. The researcher proposals that contexts are actually selected during utterance comprehension rather than determined in advance of it. The author address the question of how considerations of relevance, in the technical sense facilitate the admittedly effortless selection of contexts by the hearer and, to a certain extent, the speaker too.

N. Taguchi (2017) analyzes interlanguage pragmatics, examines second language learners’ knowledge, use, and development in performing sociocultural functions. The way of speaking is determined by context – to whom we are talking and under what circumstances, so learners need to know which forms are

appropriate to use in what situations. Hence, linguistic knowledge and sociocultural knowledge of social conventions, customs, and norms of interaction are two layers of pragmatic competence. The scientist considers the process of learning these knowledge bases, individual variation between learners in the process, and factors affecting the process are the focal objects of inquiry.

Mamych M. and others (2021) offer an analysis of professional discourse as a thought-communicative activity. The validity of the problem for modern theoretical and practical linguistics is noted, which resulted from the significant expansion of the spheres of functioning of the Ukrainian professional language, its interaction with special purpose languages of other national cultures, in particular English. The research reflects the issues of history of the professional language study, theoretical aspects of the separation of special purpose language as a separate discourse of social practice, presents current perspectives on the practical study of professional language practice. The selected segment is studied as a modern literary language in its written and oral varieties.

The role of pragmatics in legal communication, the use of language in legal discourse were also studied in scientific sources. Thus, P. Chiassoni (2019) has isolated the disadvantage and called it the 'container-retrieval' theory. According to his theory legislative language is filled up with content by linguistic conventions as to the application of the words in which it is expressed. The task of applying legislation is the task of identifying those cases to which its words conventionally apply.

Enoch (2014) reviews the communication model can explain controversy over the law. He questions how a law maker can do 'normative magic' , making mere words into law. M. Greenberg (2011) has argued that trying to understand legislation on the model of communication is misguided because legislation and legislative systems have purposes that have no parallel in the case of communication and that may be better served if a statute's contribution to the content of the law is not constituted by what is communicated by the legislature.

A number of attempts have been made in order to study philosophical and jurisprudential issues of vagueness (Geert Keil and Ralf Poscher, 2017); to demonstrate some cases of a realistic enquiry of interpretation without truth (Chiassoni, Pierluigi, 2019); to analyze strategic indeterminacy in the law (Lanius, David, 2019; to outline the nature and value of vagueness in the law (Asgeirsson, Hrafn, 2020) etc.

Key components of communication skills of higher education students

Pragmatics is the branch of linguistics which studies how utterances communicate meaning in context. It is a medium where we examine how people convey different kinds of meanings with the use of language or how people express a variety of meaning with variety of people.

Pragmatics is generally considered to be the study of the ability of speakers to communicate more than that which is explicitly stated. As J. Mey (2004) writes: "Pragmatics is essentially about the users of language in a real-life situation, and about the conditions that enable those users to employ linguistic techniques and materials effectively and appropriately".

Pragmatics is the study of the aspects of meaning and language use that are dependent on the speaker, the addressee, and other features of the context of utterance. It is the study of meaning arising from language in context, in other words, the meaning intended by the speaker or text sender and understood by the listener or text receiver. When the communication act is successful, these

meanings coincide, and when it is not, they diverge to a greater or lesser degree. As such, pragmatics focuses on the effect of context on communicative behavior as well as on how inferences are made by the receiver in order to arrive at the final interpretation of an utterance.

According to the professor of linguistics at the University of Wales D. Crystal (2020) pragmatics is the study of language from the point of view of users, especially of the choices they make, the constraints they encounter in using language in social interaction and the effects their use of language has on other participants in the act of communication.

Researchers of various aspects of language always turn to pragmatics, the issues of which are diverse and multidimensional. The ambiguous understanding of the term “pragmatics” in modern linguistics is connected with the history of its origin and use. Here are some interpretations of this term: a branch of semiotics that studies the sign-person relationship; a branch of linguistics that studies the linguistic aspect of the relationship between a linguistic sign and a person; the category of the text, that is, the property of the text in one way or another, to correlate with the addresser and the addressee, to realize the communicative intention of the first to influence the second; pragmatic content / pragmatic information of a language unit, a fragment of speech, a whole speech work.

Ch. Pierce laid the foundations of pragmatics as part of semiotics, a complex science that studies all kinds of sign systems. Later, science developed and different scientists viewed this term in different ways. Pragmatic linguistics is understood as a science: about the use of the language (Leech, 2014), about aspects of meaning that are not covered by semantic theory (Levinson S.C.), about the interpretation of speech acts (Searle J.R., Austin J.L., Grice H.R.), about the language in the context (Parret N.), about the linguistic form, meaning and activity (Dijk, 2008, 2014).

In studying the use of language, the role of speaker and hearer, the role of the context, the amount of relative quality of language that is used and the relative distance between the speaker and the hearer is important.

In pragmatics, we focus only on a spoken language, conversation or how people speak or express their desire when they communicate with others. People express their feelings, desires, point of views and variety of things about their culture, society and so on. But sometimes they have many desires which they do not express or unable to express and there can be variety of reasons for that, for example, fear, inferiority, insult, etc. Pragmatics tries to study human beings at their characterization, feelings, needs, attitudes, volition or volatile personality and many other things through language. Therefore, pragmatics is the study of language used by real people in the real context. (Karthik, 2013).

Analysis of the text, its semantics and structure, as well as the semantics and structure of the units that make it up, should set the task not only to identify what determines the formation of the meaning of the text, but also how the ultimate goal of communication is achieved - the impact on partners in the process of speech activity. The way to achieve a specific result for the communicants determines the pragmatic orientation of the text. T. Dijk (2014) notes that the pragmatics of the text correlates the text itself and the structure of communication with each other, which obviously contributes to a deeper and more comprehensive understanding of the text as a whole.

Specialized language pragmatics is directly related to the situations in which this type of communication occurs, and to the ways that the text sender and receiver potentially and effectively deal with them. Such communicative

situations are the focus of the external or sociocultural view of pragmatics, whereas the online construction of text and word meaning by sender and receiver refers to the internal or cognition-oriented view of pragmatics.

Cognition-oriented pragmatics explores how the text, which is the result of the communication act, is molded by the situation itself as well as the previous knowledge, intentions, expectations, and beliefs of the text sender. It also targets how the text is finally understood by the receivers, both at the micro and macrocontextual level. The structure, content, and terminology of the specialized text are constrained by all of these factors, and can be analyzed in terms of frame, context, and construal or speaker perspective.(Faber)

P. Garcia (2004) presents the concepts of pragmatic ability and pragmatic comprehension. The former is the ability to use language appropriately according to the communicative situation and the latter refers to the comprehension of oral language in terms of pragmatic meaning. Therefore, students need to be able to comprehend meaning pragmatically in order to: understand a speaker's intention; interpret a speaker's feelings and attitudes; differentiate speech act meaning such as the difference between a directive and a commissive; evaluate the intensity of a speaker's meaning, such as the difference between a suggestion and a warning; recognize sarcasm, joking, and other facetious behavior; be able to respond appropriately.

As we know, pragmatics is the way we convey meaning through communication (Ahmed, 2022), so the study aims at student's opinions on the use of language as a means of communication, and to show the significance of language function, context, and professional situations to develop pragmatic competence in law university learners.

Communication skills are a set of abilities that enable individuals to effectively exchange information, ideas, thoughts, and feelings with others. These skills play a crucial role in personal and professional interactions, allowing individuals to express themselves clearly, listen actively, and understand and interpret the messages of others. Effective communication skills are essential in various aspects of life, including relationships, teamwork, leadership, and career success.

In order to investigate main components of pragmatic and communicative competence of undergraduate students, the in the research process, the methodology of expert assessment was implemented with the determination of significant coefficients of communication skills, the provision of which contributes to the development of undergraduate students' pragmatic and communicative competence. This required the formation of an expert group, which included 7 specialists in the field of higher education. The survey involved the ranking by experts of communication skills that are important for the development of intending lawyers' professional competence. The ranking of the expert evaluation made it possible to identify nine dominant communication skills. Next, we will consider the key components of communication skills.

Verbal Communication: the ability to articulate thoughts and ideas using words. This includes speaking clearly, using appropriate language, and being able to convey messages concisely.

Nonverbal Communication: nonverbal cues such as facial expressions, body language, gestures, and eye contact can significantly impact communication. Understanding and using nonverbal cues effectively can enhance the message being conveyed.

Active Listening: being fully present and engaged while someone else is speaking, giving them undivided attention, and showing empathy and understanding. Active listening involves not only hearing the words but also grasping the underlying emotions and intentions.

Empathy: the ability to understand and share the feelings, emotions, and perspectives of others. Empathy helps build trust and connection in communication.

Clarity and Conciseness: expressing ideas in a straightforward manner, avoiding ambiguity or confusion in communication.

Flexibility: being able to adapt communication style and approach based on the context, audience, and purpose of the interaction.

Assertiveness: the ability to express thoughts, needs, and opinions confidently and respectfully, without being aggressive or passive.

Conflict Resolution: skillfully managing disagreements and conflicts by actively listening, finding common ground, and seeking mutually beneficial solutions.

Feedback: providing constructive feedback and receiving feedback gracefully to facilitate personal and professional growth.

The next step of the research was conducting a survey of students in order to determine the rating of each of the communication skills (Figure 1)

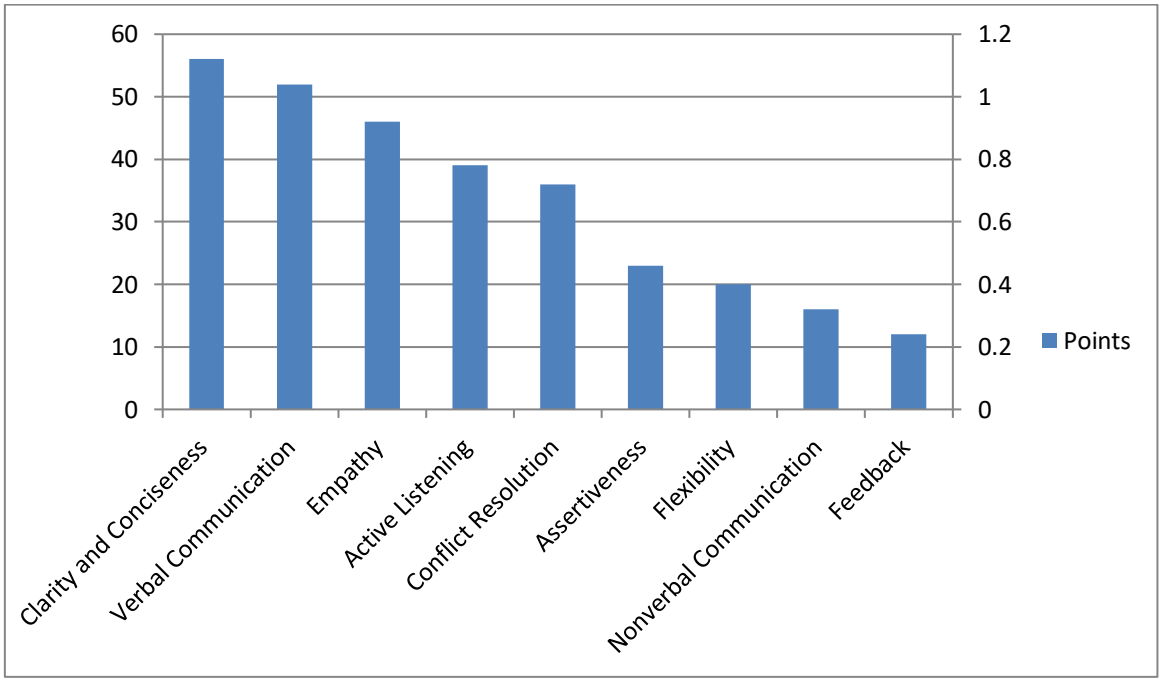

Figure 1. Rating the key components of communication skills according to law students' survey results

Strategies for Enhancing Pragmatic Competence of Students:

Specialized Training and Workshops: faculties can offer specialized training and workshops on legal communication, including understanding legal language and jargon, using appropriate special terms, and adapting communication for different professional settings.

Role-Playing Exercises: Engaging students in role-playing scenarios can help them practice communication in simulated situations. This approach allows them to receive feedback and improve their pragmatic competence.

Mock Trials and Moot Courts: Participating in mock trials and moot court competitions can help students practice oral argumentation, and presentation skills in a real-life setting.

Mentorship Programs: Establishing mentorship programs where students can work closely with professionals can provide valuable guidance on effective communication techniques in the field.

Cross-Cultural Awareness Training: universities can incorporate cross-cultural awareness training to help students navigate communication with individuals from diverse cultural backgrounds.

Communication Courses: Integrating communication courses into the curriculum can provide students with a comprehensive understanding of effective communication techniques, both verbal and non-verbal.

Reflective Practices: Encouraging students to engage in reflective practices, such as journaling or self-assessment, can help them identify their communication strengths and areas for improvement.

Encourage Active Listening: Faculty can emphasize the importance of active listening in settings and encourage students to practice this skill during discussions and debates.

By addressing these challenges and implementing strategies to enhance pragmatic competence, faculties can better equip their students with the necessary communication skills to succeed in the profession. Effective communication is crucial for building trust with clients, presenting persuasive arguments, and resolving issues efficiently and professionally.

It is important to conduct user testing and gather feedback from law university teachers and students for improving the development process and ensure the app meets their needs and preferences. Considering all the advantages, it is clear that using proposed strategies is a highly topical and beneficial approach. However, it's important to note that while they can be an excellent supplementary means for developing pragmatic competence, they should be complemented with other forms of practice. Distance learning cannot replace full communication and interaction with live people. To our mind, only real life communication learning methods can be useful, such as conversation clubs, classes with a teacher, engaging in language exchanges, real-life communication with native speakers.

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INNOVATIVE TECHNOLOGIES IN EDUCATION

Nowadays, there is a great number of educational changes in Ukraine. Despite military operations in the country, we build new modern conceptual foundations of the national education system. The process of national education integration into the European educational space takes place regardless of the difficult contemporary conditions of danger to the population of our state.

The necessity to renovate the educational field of Ukraine is due to its insufficient compliance with modern demands of society. The modernization of an intending teacher training process involves increasing the requirements for their professional level in order to implement the New State Education Standard. To reform the educational sector, it is necessary to train competent teachers of the new generation, who are able to act productively and purposefully in modern conditions. Considering this, the issue of implementing innovative technologies while studying at education institutions is relevant.

Most of education institutions in Ukraine today conduct educational process in a mixed or distance format. The COVID-19 pandemic caused the largest disruption to education in history … Most education systems were unprepared, leaving one third of learners without access to any remote learning and highlighting the urgency of equipping teachers with the requisite digital and pedagogical skills [UNESKO].

Numerous works have been devoted to the issue of innovative educational technologies implementation (V. Bılyk et al. (2021); I. Chirikov et al. (2020); R. Feitosa & A. Dias (2019); O'Flaherty & M. Liddy (2018); C. Lin et al. (2022); S. Rudyshyn et al. (2022); D. Sari et al. (2019); J. Sebastian-Lopez & de R. Miguel Gonzalez (2020); M. Sidorovich et al. (2022) etc.) To our mind the most relevant are the works in which this problem is developed in the context of implementing modern educational technologies with the purpose to provide the younger generation with a solid groundwork to solve the problem of sustainable development of our planet.

Therefore, the purpose of the study is to present the experience of using innovative educational technologies during biology teaching at different levels of education. As a rule, scientists focus their attention on one or two innovative technologies. In contrast to them, we aimed to investigate educational technologies that are most used in the process of teaching biology in educational institutions of Ukraine.

Scientists about innovative technologies in education.

Scientific and methodological literature contains a certain amount of researches on innovative educational technologies implementation into the biology teaching. Among them the main ones are: introduction of technologies for simulation of students' educational process and professional training (S. Rudyshyn et al., 2022); understanding education for sustainable development (Grund, J., & Brock, A., 2020); I. Molderez, & E. Fonseca, 2018); E. Hartadiyati et al., 2020); J. O'Flaherty & M. Liddy, 2018); assessment of online learning (W. Alpert et al., 2016);

S. Lee and C. Tsai (2013) carried out a literature review of using modern educational technologies on teaching biology during the previous decade. They research the process of utilizing simulations or visualization means. They outline that the most popular biological topics are genetics and molecular biology.

M. Akçayır et al. (2016) study the effectiveness of augmented reality as a means of improving university students' laboratory skills and attitudes toward scientific laboratories.

C. Lin et al. (2022) explore collaborative learning strategies that are often used in STEAM transdisciplinary education to train students' problem-solving skills. V. Bılyk et al. (2021) have proved the necessity to define ultra-innovation educational technologies, contribute to the rising psychology students' motivation to study biology. They have characterized such pedagogical technologies: coworking, barcamp, workshop, SMART technology, BYOD technology.

In the other study (J. Sun et al., 2023) the impact of implementing different teaching tools (paper textbooks, wearable AR material, and wearable hybrid AR/VR material) in physics studying on the situational engagement, and successful learning of school students was hypothesized. The research results demonstrated that the situational engagement and successful learning of the wearable hybrid AR/VR group were much higher than in the traditional learning group. This study concludes that teachers can use wearable hybrid AR/VR to increase situational engagement, andsuccessful learning among education seekers in science laboratory educational environments.

Numerous researchers suggest virtual reality using as a productive educational means for natural science teaching: involving undergraduates in a library guide by means of video-based wearable spherical virtual reality (H. Lin et al. (2019); three-dimensional virtual reality trips provide the opportunity to learn about climate changes (D. Markowitz et al. (2018); teaching natural science through immersive virtual reality (J. Parong & R. Mayer (2018); collective intelligence and consciousness to engage students through real-time virtual reality creation (H. Wang & J. Sun (2021). M. Rojas-Sánchez et al (2023) present scientific sources analysis on virtual reality in education.

A group of scientists (B. Anđić et al. (2023) maintain a study of teachers' STEM views on implementing three-dimensional modelling and printing (3DMP) in teaching and prove that 3DMP using in STEM teaching enriches students' competence, motivation, and active participation in the educational process.

In recent years, there has been growing interest in different aspects of virtual reality implementing, in particular: methods of using virtual reality in education for industry and sustainability (A. Paszkiewicz, et al., 2021); analysing the virtual reality technologies based on mathematical biosciences and engineering (Palos-Sanchez, et al., 2022); a VR educational system for construction workers' competences developing (F. Osti, et al., 2021); a scientific literature exploration of successful e-learning through social virtual reality conditions at a higher education institute (Mystakidis, et al., 2021); implementing augmented reality and the structure of functional model to teach behavior school pupils (T. Gnidovec, et al., 2020); virtual and distant laboratories in education for control (R. Heradio, et al., 2016).

A growing body of literature has studied various modern technologies for teaching natural sciences: examining go-lab based in understanding teacher design practices for digital inquiry-based science learning (T. de Jong, et al., 2021); factors that affect students' choosing of technology means during biology learning (D. Cairns, et al., 2021); investigation of thinking practices and epistemic actions to search students' comprehension of genetics and evolution (N. Ageitos, et al., 2019); methodology and epistemology of computer simulations and implications for science education (M. Develaki, 2019); comparing middle school students' science explanations during physical and virtual laboratories (D.

Gnesdilow & S. Puntambekar, 2021); fostering middle school students' knowledge integration using the Web-based inquiry science environment (B. Ulus & D. Oner, 2020); a pedagogical perspective of understanding how the perceived usefulness of mobile technology impacts physics learning achievement (X. Zhai & L. Shi, 2020); the impact of Physics education technology interactive simulation-based learning on motivation and academic achievement among malawian physics students (H. Banda, et al., 2023)

Modern Educational Technologies.

The results of a survey of teachers made it possible to identify summarized data of the main innovative educational technologies used to enhance the teaching and learning today in education institutions in Ukraine (table 1).

Table 1

Modern Educational Technologies Using in Ukraine

Innovative educational technologies	**Functioning and advantages of innovative technology**
Virtual Reality (VR) and Augmented Reality (AR)	VR and AR technologies allow students to immerse themselves in virtual environments that replicate biological processes, cellular structures, ecosystems, and even virtual dissection. These technologies offer a more engaging and interactive learning experience, enabling students to visualize complex concepts in biology.
Simulation Software	Simulation software allows students to experiment with biological processes and systems virtually. They can manipulate variables and observe the outcomes, aiding in the understanding of various biological phenomena, such as evolution, genetics, and ecological interactions.
Online Laboratories	Virtual labs provide students with the opportunity to perform experiments and collect data in a simulated lab environment. These online laboratories offer a cost-effective and accessible alternative to traditional hands-on labs, allowing students to explore various concepts in biology.
Gamification	Gamification involves incorporating game elements, such as badges, points, and leader boards, into the learning process. By using gamified educational platforms, teachers can make biology learning more enjoyable and motivating for students, enhancing their engagement and knowledge retention.
Interactive Whiteboards and Smartboards	Interactive whiteboards and smartboards enable teachers to present biology content more dynamically. They can integrate multimedia elements, annotate visuals, and interact with digital content, fostering a more interactive and visually appealing learning experience.
Online Collaborative Platforms	Online collaborative platforms facilitate real-time communication and group work among students. These platforms enable biology classes to collaborate on projects, discuss complex topics, and share knowledge beyond the confines of the classroom.
Mobile Apps	Biology-related mobile apps provide students with on-the-go access to interactive quizzes, flashcards, and educational resources. These apps encourage self-directed learning and help

	reinforce biological concepts outside the classroom.
Personalized Learning Platforms	AI-powered personalized learning platforms can assess individual student strengths and weaknesses in biology and offer tailored learning materials and exercises to address their specific needs. This adaptive learning approach enhances student understanding and progress.
Data Analysis Tools	Data analysis tools allow students to explore biological datasets and draw insights from real-world data. These tools are particularly beneficial for teaching bioinformatics, computational biology, and data-driven biology research.
Biotechnology Kits	Biotechnology kits provide students with hands-on experience in genetic engineering and molecular biology techniques. These kits allow students to perform experiments safely and learn essential laboratory skills.

Unfortunately, in today's conditions in Ukraine, it is not possible to use all the above-mentioned innovative technologies, which is proven by the results of questionnaires and surveys. No more than 3 innovative technologies are used in each educational institution.

It's essential for educators to keep up with the latest advancements in educational technology to provide the best learning experience for their students.

Given the fact that today most educational institutions of Ukraine work remotely or in a mixed format, the use of online collaborative platforms for learning has become relevant. Online collaborative platforms play a crucial role in facilitating real-time communication, group work, and knowledge sharing among students and educators. These platforms provide opportunities for collaboration beyond the traditional classroom setting, allowing students to engage with the subject matter in a more interactive and interconnected manner. Here are the most popular and used online collaborative platforms that can be used for learning.

Google Workspace for Education (formerly G Suite for Education) offers a suite of tools, including Google Docs, Google Sheets, Google Slides, and Google Drive, that allow students and teachers to collaborate on documents, presentations, and spreadsheets in real-time. They can work together on projects, share research findings, and provide feedback on each other's work.

Microsoft 365 Education provides similar collaborative tools like Microsoft Word, Microsoft Excel, and Microsoft PowerPoint, which enable students and educators to collaborate seamlessly assignments and projects. Microsoft Teams, an integral part of Microsoft 365, also facilitates communication and teamwork among students.

Moodle is another widely used open-source LMS that supports collaborative features. It allows educators to create courses with interactive quizzes, forums, and collaborative activities to engage students in a virtual learning environment.

Edmodo is an education-focused social networking platform that facilitates communication and collaboration among students and educators. It allows teachers to create a virtual classroom, share resources, and host discussions (worked till 22.08.2022).

Padlet is an online collaborative tool that serves as a virtual bulletin board. It allows students and educators to post text, images, videos, and links related to topics, fostering collaboration and knowledge sharing.

Flipgrid is a video-based discussion platform where students and educators can engage in video discussions on different topics. It promotes a more interactive and personal learning experience.

Slack is a popular team communication platform that enables students and educators to create channels for different topics, discussions, and projects. It allows for real-time messaging, file sharing, and integration with other tools, making it suitable for collaborative learning.

Canvas is a learning management system (LMS) that supports collaborative features, including discussion boards, group assignments, and peer review. Instructors can create courses, share resources, and foster interactive discussions among students.

Trello is a visual project management tool that can be used for collaborative projects. Students and educators can create boards, lists, and cards to organize tasks and progress.

These online collaborative platforms provide a range of features to support learning, allowing students to interact, share ideas, and collaborate on various projects and assignments. The choice of platform depends on the specific needs and preferences of educators and students in the context of their courses.

The survey of teachers according to the using online collaborative platforms in the educational process made it possible to determine the percentage of every platform usage on different levels of education (table 5).

Table 5.

Division of Online Collaborative Platforms Usage in Educational Institutions of Different Levels

	General secondary education	**Vocational secondary education**	**Bachelor's level of higher education**	**Master's level of higher education**
Google Workspace for Education	42 %	34 %	28 %	29 %
Microsoft 365 Education	18%	19%	13%	12%
Moodle	2 %	15 %	44 %	45 %
Flipgrid	12 %	12 %	4 %	3 %
Padlet	22 %	16 %	6 %	5 %
Canvas, Trello, Edmodo, Slack	4 %	4 %	5 %	6 %

It's important to note that many academics are embracing innovative technologies as a valuable means for teaching. Over time, their benefits become more apparent and teachers' attitudes evolve. The issue of using innovative technologies, in particular distance, became especially important after the start of the 2019 coronavirus pandemic. The works of S. Rudyshyn et al. (2022); J. Grund & A. Brock (2020); I. Molderez, & E. Fonseca, (2018); E. Hartadiyati et al. (2020) revealed that incorporating innovative technologies in education has a positive impact on teaching at education institutes. Our research confirms with the previous results (M. Sidorovich et al., 2022) and proves that innovative technologies implementing has both positive and negative impacts on educational processes, and a balanced approach is recommended for productive educational process.

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APPLICATIONS

Application A

FOCUSED TOPICS OF SCIENTIFIC WORKS

1. New Ukrainian school and Waldorf education
2. Educational plans and curricula in the light of the New Ukrainian School
3. Establishing the support of primary schools in rural areas.
4. Development and approval of competency-based standards on English for primary school.
5. Professional development for primary school teachers.
6. The principles for creating textbooks on English for the new generation.
7. Analyzing a national e-platform for e-resources and textbooks.
8. Quality assessment in English at primary schools.
9. Quality assurance system vs control and inspection in education.
10. Ensuring diversity in the forms of education available.
11. The primary school working according to the new competency-based educational standard.
12. Modern principles of language learning and teaching in primary school in Ukraine.
13. Perspectives towards English speaking communicative activities among primary school teachers.
14. A communicative approach to English language proficiency assessment in primary school.
15. Implementing electronic speaking portfolios among primary school teachers.
16. Mastering English and bilingual methods in the process of cultural and linguistic students' teaching.
17. Target language collaborative learning and autonomy in primary school.
18. Techniques to teach communication strategies in primary school.
19. Behavioral assessment of communication competency and the prediction of cross-cultural adaptation.
20. Target language collaborative learning and autonomy on English lessons in primary school.

Application B

Quotes about language learning:

1. “A different language is a different vision of life.” Federico Fellini
2. “The limits of my language mean the limits of my world.” Ludwig Wittgenstein
3. “One language sets you in a corridor for life. Two languages open every door along the way.” Frank Smith
4. “Language is the road map of a culture. It tells you where its people come from and where they are going.” Rita Mae Brown
5. “He who knows no foreign languages knows nothing of his own.” Johann Wolfgang von Goethe
6. “You can never understand one language until you understand at least two.” Geoffrey Willans
7. “If you talk to a man in a language he understands, that goes to his head. If you talk to him in his own language, that goes to his heart.” Nelson Mandela
8. “To have another language is to possess a second soul.” Charlemagne
9. “Change your language and you change your thoughts.” Karl Albrecht
10. “Learning another language is not only learning different words for the same things, but learning another way to think about things.” Flora Lewis
11. “Knowledge of languages is the doorway to wisdom.” Roger Bacon
12. “Language is the blood of the soul into which thoughts run and out of which they grow.” Oliver Wendell Holmes
13. “Language is not a genetic gift, it is a social gift. Learning a new language is becoming a member of the club – the community of speakers of that language.” Frank Smith
14. “Learn a new language and get a new soul.” Czech Proverb
15. “A special kind of beauty exists which is born in language, of language, and for language.” Gaston Bachelard
16. “Learning is a treasure that will follow its owner everywhere.” Chinese Proverb
17. “One should not aim at being possible to understand but at being impossible to misunderstand.” Marcus Fabius Quintilian
18. “A mistake is to commit a misunderstanding.” Bob Dylan

Application C

Інтернет-адреси ігор, вправ та завдань, спрямованих на формування іншомовної (англомовної) комунікативної компетентності:

Word Games

http://www.linguamania.ru/
http://www.kinglishschool.com/game/WordPuzzle.swf
http://www.english-online.org.uk/games/bigandsmall.htm
http://www.krazydad.com/sudoku/
http://www.manythings.org/cts/
http://www.bbc.co.uk/schools/starship/english/index.shtml
http://www.quia.com/pages/duncanenglish12.html
http://www.oup.com/elt/global/products/englishfile/elementary/i_games/

Practical English Online

http://www.1-language.com/audiocourse/index.htm
http://www.englishbanana.com/downloads.html
http://www.guide-to-distance-learning.com/learn-english-online.html

Miscellaneous

http://www.a4esl.org/
http://www.bbc.co.uk/schools/starship/english/storyplant.shtml
http://www.eclecticenglish.com/index.html
http://www.eduplace.com/tales/
http://www.english4today.com/usr/video/ytv/?cat=72
http://www.etc-inter.net/index.php?online=yes
http://www.infoenglish.info/index/0-5
http://www.langinfo.ru/index.php?sect_id=2700
http://www.learnenglish.de/englishtestspage.html#confuse
http://www.mrshurleysesl.com/englishpractice.html
http://www.quia.com/pages/duncanenglish12.html
http://www.teachenglishinasia.net/tefl-tesl-games-and-activities-directory
http://www.tuition.com.hk/english/english-resources.htm
http://www.bbc.co.uk/worldservice/learningenglish/language/
http://www.englishforum.com/00/interactive/
http://www.spotlight-online.de/language/fragebogen.php3?b_id=1
http://www.geocities.com/kjschjp/eng_learn_res/online_res/online_res.html

Application

ISSUES FOR DISCUSSING

1. Theoretical bases of forming and developing foreign language (English) communicative competence.
2. Foreign language communicative competence: meaning and structure.
3. Historical and pedagogical analysis of forming the foreign language communicative competence: native and foreign experience.
4. Contemporary trends of foreign language teacher education in Europe.
5. Designation of criteria, indicators and levels of foreign language communicative competence formation.
6. The current state of foreign language communicative competence formation in national higher education institutions.
7. Methodical bases of forming foreign language communicative competence
8. Modelling foreign language communicative competence forming system.
9. Methodological approaches to forming the foreign language communicative competence.
10. Principles of forming the foreign language communicative competence.
11. Organizational and methodological conditions for implementing the system of foreign language communicative competence formation.
12. Interactive and educational foreign language environment of foreign language communicative competence.
13. Methodology of forming foreign language communicative competence
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