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Distance Education for Future: best EU practices in response to the requests of modern higher education seekers and labor market

TYPICAL INSTRUCTIONS AND RECOMMENDATIONS FOR TEACHING METHODOLOGY IN DISTANCE EDUCATION

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1. INTRODUCTION

Distance education is an essential component of higher education, reflecting the global transition to a dynamic and technologically advanced educational environment. Based on this transition, the importance of establishing regulatory frameworks to ensure the quality and accessibility of distance learning has been recognised at international and national level. This has involved updating accreditation and assessment standards and promoting equal access to educational resources for all students. In this dynamic context, distance learning is not just a temporary solution to crises, but an effective way of expanding educational opportunities, responding to the growing demand for flexibility, individualisation and global access.

Distance education has become essential in the contemporary context, but it also brings many challenges. Research in recent years has identified a set of challenges in the delivery of distance education: determining effective strategies for student engagement and motivation (Bolliger, Martin, 2018[1]), effective use of learning management systems (Almarashdeh, 2016[2]), adapting teaching materials and assessments for the online format (Hebebci et al., 2020[3]), facilitating collaborative learning between students (Strauß, Rummel, 2020[4]) and effective interaction with students in the virtual environment (Hietanen & Svedholm-Häkkinen, 2023[5]). In addition, teachers face organisational and technological challenges such as limited digital competence, insufficient technological support (Bilgiç, Tuzun, 2020[6]). Lack of adequate equipment and stable internet connections creates educational inequalities, particularly affecting students fromdifferent areas. In addition, limited face-to-face interaction can reduce student motivation and engagement. In the absence of face-to-face communication, teachers cannot obtain detailed information about students' attitudes and behaviours, making it difficult to tailor course content to their individual needs. Also, designing standardised courses without taking individual differences

[1] BOLLIGER, D. U., & MARTIN, F. (2018). Instructor and student perceptions of online student engagement strategies. *Distance Education, 39*(4), pp. 568–583.

[2] ALMARASHDEH, I. (2016). Sharing instructors experience of learning management system: A technology perspective of user satisfaction in distance learning course. *Computers in Human Behavior, 63*, pp. 249–255.

[3] HEBEBCI, M. T., BERTIZ, Y., & ALAN, S. (2020). Investigation of views of students and teachers on distance education practices during the Coronavirus (COVID-19) pandemic. *International Journal of Technology in Education and Science*, *4*(4), pp. 267–282.

[4] STRAUß, S., & RUMMEL, N. (2020). Promoting interaction in online distance education: Designing, implementingand supporting collaborative learning. *Information and Learning Sciences*, *121*(5/6), pp. 251–260.

[5] HIETANEN, M., & SVEDHOLM-HÄKKINEN, A. M. (2023). Transition to distance education in 2020–challenges among university faculty in sweden. *Scandinavian Journal of Educational Research, 67*(3), pp. 433–446.

[6] BILGIÇ, H. G., & TUZUN, H. (2020). Issues and challenges with web-based distance education programs in Turkishhigher education institutes. *Turkish Online Journal of Distance Education, 21*(1), pp. 143–164.

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into account limits the effectiveness of the educational process. (Gülbahar, 2020[7] *apud* Duman, 2023[8]).

Another important issue is the management of the assessment process in the online environment, which is often difficult and subject to increased risks of academic fraud. In many institutions, assessments are done in the form of standardised tests to reduce costs and workload. However, recent studies suggest that alternative digital methods of assessment are better accepted by teachers and students and can be successfully implemented without significant technical difficulties (Gaytan, McEwen, 2007[9]; Newhouse, 2011[10]). Innovative methods and effective monitoring technologies are needed to maintain the integrity of assessments.

In addition to these challenges, the responsibility for learning rests entirely with students, who must manage their own learning in an environment where interaction with teachers and peers is limited. This requires the development of autonomy and self-regulation skills, essential for success in distance learning.

In this context, the International Council for Distance Education (ICDE) has highlighted several difficulties countries face in implementing distance education: insufficient political will, financial difficulties, shortcomings in cooperation, institutional reasons, professional inadequacies, problems with students and lack of technological infrastructure development. (Özkul & Aydın, 2020[11], apud Duman, 2023[12]).

At the same time, distance learning responds to today's needs for flexibility and accessibility, offering *pedagogical, psychological, technological and social benefits*.

Pedagogically, distance learning creates contexts for students to adapt their learning to their own pace and style of learning, using a variety of resources from written materials to multimedia and interactive content. The use of virtual and simulation technologies transforms the way teachingand skills training are delivered, increasing engagement and learning effectiveness. Online

[7] GÜLBAHAR, Y. (2020). E-değerlendirme. Çağıltay, K. & Götaş Y. (Eds.), *Öğretim teknolojilerinin temelleri teoriler,araştırmalar ve eğilimler (3. Baskı, s. 655-667)*. Pegem Akademi.
[8] DUMAN, E. (2023). The challenges of distance education and evidence-based solution suggestions. *InternationalJournal of Academic Studies in Technology and Education* (IJASTE), 1(1), pp. 50-64.
[9] GAYTAN, J. & MCEWEN, B. C. (2007). Effective online instructional and assessment strategies. *The AmericanJournal of distance education, 21*(3), pp. 117-132.
[10] NEWHOUSE, C. P. (2011). Using IT to assess IT: Towards greater authenticity in summative performanceassessment. *Computers & Education, 56*(2), pp. 388-402.
[11] ÖZKUL, A. E., & AYDIN, C. H. (2013). Açık ve uzaktan öğrenmenin temelleri ve araştırmaları. Çağıltay, K.&Götaş Y.(Eds.), *Öğretim teknolojilerinin temelleri teoriler, araştırmalar ve eğilimler (3. Baskı,s. 633-655).* Pegem Akademi.
[12] DUMAN, E. (2023). The challenges of distance education and evidence-based solution suggestions. *International Journal of Academic Studies in Technology and Education* (IJASTE), 1(1), pp. 50-64.

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platforms support projects and group discussions, enriching the learning experience through cultural diversity and knowledge exchange. From a psychological point of view,

On the technological dimension, distance learning stimulates innovation and continuous adaptation to new technologies. Students and teachers develop the digital skills needed in an increasingly technological world.

From a social perspective, distance education fosters inclusion and diversity within academic communities. Students from different cultural and geographical backgrounds can participate in courses, facilitating exchanges of ideas and experiences.

These aspects highlight the complexity of the distance learning process and the need to ensure the efficiency and quality of education by respecting the principles and requirements of implementing distance learning, applying educational strategies that address

The current context, marked by the imperative of adaptability and the need for technological integration, underlines the important role of distance learning in democratising access to education. The challenges associated with this form of education, such as ensuring equal access to resources, maintaining student engagement, and guaranteeing academic rigour, require a strategic and innovative approach from educational institutions. Higher education institutions need to be proactive in upgrading their technological infrastructure, in providing continuous professional development for teaching staff, and in offering comprehensive support to students, thus ensuring that all participants can benefit equally from the opportunities offered by online education. On the other hand, the opportunities presented by distance education - flexibility in learning, widening educational access, and the potential for pedagogical innovation - can fundamentally transform theeducational experience. The adoption of innovative pedagogies, including simulation and the use of virtual methods, can make learning effective, preparing students for a changing world. This will not only increase the resilience of education systems in the face of future challenges, but also ensure that education remains relevant and accessible in today's dynamic global context.

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2. PRINCIPLES AND REQUIREMENTS FOR CONDUCTING DISTANCE LEARNING

2.1. Principles and requirements in the development and implementation of distance learning programs

The principles of distance learning promote a value system that imperatively and prescriptively guides distance teaching-learning-assessment activity. The principles prescribe axiological imperatives, norms of strategic value, which must be respected in order to ensure the effectiveness of activities designed at the level of the system and the distance learning process. In accordance with the *Framework Regulation on the organisation and delivery of distance higher education* [13], we distinguish the following basic principles:

- *The principle of accessibility of educational services for every student*. To guarantee access, it is essential that all students have access to the technology and resources necessary to participate in distance learning regardless of geographic location or other physical limitations. Thiswould mean providing devices such as computers or tablets, as well as providing internet connectivity.

- *The principle of individualisation and differentiation of learning* - this principle emphasisesthe importance of focusing learning on the learner. It is essential to recognise that each learner has their own needs, interests and learning styles. The distance learning process should therefore provide opportunities to personalise and individualise the learning experience, to capitalise on differences in the distance learning process. This implies curricular adaptations (adaptations of content and assessment tests), adaptations of the teaching approach, of the way content is presented, of learning time, of technologies to the context/environment in which learning takes place.

- *The principle of equitable access to education* for all students, regardless of nationality, social background, material situation, ability, etc. By promoting an inclusive culture and equal opportunities, it can be ensured that all students are treated with respect and given equal opportunities to reach their potential. Thus the learning environment must be learner-friendly, focused on promoting diversity and combating discrimination and intolerance.

- *The principle of harnessing information and communication technology* as a teaching-learning-assessment tool refers to the use of technology to enhance every aspect of the educational process: teaching, learning and assessment. This principle incorporates the use of various digital tools and resources to create a more effective, engaging and responsive learning environment for students.

[13] Regulamentul-cadru privind organizarea și desfășurarea învățământului superior la distanță. [online] https://mecc.gov.md/sites/default/files/ordin_474_sin_24.05.2016.pdf (Accessed 02 April 2024).

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- *The principle of flexibility of distance learning* is based on the possibility to choose: modular contents/programmes, place of instruction/self-teaching, way of presentation of learning contents in the subjects studied, learning time, distance learning technologies.

- *The principle of ensuring safety, protection and well-being* - involves a series of measures and practices designed to ensure the security and promote the well-being of all those involved in the distance learning process (teachers, students, etc.). First and foremost, it is important that the platforms and tools used in distance learning are secure in order to protect the personal data and confidential information of students and teachers. To prevent inappropriate behaviour or abuse in the online environment, it is important to implement systems to monitor the interactions and behaviours of those involved.

Increased attention should also be paid to the emotional and social well-being of students and teachers. This involves promoting healthy relationships and positive interactions online,encouraging an open and responsive attitude to the needs and concerns of those involved.

- *The principle of diversity of educational process design*, monitored on e-platforms is about creating an educational environment that provides a variety of ways and resources to support student learning and development. This principle involves integrating different types of content, technologies and teaching methods to meet the different needs and preferences of learners.

By diversifying the design of the educational process, the aim is to provide a richer and more accessible learning experience that addresses diverse learning styles, learning paces and individual interests. This may include the use of varied learning materials such as texts, images, videos, interactive simulations or live lessons, as well as facilitating collaboration between learners and social interaction.

By incorporating diversity into the design of the learning process, e-platforms can create a more inclusive and equitable learning environment that provides equal learning opportunities for all learners, regardless of their learning style or individual background.

- *The principle of providing continuous feedback* is essential in the context of distance learning as it plays a significant role in improving the quality of learning and ensuring student success. In the online environment, constant feedback allows teachers to monitor students' progressin real time, quickly identifying those who are experiencing difficulties or who require further intervention to ensure their learning success. Constant feedback can increase engagement and motivation in the learning process, giving them recognition for their efforts and guidance to improvetheir academic results.

- *The principle of a systemic approach* to the distance learning process and optimalcorrelation of inputs and outputs in the system. It is necessary to analyse how the component elements of distance

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learning (learning outcomes, digital content, learning technologies, assessmentstrategies, etc.) interact and influence each other within the educational system. For example, how the quality of distance learning can influence student engagement and performance, or howappropriate teacher support and training can improve teaching and learning. The principle of a systems approach also involves optimising and aligning resources and processes within the system to ensure the efficiency and productivity of the instructional-educational act.

- *The principle of effectiveness and efficiency* underlines the importance of aligning the objectives of distance learning with the educational needs of learners, curriculum documents and the legislative and regulatory framework for education. In order to be effective, distance learning programmes must provide up-to-date and relevant content that responds to the needs and interests of learners as well as the requirements of the labour market. They must also comply with educational standards and be in line with curriculum documents and the legislative and regulatory framework for education.

- *The synergetic principle* whereby distance learning achieves its objectives through the development and maintenance of sustainable partnership relationships based on mutual respect with each of the educational actors involved in the distance learning process; joint efforts, positive interaction, cooperation, sharing and assumption of responsibilities by internal and external educational stakeholders.

The principles of distance learning place great emphasis on quality assurance in all aspects of the online learning process. They guide programme developers in the creation and delivery of high quality content tailored to educational needs and objectives, and are essential to ensure the quality, effectiveness and sustainability of distance learning. ă.

2.2. Requirements for selecting and organising digital content

Digital content refers to all educational materials and learning resources that are created, distributedand accessed in digital format as part of the distance learning process. This content may include a variety of elements such as: online learning platforms, multimedia resources, textbooks and e-books,digital applications and tools, educational materials presented as texts, presentations, PDF files, explanatory videos or animations, etc.

Therefore, the judicious selection of digital content in distance learning is essential to ensurethe effectiveness and success of the educational process, thus contributing to the achievement of learning objectives and enhancing the learning experience of students. Here are some important requirements for the selection and organisation of digital content in this context:

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a) *Relevance of the content studied*. The digital content must be relevant to the subject or discipline being studied and clearly align with the learning objectives. It should also be tailored to the age and individual characteristics of learners.

b) *Accuracy of information*. Digital content must come from credible and verifiable sources.It is important that the information presented is accurate, up-to-date and based on the results of scientific research.

c) *Organised*. Digital content should be structured and organised in a logical and coherent way, making it easy for students to navigate and understand. It is useful to use clear structures suchas sections, subsections, lists and concept maps to organise information in an accessible way.

d) *Interactivity*. Digital content should be interactive and engaging to stimulate student engagement and participation. This can include interactive elements, practical exercises, simulations, educational games and other activities that encourage active engagement in the learningprocess.

e) *Accessibility*. Digital content should be compatible with different platforms and devices to allow easy and convenient access for all learners, regardless of their hardware or software. Theyshould also be accessible for students with special needs, ensuring that they are compatible with their assistive technologies.

f) *Diversity*. It is beneficial to have a variety of digital content available, covering different learning styles and interests of students (textual materials, videos, graphic presentations, podcasts or other forms of content). This gives students the opportunity to choose and explore material that stimulates their curiosity and allows them to learn in different ways.

g) *Updating and revision*. Digital content should be regularly updated and revised to reflect new findings, trends and changes in the field of study. It is important to ensure that the information provided is current and relevant to the contemporary world and current challenges and opportunities.

h) *Feedback and evaluation*. Digital content should provide opportunities for feedback and evaluation, either through practical exercises, online tests and quizzes, or through communication tools that allow interaction with teachers for clarification and further guidance. By monitoring student feedback and learning outcomes, opportunities to improve and optimise digital content to better meet students' needs and requirements can be identified.

i) *Data privacy and security*. Digital content should comply with security and privacy standards to protect students' personal information and data. It is important that they are provided by trusted sources and are protected against unauthorised access or cyber attacks.

By selecting digital content that meets these criteria, a quality and effective distance learning learning experience can be ensured that encourages student engagement and supports the achievement of educational objectives.

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3. TECHNOLOGIES AND TOOLS IN DISTANCE LEARNING

3.1. Learning Management System (LMS) platforms. General characteristics.

An LMS (Learning Management System) provides the virtual platform for e-learning by enabling the management, registration process, student tracking, co-authoring, product delivery, learning tracking and testing.[14] A learning management system (LMS) is essentially an online classroom with the following time-saving and convenient components for universities, such as:

- *Administrative component* . Recording student information, grading, reporting.

- *Content management component*. Learning management systems store content of all typesin a library or repository. Through this, delivery of student knowledge in various forms such as text, presentation, PowerPoint, flash, video, audio, etc., creation of interactive applications, recording of lessons, assignments and student grades takes place.

- *Instructional component*. LMSs come with numerous authoring tools so that teachers or instructional design teams can create activities that students do either asynchronously or synchronously within the LMS itself. These include discussion forums, chat rooms, advisory classes, virtual meetings, and collaboration tools.

- *Assessment component*. Teachers can build and implement multiple types of assessments within an LMS, and grades are automatically uploaded to a gradebook. For closed-answer tests, answers can be graded automatically. Open-ended assessments, such as essays or portfolios, can be more easily assessed in an LMS using rubrics and other assessment tools.

- *Data component*. Learning management systems collect data based on the activities of their users. This data is often used to improve platform performance, provide better tools, track each learner's progress, examine student performance, and personalize the learning experience.

LMS features include:

- Management of users, courses, instructors, learning facilities and report generation.

- Course calendar

- Learning trajectories.

- Messaging and notifications for learners.

- Handling with assessment tools (up to, during and after testing).

- Submission of scores and transcripts.

- Grading course activities, processing logs, including waitlists.

[14] Bradley, V. M. (2021). *Learning Management System (LMS) use with online instruction. International Journal of Technology in Education (IJTE),* 4(1), 68-92. https://doi.org/10.46328/ijte.36

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- Distribution of blended or web-based courses.

On the market there are many LMS systems that can be obtained for free (e.g. Moodle, Claroline, ATutor, etc.) or for a fee (i.e. Blackboard, WebCT and many others). In the universities of the Republic of Moldova, Moodle Platform has been implemented as a learning management system, which seems to be one of the most effective and popular LMS systems among those that can be obtained for free. The aim of the Moodle project is to provide education specialists with thebest tools for managing and promoting modern learning models. It is a free learning platform designed to provide teachers, administrators and students with a single robust, secure and integratedsystem for creating personalised learning environments. Moodle was developed with the Social Constructivism Pedagogy approach. This is one of the properties that distinguishes Moodle from other LMS systems.[15]

Advantages of using the MOODLE platform:

- Easy installation both locally and on the network.

- As an interface, it requires a simple, efficient, compatible, low-tech Internet search engine (e.g. Internet Explorer, Firefox, etc.).

- Low cost.

- High capacity for long-term development.

- Has a very large user group, students create their own accounts, the platform has a choice of languages, which ensures regional adaptation. Each teacher creates his/her courses in the subjectsthey teach, where students are added to the corresponding course depending on the subject. Studentsenrolled in the course have permanent access to all the materials (theoretical support, instructions for laboratory/lecture work, individual study, etc.) placed by the teacher.

- Anytime, anywhere access to course content and activities.

- Can be used for face-to-face education (synchronous education) as well as fully online education.

- Allows teachers to create online lessons.

- Teachers can easily upload their prepared lesson notes in different formats (e.g. SCORM, flash, MP3, RSS, PowerPoint, PDF, Word).

- The platform has a number of collaborative learning tools such as - messaging, chat, forum, glossary, tools for organizing lessons, ending with a question block for the teacher to see the level

[15] Corlat Sergiu et al., *Metodologia utilizării tehnologiilor informaționale și de comunicație în învățământul superior, Chișinău,* 2021,90-94 p.

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of knowledge assimilation by students, students can be graded, assessment tools, multimedia resources etc.

- Store, generate and manage an unlimited number of courses, items and test options.

- We can monitor the progress of each individual student, all these results are presented electronically in excel or csl. and have the following information: total number of students enrolledin the course and connected at a given time, (we have a record in hours for each person), completed activities, unfinished activities, detailed progress for each topic, the result obtained by eachparticipant in the training. However, it should be noted that the successful implementation of distance learning requires a considerable effort from the course holder, both in the design phase, development of new modules, and in the working phase with existing ones.

The work of the course holder involves the following steps:

- *diagnosis* - determining the level of professional competence of the teachers who have been enrolled in the course in order to select the modalities of work.
- *designing* the learning activities of the audience and carrying out chat sessions, forums, lectures, forms and terms of testing through tests, practical activities, assignments, year papers, etc;
- *teaching* - learning the theoretical material, carrying out practical and test work, tasks of the current module and the final test, including individual and group tasks, organised in the formof chat, seminar, survey, etc., differentiated and individualised tasks,
- *monitoring* of the cognitive process in order to achieve the projected results either in the form of professional competences or personal skills development;
- *assessment* - involves verification tasks, tests according to set standards (terms, conditions, particularities), giving feedback on the success of the learners (especially in the early stagesof learning), etc.

These innovative forms of learning are topical and important for personal careers, for reforming the education system and for building the knowledge-based information society.

3.2. Communication and collaboration tools in distance learning.

The use of communication and collaboration tools is essential in distance learning. Their purpose is to facilitate the administration and delivery of online courses. Here we can mention videoconferencing platforms and tools such as *Google Classroom, Google Meet, Zoom, Moodle* or similar. These platforms provide a centralised environment for teachers and students where online

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course sessions, webinars and presentations take place, where slides are used and interaction takes place in forums/chats, group discussions and group work.

The Moodle platform differs from those mentioned above in that in addition to videoconferencing we can also organise content into modules, allowing uploading of materials/ homework, lessons and activities, management of educational resources (audio/video lessons, pre-recorded videos, interactive presentations and diversified online educational materials), online tests, forums, polls, educational games - fostering course comprehension. The Moodle interface is designed to be adaptable to various devices, including computers, tablets and mobile phones.

For the effective use of online platforms we propose a dual pedagogical framework that hasthe potential to provide both asynchronous and synchronous online learning activities. Synchronous learning refers to a method of delivering education that takes place in real time and requires live online communication.

To support remote communication with students we can use various means and tools, the most common and direct of which are phone calls and messages on the simple and familiar applications of each user - *Whatsapp, Messenger, Facebook*.

The use of graphic design platforms, e.g. *Canva, Power Point, Google presentation* helps usto create attractive and informative slides for online presentations, and offers a wide range of templates and design tools that make it affordable to create professional materials.

The use of the right digital tools is an important prerequisite for students' openness to collaboration and motivation for learning. We propose a set of digital tools, which vary according to purpose, age, interests and are designed to facilitate the teaching-learning-assessment process andavoid routine:[16]

- *Padlet* is a suitable tool for distributing digital content and activating students in the lesson, providing a controlled learning environment that helps the teacher to enhance the writing process. The functions of the platform are varied: teachers can create special brainstorming sessions, wherethey invite students to discuss certain topics, share their own information discovered on the internet,ideas, visual attachments; reading sessions, where students share their own reviews and comment on others' ideas. Students can use Padlet as a portfolio to showcase their most successful projects on their personal profile; a feedback tool to ensure evaluation of products; links to various multimedia resources are also provided.

- *Wakelet* is another organisational tool, an alternative to Padlet. It is a digital bookmarking platform that allows you to collect multimedia resources in folders and manage them. With Wakelet,

[16] Goraș-Postică Viorica et al., *Clubul PAIDEIA altfel: provocări şi soluţii pentru învăţarea online / Centrul Educaţional "Pro Didactica"; coordonator de proiect: Vitalie Scurtu. – Chişinău: Centrul Educaţional "ProDidactica"*, 2021, 15-18 p.

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you can bookmark anything you find on the internet, including tweets. You can then place the content into pre-defined templates for lesson plans, group projects, research, assignments, etc., andembed it in an LMS.

- *Socrative* is another app, with a special emphasis on fun and interactive activities. Its specific features include: teachers create exercises based on the most interesting class topics; reporting to check individual comprehension of topics; chat rooms and discussions to promote online collaboration. The 'Space Race' game, for example, encourages peer competition among students with an 'intergalactic' quiz. The platform allows for feedback to improve students' experience during lessons.

- *Twiddla* is a real digital "playground", which includes a lot of written tests. Students, monitored by the teacher, are gathered around a virtual white sheet, where they write down all their ideas, create schemes, discuss in chat. The platform features online meetings, discussions, sharing of images, documents, voice messages, screen capture, unlimited storage and teacher-moderated control.

- *Wand.education*, designed to create educational content, helping teachers to design interactive lessons. The app has a varied set of learning activities through which teachers can create quality educational resources.

- *Piktochart* is an easy-to-use tool for creating quality infographics. These are visual representations of data, figures, information, events and behaviours. Infographics present content by creatively combining numbers, words, illustrations, images and videos.

- *WordArt* is useful for presenting lesson topics, statements, proverbs in a more special way.

Pupils' attention is captured, attention and observation are developed.

- *Kahoot!* is a platform that offers a range of tools for organising games and quizzes, discussions, surveys that complement academic lessons. The material is designed in the classroom and the tasks are completed by the students while playing and learning simultaneously. Game-basedlearning enhances student engagement in the lesson and creates a dynamic, friendly and fun learning environment.

- *Jamboard* is a collaborative digital design platform provided by Google. It allows studentsto create and collaborate on virtual boards, where they can draw, write, paste images and add notes.

- *Mentimeter* is an interactive audience polling platform that allows teachers to create and submit questions, polls and votes in real time, and students to respond using their mobile devices.

- *Quizziz* a tool for creating and distributing online quizzes and polls that provides a fun and interactive way to assess knowledge. Students can answer questions using their devices and the results

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are immediate.

- *Wordlwall* allows the creation of interactive educational activities such as word puzzles, matching games, memory quizzes, etc. These activities can be used to reinforce knowledge in a funand engaging way.

- *Quizlet* offers a variety of tools and resources for studying, including note creation, flashcards, quizzes and interactive games for effective memorization and learning.

- *Storyjumper* allows users to create, share and publish personalized digital stories. It offers intuitive book creation tools with options for adding text, images and sounds.

- *PurposeGames* offers an extensive collection of educational games, covering a wide rangeof topics and subjects. Users can create, share and play games to reinforce their knowledge and havefun at the same time.

The advantages of using digital tools in the teaching-learning-assessment process arereflected in convenience, collaborative atmosphere, accessibility, feedback and interactivity. Disadvantages include lack of virtual security, time consumption, the possibility of technical difficulties and plagiarism.

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4. DISTANCE LEARNING TECHNOLOGY

4.1. Overview of distance learning. Conditions for optimising distance learning

Overview of distance learning

Global changes have had a profoundly transformative impact on traditional approaches to education. Global challenges in education and the economy have not only shaped working and living conditions, they have also profoundly affected the ways in which teaching and learning are carriedout. (OCDE, 2016)[17]. Moreover, the ways of learning and teaching new knowledge are no longer bound by time and space. As a result, while individual learning has not completely changed, Strackesays that learning platforms, along with learning resources, have become very diverse. Simonson states that distance education is an institutional form of education in which learning groups are separated and interactive communication systems are used to connect learners, educational resources and educators. In the general context distance learning is a flexible form of organising thelearning process that gives learners a choice of where and when to learn. Distance learning offers blended studies of activities carried out predominantly in a virtual environment using synchronousand asynchronous distance learning technologies.

In distance learning systems, the learner and the educator/teacher/instructor are separated from each other and interaction between the learner and the teacher is provided using information and communication technologies. It can be said that technological tools and platforms, learning environments and learning materials in distance learning systems are the actors that increase the interaction between learner and educator. Increasing learner-educator interaction has led to the creation of data for distance learning systems and organisations. The use of cloud technologies specific to systems or organisations to process and store big data is highly recommended. The use of such technologies is expected to facilitate access to data in studies to be conducted in these areasand increase the number of such studies[18].

B. Sarac, N. Alptekin point out that it is worth bearing in mind that distance learning is not just a fad resulting from dramatic changes or crises (such as a pandemic) caused by technological possibilities and changing global conditions, but a real necessity[19].

According to the United States Distance Learning Association (USDLA, 2005), distance education has been defined as a learning structure in which no teacher supports lifelong learning in

[17] OECD (2016). Education at a glance 2016: OECD indicators. Paris: OECD Publishing.

[18] Open and distance learning. Trends, policy and strategy considerations. UNESCO, 2002. Disponibil: https://unesdoc.unesco.org/ark:/48223/pf0000128463

[19] SARAC, B.; ALPTEKIN, N. Efficiency in open and distance education: a research at Anadolu University. Turkish *Online Journal of Distance Education-TOJDE*. April 2022 ISSN 1302-6488 Volume: 23 Number: 2 Article 11. Disponibil: https://files.eric.ed.gov/fulltext/EJ1343063.pdf

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a physical format, technologies must be available to each individual. According to Özkul and Aydın (2020), distance learning is the learning process in which learners are separated temporally and physically from the instructor, from each other and at a distance communication systems provide communication between them. With the technological development, various opportunities arise, i.e. distance learning can become a learning system that can attract all age groups to being a system used only by adults for career purposes. However, there are two main reasons for the widespread use of distance education: institutional and national needs (Özkul; Aydın, 2020).

Institutional reasons for expanding distance education are: to increase access to education, to provide flexibility to students in terms of time and space, to reduce the cost of education, to reach students in different geographical areas by using new technologies in education (Cavanaugh, 2001; Oblinger, 2000). National reasons for distance education provide convenience in many ways compared to traditional education and it is necessary to realize the demand that traditional educationcannot meet (Özkul & Aydın, 2020)[20].

Conditions for optimising distance learning (student monitoring, technologies to support self-directed/self-supervised learning and student motivation, etc.)..

Distance higher education offers diversity in learning methods, including simulations, practical projects, online discussions and other pedagogical strategies to foster skill development and understanding of academic content[21].

In this context, referring to the types of lessons, the authors consider the structure of the lesson proposed by Gagné to be appropriate for distance training, which aims at the following 3 components divided into 9 elements:

1. Refresher (attract student attention; communicate learning objectives; stimulate recall of previous learning).

2. Core content (introduce new content; provide guidance and support for learning; evoke useof new content; provide feedback).

3. Reflection / Reinforcement (assess performance; encourage transfer / generalisation).

Another condition for optimising distance learning is the consideration of the main types of perception: visual, auditory and kinaesthetic, according to Smith's theory.

[20] DUMAN, E. (2023). The challenges of distance education and evidence-based solution suggestions. *International Journal of Academic Studies in Technology and Education* (IJASTE), 1(1), 50-64.

[21] VECUMS-VECO, L.; MAZMANYAN, K.; STEFKOVA, S.; POLO, T. Methodological recommendations Improving distance learning materials based on perceptual types. Jelgava, 2023. Disponibil: https://nvsk.lv/upload/MM_Eng.pdf

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Table 1. Perceptual types, their identification and use in learning (Smits, 2000)

Perceptual type	Physiology	Language	Techniques that facilitate perception and learning
VIZUAL 1. Easily imagines placesand events. 2. Often sees images associated with words orfeelings and only then confirms that he or she has understood something new. 3. When writing, often sees the word in terms ofhow it will look when written.	1. Upper chest breathing. 2. High voice pitch. 3. Depth of breath. 4. Perceives information looking up.	1. "I see what you think" 2. "It looks good" 3. "Can you imagine that?" 4. "Imagine that..." 5. "Well, how does it look like you?"	1. Use your appearance, your body movements. 2. Use visual aids above eye level. 3. Videos, colorful reference materials. 4. Colourful and engaging materials / manuals. 5. Memory cards, collages and visual note-making tools. 6. Wall posters to explain basic concepts.
AUDITIV 1. Auditory dominance is manifested through internal dialogue and language in general. 2. Often "hears" the word before writing it down. 3. When preparing for a new situation, they rehearse in their mind what they would be told and what they will say.	1. Level of eyemovement 2. Steady breathing 3. Clear, resonantvoice intonation 4. Tension inmuscles 5. Receives information	1. "I am listening" 2. "Sounds good" 3. "I hear in it..." 4. "How does itsound?" 5. "I've heard thatbefore"	1. Work in pairs, group discussions, group reports. 2. Guest speakers. 3. Short debates. 4. Rhythm, verse, poetry, role reading. 5. Use of audio recordings. 6. Music for encouragement, relaxation, imagination, revision.

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KINESTHETIC 1. Strong connection with feelings: emotions and tactile sensations. 2. When writing a word, feels like writing it letter byletter or just feels likedoing it correctly. 3. Expected events are associated with strong emotions. 4. Physical situations are perceived together with the emotions they evoke.	1. Eyes moving downwards. 2. Deep breathing. 3. Lots ofmovement 4. Perceptions downward information	1. "Somehow it doesn'tseem right" 2. "Can youunderstand that?" 3. "I didn't get into this bond" 4. "Put yourself inmy shoes!" 5. "I stand against it"	1. Mimicry, facial expressions. Learned to demonstrate a concept by gestures or movements. 3. Exercises forbreaks. 4. Design and construction exercises. 5.Expeditions and excursions. 6. Physical movement (e.g. mapsdrawn on a hard surface help you learn the geography of countries and trade routes).

Students can identify their own main perceptual type by using the existing questionnaires forthis dimension.

Knowing one's personal perceptual type makes it easier for the student to learn directly through learning materials that are more accessible to them. There is no single best way to learn ina self-regulated way, so it is up to each individual to identify the best ways to learn and to use the most effective learning media. It is also important for the teacher to understand the dominant perceptual type of the student and to work on developing the other types.

To teach effectively, teachers need to assess students' strengths and develop learning materialsfor each perceptual type.

Studies have identified generalizable teaching recommendations for teachers in creating learning materials.

Learning materials based on each perceptual type:

● **Visual**: presentations; pictures, photographs; videos; figures, symbols; coloured visuals; collages; posters;

● **Auditiv:** videos; stories told by the teacher; playing music for encouragement, relaxation, imagination, revision; discussion; short debates; lyrics; posters; role-reading;

● **Kinesthetic:** practical tasks (simulations, lab tasks, collages, posters); graphing; writing notes, etc.

The teacher can identify the type of learner's perception by favouring this type in order to better organise the learning process. In fact, perception is a psychic process of cognition that createsa direct

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representation of real objects, phenomena and objects in consciousness through visual, auditory, tactile sensations, etc. and in the context of a certain recognition and understanding of what is represented (Blinkena, 2000). Perception is a higher form of sensory cognition; it is the psychic process of reflecting objects and phenomena of reality in the totality of their appropriatenessat the moment of their direct action on the analysers. Perception is a higher qualitative level of processing and integrating information about the external world and the self. This superiority, according to the author M. Zlate, consists in the realisation of a synthetic, unitary image, in which the objects and phenomena acting directly on our sense organs are reflected as integral wholes, in their specific individuality. Apart from perception, it is difficult to conceive of thought, memory, imagination [22].

It is believed that a teacher preparing for lessons in distance education faces several problemsin implementing Gagné's 9 elements of instruction.

The following problems can be listed:

● Communicating the learning objective: learners do not respond to the teacher's questions about outcomes. They often feel ashamed or lack knowledge.

Suggestions: ask learners simple questions at the beginning of the lesson to stimulate conversation. Give a simplified collage as an example, starting with simple things the learner knows. Teacher asks probing questions at the beginning of the lesson to stimulate discussion.

● Stimulate recall of previous learning: when providing answers to a previously learned topic students do not turn on their microphone, are shy to speak or do not communicate at all due to fearand lack of knowledge. There are also students who take longer to engage in the lesson.

Suggestions: ask research questions to complement the material provided, encourage studentsto give feedback.

● Provide learning guidance: students participating in the lesson have different levels of communication skills, knowledge and perception.

Suggestions: Before the lesson, the teacher plans tasks for different levels of knowledge. A differentiated approach is necessary. Work in groups, giving tasks of different difficulty. Teacher guides, encourages, praises and supports learners.

● Improve transfer/generalisation: learners often do not provide the necessary time at home to reinforce knowledge.

Suggestions: Ask and probe questions. Give an assignment for the next lesson that makes the learner look for answers in a different environment. Encourage students during class, encourage useof knowledge in other subjects and in real life situations.

[22] POTÂNG, A.; PALADI, O. [et.al.]. (2013) *Psihologie generală. Suport de curs pentru alte facultăţi*. CEP USM,Chişinău.

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Recommendations for teachers to improve self-regulated/self-directed learning.

Self-regulated/self-directed learning is a process in which a person consciously operates and uses tools to regulate thinking, emotional processes and behaviour to systematically regulate the acquisition of new knowledge and skills (Zimmerman, 2002).

The concept of self-regulated learning (SRL) refers to the set of cognitive, metacognitive, motivational and behavioural elements specific to each individual that contribute to their own learning process and, at the same time, to their increased confidence in self-efficacy when it comes to performance in school or academic tasks. The authors note that currently, the field of educational psychology validates the active, information-seeking and information-accumulating role that learners play in their own learning process. The process of self-regulation can therefore explain why both children and adults are willing to make mental efforts to learn. For adults, it seems that this capacity for self-regulation is one of the most important values (Porath and Bateman, 2006).

A number of three components, according to Zimmerman, manifest themselves in subjects who will proactively and systematically engage in self-regulated learning, these are:

(a) metacognitive processes, such as planning, goal setting, monitoring learning and self-assessment;

b) the motivational complex, which refers to the reporting of high self-efficacy (the subject's belief in his or her own ability to successfully complete academic tasks); intrinsic interest in one's own learning process; control over learning; acceptance of individual responsibility for learning outcomes (Pintrich and De Groot, 1990);

c) behavioural processes, such as seeking information and advice; selecting and structuring optimal learning environments; and adopting effective learning strategies to achieve a given task inthe given context (Zimmerman and Martinez-Pons, 1986)[23].

Self-regulated/self-directed learning skills need to be trained and worked on to be developed. Students need to be able to motivate themselves, plan their activities and evaluate their progress to be more effective next time. If a student can do this, they have the skills for good self-regulated/self-directed learning (Veenman, 2013)[24].

Stages of autonomous learning

There are three stages of autonomous learning: **Planning - Monitoring - Evaluation** (PME). Reflection is an integral part of PME. Reflection means being able to manage (plan, monitor and evaluate) your learning by asking and answering questions.

Planning (before the task/activity) - before we start doing something, we plan how to do it. The learner thinks about the learning objectives (task) and figures out how to achieve them and with

[23] PÂNIȘOARĂ, G. *Psihologia învățării: cum învață copiii și adulții?* Iași: Polirom, 2019.

[24] VECUMS-VECO, L.; MAZMANYAN, K.; STEFKOVA, S.; POLO, T. (2023) *Methodological recommendations Improving distance learning materials based on perceptual types. Jelgava*. Disponibil: https://nvsk.lv/upload/MM_Eng.pdf

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what techniques and strategies. An action plan and criteria can be created to determine whether the plan has been achieved.

Questions to ask at the beginning of planning:

- What is the purpose of the lesson?
- What do I want to learn?
- Could it be related to what I already know?
- How will I learn to do the task?
- What will help me learn?
- How much time will I need?

Monitoring (happens during the task/activity) - during the task/activity, we analyse whetherwe are progressing towards the goal. The learner implements their plan and monitors their work, progress and achievement of objectives. He checks for mistakes, looks for better solutions. The learner may decide to change the plan according to the individual level of knowledge.

Questions the learner asks when monitoring:

- Am I doing as planned?
- How do I know I'm learning things?
- What could be done differently?
- What will I do if I don't understand something during the lesson?
- How do I check that I'm not making a mistake?
- Do I understand everything?

Evaluation (after the task/activity) - once everything is completed, we evaluate how well we are doing and whether we did what we planned. The learner evaluates how well they achieved their goals (completed the task) using the chosen strategies, determining what worked well and what could be done differently and better next time.

Questions the student asks him/herself as part of the evaluation:

- At the end of the lesson, what will show me that I have achieved my goal?
- How will I "measure" my knowledge?
- How will I consolidate my new knowledge?

These three core activities are equally important and need to be developed, hence their long-term significance: achieving and evaluating an objective allows for more efficiency in achieving it next time.

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Reflecting on learning involves two other training events: evaluating performance and encouraging transfer and generalisation. Reflection is a way for the learner to enjoy the satisfactionof what they have achieved, to evaluate themselves and to plan their next steps.

Independent learning is a key skill that students need to learn as quickly as possible.Students with good self-directed learning skills demonstrate:

- more willingness to learn,
- better recall of knowledge,
- the ability to work strategically,
- the ability to be more productive and flexible in their work (Hartman, 2001).

To achieve results, the teacher must answer a series of questions when preparing teaching materials and during teaching (Table 2)[25].

Table 2. Self-regulated/self-directed learning questions (Vanags, 2018)

The teacher's question	What the teacher encourages and stimulatesstudents through questions
What could you do if there are problems?	Encourages strategic thinking.
How do you know?	Reflects on knowledge.
What will you do next?	Seeks information, does planning. Highlightsexplanation.
Will it help? Will it work?	Encourages predictions.
How will we do it? What do we need to thinkabout?	Plans and orders expectations.
Did you check what you did?	Encourages checking, monitoring. Reflects onown thinking.
Do we all need to think this through together?	Draws attention to thought processes. We will solve this problem by doing. Teaching techniques and strategies.
Was it hard or easy? What did we succeed at?	Encourages evaluation.

Motivating students to learn

Motivation is one of the engines of learning. In this context it is stated that motivation: is the psychological processes that produce the stimulation, direction and persistence of voluntary action directed towards the achievement of certain goals (Mitchell); is what energises, directs and sustains behaviour (Steers, Porter); refers to the dynamics of behaviour, the process of initiating, sustainingand directing the body's activities (Goldenson); involves a combination of effort and desire to achieve a goal (Gardner). These definitions delineate the following key issues: persistence is a

[25] VANAGS, E. Pašvadīta mācīšanās – kas tas ir? Retrieved from Skola 2030, Septembris/Oktobris nr. 8, 2019.Disponibil: https://skola2030.lv/admin/filemanager/files/2/nr_8.pdf

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concept often associated with motivation; intensity of behaviour is an important indicator for the study of motivation; direction and goals are often associated with a high level of motivation[26].

E.L. So he says that because people make choices about what they should do, thoughts and perceptions are important causal factors in their behaviour [27]. People's actions are closely linked to their needs, but motives drive action in a particular direction. A motive is an internal, encouraging, circumstantial factor, as Baldunčiks sees it. All mental and regulatory processes (thinking, memory, attention, etc.) are set in motion by the dynamic force of the motivational process. Motivation for learning varies according to the age of the learner.

We know that there are external and internal motives. Baltušīte, in this regard, states that motivation is a set of motives that are associated with a given action and arise from a given need, through the interaction of external and internal motivators[28].

In actions with little or no motivation, either nothing happens or they are very unstable. As teachers, we can influence our students' external motivation and boost their internal motivation.

Purpose is also an important concept when talking about motivation in learning. A goal is a known outcome, towards which action is linked to the satisfaction of a known need, is directed at a given point in time. Motives, needs and goals are the basis of human motivation. Augusts Milts also identifies interests as a key factor defining the domains of motivation (Milts, 1999).

An interest is a particular evaluative attitude towards something; interest can also refer to an evaluation of a particular activity that creates a positive emotional experience in a person.

If the need for such an experience becomes the basis for an interest, then interest is already a need, then it becomes an active motive and encouragement for action that satisfies that need for the experience. This can create interest in accomplishing a particular task because it brings the emotion satisfaction of overcoming difficulties (Laizāne, 2014).

Motivation to learn is essential for distance learning, as distance learning means fewer opportunities for the teacher to have face-to-face contact with the student.

Motivation to learn is a prerequisite for learning success. Motivated learners have an internal drive to learn and are more likely to be actively engaged in learning. Motivating learners in distance learning is difficult, especially when the intensity of interaction between teacher and learner is low.

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[26] PÂNIȘOARĂ, G. *Psihologia învățării: cum învață copiii și adulții?* Iași: Polirom, 2019.

[27] DECI, E.L.; RYAN, R.M. *Intrinsic motivation and sefl-determination in human behavior*. New York: SpringerScience Business Media, 2013.

[28] BALTUŠĪTE, R. *Skolotāja loma mācīšanās motivācijā*. Rīga: RaKa. 2006.

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In the context of psychologists Richard M. Rayan and Edward L. Deci's publications on the topics of self-determination and intrinsic motivation, social development and well-being, it is important to note the motivational regulation of learning (Table 3)[29].

Table 3. Factors governing student motivation to learn

(Rayan, Deci, 2000)

Impersonal motivators	External motivators	Self-regulated personal motivators
Unconscious actions	External reward	Personal relevance, conscious choice of values
Incompetence	Consequences of not followingthe rules	Acting in accordance with one's own values
Lack of self-control		Interest, enthusiasm, satisfaction

The teacher encourages students' motivation to learn in the given form by providing confidence in knowledge, to generate interest in learning, to challenge learning, to check learning performance and to provide feedback.

Students' motivation for learning, in L. Daniela's (2021) conception is enhanced by: setting achievable goals, providing feedback on what has been successful, identifying successes and achievements.

Motivation to learn is a prerequisite for success in learning.

4.2. Particular features of methods in synchronous instruction (methods and techniques for engaging students in real time; managing discussions and interactions in the online environment). Advantages and disadvantages.

Synchronous online learning is analogous to traditional classroom learning, except it takes place online. It is where students and teachers interact in real-time through communication tools such as video conferencing or chat rooms. This learning style is suitable for students who prefer structured, planned, and live interaction with their classmates and teachers. It is also ideal for peoplewho flourish in collaborative and interactive surroundings.

Advantages	Disadvantages
• Provides opportunity for asking & answering of questions in real time, as theycome up • Provides opportunity for spontaneous interaction and exchange between studentsand with the instructor	Unfortunately, while online learning can improve access for certain individuals, Synchronous learning can widen the dividefor learners with: • certain disabilities • unstable Internet access

[29] VECUMS-VECO, L.; MAZMANYAN, K.; STEFKOVA, S.; POLO, T. *Methodological recommendations Improving distance learning materials based on perceptual types*. Jelgava, 2023. Disponibil: https://nvsk.lv/upload/MM_Eng.pdf

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• Provides opportunity for instructors to get feedback on student learning • Adds the "human" element • Builds the classroom community • Increase in the number or "social" interactions (interactions not related to course content)	• inequitable access to device and other equipment • caregiving responsibilities • no access to a suitable space to participate • time zone differences

Synchronous learning is any activity in an online course that happens in **real-time**, like a Zoom meeting or a chat. It requires all participants to be in the same online environment, actively participating at the same time. It is typically characterized by opportunities for interaction betweenthe instructor and students and amongst students, such as a Q & A, a Class Discussion or Office Hours.

It is recommendable to use synchronous activities to facilitate student interaction and build teacher presence. The table below contains a list of academic activities, their particularities, the challenges may occur and the recommendations, instruments and technologies to avoid them.

Academic activities	**Particularities and recommendations**	**Challenges and applicable measures/instruments/technologies to avoidthem**
Lectures	• Effective with lectures that are 'chunked' into smaller segments (7 – 10 minutes segments are ideal, with a maximum of 15 – 20 minutes) • Lecture segments are interspersed with student interaction (e.g. Zoom Poll, Q&A session, Chat Q&A, Breakout Rooms, etc.)	• **Interfering factors (distractions, internet connectivity, etc.)** o keep segments short so students don't miss too much if their participation is interrupted • **Equalizing participation** o include short, frequent low-stakes interactions to encourage participation o Initiate a system to ensure you invite different students to share their thoughts by alternating forms of interaction
Videos	• Most effective when under 10 minutes and directly related to topic and task during class	• **Copyright concerns** o ensure all material has copyright permission to use • **Accessibility** o favour clips that provide captioning and described video where possible • **Interfering factors (distractions, internet connectivity, etc.)** o provide students with a link to the video incase they need to watch again later

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Case Studies	• Most effective for discussingcase analysis, sharing findings, and Q&A session	• **Interfering factors (distractions, internet connectivity, etc.)** o keep activities low stakes • **Equalizing participation** o include short, frequent low-stakes interactions to encourage participation o initiate a system to ensure you invite different students to share their thoughts by alternating forms of interaction • **Monitoring participation** o visit each Breakout Room o include a peer evaluation grade for contribution to the group
Experiential /Labs	• Most effective for authentic interactions (e.g.: interviews,timed problem solving, etc.)	• **Coordinating participants** o plan all events during your scheduled course time
Performance / Creation	• Most effective for spontaneous interaction, audience participation and small groups	• **Meeting 'live' criteria** o adjust requirements to allow for innovativeresponses to the task
Tutorials	• Most effective for short reviews and Q&A sessions –focused on work previously shared with students	• **Monitoring for comprehension** include frequent knowledge checks (Zoom Poll,Q&A session, Chat Q&A)
Collaborative Work	• Most effective for brainstorming tasks, short focussed discussions, as an initial touchpoint for more complex tasks, as a wrap-upactivity, etc.	• **Ensuring participation** o provide clear direction prior to initiating Breakout Rooms o visit each Breakout Room o open a Google doc for each group and monitor work while in Breakout o require groups to share results (either in plenary time permitting, or a written summary to the instructor) o include a peer evaluation grade for contribution to the group (if group compilation is constant) • **Equalizing participation** o clarify expectations for student participation o create roles to ensure each student has a specific contribution to the work (Host, Scribe, Synthesizer, Critic, etc.)

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Group Discussions	• Most effective for smaller groups, with guiding questions to complete and share, and a reasonable time limit to keep students on-task	• **Ensuring participation** o provide clear direction prior to initiating Breakout Rooms o visit each Breakout Room o open a Google doc for each group and monitor work while in Breakout o require groups to share results (either in plenary time permitting, or a written summary to the instructor) o include a peer evaluation grade for contribution to the group (if group compilation is constant) • **Equalizing participation** o clarify expectations for student participation o create & model roles to ensure each studenthas a specific contribution to the work (Host, Scribe, Synthesizer, Critic, etc.) & rotate the roles to give each memberpractice with each role
Presentations	• Most effective for presentations under 20 minutes • Best executed if student audience has a cognitive taskduring presentations (eg: apply criteria to peer review presentation) • Should be limited to 3 presentations within a sessionwith intermittent breaks in between • Can be done in Breakout Rooms and recorded for grading purposes	• **Interfering factors (distractions, internet connectivity, etc.)** o keep presentations short so students don't miss too much if their participation is interrupted • **Ensuring participation** o require students to evaluate the presentationusing set criteria • **Validating use of student time** o stagger audience members
Research Assignments	• Most effective for individual or small group Q&A sessionsto report challenges, etc.	• **Validating use of student time** o keep sessions short and focused o hold individual meetings
Assessment	• Most effective for oral presentations and demonstrations	• **Validating use of student time** o keep sessions short and focused o hold individual evaluation meetings

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4.3. The specifics of asynchronous training methods (digital portfolios, discussion forums,online journals, etc.). Advantages and disadvantages.

Asynchronous online learning is a self-paced learning setting in which students may access learning resources whenever they choose and complete assignments on their own timetable. Real-time communication between teachers or peers is not required, and students are not obliged to be online at particular times. This style of learning is optimal for people who have a restricted time, a range of personal or professional responsibilities, and opt to study at a pace that suits them. While there may still be due dates, students can generally complete these any time within the given timeline for the task. These activities can include video lectures, readings, assignments andgroup discussions or collaborative tasks.

Advantages	Disadvantages
• Students can complete work on their own timetable (a huge advantage in today's context) • Students have the opportunity to take the necessary time to digest, and repeat/reread content that is difficult in order to deepen understanding	• Without proper motivation, it is possible for students to put off completing weekly work and fall behind • Students can feel isolated or disconnected from the instructor and other students
• Students have time to compose and revise responses in asynchronous class discussions, increasing access to those with language and other barriers.	

While there is no single 'right' way to teach online, the following table may help teachers in choosing the most appropriate technology for asynchronous mod of teaching. It lists typical academic activities and identifies effective use cases, challenges and potential workarounds foreach academic activities.

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Academic activities	Particularities and recommendations	Challenges and applicable measures/instruments/technologies to avoid them
Lectures	• Effective for longer lectures and/or more complex information so students can pace their viewing and review 'sticky points' as needed • Recorded lectures can be narrated PPTs, videos, demos, etc. • Where possible, lectures shouldbe chunked into 15-30-minute subtopics to facilitate study andreview for students • More inclusive for students withaccessibility needs, second language, etc. • H5P plug-in can be used to create interactive videos & presentations	• **Time management** o identify deadlines for viewing and share with students and send reminder with yourweekly check-in announcement • **Work completion** o assign tasks & submission deadline for each presentation (1-paragraph summaryof the main points, journal reflection on the content, 1-page of lecture notes, etc.) • **Questions that arise while working on lectures, assignments, etc.** o create a class discussion thread per topic for students to pose questions and share answers o include links to extra resources for anticipated trouble spots
Videos	• Most effective for longer videos,especially if students are required to take notes or use the content for an academic task • H5P plug-in can be used to create interactive video presentations	• **Copyright concerns** o ensure all material has copyright permission to use
Case Studies	• Most effective for reading cases,analysing information, sharing ideas, and finetuning analysis	• **Lack of direction / misunderstanding oftask requirements** o ensure instructions are clearly written, keep activities low stakes o create a class discussion thread for students to pose questions and share answers • **Equalizing participation** o clarify expectations for student participation

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		○ create roles to ensure each student has a specific contribution to the work (Facilitator, Synthesizer, Critic, etc.) • **Monitoring participation** ○ monitor student posts ○ include a peer evaluation grade for contribution to the group *Suggested Technology: Moodle Discussion Forum using "Separate groups" and/or acollaborative document (such as Moodlewiki or Google Docs) to document analysis*.
Experiential /Labs	• Most effective for authentic tasks (e.g.: design a complex research experiment, conduct aliterature review, analyze experimental data, etc.)	• **Task/Process clarity** ○provide models and rubrics to clarify expectations ○create a class discussion thread for studentsto pose questions and share answers
Performance /Creation	• Most effective for recorded performance or technical demonstrations	• **Lack of materials** ○ adjust requirements to allow for a range ofmaterials ○ create a class discussion thread for students to pose questions and brainstorminnovative replacement materials
Tutorials	• Most effective for sharing problems and tasks with studentsthat they complete and prepare questions on prior to the live session	• **Task/Process clarity** ○ provide models and links to resources • create a class discussion thread for students to pose questions and share answers

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Collaborative Work	• Most effective for more complextasks that require critical thinking, analysis, reflection, etc. • Most effective for peer editing and collaborative writing tasks • More inclusive for students withaccessibility needs, second language, speakers, etc.	• **Ensuring participation** o provide clear direction prior to initiating task o create challenging, but achievable tasks o require groups to share results o use an activity that can be monitored (Eg:Discussion Forum, Workshop, Wiki, etc.) o include a peer evaluation grade for contribution to the group (if scope of workmerits) • **Equalizing participation** o clarify expectations for student participation o require students to divide work and reporton their own contribution *Suggested Techonology: Moodle Discussion forum using "Separate groups" and/or a collaborative document (i.e. Google Docs)to document analysis*
Group Discussions	• Most effective for groups ranging from 4 – 9, depending on number of discussion posts tocreate and number of responses required • Most effective for confirming student understanding / progress • More inclusive for students withaccessibility needs, second language, etc.	• **Ensuring participation** o provide questions that require higher-order thinking (analysis, comparison, application, etc.) o require groups to share results o monitor student contributions o attribute participation grades (for simple participation and/or quality of contributions) o include a peer evaluation grade for contribution to the group (if scope of workmerits) o consider assigning a discussion facilitator for each group on a rotating basis to keepthe discussion going *Suggested Techonology: Moodle Discussion forum using "Separate groups"*
Presentations	• Most effective with larger classes • Can be peer reviewed (eg: assigning each student specific presentations to watch and review) • Can provide comments at specific points with Audio (in Moodle Discussion Forum)	• **Ensuring participation** o require students to evaluate the presentation using set criteria o Validating use of student time o assign each student to view specific presentations

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Research Assignments	• Most effective when executed with specific milestones to ensure students stay on task (Eg:written summary of research topic, annotated bibliography, paper outline, post-assignment reflection, etc.)	• **Direction and guidance** o provide models and rubrics to clarify expectations o set deadlines for milestone deliverables o attribute a portion of the grade to each deliverable o create a class discussion thread for students to pose questions and share answers
Assessment	• Most effective for auto-graded quizzes, essays, research reports,problem-solving tasks, participation grades	• **Academic integrity** o create alternate test versions for a single group o randomize question order o set time limits for test completion o create questions that are highly contextualized and require students to answer from a more 'personal' perspective(Eg: discuss specific to the context, provide justification, examples, etc.) o offer a creative option whereby students can meet the academic criteria with their own choice of artifact

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5. ASSESSMENT IN DISTANCE LEARNING

5.1. Types of assessment

Distance assessment in the university context can ensure academic integrity and effectiveness of the learning process by referring to a set of methodological requirements/instructions designed to guide teachers in the design and implementation of assessments in virtual environments.

The following requirements will be taken into account in the implementation of distance assessment (Palloff & Pratt, 2009[30]):

- *Designing learner-centred assessment that includes self-reflection* - involves creating opportunities for students to examine and evaluate their own progress, understandingstrengths and identifying areas for improvement. Self-reflection encourages empowerment and personal development, essential aspects of self-directed learning.
- *Designing and including marking rubrics/assessment grids* - helps students understand exactly what is expected of them and how they can achieve the highest standards. These tools provide transparency in the assessment process and help to maintain consistentstandards, regardless of the potential subjectivity of the assessor.
- *Inclusion of collaborative assessment through public posting of work* - promotes an interactive and participatory learning environment. This allows students to see the work of their peers, providing a richer context for learning. Collaborative assessment can also stimulate constructive discussion and improve critical analysis and argumentation skills.
- *Encouraging students to develop skills in providing feedback by modelling expectations* - is key to creating a culture of constructive feedback. This process not only helps students become more receptive to criticism and better at self-assessment, but also teaches them how to effectively and respectfully communicate opinions and suggestions.
- *Design clear, easy-to-understand assessment appropriate for the online environment*. Assessments should be designed to minimize confusion and be technologically accessible toall students. Clarity of instruction and technological accessibility are important to ensure thatall students can demonstrate their skills and knowledge effectively.

Evaluation in distance learning requires rigorous measures to ensure the effectiveness and integrity of the process. Data security is essential, involving strict security protocols such as anti-plagiarism software, multi-factor authentication and information encryption to prevent unauthorised

[30] PALLOFF, R., & PRATT, K. (2009). *Assessing the Online Learner: Resources and Strategies for Faculty*. San Francisco, CA: Jossey-Bass.

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access and academic fraud. Real-time surveillance is also crucial to monitor student behaviour and block access to external resources during exams.

Accessibility of assessments for all students, including those with special educational needs,is a priority, ensuring compliance with international accessibility standards. Flexibility is also important to accommodate students from different time zones and to manage unforeseen situationsthat may affect access to assessments.

In today's educational context, assessment in distance learning determines the effectivenessof teaching and learning processes. The types of assessment implemented in virtual environments are diverse, each with its own particularities.

Thus, the following **types of assessment** are designed and carried out:

1. *Initial assessment,* aimed at identifying students' prior knowledge and skills, and adapting content and teaching strategies to their needs. Online questionnaires, initial tests of digital skills can be used to ensure that all students can navigate the learning platform effectively. This assessment is carried out before the actual course starts. The results helpto personalise materials and organise study groups, as well as setting up technical supportfor students.
2. *Formative assessment,* which is carried out during the learning process, this includes short tests, essays, group projects, reflective journals and forum discussions. The aim isto monitor progress and provide continuous feedback. Formative assessments are integrated into the flow of the course and are conducted periodically. The use of educational platforms allows for the automation of response collection and assessment,facilitating rapid and personalised feedback.
3. *Summative assessment,* which measures student acquisition at the end of a course unit or at the end of the semester, in the form of exams, final projects or portfolios. These assessments are timetabled and are often secured by various technological methods to prevent academic fraud. E-learning platforms provide tools for administering exams and collecting and assessing portfolios.

Online assessment in university distance learning can be carried out using various methods, each with specific advantages and adapted to different types of courses and learning objectives.

- *Online tests* - these can be formatted with closed questions (multiple choice, true or false) or open questions (short answers, essays). They are useful for assessing factual knowledge and

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understanding of concepts. Online quizzes can be done through platforms such as Moodle, Canvas, or Google Forms.

- *Projects* - involve applying knowledge in practical scenarios or developing complex assignments (e.g. research projects). They are effective for assessing analytical, creative and technical skills. Document sharing platforms such as Google Drive or Dropbox can be usedto deliver and assess projects.
- *Digital portfolios* - involve the systematic collection of a student's work throughout a courseor programme. They are effective for assessing long-term progress and skills development. Platforms such as Mahara or WordPress allow portfolios to be created and managed.
- *Video presentations* - to explain concepts, report on projects or demonstrate practical skills. Can be used in courses that require communication and presentation skills. Platforms such as Zoom or Microsoft Teams allow presentations to be recorded and shared.
- *Simulations and educational games* - provide interactive scenarios for applying knowledgein a virtually controlled environment. They can be applied to areas such as business, medicine, or engineering. Requires domain-specific technology/software or general gamification platforms.
- *Forum discussions and reflective journals* - discussions allow for analysis and reflection on topics, while reflective journals track students' personal thoughts throughout the course. They are effective for courses that value critical thinking and personal reflection. They can take place on forums integrated into learning management systems (LMS) or personal blogs.

5.2. Assessment methods in distance learning.

Assessment methods in distance learning refer to the involvement of teachers and students in the process of evaluating learning. The purpose of assessment in distance learning is not just grading. In fact, the purpose of assessment is to contribute to the development of efficient and effective distance learning by implementing appropriate assessment practices (Conrad & Openo, 2018[31]).

In this respect, distance evaluation can be carried out in the following methods:

- *teacher assessment*
- *peer assessment/ co-assessment*
- *self-assessment.*

[31] CONRAD, D., & OPENO, J. (2018). *Assessment strategies for online learning: Engagement and authenticity*. Edmonton: Athabasca University Press.

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These modalities can be carried out in the context of initial, formative or final assessment. Assessment arrangements in distance learning are adapted to make the involvement of both teacherand students in the assessment process more effective, thus ensuring objective assessment of academic achievement. Each of the modes of assessment has distinct characteristics which influencethe way distance learning and assessment is carried out.

Assessment by the teacher is predominant in the teaching process, with the teacher playing the decisive role in assessing students' learning. Teacher assessment has the following features:

- The teacher monitors the entire assessment process, from the development of assessment instruments to the decision on student learning outcomes.
- The assessment carried out by the teacher is geared towards the continuous improvementof students.
- Feedback provides information on learning progress and is geared towards improving outcomes.

Designing teacher assessments in a virtual environment requires a careful approach that takes into account the specifics of online learning. Teachers need to design tests and tasks that not only measure knowledge, but also students' ability to apply this knowledge in new contexts. This can include the use of case studies, application scenarios and projects that require critical thinking and problem solving. It is also essential that assessment tools are designed to be accessible and equitable for all students, including those with special learning needs.

The teacher's role in distance assessment is to ensure academic integrity in the absence of physical supervision. Teachers can use various proctoring technologies, which monitor student activity during exams to prevent and detect attempts at academic fraud. Technologies can include webcam monitoring, blocking access to unauthorised online resources and using algorithms to detect suspicious behaviour. While these measures are effective, they must be balanced with respectfor student privacy and managed with full transparency.

In formative assessment, feedback provided by the teacher ensures that students are guidedand directed towards achieving learning objectives. In the online environment, this feedback can be transmitted quickly via learning platforms, facilitating continuous interaction between student and teacher. Teachers can also use digital tools to personalise/individualise feedback and make it more relevant to the individual needs of each student.

Peer assessment is a complementary modality in the assessment process and is effective in encouraging student engagement and empowerment in the learning process. This form of assessment

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involves students assessing the work, discussion contributions or projects of their peers, which provides valuable opportunities for peer learning and the development of critical andreflective skills.

Peer assessment has the following features:

- This mode of assessment encourages students to actively participate in the assessment process by providing feedback to their peers. It promotes the development of a learning community and supports collaborative learning.
- Developing critical thinking skills. Students learn to critically analyse the work of others and provide constructive feedback, which also improves their own self-analysis skills.
- Accountability and engagement. Co-assessment increases student engagement as students are responsible for fairly assessing their peers.

By participating in peer assessment, students learn to give and receive feedback in a constructive way. This helps them develop communication and empathy skills, which are essentialin both academic and professional environments. In assessing the work of peers, students often haveto reflect deeply on the assessment criteria and apply theoretical concepts to the analysis of their work. This process can strengthen their understanding of the subject and identify any gaps in their own knowledge.

Active participation in the assessment process can make learning more relevant and interesting for students. This sense of involvement and responsibility can increase their motivation and commitment to the course. By creating a collaborative learning environment, students becomepart of a community that values the exchange of ideas and mutual support, which can enhance the learning experience for the whole group.

Self-assessment in distance learning is a key way for students to take responsibility for their own learning process. This type of assessment encourages students to reflect on their progress, identify strengths and identify areas for improvement. In the online context, where face-to-face interaction is limited, self-assessment becomes an effective way to develop autonomy and self- regulation in learning.

In distance learning, *self-assessment* has the following features:

- Self-assessment gives students the freedom to assess their work and progress at different times according to their own schedule. This flexibility is essential in distance learning, wherestudents may have various personal or professional commitments that influence theiravailability.

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- Self-assessment is interactive through the use of online platforms that allow the implementation of a variety of self-assessment tools, from digital diaries and feedback questionnaires to interactive quizzes.
- Involving students in the self-assessment process provides opportunities to develop autonomy, which is a necessary skill in online learning environments, where direct and immediate interactions with teachers are more limited compared to traditional face-to-face learning.

By implementing self- and peer-assessment in online classrooms, teachers seek to promote constructivist learning by: (a) engaging students in cognitive activities that involve solving complex, open-ended problems and finding solutions; developing interactions among students; providing timely feedback; creating sustainable learning environments in which students are motivated to produce solutions and provide feedback to each other (Babik et al., 2024[32]).

In conclusion, the assessment modalities discussed above in the context of distance education provide an effective framework for measuring and improving student learning. Each mode of assessment, whether teacher assessment, peer assessment, or self-assessment, has unique advantages and contributes to an effective learning process. Teacher assessment provides rigorous monitoring and a well-defined structure for assessing student achievement. Peer assessment promotes collaboration and the development of interpersonal skills, allowing students to develop their skills through interaction and discussion. Self-assessment encourages independence, empowerment and personal reflection, which are essential for self-directed and lifelong learning. Feedback is an important element in all modes of assessment, making the connection between student and teacher, student and student in distance learning.

Thus, effective assessment in distance learning is ensured by innovating and improving assessment practices, ensuring that they are fair, effective and, most importantly, student-centred.

6. CONDITIONS FOR INCREASING THE EFFECTIVENESS OF DISTANCE LEARNING

The conditions for increasing the effectiveness of distance learning are based on the autonomyand flexibility of this form of education, which in turn are based on principles such as: modular contents/programmes; choice of learning location; diverse ways of presenting study topics; flexible

[32] BABIK, D., GEHRINGER, E., KIDD, J. *et al.* A systematic review of educational online peer-review and assessment systems: charting the landscape. *Education Tech Research Dev* (2024). https://doi.org/10.1007/s11423-024-10349-x

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learning time; varied learning methods; use of information and communication technologies adaptedto self-learning and self-assessment activities, complemented by specific activities; technologies and materials adapted to individual study and the diversity of content in the educational process, indigital format available on computer platforms or other storage media; effective communication with teachers and colleagues, using multiple communication channels to interact, thus ensuring an effective dialogue for an active virtual community.

The conditions for increasing the effectiveness of distance learning, from the perspective of organisational challenges, refer to the alleviation of the difficulties encountered, namely difficultiesfor students to access technologies to participate in the learning process; difficulties of control, including how much control the student has over the environment; difficulties of student-teacher interaction; difficulties of social presence in a social climate different from the classroom; difficulties related to the form of presentation of course content, etc.

In this context, it is important to take into account the difficulties faced by distance learning countries: insufficient political will; financial difficulties; shortcomings in cooperation; institutional reasons; problems with students; lack of development of technological infrastructure.[33].

Several conditions can be highlighted to increase the effectiveness of distance learning from a pedagogical perspective. They outline the following aspects:

- Select and apply appropriate training strategies.
- Maintaining quality as student numbers increase.
- Accepting new roles for teaching quality.
- Accepting new roles for student quality..

Select and apply appropriate training strategies. The fact that the teacher and student are not physically in the same environment in distance learning can be presented as a crucial factor differentiating distance education from traditional classroom education. Although this physical distance between student and teacher offers flexibility in space and time, it makes the benefits of face-to-face communication overlooked. In face-to-face communication, the teacher may have information about the student's facial expression, approach to material and subject matter, attitudesand behaviours towards the lesson. In contrast, the teacher may have minimal information about distance learning students.

[33] DUMAN, E. (2023). The challenges of distance education and evidence-based solution suggestions. *International Journal of Academic Studies in Technology and Education* (IJASTE), 1(1), 50-64.

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For this reason, a design cannot be made according to individual student differences in course design and course content is designed in a standard way. Dwyer suggests the use of instructional coherence and coherence paradigms when creating distance learning materials to match the contentof the materials to the ability levels of the students.

One of the reasons individuals, especially adults, prefer distance education is to receive education without time constraints. For this reason, the number and diversity of those preferring distance learning is increasing. In distance learning systems, which allow people from different cultures and regions to receive education, diversity of learning and individual differences can include more diversity than in the traditional education system. For this reason, when designingcourse content, taking this diversity into account and considering multiple intelligent theories,planning to address differences will bring the effectiveness of distance education to the highest level.

Teaching methods and techniques should be used to enable students to acquire skills such as critical thinking, knowledge accumulation, reflection and problem-solving skills brought by the constructivist approach, i.e. a course should be planned according to them. The number of studiesin the literature on this topic is gradually increasing and topics such as knowledge construction andmediated learning (Barrett; Glaser; Harasim; Salomon) can be seen as promising research in distance education.

Lack of interaction is the most important problem in course design and implementation that is missing in distance education. According to Çağıltay, lesson design lacking interaction and cooperation without considering pedagogical features is among the factors that undermine the distance education system, although technological possibilities have improved. Because learning becomes permanent and meaningful with interaction, lessons should be taught according to learningpatterns between groups of students and teaching methods and techniques should be included in thiscontext.

Another aspect that needs to be given more attention in distance learning is the assessment phase. In order to reduce costs and workload in distance learning institutions frequently assessmentsare made as tests and different alternatives cannot be used. However, studies (Gaytan, McEwen) show that teachers and students accept different methods of digital assessment. In a feasibility studyon the use of digital technologies that can be applied as an alternative to traditional assessment methods in performance assessment, it was concluded that both the digital portfolio and the computer-based exam are implemented without significant technical difficulties. Acceptance by students and teachers is high. The results of studies carried out in distance education, different methods of digital assessment with proven effectiveness and efficiency can bring the assessment process to a satisfactory level for teachers and students.

Maintain quality as student numbers increase. Quality assurance in distance education can be

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achieved by determining policies that guarantee quality for students and faculty members (Gunawardena, McIsaac). The importance of national (in process) and international educational policies and strategies for quality assurance in e-learning environments should be mentioned. Many countries are developing reports on quality assurance in education. Institutions and organisations should determine their standards taking support from the literature to provide quality education to students. According to the guidelines identified, as the number of students involved in distance learning increases on a day-to-day basis to ensure effectiveness and motivation, "teaching support centres" in universities in developed countries should be formed and, in addition to technical support, academics should be supported on how they should adopt pedagogical approaches in the web environment.

Quality standards for the distance learning system should guide the achievement of quality inthe given form of education. In addition, there should be appropriate competitive environments provided to increase the demand for distance learning. Again, as the number of students increases, quality standards should be created. Therefore, teachers can benefit from learning things while designing their lessons. Learning objects can be used again and again after they are prepared, whichreduces the course load on the educator and allows them to gain time to use other resources to makethe lesson more effective, as well as contributing to quality standardisation.

Acceptance of new roles for teaching. With the increasing focus on distance learning, there will inevitably be differences in the roles of faculty members. In addition to presenting content, providing feedback and management, the teacher must create social learning environments that willincrease interaction in distance learning environments. Faculties have essential responsibilities in adapting to their members, accustomed to classical teaching, new methods and skills in changing teaching roles. Instead of presenting information directly, faculties need to make arrangements to monitor and facilitate the work of geographically distant students.

The teacher should adopt a facilitative role between the learning resource and the student andact as a bridge between content and student. The teacher's primary responsibility is to eliminate thelack of communication caused by physical distances. As a result of the physical distance that existsin distance learning in student-teacher dialogues, learning, as a social phenomenon, cannot be fullyrealised. In such cases, individuals' perspective on distance education changes and distance learning,which is seen as an alternative to face-to-face teaching, ends before it achieves its purpose. In order to prevent such situations, the teacher should provide the necessary counselling service to students who have difficulties in using the system and learning difficulties. Saba and Shearer concluded in their study that the distance between learning processes decreased as the teacher's control over the dialogue with students in distance learning increased.

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In order to keep motivation alive in distance learning, the teacher may have to put in more effort than in face-to-face teaching. A teacher, who may be wary of handling students in face-to- face lessons, may be exposed to different handling with groups of students of different genders, races and characteristics if they do not maintain quality communication to get to know their studentsin distance learning. For this reason, the teacher should have information about the profile of the student by using high-level communication skills and should make their approach accordingly.

In addition, it is important in two-way dialogues that the teacher indicates that he/she is awareof the student's social presence in order to increase their interest in the lesson. Studies show that student satisfaction is strongly associated with his/her perception of social presence. Social presenceis defined as the degree to which an individual is felt to be a "real person" in mediated communication. In distance education, the teacher should be able to communicate effectively with students, to make them feel that they care about their social existence.

Another way to make students feel the social presence of teachers in distance learning is the immediate and timely feedback provided. Assessment strategies in distance learning regularly include a variety of clearly explained tasks. Feedback is divided into two types as "confirmation/approval feedback" and "knowledge/information feedback". Confirmation feedback provides students with feedback on their progress in their work, while knowledge feedback includes an informational assessment. Howard defines student feedback as the most important component ofteaching and course design.

Accepting new roles for student status. Responsibility for learning in distance learning rests entirely with the student. He continues his learning by saving time and asking the teacher for help to provide support when he does not understand. When the teacher cannot fully communicate withthe student due to physical distance or technical problems, they may not have enough information about the student's learning experience. Therefore, students are primarily responsible for their ownlearning. Referring to student autonomy the authors emphasise three dimensions: planning, implementation and evaluation of instruction. The highest degree of autonomy for the student is found in programs that allow them to participate in all three aspects of instruction. Students whoare most successful in distance learning situations tend to be independent, autonomous learners whoprefer to control their learning situations.

The conditions for increasing the effectiveness of distance learning necessarily cover aspects such as diversifying and developing quality educational programmes, meeting the preferences of beneficiaries and the requirements of the labour market, etc.

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REFERENCES:

1. ALMARASHDEH, I. (2016). Sharing instructors experience of learning management system: A technology perspective of user satisfaction in distance learning course. *Computersin Human Behavior, 63*, pp. 249–255.
2. BABIK, D., GEHRINGER, E., KIDD, J. *et al.* A systematic review of educational online peer-review and assessment systems: charting the landscape. *Education Tech Research Dev*(2024). https://doi.org/10.1007/s11423-024-10349-x
3. BALTUŠĪTE, R. (2006) *Skolotāja loma mācīšanās motivācijā*. Rīga: RaKa.
4. BILGIÇ, H. G., & TUZUN, H. (2020). Issues and challenges with web-based distance education programs in Turkish higher education institutes. *Turkish Online Journal ofDistance Education, 21*(1), pp. 143–164.
5. BOLLIGER, D. U., & MARTIN, F. (2018). Instructor and student perceptions of online student engagement strategies. *Distance Education, 39*(4), pp. 568–583.
6. BRADLEY, V. M. (2021). Learning Management System (LMS) use with online instruction. International Journal of Technology in Education (IJTE), 4(1), 68-92.https://doi.org/10.46328/ijte.36
7. CONRAD, D., & OPENO, J. (2018). *Assessment strategies for online learning: Engagement and authenticity*. Edmonton: Athabasca University Press.
8. CORLAT SERGIU et al., Metodologia utilizării tehnologiilor informaționale și de comunicație în învățământul superior, Chișinău, 2021,90-94 p.
9. DECI, E.L.; RYAN, R.M. (2013) *Intrinsic motivation and self-determination in human behavior*. New York: Springer Science Business Media.
10. DUMAN, E. (2023). The challenges of distance education and evidence-based solution suggestions. *International Journal of Academic Studies in Technology and Education* (IJASTE), 1(1), 50-64. Disponibil: https://www.google.com/search?q=Conditions+for+increasing+the+efficiency+of+distance+education&oq=Conditions+for+increasing+the+efficiency+of+distance+education&gs_lcrp=EgZjaHJvbWUyBggAEEUYOdIBCTIwNjJqMGoxNagCCLACAQ&sourceid=chrome&ie=UTF-8#ip=1
11. GAYTAN, J. & MCEWEN, B. C. (2007). Effective online instructional and assessment strategies. *The American Journal of distance education, 21*(3), pp. 117-132.

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Neither the European Union nor the granting authority can be held responsible for them

12. GORAȘ-POSTICA VIORICA et al., Clubul PAIDEIA altfel: provocări şi soluţii pentru învăţarea online / Centrul Educaţional "Pro Didactica"; coordonator de proiect: Vitalie Scurtu. – Chişinău: Centrul Educaţional "Pro Didactica", 2021, 15-18 p.
13. GÜLBAHAR, Y. (2020). E-değerlendirme. Çağıltay, K. & Götaş Y. (Eds.), *Öğretim teknolojilerinin temelleri teoriler, araştırmalar ve eğilimler (3. Baskı, s. 655-667)*. Pegem Akademi.
14. HEBEBCI, M. T., BERTIZ, Y., & ALAN, S. (2020). Investigation of views of students and teachers on distance education practices during the Coronavirus (COVID-19) pandemic. *International Journal of Technology in Education and Science, 4*(4), pp. 267–282.
15. HIETANEN, M., & SVEDHOLM-HÄKKINEN, A. M. (2023). Transition to distance education in 2020–challenges among university faculty in sweden. *Scandinavian Journal of Educational Research, 67*(3), pp. 433–446.
16. NEWHOUSE, C. P. (2011). Using IT to assess IT: Towards greater authenticity in summative performance assessment. *Computers & Education, 56*(2), pp. 388-402.
17. *OECD* (2016). Education at a glance 2016: OECD indicators. Paris: OECD Publishing.
18. *Open and distance learning. Trends, policy and strategy considerations*. UNESCO, 2002. Disponibil: https://unesdoc.unesco.org/ark:/48223/pf0000128463
19. ÖZKUL, A. E., & AYDIN, C. H. (2013). Açık ve uzaktan öğrenmenin temelleri ve araştırmaları. Çağıltay, K.&Götaş Y.(Eds.), *Öğretim teknolojilerinin temelleri teoriler, araştırmalar ve eğilimler (3. Baskı,s. 633-655).* Pegem Akademi.
20. PALLOFF, R., & PRATT, K. (2009). *Assessing the Online Learner: Resources and Strategies for Faculty*. San Francisco, CA: Jossey-Bass.
21. PÂNIȘOARĂ, G. (2019) *Psihologia învățării: cum învață copiii și adulții?* Iași: Polirom.
22. POTÂNG, A.; PALADI, O. [et.al.]. (2013) *Psihologie generală. Suport de curs pentru alte facultăţi*. CEP USM, Chişinău.
23. Regulamentul-cadru privind organizarea și desfășurarea învățământului superior la distanță. [online]. Disponibil: https://mecc.gov.md/sites/default/files/ordin_474_sin_24.05.2016.pdf (Accessed 02 April 2024)
24. SARAC, B.; ALPTEKIN, N. (2022) Efficiency in open and distance education: a research at Anadolu University. *Turkish Online Journal of Distance Education-TOJDE,* April 2022 ISSN 1302-6488 Volume: 23 Number: 2 Article 11. Disponibil: https://files.eric.ed.gov/fulltext/EJ1343063.pdf

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25. STRAUß, S., RUMMEL, N. (2020). Promoting interaction in online distance education: Designing, implementing and supporting collaborative learning. *Information and Learning Sciences, 121*(5/6), pp. 251–260.
26. VANAGS, E. (2019) Pašvadīta mācīšanās – kas tas ir? Retrieved from Skola 2030, Septembris/Oktobris nr. 8. Disponibil: https://skola2030.lv/admin/filemanager/files/2/nr_8.pdf
27. VECUMS-VECO, L.; MAZMANYAN, K.; STEFKOVA, S.; POLO, T. (2023) *Methodological recommendations Improving distance learning materials based on perceptual types*. Jelgava. Disponibil: https://nvsk.lv/upload/MM_Eng.pdf

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or European Education and Culture Executive Agency (EACEA).
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