INTERNATIONAL MULTI DISCIPLINARY JOURNAL FOR RESEARCH & DEVELOPMENT
eISSN 2394-6334 Impact factor: 7,854 Volume 12, issue 09 (2025)

METHODOLOGY FOR USING VIRTUAL PLATFORMS IN ORGANIZING DISTANCE EDUCATION FOR STUDENTS WITH DISABILITIES

D.S. Salokhidinova

National Research University "TIQXMMI"

Intern-teacher of the Department of Information Technologies

Annotation: This article discusses the methodology for using virtual platforms in distance learning for students with disabilities. The article systematically examines the needs of students with various types of disabilities, the principles of organizing the educational process, the criteria for selecting suitable platforms, the technologies used, the problems and ways to solve them. It also analyzes methods for organizing virtual education based on modern pedagogical approaches such as Universal Design for Learning (UDL). The article is based on real experiences, examples of platforms and practical recommendations, and can be useful for teachers, educational organizers and policymakers.

Keywords: students with disabilities, distance learning, virtual platforms, pedagogical methodology, UDL, assistive technologies, inclusion in education, synchronous learning, asynchronous learning, assessment methods,

In recent years, technology has developed rapidly, and the Internet and digital tools have greatly facilitated the educational process. In particular, the COVID - 19 pandemic has made distance learning an everyday reality. In this situation, ensuring educational opportunities for students with disabilities (those with physical, sensory, mental or psychological limitations) has become particularly important. The use of virtual platforms can help these students study equally and effectively, without deviating from the general processes.

Below are some methodological principles to follow, what technologies and tools to use effectively, problems and ways to overcome them, and examples.

Home methodical principles Universal Design for Learning (UDL — In Education general design) This methodology education content , lesson forms and assessment methods everyone to students suitable accordingly in advance planning in mind holds — possibility limited students for separately to make accommodations according to , generally the system all for opportunity wide was and flexible . There are three main elements of UDL: Providing educational resources in multiple ways (visual, auditory, kinesthetic…), allowing students to choose their own forms of exploration and expression , and creating motivation and interest . Organizing education based on a unified and open plan. The lesson plan, learning objectives, tasks to be completed by students, and assessment criteria should be clearly defined in advance. Since there may be time and technology problems in distance learning, it is necessary to combine synchronous (real time) and asynchronous (the student works at a time convenient for him/her) forms. Adaptation to individual needs / Differentiated approach Each student should be provided with appropriate devices, aids, guides, and tasks, depending on the type of limitation. For example: braille, audio explanations, screen reader tools for a student with visual impairment; subtitles, written materials for a student with hearing impairment; in case of motor limitations, interactive tasks, keyboard-controlled interfaces , etc. Active and interactive

learning: There should be constant communication between the teacher - and the student. It is advisable to organize small group work, discussions, role-playing games and project work in virtual classrooms. Multimedia tools (video, audio, animations), visual displays, virtual laboratories and simulations help to engage students. Assessment and monitoring Student progress should be regularly reviewed and adjustments made as necessary. Assessment criteria should be appropriate and adaptive — allowing for assignments in different formats, additional time, and the ability to express learning in different ways (written, oral, visual). Teacher development and - support Readiness to work with virtual platforms and technologies, understanding of pedagogical methods with students with disabilities, familiarity with assistive technologies are important. Teachers need training, in-textbooks, and a mentoring system. Collaboration with families and the community For students who are homeschooled, parents - and other close relatives should be actively involved in the educational process, familiar with technologies, assignments, and supporting materials. Issues of infrastructure, internet, and device provision can be resolved with the help of the community and local organizations.

Examples of technological tools and virtual platforms The following are some technologies, platforms, and tools and their benefits for students with disabilities:

Platform / Tool	Benefits/Eligibility Aspects for Students with Disabilities
Moodle and other LMS (Learning Management System) platforms	The ability to divide materials into modules, mix video and text resources, participate in forums and discussions, use subtitles and audio descriptions. For example, there are studies evaluating the use of the Moodle platform in the context of UDL.
Video conferencing platforms (Zoom, Microsoft Teams, Google Meet, etc.)	Communication for synchronous lessons, chat, screen sharing, subtitles and automatic transcription, voice and video communication, small group division.
Assistive technologies	Screen readers, subtitles, audio descriptions, text - -to-speech and speech-to-text tools, keyboard controls, voice commands, magnification, AR/VR (simulation and magnification of images where necessary).
Virtual labs and simulators	vision and - mobility, conducting virtual experiments without going to a real laboratory and better understanding complex concepts using visual and interactive animations.
Multimedia resources, e-books, audio books	Understanding which modality the student learns best from and providing resources in the appropriate format.
Moodle and other LMS (Learning Management System) platforms	The ability to divide materials into modules, mix video and text resources, participate in forums and discussions, use subtitles and audio descriptions. For example, there are studies evaluating the use of the Moodle platform in the context of UDL.

Distance learning methodology: a step-by -step approach The following steps can be followed as a methodological plan in the distance learning process:

1. Identifying student needs
   - Through entrance tests, individual interviews, family and diagnostic information,

the student's disability and what limitations he or she faces in learning are determined (for example, vision, hearing, speech, motor or intellectual abilities).

- Assess the status of technological infrastructure and devices: student internet connectivity, ease of use of devices, availability of utilities or devices.

2. Lesson planning and preparation of appropriate content
   - Predetermine the goal, outcomes, evaluation criteria, and lesson content.
   - Diversify content: text, audio, video, visuals, interactive elements. Description (alt - text) for graphics, subtitles for videos, and audio descriptions otherwise.
   - Dividing the material into parts: the different parts should be short enough to suit the student's concentration and ability.
3. Conducting the lesson process
   - Synchronous classes: real-time communication, Q - &A, group work. However, synchronicity may not be suitable for students, so offer alternative options (lecture notes, audio/video materials) for those who cannot attend.
   - Asynchronous classes: students study materials independently, completing assignments on their own time, with the help of a teacher or mentor if necessary.
   - Repetitive exercises and final discussions: identify areas of misunderstanding and provide consistent explanations.
4. Evaluation and feedback
   - Regular assessment: mini-tests, interactive questions, practical assignments.
   - After students are graded, provide explanations, clarify what they did wrong, and how they can improve.
   - Adapt the assessment format to the student: written, oral, project, visual presentation, etc.
5. Providing support and resources-
   - Mentor or assistant teachers: individual consultations, questions, psychological support.
   - Technical support: devices, programs, assistive technologies, internet.
   - Parent - or relative involvement if the student is studying at home: lessons, assignments, technology instructions.
6. Analysis and improvement
   - Regularly assess the student's successes and shortcomings.
   - Collect user feedback (students, teachers, families).
   - Identifying and developing solutions to problems such as platform performance, technical failures, resource shortages, and decreased motivation.

Problems and solutions

There are a number of challenges in serving students with disabilities in distance education. Below are some of them and possible solutions:

Problem	Cause/risk	Eat grass.
Lack of technological infrastructure	Internet speed or stability is low, and necessary devices or assistive technologies are not available.	Provision of devices (computers, tablets) by the government or educational institution, improved internet connectivity, mobile versions, offline capabilities;

		establishment of resource centers in community centers.
Insufficient training of teachers	There is little knowledge about virtual learning and methods of working with students with disabilities.	Special trainings, seminars, exchange of experiences, consultations for teachers; preparation of pedagogical and technological manuals.
Motivation and psychological barriers	Feelings of loneliness, decreased social connections, and decreased participation in distance learning.	Virtual groups, interactive lessons, mentoring, working with colleagues, interactive and game-style elements, incentives.
Diffusion and assessment injustices	The assessment format may not be suitable for all students, or there may be technological advantages or limitations in using the format.	Providing access to grades in appropriate formats; additional time, alternative assessment options; and clearly defining assessment criteria.
Hardware and software incompatibility	The platform and materials may not be compatible or supported by all types of assistive technologies - .	When choosing platforms, adhere to accessibility standards (WCAG, ARIA, etc.), integrate special programs and assistive technologies.

Examples and good practices

- Innovative approaches in Ukraine : Blended forms of distance learning are used, the intensity and method of learning are adjusted depending on the individual capabilities, temperament and workload of students. Use of the Moodle platform based on UDL principles : Moodle -'s ease of use, compatibility with screen readers and other auxiliary functions have been tested and positively evaluated by users.
- Teachers' opinions on the use of technological platforms at participating universities (in Spain): it was studied how faculty members use virtual environments for students with disabilities, what limitations and opportunities they perceive.

Conclusion and recommendations

Distance learning is not only a necessity, but also an opportunity for students with disabilities. With the right methodological approach, selection of appropriate platforms and technologies, attention to individual needs, interactivity, and continuous monitoring, along with effective assessment processes, this will be a great foundation for students' learning, development, and equal participation in society.

Reference

1. CAST (2021). *Universal Design for Learning Guidelines version 2.2*. https://udlguidelines.cast.org
2. W3C Web Accessibility Initiative. (2018). *Web Content Accessibility Guidelines (WCAG) 2.1*.
3. IES (Institute of Education Sciences), U.S. Department of Education. (2020). *Educating Students with Disabilities in Remote Settings*. https://ies.ed.gov
4. MDPI Open Access Journals. (2021). *Faculty Perceptions on Virtual Teaching for Students with Disabilities*. Sustainability, 13(9), 4755.
5. Verizon Business. (2021). *Improving Distance Learning for Special Education Outcomes*. https://www.verizon.com/business/resources
6. DO-IT Center, University of Washington. (2020). *Making Distance Learning Accessible to Everyone*. https://www.washington.edu/doit
7. RTA Journal (2022). *Effective Use of Blended Learning for Students with Disabilities*. Proceedings of the Engineering for Rural Development, Latvia. https://journals.rta.lv
8. UNESCO (2021). *Ensuring Inclusion in Digital Learning*. https://unesdoc.unesco.org