

Digital
Facilitator
Trainer Role



DIGITAL TOOLS AND BEST PRACTICES

IN THE USE OF GAMIFICATION,
DATA ANALYTICS AND
ARTIFICIAL INTELLIGENCE IN
EDUCATION

RESEARCH REPORT ROMANIA



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DIGITAL FACILITATOR TRAINER ROLE

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National Report Romania

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Best practices of using AI, gamification, and data analysis in digital education

COVID-19 showed that progress in integrating technology into education continues to be slow. Most young people in Europe use the internet for social activities. Mobile Internet access has increased significantly in recent years, but the use of technology for educational purposes has not kept pace with these developments in Romania¹. However, this desk research revealed that initiatives exist, mostly including gamification. Artificial Intelligence and data analysis are technological concepts that are not fully integrated in the digital education environment in our country.

Edition Microsoft Education Edition as a platform for learning through games

Minecraft Education Edition is a platform for building virtual lessons based on Minecraft - and the program is also available for teachers and educators in Romania! The perspective in Minecraft is a first-person based on gamification allowing players the freedom to explore and create worlds out of blocks.

Minecraft Education Edition gives students the opportunity to collaborate, build, solve problems in a virtual environment, in worlds created and monitored by teachers. Topics that can be tackled range from mathematics, to physics, history or even languages - it depends on the openness and imagination of the person building the virtual world with the modular blocks of Minecraft².

When educational facilities or educators buy MinecraftEDU, students will have the option to download the game at home without having to buy their own version³. The full game costs US\$5 per user per year to use, depending on school size and if qualifications for volume licensing are met. An entire classroom of up to 30 students can play in a world together with no separate server setup required. Students can work together in pairs or groups simply by joining their classmates' world. Individual licenses can be purchased for use in camps, clubs, and other organizations at a price of \$12.00 User/Year. This purchase option is for anyone that doesn't fit the criteria for a qualified educational organization.

As for educator, they may create a character to act as a guide for students in the game, giving instruction, providing more information, and also allowing educators to insert an active web link to additional references. They can use chalkboards to communicate learning goals, provide additional information and give explicit instructions within the game. Chalkboards come in three different sizes – (1×1), (2×1), and (2×3).

An important aspect of teaching with Minecraft is being able to collect evidence of learning in the game, and being able to track student progression. The camera and portfolio features allow students to take screenshots of their work and document the development of their projects.

¹ Strategia privind digitalizarea educației din România, 2020. Retrieved from <https://www.edu.ro/sites/default/files/SMART.Edu%20-%20document%20consultare.pdf>

² Bălan, I. 2016. *Minecraft Education vine si in Romania!*. Retrieved from: <https://www.mobzine.ro/2016/11/minecraft-education-vine-si-in-romania/>

³ Callaghan, N. (2016). Investigating the role of Minecraft in educational learning environments. *Educational Media International*, 53(4), 244-260. <https://doi.org/10.1080/09523987.2016.1254877>



Lesson plans through Education Edition are available to download and are split between certain age groups and various subjects such as history, visual arts, and gaming. Additionally, educators can upload lesson plans that they have created for others to use from the main website⁴. It is a great platform for VET schools, as the possibilities of creating Minecraft worlds on various topics are almost infinite.

IziBAC as a mobile app to study for the Bacalaureate

IziBAC is a mobile app, available on iOS (Apple) and Android mobile phones, that aims to facilitate learning for the Bacalaureate exam and increase the pass rate. The iziBAC product uses the Octalysis gamification framework and psycho-pedagogy concepts to induce an optimal learning experience without anxiety or perception of intellectual effort⁵.

Through a quiz students will be able to simulate the exam and play with their peers at the same time. The questions will be organised into chapters from history, biology, maths, etc., so that they get a coherent overview of the subject. Furthermore, they will have access to video content on these topics to help them study for the exam in a gamified way, with incentives along the way⁶.

In addition to quizzes, they also have video or audio lessons that are given by collaborating teachers. And just as importantly, users help each other, it's called peer to peer learning. To help students develop, in addition to the Bacalaureate syllabus, they've added financial, civic and entrepreneurial education courses to the app⁷. Taking into consideration the openness of the educators and developers to introduce topics such as the ones mentioned before, VET schools can propose subjects that can be of national interest in the curricula of the app.

The developers are currently working on creating a learning community by adding a player versus player option and creating a forum where more advanced learners can offer explanations to those who need help⁸.

As with all online games, those who play IziBac receive "books", i.e. superpowers that encourage them to continue. There is a free and a premium version.

⁴ Minecraft Edu, n.d. Retrieved from https://minecraft.fandom.com/wiki/Education_Edition.

⁵ Coşman, O. 2021. *iziBAC, startup-ul educațional care transformă lecțiile într-un joc mobil competitiv*. Retrieved from <https://zoom.vodafone.ro/izibac-startup-ul-educational-care-transforma-lectiile-intr-un-joc-mobil-competitiv/>.

⁶ *Despre Izibac*, n.d. Retrieved from <https://izibac.ro/#/>.

⁷ Archip, A. 2021. *Românii care au făcut aplicația mobilă IziBac arată cum „copiii care au învățat informația prin joc o rețin de două ori mai bine”*. Retrieved from <https://scoala9.ro/romanii-care-au-facut-aplicatia-mobila-izibac-arata-cum-copiii-care-au/763/>

⁸ Ion, R. 2020. *„Asta e de fapt magia din spatele iziBAC-ului. Înveți fără să-ți dai seama că înveți”*. *Aplicația care îi ajută pe liceeni să se pregătească pentru Bac de pe telefonul mobil*. Retrieved from <https://republica.ro/zasta-e-de-fapt-magia-din-spatele-izibac-ului-inveti-fara-sa-ti-dai-seama-ca-inveti-aplicatia-care-ii>.



Easy Class - how data analysis is used as an aid for the teacher

Easyclass is a platform that enables teachers and educators to create interactive online classes where course materials can be stored and assignments can be managed easily. It allows educators to conduct quizzes and exams and also monitor due dates and grades – all in one place.

The Integrated Gradebook feature works in a way where once an assignment or quiz is posted to the digital class, a column will be added. Students' grades are then automatically entered in the Gradebook whenever teachers grade a particular assignment or quiz. Data analysis is used successfully to track students' progress, and to help the teacher manage assignments.

The MyFiles section is like a virtual library that users can access and update anytime and anywhere. It allows educators to organize, store, share, and manage all their documents right within their accounts.

The platform comes with a secured cloud-based SaaS with no advertisements, keeping privacy and safety at foreground. All content created within the online classes' platform can be viewed by only the class members⁹.

Naradix - the platform where students can learn through games

Naradix is the initiative of Narada – an NGO from Romania focused on developing education. As they describe themselves – „we are the emergency ambulance of education in Romania”

As part of the 'Reaction for Education' initiative, a partnership between the Ministry of Education and Research and Narada - the NGO founder, launched the educational platform on 1 April 2020. At the launch, teenagers from across the country met online for an hour to learn about the things they are passionate about. From social media, to personal branding, personal development, technology, artificial intelligence or financial literacy, students had the opportunity to interact with top professionals¹⁰. Naradix digital classes were attended by famous vloggers, business people or well-known trainers.

Naradix is a remedial education platform, a tool dedicated to students who, during their time in online school, have had difficulty actively participating in classes. According to data from the Ministry of Education and Research, in the school year 2020-2021, 259,000 children did not have access to online classes. The causes, though antithetical to the century we live in, are as real as it gets. Lack of necessary technology, connectivity or even electricity have "unfairly" disadvantaged too many children¹¹.

Students can be registered on by parents and teachers. They will discover an attractive and modern way of learning, allowing them to access it whenever they need to - for studying material or for further clarification from teachers. Students can set their own learning pace and timetable. Most lessons are

⁹ SaaSwothy, n.d. *What is Easyclass ?*. Retrieved from <https://www.saaswothy.com/product/easyclass>.

¹⁰ Edu.ro, 2020. *Se lansează Naradix - modul de clasă digitală*. Retrieved from <https://www.edu.ro/ministerul-educa%C8%9Biei-%C8%99i-cercet%C4%83rii-al%C4%83turi-de-narada-lanseaz%C4%83-un-modul-de-clasă-digitală>.

¹¹ Tabaracuamintiri.ro, 2021. *Hai pe NARADIX, platforma care îi ajută pe elevi să recupereze ce au pierdut în pandemie!* Retrieved from <https://tarabacuamintiri.ro/platforma-naradix/>.



interactive, in the form of games or visual presentations, but there are also webinars scheduled for fixed times every week.

The NaradiX platform also supports live learning through weekly webinars. These are aimed at students in grades 0-8 and focus on subjects such as Romanian language, mathematics, history and geography. To ensure an enjoyable experience, places are limited, so students can sign up as places are available¹².

The students with the best results will see the fruit of their work in the form of prizes: books, balls, bikes, consoles, etc. The platform launched by Narada is also a facility for teachers, who will be able to exchange experiences with other teachers through webinars hosted by Naradix¹³.

AeL – an alternative to Blackboard and Moodle

AEL is an integrated Learning and Content Management System developed by SIVCO Romania SA aimed to support professors/tutors, students, content editors, administrative staff and other stakeholders in the learning process. AEL is the backbone of the National Educational System (SEI) Program in Romania. It offers various types of educational content, such as multimedia interactive materials, interactive guides, exercises, simulations and tests¹⁴.

AeL e-learning solution is based on international principles and standards that support modern education, being designed as complementary tool to classical teaching/learning methods. AeL offers support for all participants in the education process (Students, teachers, administrative personnel, parents). It can be used successfully in the teaching and learning process, testing and evaluation, educational content administration, monitoring the result of training and evaluation, education forecasting, trends and prognosis.

With AeL, the teacher controls the whole educational process, creating, adapting, monitoring the training and the students study at their own pace¹⁵. It is successfully used in universities, where Blackboard and Moodle are not present.

¹² Edupedu.ro, 2021. *Profesorii pot înscrie elevii să recupereze cursurile pierdute în pandemie prin platforma gratuită de educație remedială Naradix, inițiată de Narada (P)*. Retrieved from <https://www.edupedu.ro/profesorii-pot-ajuta-elevii-sa-recupereze-cursurile-pierdute-in-pandemie-prin-platforma-gratuita-de-educatie-remediala-naradix-initiata-de-narada/>.

¹³ Soare, L., 2021. *Narada lansează platforma de educație remedială Naradix, care ajută 100.000 de elevi să recupereze materia pierdută în pandemie*. Retrieved from <https://www.gandul.ro/educatie/narada-lanseaza-platforma-de-educatie-remediala-naradix-care-ajuta-100-000-de-elevi-sa-recupereze-materia-pierduta-in-pandemie-19659902>.

¹⁴ Stirbu, I. 2006. *An integrated solution for content management and computer assisted training (AEL)*. Retrieved from <https://joinup.ec.europa.eu/collection/egovernment/document/integrated-solution-content-management-and-computer-assisted-training-ael>.

¹⁵ Dima, Lucian, et al. (PDF) *e-Learning Platforms in Romanian Higher Education*. https://www.researchgate.net/publication/49941751_E-LEARNING_PLATFORMS_IN_ROMANIAN_HIGHER_EDUCATION.



Tools and instruments for digital education

Following the research about different platforms based on gamification, AI and data analysis, we also discovered a wide variety of tools and instruments that aid the process of education in digital times. Some of them are known and used on a worldwide scale, some are just gaining terrain, but provide a great experience, for both students and teachers.

Testing tool - Kahoot

Kahoot! is a game-based learning platform that makes it easy to create, share and play learning games or trivia quizzes in minutes¹⁶. Kahoot! offers more than 40 million games already created that anyone can access, making it quick and easy to get started. Ideal for distance learning, when time and resources are at a premium.

At its most basic, Kahoot! offers a question and then optional multiple-choice answers. This can be accompanied with rich media such as images and videos to add more interactivity.

While Kahoot! can be used in the classroom, it's ideal for remote learning use. It's possible for teachers to set a quiz and wait to see the scores as students complete it. Or they can carry out a live hosted quiz using to be there as students are working through the challenges¹⁷.

How it works? Kahoots are best played in a group setting. To join a game, you need a unique PIN. If you're the game host, you need a big screen. Players answer on their own devices, while questions are displayed on a shared screen. In addition to live games, you can also send Kahoot challenges for players to complete at their own pace – for example, for homework or remote training.

In Romanian, across schools and universities, Kahoot is a very widely used tool.

Communication tool - Discord

Discord is a free chat platform. It allows you to create spaces (called servers) and contact individuals through private chats. Within servers, you can create topic-specific channels that function like chat rooms.

Servers can be used as classrooms, and channels can allow teachers to organise lessons, homework, or study groups. In the text channels, anyone can post messages and upload files and images. In voice channels, teachers can deliver classes with Go Live or arrange office hours.

Therefore, Discord prioritises both text and voice, which makes the experience more engaging as it allows students to choose the communication channel they are more comfortable with. The downside is that, if a lot of new information is shared at the same time, the chat can get busy, and it can be hard for students to keep up with the conversation¹⁸.

¹⁶ Kahoot.com, n.d., *What Is Kahoot*. Retrieved from <https://kahoot.com/what-is-kahoot/>

¹⁷ Edwards, L., 2021. *What is Kahoot! and How Does it Work for Teachers?*. Retrieved from <https://www.techlearning.com/how-to/what-is-kahoot-and-how-does-it-work-for-teachers>

¹⁸ Delfino, D., Dean G., 2021. *What is Discord? A guide to the popular group-chatting app*. Retrieved from <https://www.businessinsider.com/what-is-discord>.



Because it is very popular among gamers, Discord is mostly used for students when collaborating in the creation of educational projects.

Media Production tool - Canva

Canva is an online design tool with templates that helps you create multimedia presentations, posters, and other visual documents. The platform allows students to create their own accounts and work in group projects. Each student can modify the shared design and suggest changes.

With the templates, teachers can easily create certificates, charts and graphs, Venn diagrams, or even magazines. Canva allows information to be displayed in a clear and visual way, which can help students engage and better understand the content of the classes¹⁹.

Canva offers both free and paid versions. If students provide proof of their enrolment, they can access the paid version for free, which is why it is so popular.

Task Management tool - Trello

Trello is a free, card-based, project management tool. In Trello, teachers can create boards to organise teams and projects. Each board is made out of different columns that contain cards with checklists, due dates, links and other media. Cards can be dragged from one column to another to track the progress of a task.

Also, Trello is collaborative. Teachers can invite students to the different boards where they can work together. Students can assign each other tasks, communicate back and forth, and move tasks to the “Done” list. Ultimately, with Trello, students can control the whole evolution of their project, outlining and tracking the steps needed to its completion²⁰.

Collaboration tool - Padlet

Padlet is a tool with which users can create a single or multiple walls that are able to house all the posts that they want to be shared. From videos and images to documents and audio, it is literally a blank slate. It's collaborative, which means both teachers and students can work on it at the same time.

The teacher can be the moderator and she/he can set the board as public, open to everyone, or with a password. From an educational point of view, the teacher can invite members through the e-mail, which makes it ideally for student education.

Once up and running, it's possible to post an update with the identity, or anonymously. Teachers start off by creating an account on Padlet, or via the iOS or Android app. Then they can make their first board to share using a link or QR code. These are the 2 options out of many both teachers and students have at hand²¹.

¹⁹ Demarest, A., 2020. *What is Canva? A guide to the graphic design platform's features and capabilities*. Retrieved from <https://www.businessinsider.com/what-is-canva>.

²⁰ Trello, n.d. *What is Trello?*. Retrieved from <https://help.trello.com/article/708-what-is-trello>.

²¹ Edwards, L., 2020. *What is Padlet and How Does It Work for Teachers and Students?*. Retrieved from <https://www.techlearning.com/how-to/what-is-padlet-and-how-does-it-work-for-teachers-and-students>.



Padlet is a frequently used tool by the Erasmus+ National Agency during trainings.

Communication tool - Zoom

The Zoom app gained great popularity during the coronavirus pandemic and is used by millions of people around the world who work from home. Zoom is also one of the most used programs by students and teachers, who have to take their courses online.

Zoom allows group video calls, chat, teacher screen sharing and the use of an interactive virtual whiteboard. The app can be used to communicate with both students and other teachers. The teacher has to create an account in order to initiate a discussion, but this is not compulsory for students. To do this, the teacher must have a computer, laptop, tablet or smartphone and an email address. Students only need a device to connect to the internet.

The app has four versions. The free Basic version allows the user who opens the videoconference (called the host) to invite up to 100 participants. They do not need to create an account. However, time for discussions is limited: up to 40 minutes. If only two people participate in the conference call - the initiator and one invitee - then there is no limit to the amount of time the call can be held²².

The advantage of paid subscriptions is that video conferences can be recorded and stored on a cloud server. The Pro subscription requires a single host to pay \$14.99 per month. In contrast, the Business subscription requires 10 hosts to pay \$19.99 per month, and the Enterprise subscription requires 50 hosts to pay \$19.99 per month.

Many schools in Romania, including VET schools, rely on Zoom for online classes.

All in one - Google Workspace for Education

Google Workspace for Education is a set of Google tools and services that are tailored for schools and homeschools to collaborate, streamline instruction, and keep learning safe. Google Workspace for Education includes all the products teachers and students already use, like Classroom, Meet, Gmail, Calendar, Drive, Docs, Sheets, Slides and many more. More than 170 million students and educators worldwide rely on this suite of tools.

Google Workspace for Education offers multiple options to meet teachers' and students' needs:

- Google Workspace for Education Fundamentals— access to Classroom, Google Meet, Google Docs, Google Forms, and Google Chat.
- Google Workspace for Education Standard gives teachers and students same tools as Education Fundamentals but with advanced security features and enhanced administration controls.
- Teaching and Learning Upgrade— gives teachers the opportunity to deliver classes through video, with aid from Classroom, along with Education Fundamentals and Standard features.

²² Alba24.ro, 2020. *Aplicația Zoom: Ce este, cum funcționează și cum poate fi folosită pentru școala online. Scurt ghid al utilizatorului.* Retrieved from <https://alba24.ro/aplicatia-zoom-ce-este-cum-functioneaza-si-cum-poate-fi-folosita-pentru-scoala-online-scurt-ghid-al-utilizatorului-795829.html>.



- Google Workspace for Education Plus— includes features from all of the above, with added extra, such as possibility to download attendance list²³.

Google Workspace for Education Fundamentals is free for all qualifying institutions. Education Standard, the Teaching and Learning Upgrade, and Education Plus are paid editions.

²³ Google.com, n.d. *Google Workspace for Education overview*. Retrieved from <https://support.google.com/a/answer/7370133?hl=en>.



Mapping of skills and competences required in educators for using these digital tools and instruments

Kahoot

- To encourage students to interact with their phone in an educational manner;
- To apply in an effective way the taught content to the Kahoot structure;
- To foster creativity in oneself, but also in students, so the creation goes both ways.

Discord

- To be able to create an inclusive environment where students feel confident to use the camera and the microphone;
- To organise and manage servers in an effective way;
- To be able to use multiple tools at the same time (e.g. using Discord for communication and Padlet for collaboration).

Canva

- To be able to innovate the materials for the class by researching templates and coming up with new ones;
- To create presentation in a manner that are pleasant to look at and interact;
- To encourage students to be creative by using the same tool.

Trello

- To organise the class' schedule and tasks in an effective manner;
- To have a deep understanding of the tool before presenting it to the class;
- To encourage them to foster positive behaviors for time and task management.

Padlet

- To allow students to collaborate;
- To create a dynamic environment, where students can use the tool at maximum potential in the time given;
- To create a lesson plan where this tool is well used.

Google Space for Education

- To gain a deep understanding of the tool before training the students how to use it;
- To train the students the effectiveness of a good organisation plan, from Drive to Calendar;
- To understand privacy, how sharing screens/documents/Cc and Bcc from e-mail work.

Zoom

- To understand how the tool works, and pass the information to the student;
- To create a lesson plan in such manner that is interactive and lasts 40 minutes, where there is the free option of Zoom used;
- To check any audio and video device used before the start of the class, and avoid teaching a lesson in a crowded environment.



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