EDU GAME

Serious Games for Creativity and Social Cohesion in Teacher Education

When game enters the classroom: case studies

Speaker: prof. Fabio Clarizia

.. a (1) bit of literature : Elearning vs Gaming

- Over the past few years, games have gone from social pariahs to the darlings of the media, technology, and now educational industries.

- E-learning educators stand to learn about building next-generation learning environments from games (Dalesio 2004).

- While..
  - usually online courses are "online course notes" -> games offer entire worlds to explore.
  - educators wonder if it is possible to create good online learning communities -> game designers create virtual societies with their own cultures, languages, political systems, and economies (Kolbert 2001).
  - completion rates for online courses reach 50% -> gamers spend many hours mastering games, writing lengthy texts, and teaching others to play games.
  - e-learning has a reputation for being dull and ineffective -> games have developed a reputation for being fun, engaging, and immersive, requiring deep thinking and complex problem solving (Gee 2003).

Squire, Kurt. "Changing the game: What happens when video games enter the classroom?." Innovate: Journal of online education 1.6 (2005)

Dalesio, Emery P. "Video gaming technology branching out, getting serious." USA Today (2004): 1

Kolbert, E. 2001. Pimps and dragons. The New Yorker, May 28.

Gee, J. P. 2003. What video games have to teach us about learning and literacy. New York: Palgrave Macmillan.

.. a (2) bit of literature

- Teaching in now day requires active approaches that give students a prominent role and their educational experiences need to be useful and broadly applicable (Aibar-Almazán, Agustín, et al. 2024);

- the students should be given opportunities for interaction, cooperation, competition, etc. (Martínez, 2017);
  - these aspects are associated with improved motivation during the teaching-learning process (Rodríguez et al., 2019; Darling-Hammond et al., 2020);

New educational demands require new teaching strategies that can improve the dynamics of the learning process

Aibar-Almazán, Agustín, et al. "Gamification in the classroom: Kahoot! As a tool for university teaching innovation." Frontiers in Psychology 15 (2024): 1370084.

Martínez, N. G. *Tecnologías y nuevas tendencias en educación: aprender jugando* (2017). Universidad Complutense de Madrid. Spain

Rodríguez, M., Díaz, I., González, E. J., and González-Miquel, M. (2019). Motivational active learning: an integrated approach to teaching and learning process control. Educ. Chem. Eng. 26:2. doi: 10.1016/j.ece.2019.01.002

Darling-Hammond, L., Flook, L., Cook-Harvey, C., Barron, B., and Osher, D. (2020). Implications for educational practice of the science of learning and development. Appl. Dev. Sci. 24, 97–140. doi: 10.1080/10888691.2018.1537791

Li, Q., Yin, X., Yin, W., Dong, X., and Li, Q. (2023). Evaluation of gamification techniques in learning abilities for higher school students using FAHP and EDAS methods. Soft. Comput. 18:9. doi: 10.1007/s00500-023-08179-9

Dahalan, F., Alias, N., and Shaharom, M. S. N. (2023). Gamification and game based learning for vocational education and training: a systematic literature review. Educ. Inf. Technol. 29, 1279–1317. doi: 10.1007/s10639-022-11548-w

.. a (3) bit of literature

- Given emerging research on how video games and associated pedagogies work in designed settings (Shaffer 2005), it seems the important question is <u>how we can use games effectively as educational tools</u>;

  - The research initiatives focused on educational games suggests that computer and video games will have some part in education, just as all media before them have been used for learning.

  - the history of educational technology also suggests that educators will abandon media that do not fit the social organization of schooling (Cuban 1986).

Shaffer, David Williamson. "Epistemic games. Innovate 1 (6)." (2005).

Cuban, Lynn. "Teachers and machines: The classroom use of technology since 1920." Teachers College Press google schola 2 (1986): 517-528.

.. a (4) bit of literature: Gamification

- **Gamification definition**: an educational strategy that adapts elements of game playing with the aim of improving the students' academic performance (Chen and Liang, 2022);

- Incorporating game-based elements can
  - increase attention and engagement (Licorish et al., 2018),
  - enhance motivation for working in groups
  - produce a more effective commitment to learning (Müller et al., 2015);
  - enhance the learning process (Johns, 2015; Kalu and Bwalya, 2017), with an impact on the students' grades and creation of a more satisfying educational experience (Ismail and Mohammad, 2017);

Chen, J., and Liang, M. (2022). Play hard, study hard? The influence of gamification on students' study engagement. Front. Psychol. 13:994700. doi: 10.3389/ fpsyg.2022.994700

Licorish, S. A., Owen, H. E., Daniel, B., and George, J. L. (2018). Students' perception of Kahoot!'s influence on teaching and learning. RPTEL 13:9. doi: 10.1186/ s41039-018-0078-8

Müller, B. C., Reise, C., and Seliger, G. (2015). Gamification in factory management education – a case study with Lego Mindstorms. Procedia CIRP 26, 121–126. doi: 10.1016/j.procir.2014.07.056
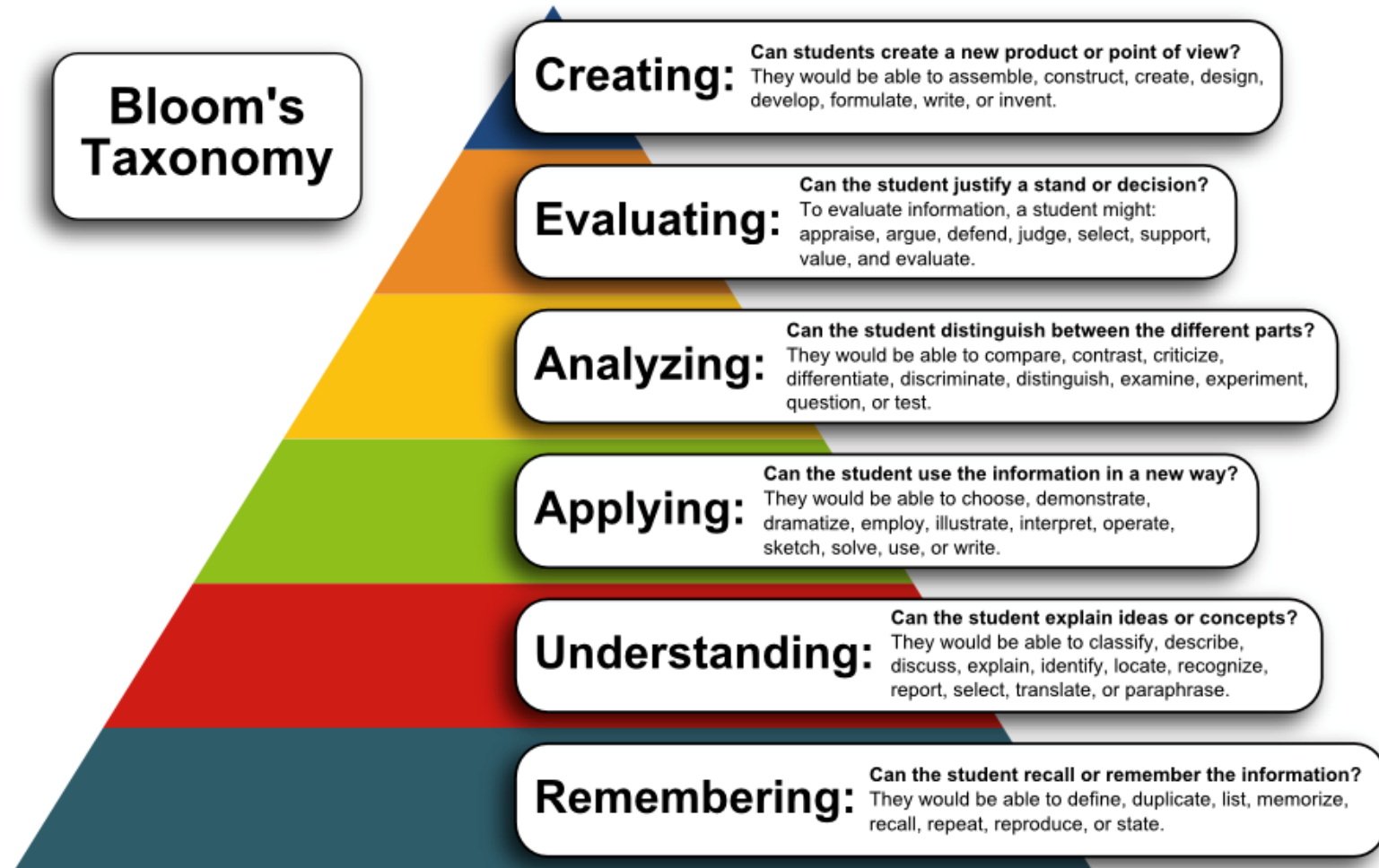
Johns, K. (2015). Engaging and assessing students with technology: a review of Kahoot! Delta Kappa gamma bull. 5, 89–91.

Kalu, F. A., and Bwalya, J. C. (2017). What makes qualitative research good research? An exploratory analysis of critical elements. Int. J. Soc. Sci. Res. 5, 43–56. doi: 10.5296/ ijssr.v5i2.10711

Ismail, M. A. A., and Mohammad, J. A. M. (2017). Kahoot: a promising tool for formative assessment in medical education. Educ. Med. J. 9, 19–26. doi: 10.21315/ eimj2017.9.2.2

2001..the last Bloom's Taxonomy

1. **Remembering**: Retrieving information from long-term memory.

2. **Understanding**: Comprehending the meaning of information.

3. **Applying**: Using knowledge in new situations.

4. **Analyzing**: Breaking down information into parts to understand its structure.

5. **Evaluating**: Judging the value of ideas or information.

6. **Creating**: Generating new ideas or products.

Bloom's Taxonomy

Creating: Can students create a new product or point of view? They would be able to assemble, construct, create, design, develop, formulate, write, or invent.

Evaluating: Can the student justify a stand or decision? To evaluate information, a student might: appraise, argue, defend, judge, select, support, value, and evaluate.

Analyzing: Can the student distinguish between the different parts? They would be able to compare, contrast, criticize, differentiate, discriminate, distinguish, examine, experiment, question, or test.

Applying: Can the student use the information in a new way? They would be able to choose, demonstrate, dramatize, employ, illustrate, interpret, operate, sketch, solve, use, or write.

Understanding: Can the student explain ideas or concepts? They would be able to classify, describe, discuss, explain, identify, locate, recognize, report, select, translate, or paraphrase.

Remembering: Can the student recall or remember the information? They would be able to define, duplicate, list, memorize, recall, repeat, reproduce, or state.

.. Last bit of literature - Games as a positive choice for the development of Bloom's Taxonomy

- the Serious Games has a capacity to improve the quality of the educational system, offering opportunities to maximize the students' potential (Sukajaya et al. 2015);

- Given the current commitment of educators, Games has been a positive choice for the development of Bloom's Taxonomy as it can promote reaching the highest levels of learning (Marley 2014).

  - the Serious Games based on Bloom's Taxonomy prepares professionals for complex and multidisciplinary work environments in a constantly changing world. (Nisula and Pekkola 2019)

Witeck, Gabriela R., Anabela C. Alves, and Mariana HS Bernardo. "Bloom Taxonomy, Serious Games and Lean Learning: What Do These Topics Have in Common?." Learning in the Digital Era: 7th European Lean Educator Conference, ELEC 2021, Trondheim, Norway, October 25–27, 2021, Proceedings 7. Springer International Publishing, 2021.

Sukajaya, N., Purnama, K.E., Purnomo, M.H.: Intelligent classification of learner's cognitive domain using Bayes net, Naïve Bayes, and J48 utilizing Bloom's taxonomy-based serious game Artigo Lean_bloom. core.ac.uk (2015)

Marley, K.A.: Eye on the gemba: using student-created videos and the revised bloom's taxonomy to teach lean management. J. Educ. Bus. 89(6), 310–316 (2014). https://doi.org/10.1080/08832323.2014.903888

Nisula, K., Pekkola, S.: ERP based business learning environment as a boundary infrastructure in business learning. Educ. Inf. Technol. 24(4), 2547–2566 (2019). https:// doi.org/10.1007/s10639-019-09889-0

Example of *Gamification in the classroom: Kahoot!* as a tool for university teaching innovation

- **Experiment's Method**:
  - n.3 groups differentiated by their time of exposure to the game (**0** min, **30** min, **60** min) per week;
  - 73s-year students from a Bachelor's degree program in Physiotherapy.
  - The theoretical content was taught during a period of 4 months, reinforced by use of the (Kahoot!) Online platform.
  - Selective attention and concentration were evaluated using the d2 Test of Attention;
  - Creative intelligence using the Creative Intelligence Test (CREA);
  - Generic capabilities using the capabilities subscale of the Student Engagement Questionnaire (SEQ).

- **Results and Conclusion**:
  - The study's participants had a mean age of 19.51 ± 0.9 years, and it has demonstrated that use of Kahoot! For longer periods of time, (i.e., more than 60 min per day) can improve essential skills in university students, such as attention, creativity, critical thinking, self-managed learning, adaptability, problem solving, and computer literacy.
  - This study's results show that integrating Kahoot! into the educational environment produces benefits by stimulating various cognitive aspects and enhancing complex skills.
    - its use should be balanced with other educational activities in order to achieve comprehensive development for the students.

Learning while having fun: The Serious games

- Not all video games are developed with the goal of entertaining and entertaining the user:
  - the case of Serious Games whose purpose is <u>to teach the player something</u>, placing controllers/keyboard side by side with books and markers.

- Using video games to learn is an activity that which allow one to effectively experiment with what is known as **learning by doing**

Learning while having fun: The Serious games

- The video game is an excellent tool to take advantage of this form of learning because of its intuitive and playful characteristics.
  - the study as a form of competition with others that could keep task motivation levels higher;
  - the primary purpose of applied games is not to entertain, but this does not exclude the user from having fun using them.

- Are the serious games only those video games that are used in schools to teach certain concepts?
  - FALSE: the boundaries of applied games extend far beyond the school walls, to also result in learning attitudes and behaviors, enhancing mental skills, or raising awareness of socially relevant issues.
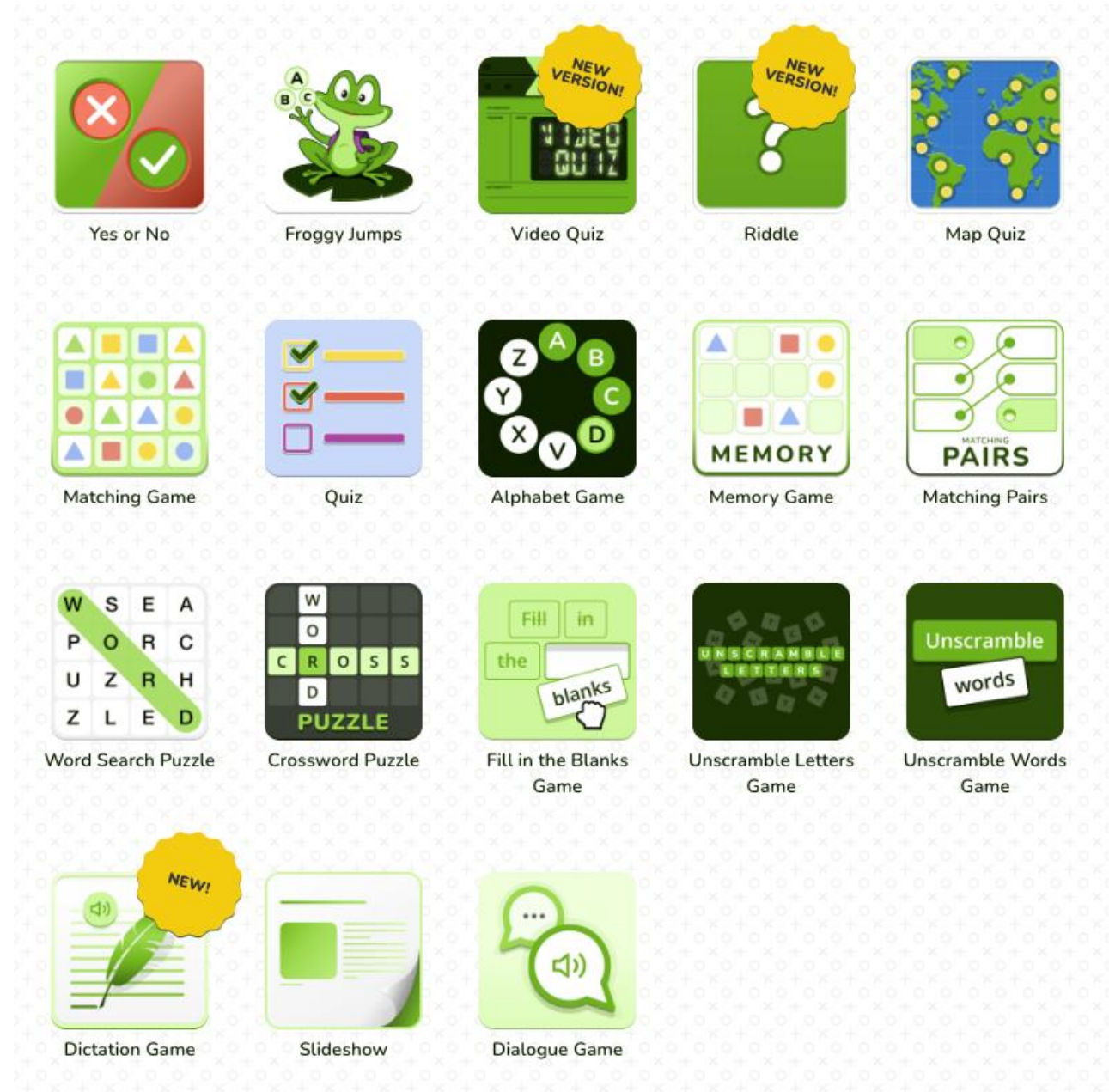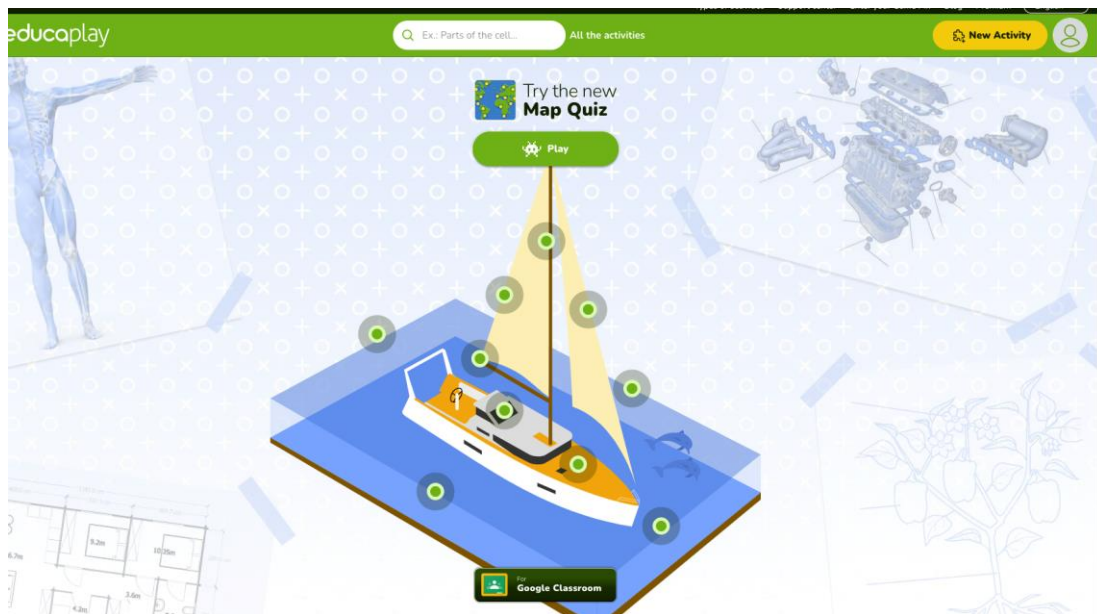
Learning while having fun: The Serious games

Serious Games as 4 different categories (Barone 2019):

- **Didactic**

- **Learning**

- **Awareness raising**

- **Empowerment**

Barone, G. (2019), Gamification e serious game, in Bocci, F. (a cura di), Dentro il videogioco. Viaggio nella psicologia dei videogiochi e nei suoi ambiti applicativi, pp. 115-136.

educaplay

- Try your faster game maker!
- Link: https://www.educaplay.com
- Easy Classroom management
  - 18 Types of activities ->

Yes or No | Froggy Jumps | Video Quiz | Riddle | Map Quiz

Matching Game | Quiz | Alphabet Game | Memory Game | Matching Pairs

Word Search Puzzle | Crossword Puzzle | Fill in the Blanks Game | Unscramble Letters Game | Unscramble Words Game

Dictation Game | Slideshow | Dialogue Game

Login and/or Registration
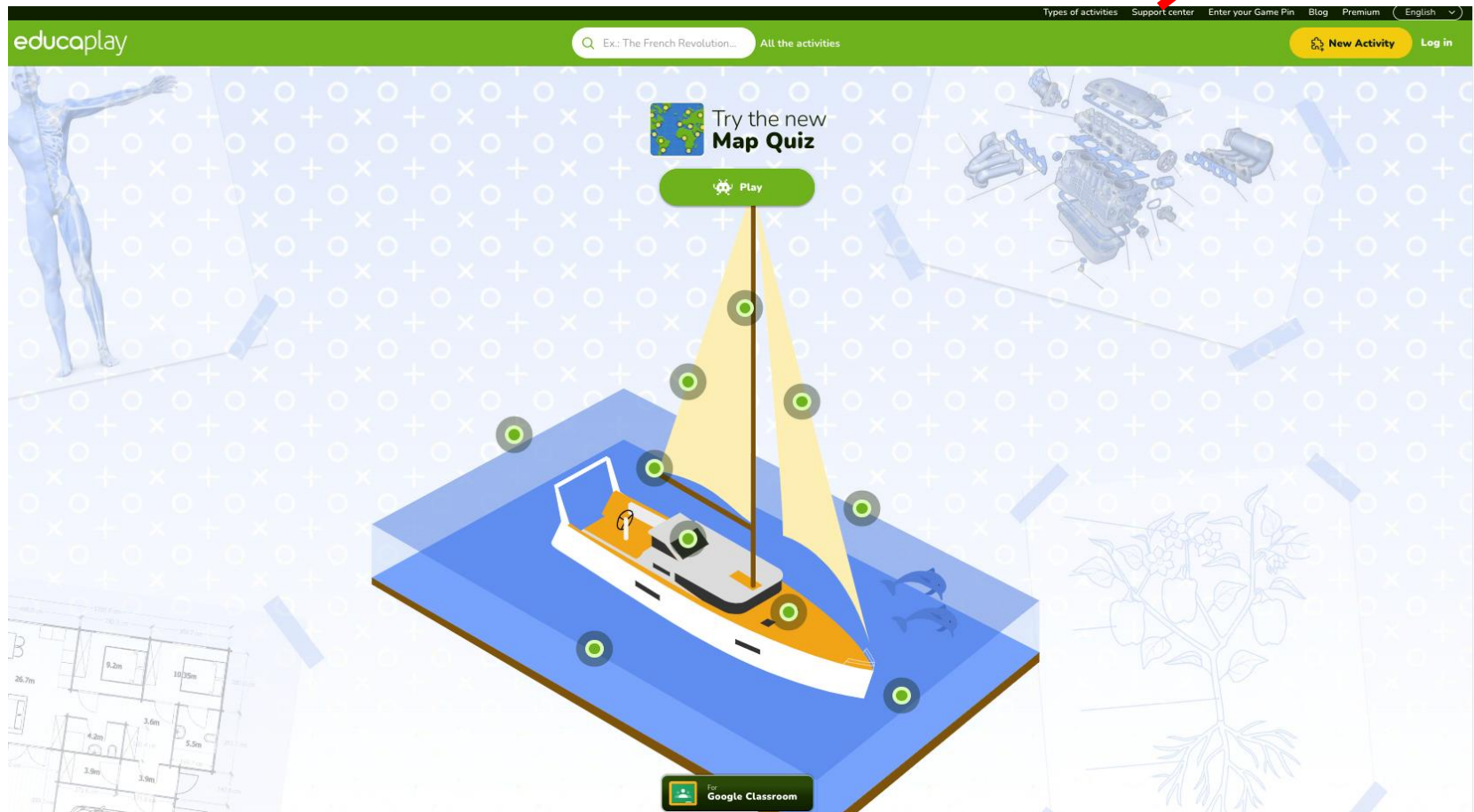
CLICK!

educaplay

1

2

3

4

Open your world of learning games

Don't have an account yet? **Sign up for free**, it's quick and easy.

Log in

✉ email

🔒 Password

☐ Keep session started in this browser

Log in

Have you forgotten your password?

G Login with Google

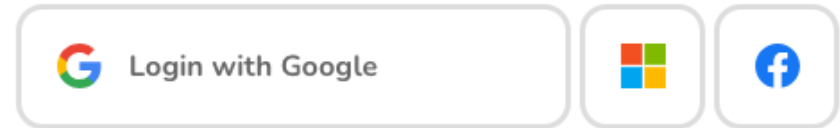Not registered yet? **Get your free account**

👥 ◇ Invitation Access

1 - Email or Social Account Registration

Register and get you free account

✓ Unlimited games and players

✓ Share them with links, iframes or challenges

✓ Scores saved during a month

Use your favorite social network to sign up to Educaplay quickly and safely

| G Login with Google | ⊞ | f |

Or sign up with your email

First name

✉ email

🔒 Password

☐ I'm not a robot

reCAPTCHA
Privacy - Terms

educaplay

Open your world of learning games

Don't have an account yet? **Sign up for free**, it's quick and easy.

Log in

2 - Email Account login ⟶

📧 email

🔒 Password

☐ Keep session started in this browser

Log in

Have you forgotten your password?

G **Login with Google**

Not registered yet? Get your free account

🎫 **Invitation Access**

educaplay

3 - Google Account Login

G Sign in with Google

e

Sign in

to continue to **Educaplay**

Email or phone

Forgot email?

Before using this app, you can review Educaplay's **privacy policy** and **terms of service**.

Create account   **Next**

4 - Invitation Access

Invitation Access

If you have received an Educaplay invitation, enter it here.

Enter your code

PCT-LYD-MHG

Log in

< Back

educaplay

Ex.: Parts of the cell

All t

Premium

English

New Activity

Fabio CLARIZIA

Basic Upgrade your Plan

My activities

No activities found

My activities

My challenges

My guests

My favorites

Reports

Inbox

Notifications

My Plan

Account Settings

Log out

All type

New Activity

My activities

My challenges

My guests

My favorites

Reports

Inbox

Notifications

My Plan

Account Settings

Log out

educaplay

Ex.: Parts of the cell...   All the activities

New Activity

Reports   Challenges   New Activity

Share LTI   All type

Fabio CLARIZIA

Basic   Upgrade your Plan

My activities

No activities found

My activities

My challenges

My guests

My favorites

Reports

Inbox

Notifications

My Plan

Account Settings

Log out

Reports   Challenges   New Activity

Share LTI   All type

educaplay

Ex.: Parts of the cell...   **All the activities**

New Activity

Reports   Challenges   New Activity

Fabio CLARIZIA

Basic **Upgrade your Plan**

My activities

My challenges

My guests

My favorites

Reports

Inbox

Notifications

My Plan

Account Settings

Log out

My activities

No activities found

Share LTI   All type

Reports   Challenges   New Activity

Share LTI   All type

educaplay

Ray: AI Creator

New activity

Yes or No
Show cards with text and multimedia to be answered with Yes or No.

Froggy Jumps
Create a path of questions that Froggy Jumps crosses to get safely to shore.

Matching Game
Create cards with elements to be grouped.

Quiz
Create a quiz with text and multimedia files.

Alphabet Game
Create a circle of letters where each one corresponds to a word that they have to guess.

Memory Game
Place cards face down with your texts, audios and images to match them.

Matching Pairs
Generate two columns with text or multimedia elements to match them.

Hi, I'm Ray!

Give me a title and I'll create your Yes or No
I can also do it from a link or a piece of text. I'll get your game ready for you to "Publish" after changing whatever you want.
Try me now!

Example: "Chemical elements"

Don't show again   Not now

Tutorial Video

Ray: AI Creator

educaplay

1 Create | 2 Options | 3 Information | Preview

Create Yes or No

▶ **Learn to create activities with this Tutorial!**
We explain how to create activities step by step through the Educaplay tutorials.

▶ Watch tutorial

Make it with **Ray**, your automatic AI creator

Let's go! ⚡

educaplay

some pre-packaged questions that can be modified

Cards

+ Add card

⠿ ① A tree provides shade.   ⧉ 🗑 ✎

⠿ ② A television is for entertainment.   ⧉ 🗑 ✎

⠿ ③ A table is used for dining.   ⧉ 🗑 ✎

⠿ ④ Tests are used in educational settings.   ⧉ 🗑 ✎

Cards

+ Add card

① Card   ⧉ 🗑 ✎

🎬 A tree provides shade.   ✎ **Yes**
_____
                                                    178

Heading (optional)   ⬤

Some Options

Some Information

educaplay

1 Create
2 Options
3 Information
Preview

Options Yes or No

Lives
Set a maximum number of errors.

Time
Set a time to answer each card.

Shuffle cards
Cards will appear

1 Create
2 Options
3 Information
Preview

Information Yes or No

Language ⓘ

English ⌄

educaplay

After Publish

✓

Well done!

Your activity has been created successfully

See activity

You can **keep editing it** from **My activities**, in your user panel.

What do you want to do?

Create a competition between a group of players with this activity

Create Challenge

Share the link to the activity or integrate it in other platforms

Share

Keep creating activities

Create activity

After Publish..

..My activities

Create Challenge

![educaplay]

Game PIN

CHALLENGE
Computer Science Challenge

Game Pin ❓

🔒 **305328** 📋

1 of 1 Activities   Next

Computer Science Challenge
Yes or No

Top 10 results

At the moment, no player has finished any of the activities of the challenge. As soon as there are results, they will be displayed here.

View full results and players

Report

Fabio CLARIZIA

Basic **Upgrade your Plan**

- My activities
- My challenges
- My guests
- My favorites
- **Reports**

Reports

Activities report	Players report	Challenges report	My scores

Report

educaplay

Fabio CLARIZIA

Basic **Upgrade your Plan**

Reports

- My activities
- My challenges
- My guests
- My favorites
- Reports

Activities report

Players report

Challenges report

My scores

educaplay

Fabio CLARIZIA

Basic **Upgrade your Plan**

Challenges

My challenges

Do you have a Game Pin to access a challenge?
If you have been invited to a challenge and you have a Game Pin, you have to access **game.educaplay.com** to enter it.

Create a Challenge to share activities in group

- My activities
- My challenges
- My guests

+ New challenge

Challenges

Fabio CLARIZIA
Basic Upgrade your Plan

My activities

My challenges

My guests

My challenges

Do you have a Game Pin to access a challenge?
If you have been invited to a challenge and you have a Game Pin, you have to access
game.educaplay.com to enter it.

Create a Challenge to share activities in group

educaplay

Ex.: Parts of the cell...   All the activities

New Activity

Reports   Challenges   New Activity

Fabio CLARIZIA

Basic   Upgrade your Plan

My activities

No activities found

Share LTI   All type ∨

My activities

My challenges

My guests

My favorites

Reports

Inbox

Notifications

My Plan

Account Settings

Log out

Reports   Challenges   New Activity

Share LTI   All type ∨

Insert your activities in your LMS using LTI

Share LTI   All type

Insert Educaplay activities in your LMS (Moodle, Canvas, Blackboard...) and get the results of your students directly in the grade book without having to register in Educaplay.

Launch URL

🔗 https://www.educaplay.com/lti/

Consumer key

🔒 11099860

Shared secret

🔒 ZQznEivFmZagJoM

Do you want to know how to use LTI resources in your LMS?

Canvas   Moodle   Blackboard

Time for your questions..

When game enters the classroom: case studies

Speaker: prof. Fabio Clarizia

Thank you for your attention

When game enters the classroom: case studies

Speaker: prof. Fabio Clarizia