SELAY ARKÜN KOCADERE

EDUCATION

M.Sc. & Ph.D.: Hacettepe University, Computer Education and Instructional Technology

B.Sc.: Hacettepe University, Mathematics Education

WORK EXPERIENCE

Hacettepe University, Assoc. Prof.

JKU, Visiting Professor

UAB, Visiting Professor

SEBIT, Instructional Designer

Mobilsoft, Instructional Designer

RESEARCH TOPICS

Educational Games and Gamification

Online Learning, Communities

Mentoring, e-Mentoring

Technology Supported Maths Education

COURSES TAUGHT

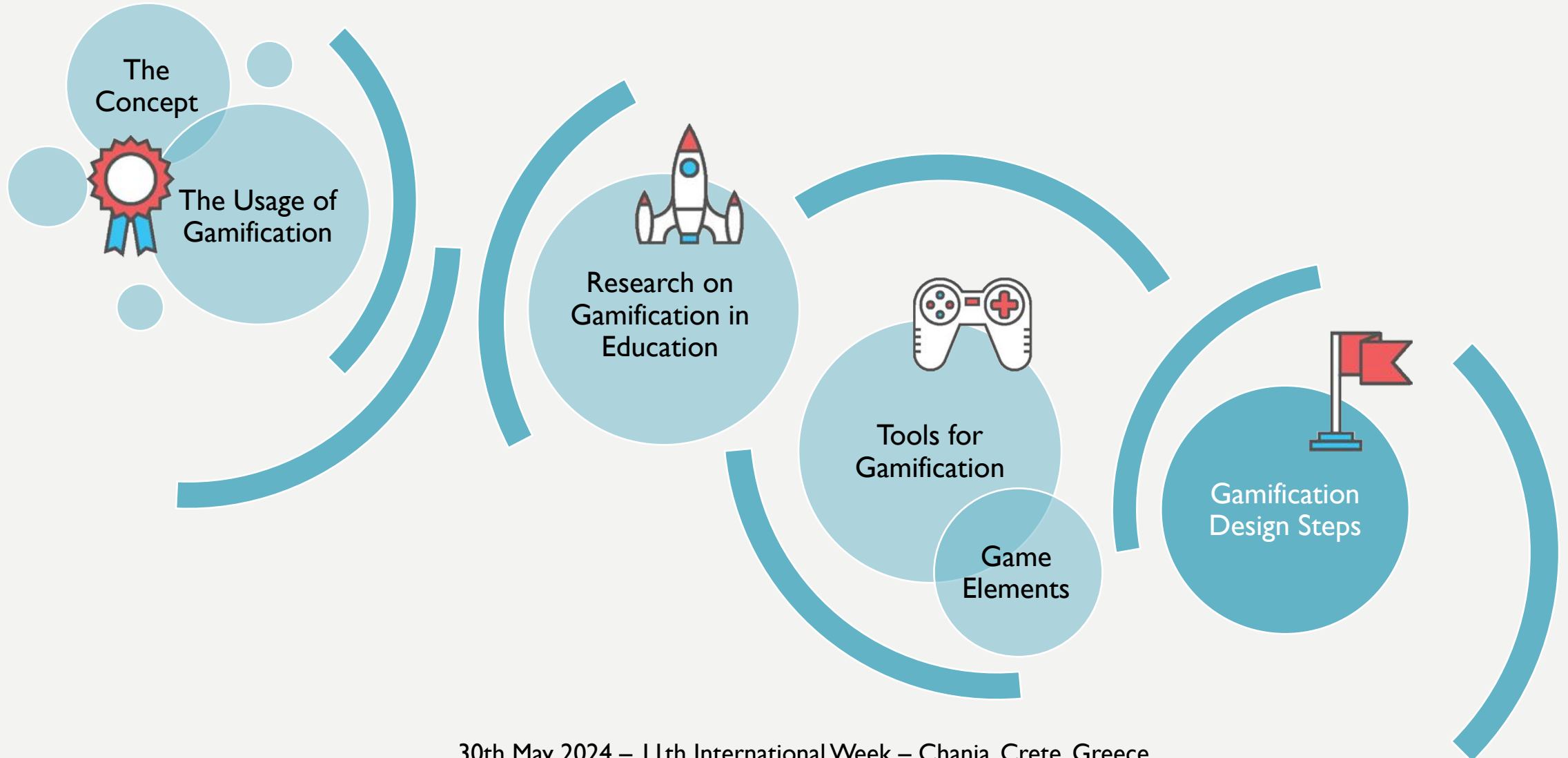Instructional Technologies

Educational Computer Games Design

Gamification in Education

Distance Education / Online Learning

Human - Computer Interaction

Technology Enhanced Maths Teaching
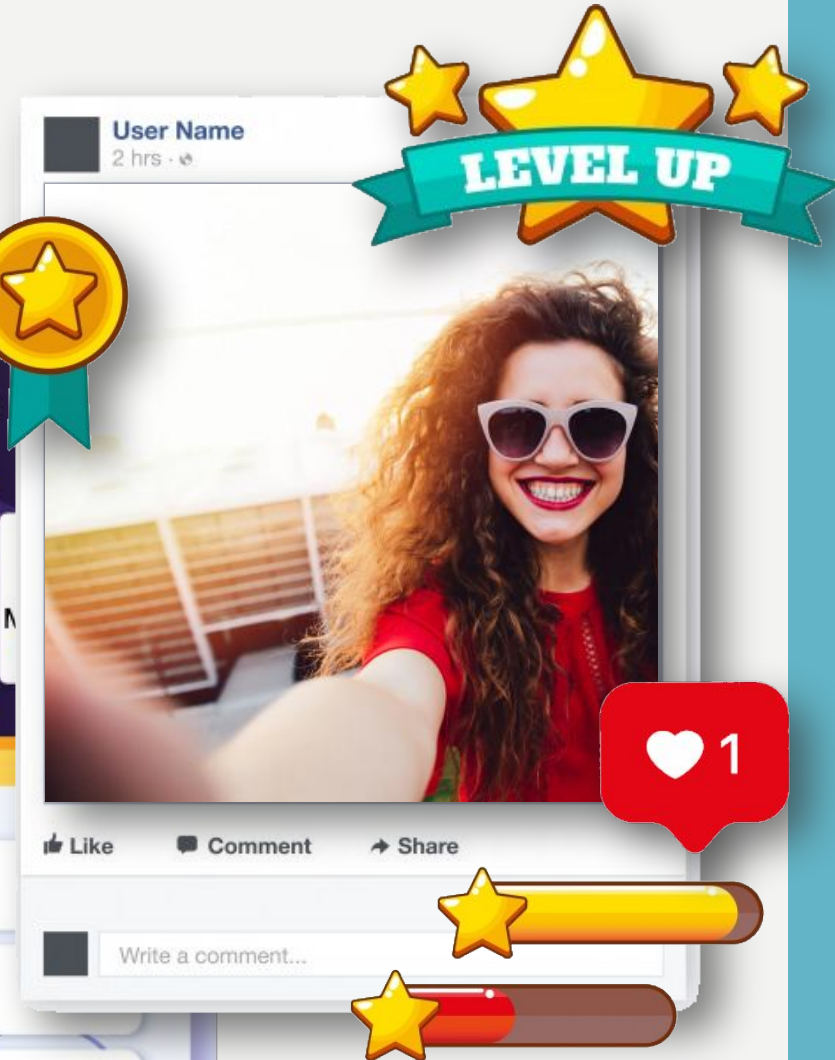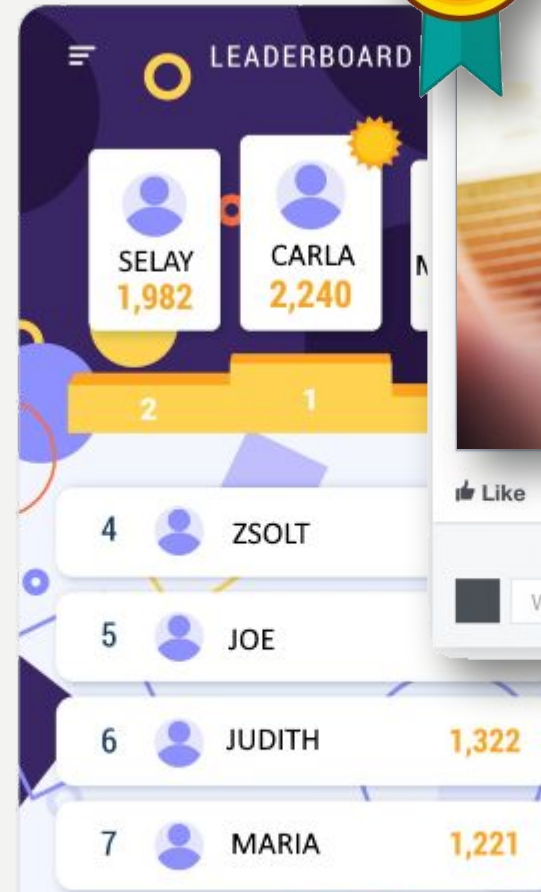
WHAT IS GAMIFICATION?

IN THE EDUCATIONAL CONTEXT

Gamification can be described as

"an educational approach using game design principles in learning environments to engender interest and motivation in learners."

Arkün Kocadere, S. & Çağlar, Ş. (2018). Gamification from player type perspective: A case study. Educational Technology & Society, 21(3): 12-22.

GAMIFICATION IS NOT NEW!

GAMIFICATION IS NOW EVERYWHERE!
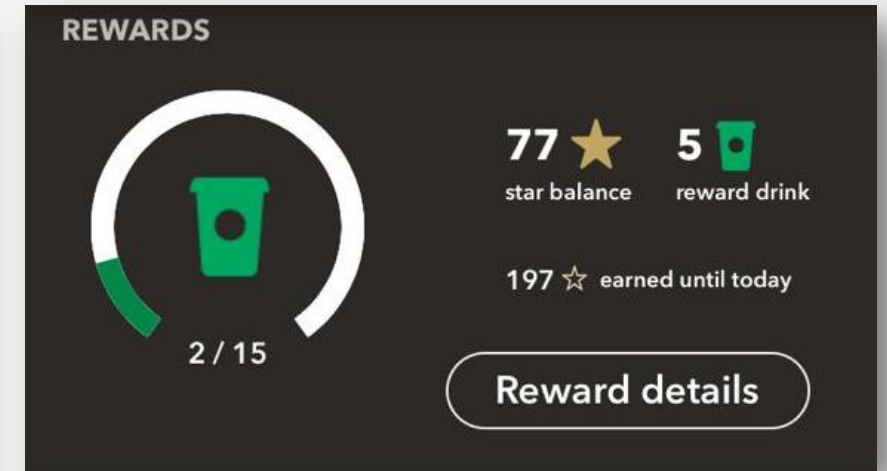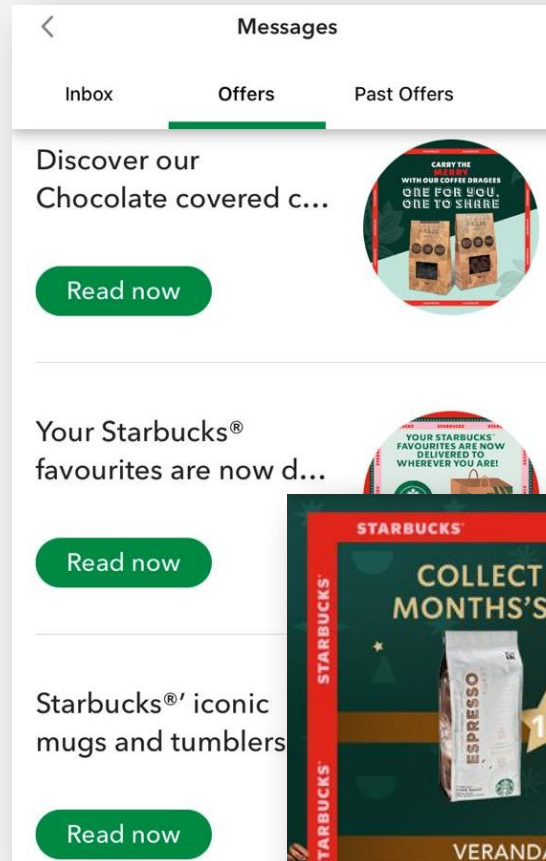
ALSO IN EDUCATION!

- Kahoot!
- Duolingo
- Khan Academy
- Byju's
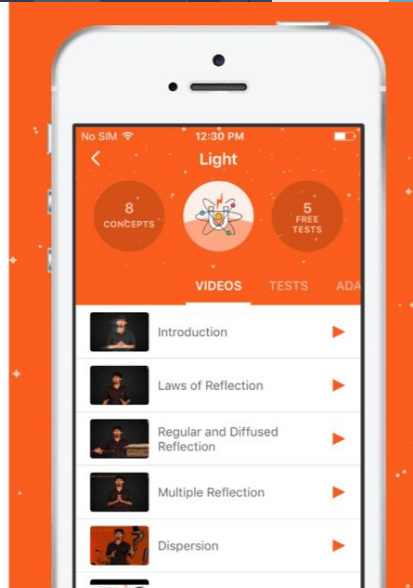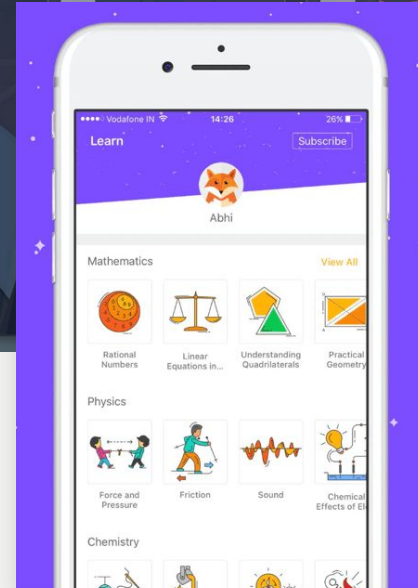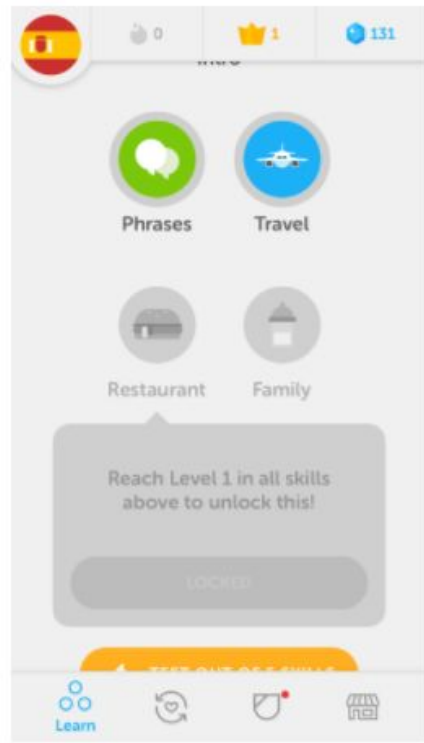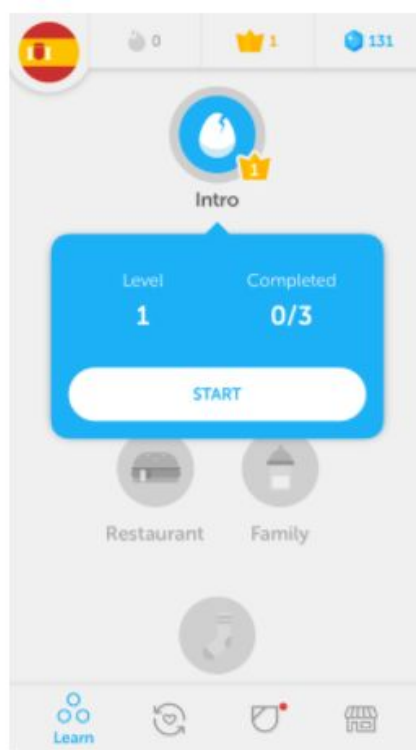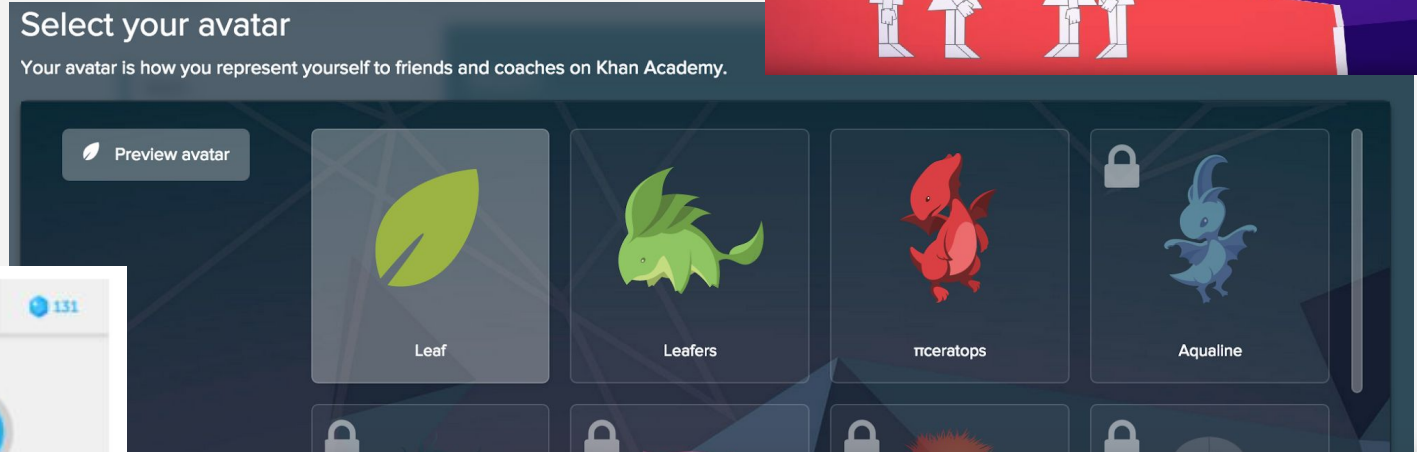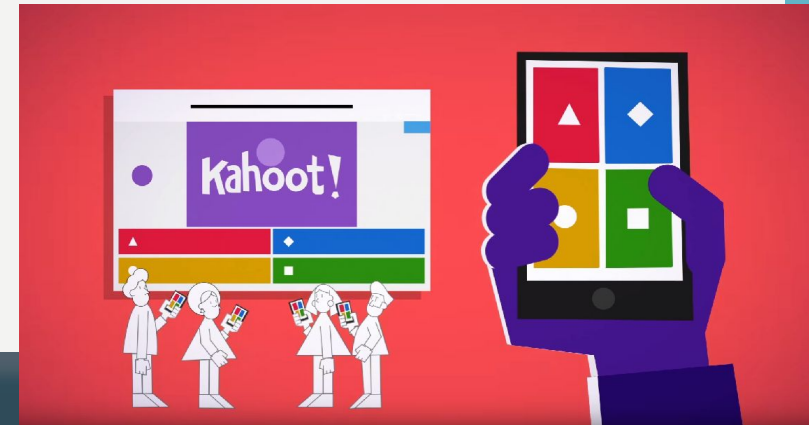
WHAT IS THE DIFFERENCE?

BETWEEN

GAME-BASED LEARNING & GAMIFICATION

GAME:
HOPSCOTCH

Especially digital game development is a difficult and expensive process.

GAME

Hopscotch is played by (a player(s)) tossing an object into numbered spaces of a pattern of rectangles outlined on the ground and then hopping or jumping through the spaces to retrieve the object.

PLAYER(S)

OBJECT
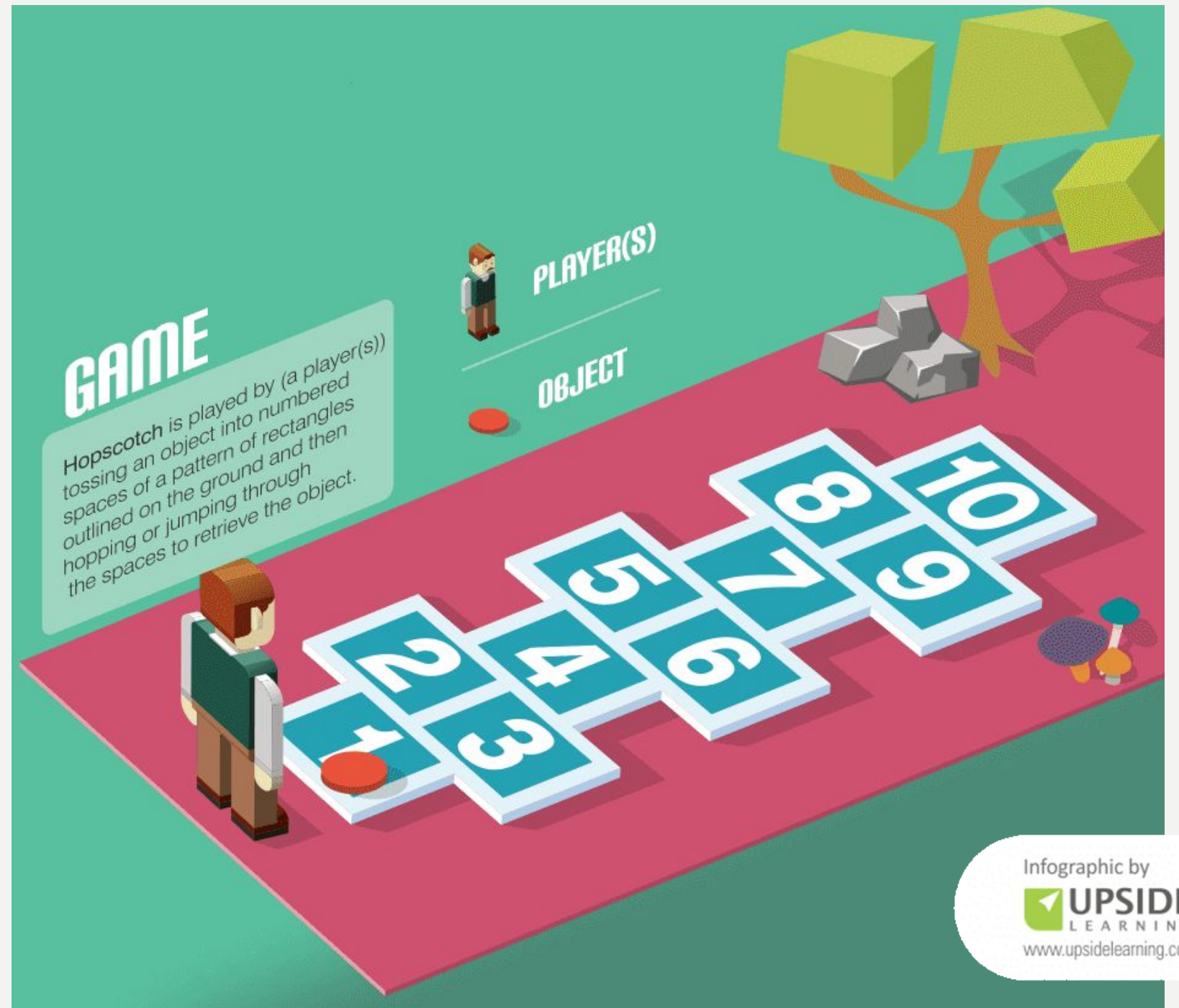
GAME BASED LEARNING

- Hopscotch game can be used in Maths lesson to teach odd and even numbers.

- Boxes with odd numbers can be stepped on with one foot, and boxes with even numbers can be stepped on with two feet.

GAME-BASED LEARNING

Hopscotch can be used to teach odd and even numbers by (a player(s)) using one-footed hops when landing on odd numbers and two-footed hops for even numbers. The turn continues until the player(s) steps on a line or hops on an incorrect number.

PLAYER(S)

OBJECT

ODD NUMBERS

EVEN NUMBERS

GAMIFICATION

- Hopscotch boxes can be used as a guideline in gamification.
- Each box can represent a learning task or a week / level.
- At the end of certain levels a prize can be won.
- However, there is no jumping around.

GAMIFICATION

Hopscotch, in a organisational context, is gamification. The rectangles can be assumed as levels, and the simple action of hopping as the task achievements. When an employee achieves a task, (s)he is given an award/badge and taken to the next level.

EMPLOYEE(S)

AWARD / BADGE

ORGANISATIONAL LEVEL
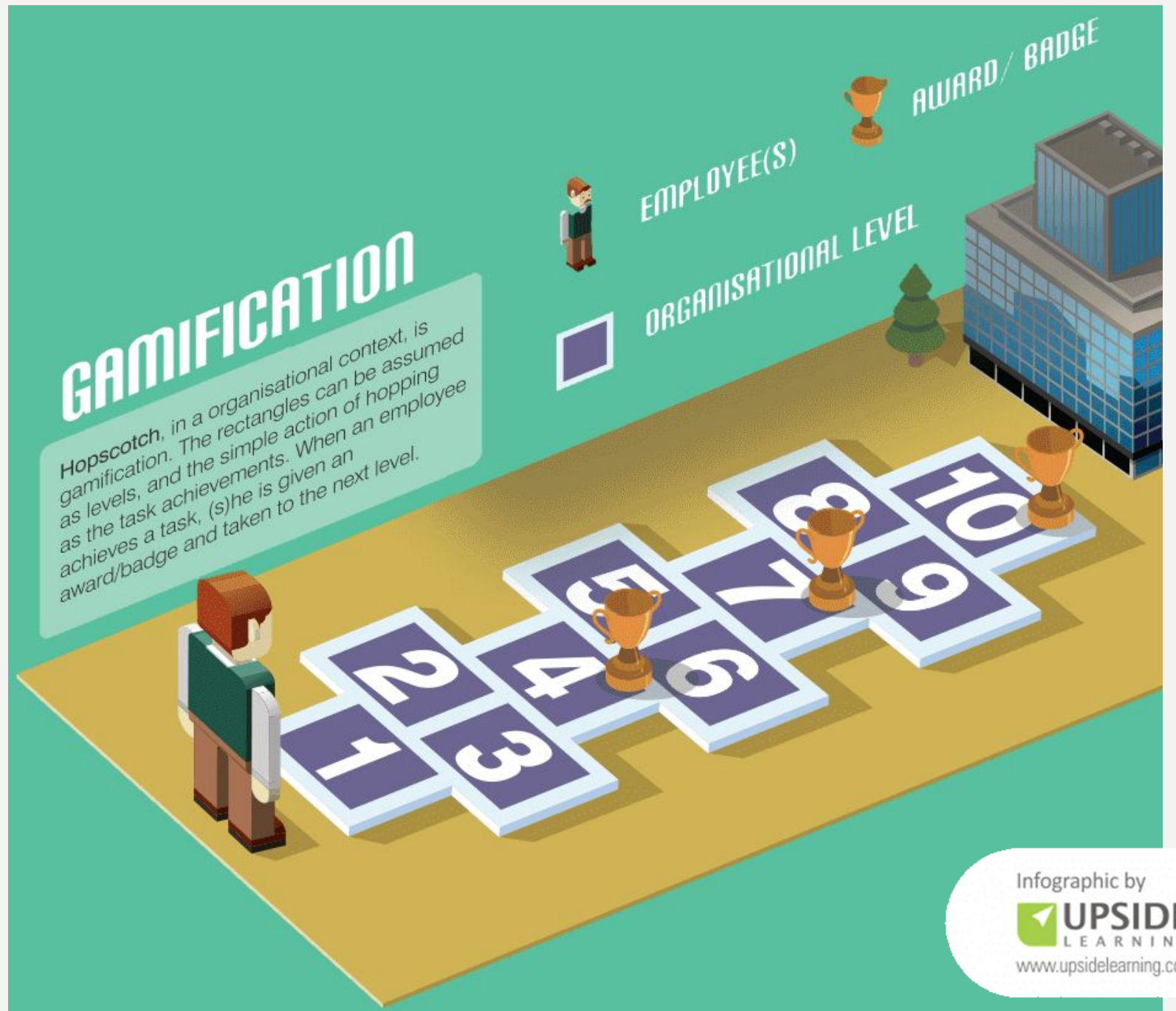
Infographic by
UPSIDE
LEARNING
www.upsidelearning.com

THE POSITION OF GAMIFICATION IN THE CURRICULUM

- Why do we teach?
- What do they learn?

- What do we teach?

Aims & Objectives

Content

Evaluation

Teaching Strategies

- How much do we teach?

- How do we teach?

TO WHOM, WHERE, & WHEN TO USE?

- It could be used in **classrooms**, as well as **online classes**.
- With **digital tools** and/or **printed materials**.
- For only one **lesson** or for a whole **semester**.
- It can be applied to **different age groups**.
- For students in a **class** or in a whole **school**.
- It can support the professional development of **teachers**.

WHY TO USE?
HOW IT WORKS?

Various research shows gamification
- increases voluntary participation
- increases participation rate
- increases completion rate
- produces more qualified learning products
- conduces more interaction between students
- creates more successful students
- provides higher achievement
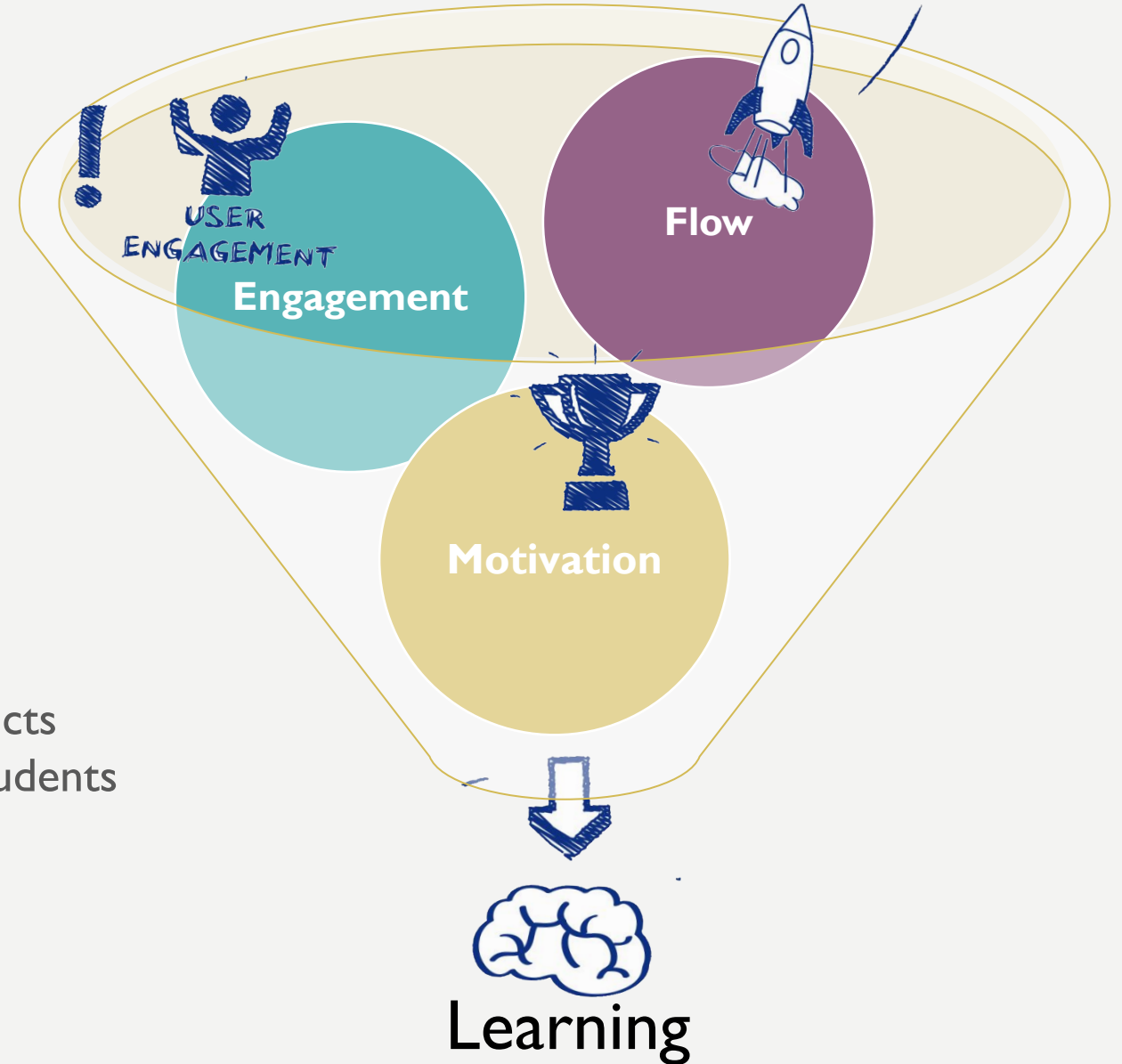
Engagement

Flow

Motivation

Learning

Özhan, Ş. Ç., & Kocadere, S. A. (2020). The Effects of Flow, Emotional Engagement, and Motivation on Success in a Gamified Online Learning Environment. Journal of Educational Computing Research, 57(8)

THE BACKGROUND OF GAMIFICATION:
MOTIVATION

E.g. Ryan and Deci's Self-Determination Theory
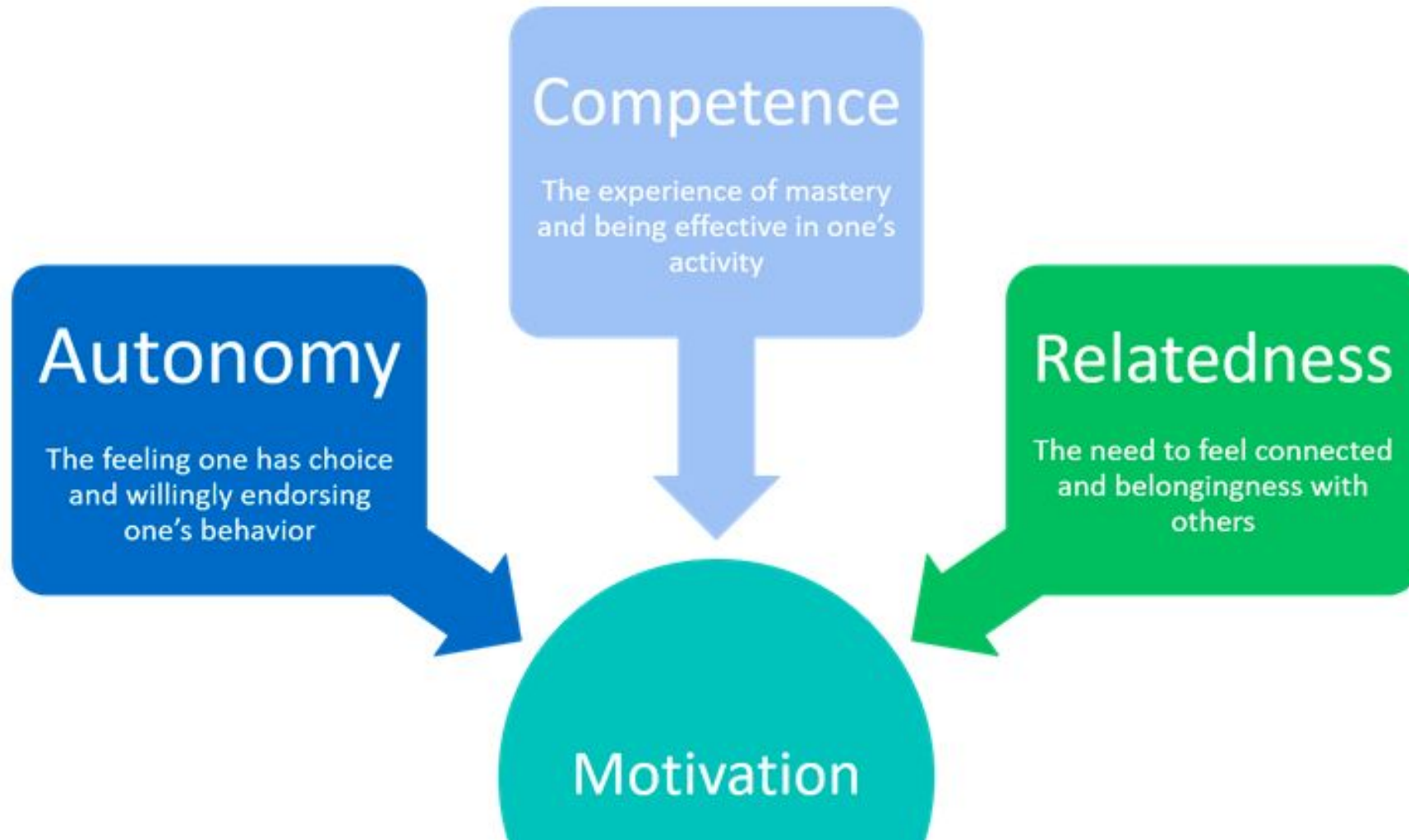
GAMIFICATION TOOLS, IMPLICATION EXAMPLES & GAME COMPONENTS

HOW TO USE?

- **TOOLS FOR GAMIFICATION** could be categorized as

  A. Gamified apps which have content. (E.g. Duolingo, Knowre)

  B. Gamification plug-ins in LMS (E.g. Moodle, WordPress)

  C. Digital gamification tools (E.g. Kahoot, Class Craft)

  D. Non-gamified digital tools (E.g. Instagram, Milanote)

  E. Non-digital tools (E.g. Stickers, Crayons)

Karayigit, D., Temel, B., Ertan, K., & Kocadere, S.A. (2022). Analysis of Educational Gamification Tools According to Game Components and Mechanics. Eğitim Teknolojileri Okumaları 2022 (s. 285 - 316). Ankara: Pegem Akademi

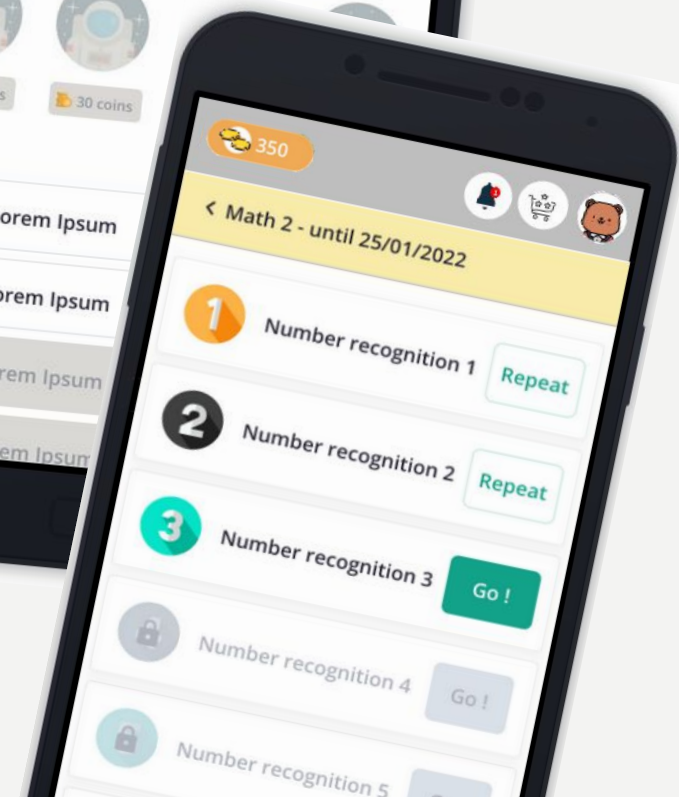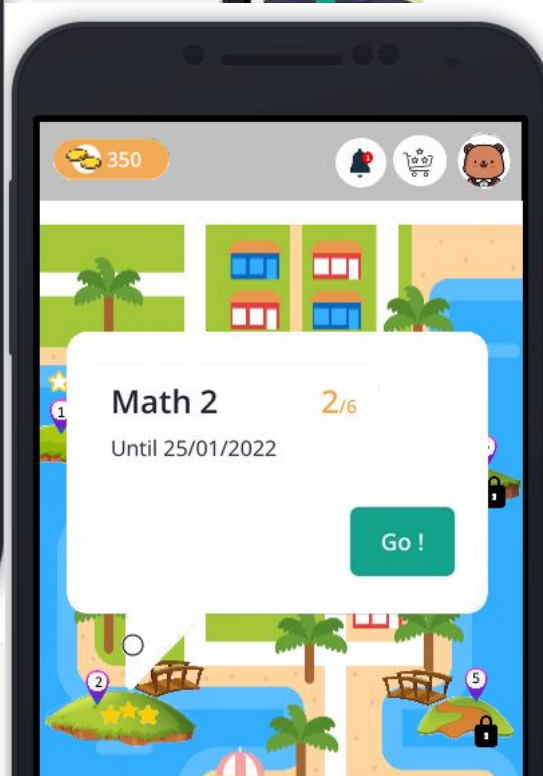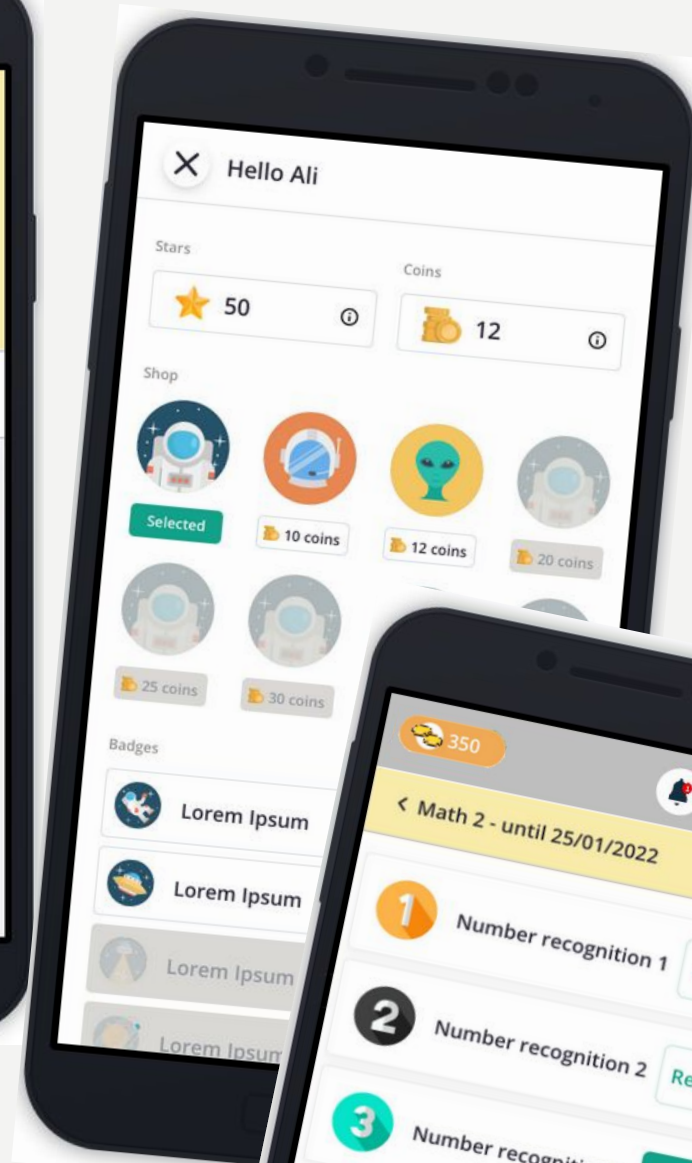Arkun Kocadere, S. & Caglar Özhan S., (2023). Gamification in depth. *Gate: On the Way to Gamify Your Teaching course pack.* https://gatetogamify.eu/e-learning/
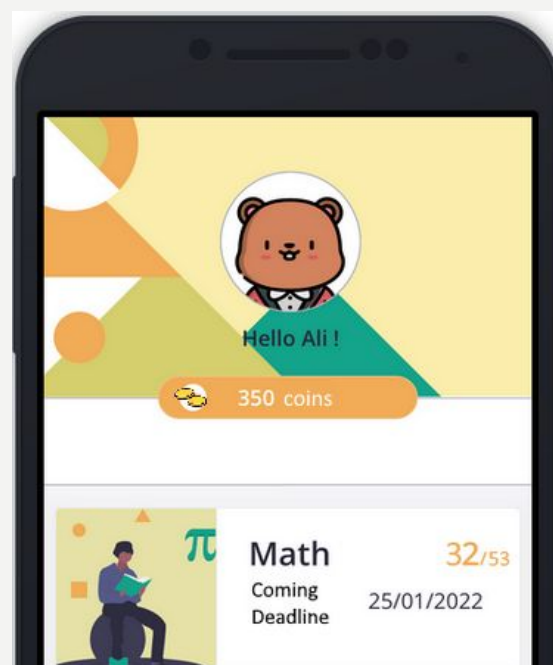
THE GAMIFIED ASSESSMENT TOOL

EXAMPLE OF
A. GAMIFIED APPS

Özhan, Ş. Ç., & Kocadere, S. A. (2020). The Effects of Flow, Emotional Engagement, and Motivation on Success in a Gamified Online Learning Environment. *Journal of Educational Computing Research*, *57*(8), 2006–2031.

Tüm   ▼   puan durumunuzu görün

Elif   1
216 point

Funda   2
206 point

Fatma   3
193 point

Betül   4
191 point

Esra   5
190 point

- Story
- Avatar
- Level - Island - Week
- Points & Leader Board
- Achivements (Map, Sword, Boat etc.)
- Badges
- Collection (Jewels)
- Boss Fight – Final Exam
- Reward - Gold - Pen

A WEB-BASED GAMIFICATION TOOL

EXAMPLE OF
C. DIGITAL GAMIFICATION TOOLS
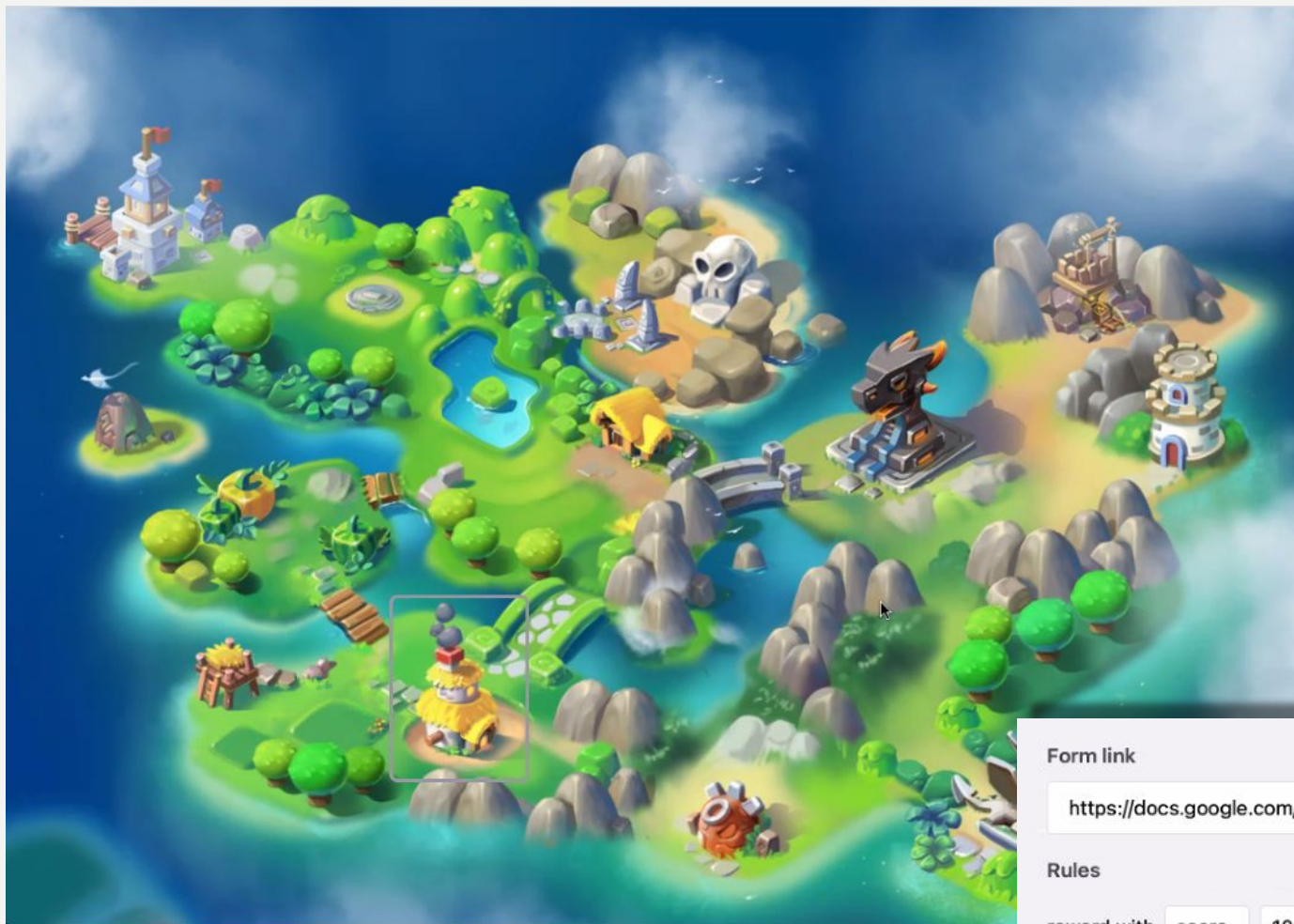
Erasmus+

GATE: On the Way to Gamify Your Teaching

Erasmus+ Project (2020-1-BE02-KA201-074681)

https://gatetogamify.eu/
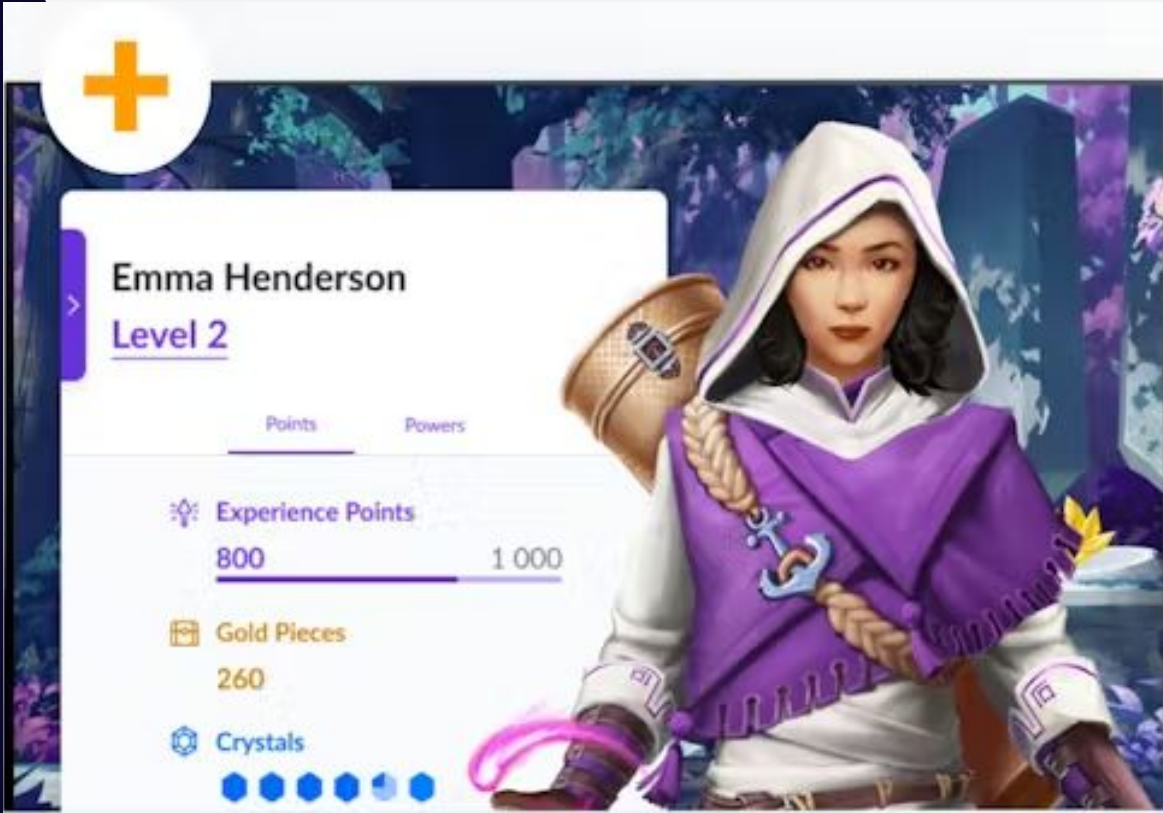
In our analysis we found that ClassCraft is one of the best free gamification tools. It is story based.
https://www.classcraft.com/

Karayiğit, D., Temel, B., Ertan, K., & Kocadere, S.A. (2022). Analysis of Educational Gamification Tools According to Game Components and Mechanics [in Turkish]. Eğitim Teknolojileri Okumaları 2022 (s. 285 - 316). Ankara: Pegem Akademi

D

GAMIFICATION
VIA INSTAGRAM

EXAMPLE OF
D. NON-GAMIFIED TOOLS

- Levels: Each topic

- Achievement: Stars for each level considering points

- Points: From Kahoot! & homeworks
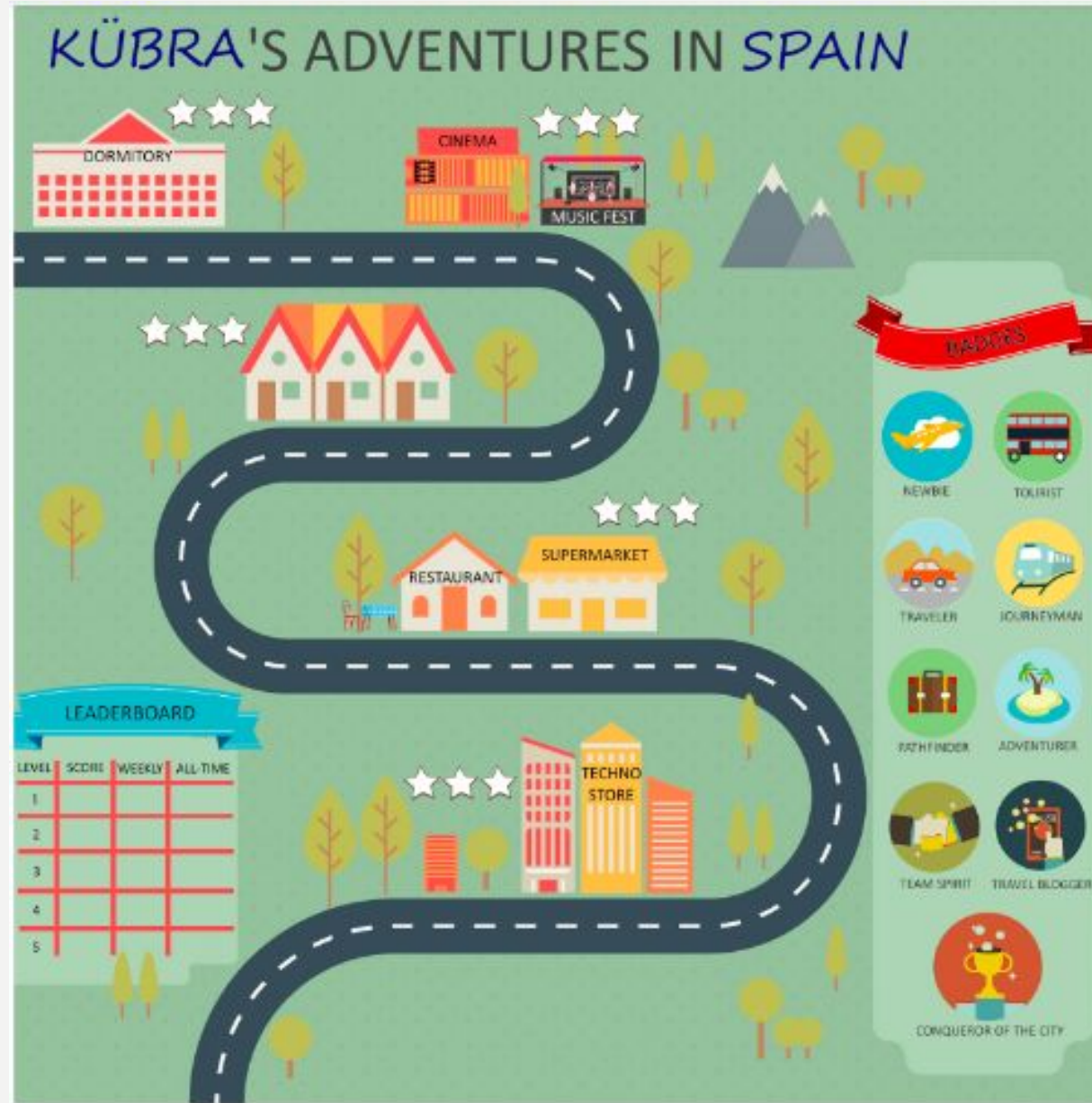
- Badges: E.g. Completing 2 out of 5 homework / Writing the most creative blog post / Following Instagram account

- Rewards: E.g. concert ticket, pocket money

Ertan, K., Arkün Kocadere, S. (2024). Investigating achievement, motivation, and attitude in a gamified English course. *International Journal of Technology Enhanced Learning, 16*(2)

Ertan, K., Arkün Kocadere, S. (2024). Investigating achievement, motivation, and attitude in a gamified English course. *International Journal of Technology Enhanced Learning, 16*(2)

Bayrak, F. (2023). A Roadmap to Become an Analyst Teacher. In T. J. Ó Ceallaigh & C. Connolly (Eds.) *Innovating Assessment and Feedback Design in Teacher Education* (pp. 54-72). Routledge.

E

GAMIFICATION
WITH STICKERS & CRAYONS

EXAMPLE OF
E. NON-DIGITAL TOOLS

LEARNING ENVIRONMENT

Learning Tasks

1) Searching about the "Labours of Hercules" myth

2) Learning to use the web tools

Kocadere Arkün, S. & Samur, Y. (2016). Oyundan oyunlaştırmaya. Aytekin İşman, Ferhan Odabaşı & Buket Akkoyunlu (Ed). Eğitim Teknolojileri Okumaları 2016. (ss. 397-414).

COMPUTER LAB

Facebook

- Tasks
- Educational resources
- Students' products
- Leader board

Printed Board

- Visuals of the story
- Gathered points from assignments
- Collection (fist, sword, bow and arrow)
- Badges
- Leves
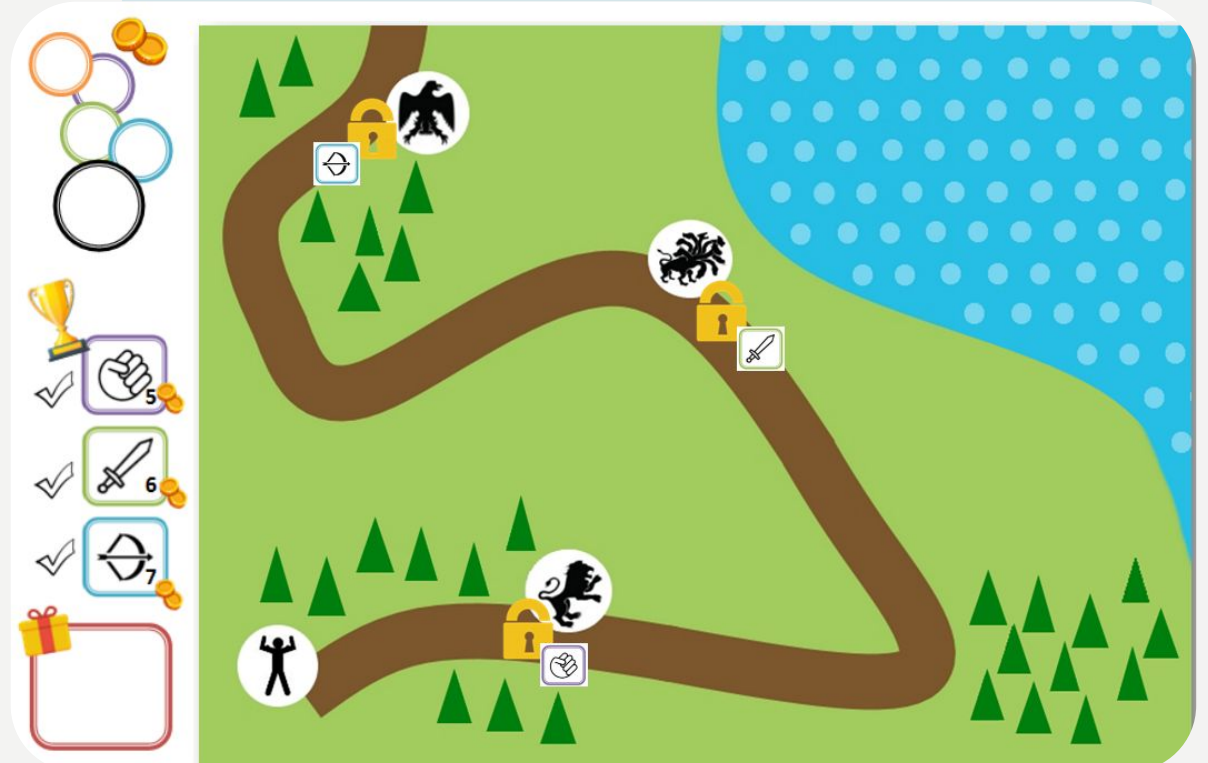
PRINTED BOARD
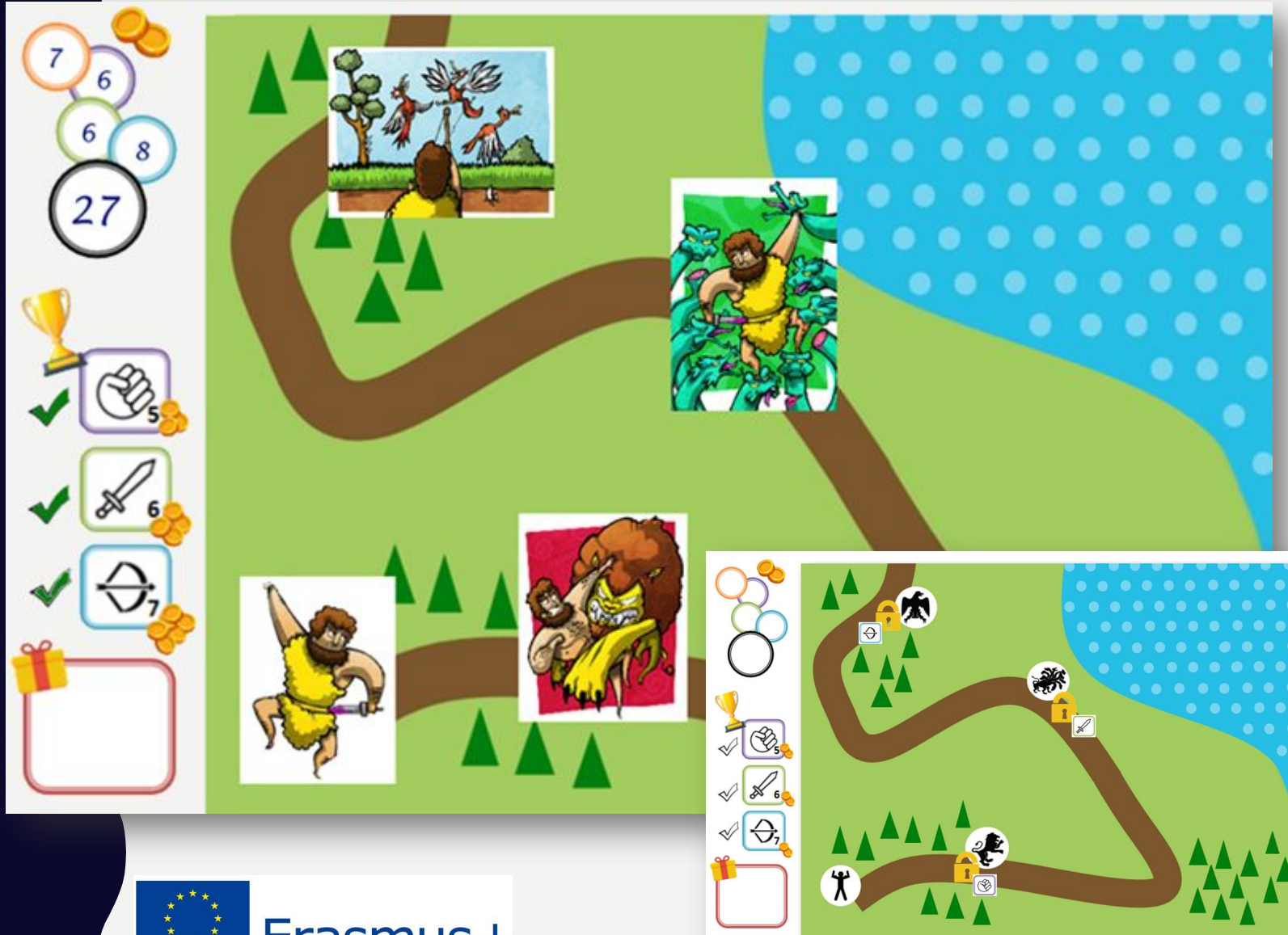
- Printed Board - Progress
- Story
- Feedback
- Points
- Collection
- Content Unlocking
- Badges
- Replay

- Avatar – personalization
- Teamwork
- Trading – collection items
- Gifts – mentor badge

Erasmus+
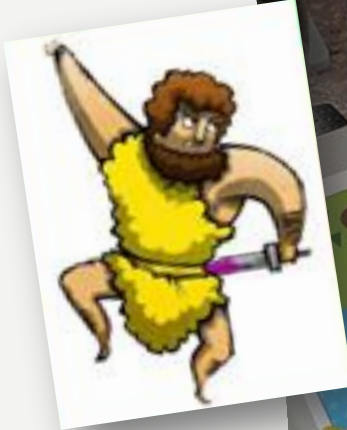
A GAMIFICATION FRAMEWORK

OCTALYSIS

(CHOU, 2019)

GAME MECHANICS (Chou, 2019)

- Epic Meaning: Chosen person, saviour etc. (e.g. Story)

- Accomplishment: Struggling, achievement of tasks (e.g. Level, Points, Leaderboard, Progress bar)

- Empowerment through Creativity and Feedback: Trial and error, instant feedback (e.g. Unlocking)

- Social Influence and Relationship Building Mentoring, Friendship (e.g. Gift Exchange)

- Unpredictability and Curiosity: (Ex: Surprises)

- Avoidance: (e.g. Loss of status, Items that lose their validity)

- Scarcity: (e.g. Limited number of items / badges, Waiting for time to run out)

- Ownership: (e.g. Avatar, Virtual goods)

THE MOST engaging gamification elemets

- Virtual goods (could be exchanged, shown in profile)

- Redeemable points (redeem real world' rewards)

- Leader boards (local and global view)

- Badges (could be won immediately, shown in profile)

Chang & Wei, 2016

GAMIFICATION DESIGN STEPS

STEPS TO GAMIFY

1. List your main and sub **goals**.

2. Define challenges by combining **game mechanics and goals**.

3. Determine clear, small, and **challenging** (achievable challenges) learning tasks which are linked to rewards (virtual goods, badges etc.).
   - Tasks should get more difficult step by step.
   - Don't let them fail in the beginning.

4. Match the game elements and learning tasks.

5. Make the **progress** visible.

6. Let them take the **control** but don't allow them to get lost or stuck (clear guidance).

7. Provide **different paths** to follow.

8. Give feedback – give opportunity to improve (replay). Everything is a feedback, a badge, points, etc.

9. Avoid negative performance **feedback**.

10. Recall them and give new challenges.

Bayrak, F., Kibar, P. N., & Kocadere, S. A. (2021). Powerful student-facing dashboard design through effective feedback, visualization, and gamification.

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Bartle, R. (1996). Hearts, clubs, diamonds, spades: Players who suit MUDs. *Journal of MUD research, 1*(1), 19.

Chang, J. W., & Wei, H. Y. (2016). Exploring engaging gamification mechanics in massive online open courses. *Journal of Educational Technology & Society, 19*(2), 177-203.

Csikszentmihalyi, M. (2014). Flow and the foundations of positive psychology: The collected works of Mihaly Csikszentmihalyi. New York: Springer.

Chou, Y. K. (2019). Actionable gamification: Beyond points, badges, and leaderboards. Packt Publishing Ltd.

Deterding, S., Dixon, D., Khaled, R., & Nacke, L. (2011). From game design elements to gamefulness: defining gamification. Paper presented at the Proceedings of the 15th International Academic MindTrek Conference: Envisioning Future Media Environments.

Gee, J. P. (2005). Learning by design: Good video games as learning machines. *E-learning and Digital Media, 2*(1), 5-16.

Infographic https://www.upsidelearning.com/custom/infographics/games-vs-game-based-learning-vs-gamification/

Visuals https://www.freepik.com/

Werbach, K., & Hunter, D. (2012). For the win: How game thinking can revolutionize your business: Wharton Digital Press.

Zichermann, G., & Cunningham, C. (2011). Gamification by design: Implementing game mechanics in web and mobile apps:" O'Reilly Media, Inc."

GAMIFICATION RELATED PROJECTS

- GAMEUP: Promoting Entrepreneurial Mindsets in European Universities Through Gamification, AB Erasmus+ Projesi

- Developing MEL tools and systems for digital learning interventions in EiE, BM Projesi

- E-Skills For E-Citizens: Effective Access to e-Services, AB Erasmus+ Projesi

- Development of Educational Gamification Tool, Tübitak 2209 Projesi

- GATE: On the Way to Gamify Your Teaching, AB Erasmus+ Projesi

- STEAM-BOX: Courses, Tools, Resources for Teachers, AB Erasmus+ Projesi

- Searching for the Labours of Hercules, AB Erasmus+ Projesi

- Designing an Online Gamified Learning System and Examining Its Effects, BAP Projesi

SOME INVITED TALKS

- Instructional Gamification. 8.02.2023, Latin American STEAM Education Research Conference.
- Gamification: An Instructional Approach for Teaching Mathematics. 03.11.2022, Athena European University, Colloquial Talks.
- Gamification: A Way to Add Fun in Learning. 16.12.2020, Instituto Superior de Engenharia do Porto Seminars on Novel Teaching Methodologies.
- Gamification for Teaching Maths. 23.06.2020, CADGME Online Gathering, Digital Tools in Mathematics Education.
- Practices of gamification in teaching. 21.11.2019, Lisbon Games Week, FIL Lisbon
- Gamification: An old friend in a new frame. 17.01.2019, Gamification and Creativity in STEAM Education Conference, JKU Linz / Austria.
- Instructional Gamification. 28.04.2017, 11th National Student Congress, Yeditepe University, İstanbul
- How to gamify your classroom? 19.10.2016, IT Learn Play Repeat, Gamification in Education, JKU / Austria
- Game and Learning. 03.06.2016, e-Game Show, Ankara

OYUNLAŞTIRMA ÇALIŞMALARIM

gatetogamify.eu

SOME GAMIFICATION RELATED PAPERS

- Kocadere, S.A., Özhan, Ş. Ç., & Marti-Parreño, J. (2024). A gamified course for teachers to gamify their teaching. In INTED2024 Proceedings (pp. 7193-7197).
- Ertan, K., Kocadere, S.A. (2024). Investigating achievement, motivation, and attitude in a gamified English course. International Journal of Technology Enhanced Learning, 16(2)
- Karayiğit, D., Temel, B., Ertan, K., & Kocadere, S.A. (2022). Analysis of Educational Gamification Tools According to Game Components and Mechanics [in Turkish]. Eğitim Teknolojileri Okumaları 2022 (s. 285 - 316). Ankara: Pegem Akademi
- Ertan, K. & Kocadere, S.A. (2022). Gamification design to increase motivation in online learning environments: A systematic review . Journal of Learning and Teaching in Digital Age.
- Bayrak, F., Kibar, P. N., & Kocadere, S.A. (2021). Powerful student-facing dashboard design through effective feedback, visualization, and gamification. Visualizations and Dashboards for Learning Analytics (pp. 149-172). Springer

- Özhan, Ş. Ç., & Kocadere, S.A. (2020). The Effects of Flow, Emotional Engagement, and Motivation on Success in a Gamified Online Learning Environment. Journal of Educational Computing Research.
- Kocadere, S.A. (2019). Gamification of Library Orientation: An Application Proposal [in Turkish]. Türk Kütüphaneciliği, 33(1), 6-23.
- Kocadere, S.A. & Çağlar, Ş. (2018). Gamification from player type perspective: A case study. Educational Technology & Society, 21(3): 12-22.
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- Çağlar, Ş., & Kocadere, S.A. (2016). Possibility of motivating different types of players in gamified learning environments. EDULEARN16 Conference, 1987-1994.
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- Kocadere, S.A. & Çağlar, Ş. (2015). The design and implementation of a gamified assessment. Journal of e-Learning and Knowledge Society, 11(3), 85-99.
- Çağlar, Ş. ve Kocadere, S.A. (2015). Gamification in Online Learning Environments [in Turkish]. Eğitim Bilimleri ve Uygulama, 14(27), 83-102.

OYUNLAŞTIRMA ÇALIŞMALARIM

HACETTEPE
ÜNİVERSİTESİ

Selay Arkün Kocadere
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http://www.ebit.hacettepe.edu.tr/
cv_selay_arkun_kocadere.html
selaya@hacettepe.edu.tr