

CLASS ROOM SESSION: GAMIFICATION

Prof. Dr. Patricia Everaert

EAA Annual Conference, Helsinki - May 24th 2023

GAMIFICATION IS EVERYWHERE

- “The use of **game design** elements in non-game context”

AGENDA

- Game design elements (attributes, features)
- Simple games to use as “intro” to class
- Free education app from Ghent University: DUGA

TAXONOMY OF GAME DESIGN ELEMENTS (TODA ET AL., 2019)

- Acknowledgement
- Chance
- Competition
- Cooperation
- Experience points
- Novelty
- Objective
- Progression
- Sensation: visual stimulation (sound stimulation)
- Time pressure
- Immediate feedback

Concept	Description
Acknowledgement	All kind of feedback that praises the players' specific actions. Some examples and synonyms are badges, medals, trophies.
Chance	Randomness and probability characteristics to increase or decrease the odds of certain actions or outcomes. Some examples and synonyms are randomnesses, luck, fortune.
Competition	When two or more players compete against each other towards a common goal. Some examples and synonyms are Player vs Player, scoreboards, conflict.
Cooperation	When two or more players collaborate to achieve a common goal. Some examples and synonyms are teamwork, co-op missions.
Economy	Transactions within the game, monetising game values and other elements. Some examples and synonyms are markets, transaction, exchange.
Imposed Choice	Decisions that the player is obliged to make in order to advance the game. Some examples and synonyms are judgements, forced choices. (<i>not to be confused with Narrative</i>).
Level	Hierarchical layers present in a game, which provide a gradual way for the player to obtain new advantages as they advance. Some examples and synonyms are character levels, skill level.
Narrative	Order of events where they happen in a game. These are choices influenced by the players' actions. Some examples and synonyms are the strategies the player uses to go through a level (stealth or action), also the good or bad actions that influence the ending, karma system. (<i>not to be confused with Imposed Choice</i>).
Novelty	New, updated information presented to the player continuously. Some examples and synonyms are changes, surprises, updates.
Objectives	Guide the players' actions. Quantifiable or spatial, from short to long term. Some examples and synonyms are missions, quests, milestones.
Point	Unit used to measure users' performance. Some examples and synonyms are scores, number of kills, experience points.
Progression	This allows players to locate themselves (and their progress) within a game. Some examples and synonyms are progress bars, maps, steps.
Puzzles	Challenges within the game that should make a player think. Some examples and synonyms are actual puzzles, cognitive tasks, mysteries.
Rarity	Limited resources and collectables. Some examples and synonyms are limited items, rarity, collection.
Renovation	When players are allowed to redo/restart an action. Some examples and synonyms are extra life, boosts, renewal.
Reputation	Titles that the player accumulates within the game. Some examples and synonyms are titles, status, classification.
Sensation	Use of players' senses to create new experiences. Some examples and synonyms are visual stimulation, sound stimulation.
Social Pressure	Pressure through social interactions with another player (s) (playable and non-playable). Some examples and synonyms are peer pressure, guilds.
Stats	Visible information used by the player, related to their outcomes within the game. Some examples and synonyms are results, health bar, magic bar, HUD, indicators, data from the game presented to the user.
Storytelling	It is the way the story of the game is told (as a script). It is told within the game, through text, voice, or sensorial resources. Some examples and synonyms are stories told through animated scenes, audio queues or text queues during the game.
Time Pressure	Pressure through time within the game. Some examples and synonyms are countdowns, clock, timer.

recap

LEASING

HOW MANY DIFFERENCES?

Belgian GAAP	Operational Lease	Financial Lease
	Off-balance	On-balance
	No debt	Financial debt
	No depreciation	Depreciation
	No interest	Interest expense
	Lease pay = expenses	Lease pay (capital) = debt decrease

FUNNY GAMES (FUNNYGAMES.ORG)

- Acknowledgement
- Chance
- **Competition**
- **Cooperation**
- Experience points
- **Novelty: surprising effect**
- **Objective**
- Progression
- Sensation: visual stimulation (sound stimulation)
- **Time pressure**
- Immediate feedback

BINGO

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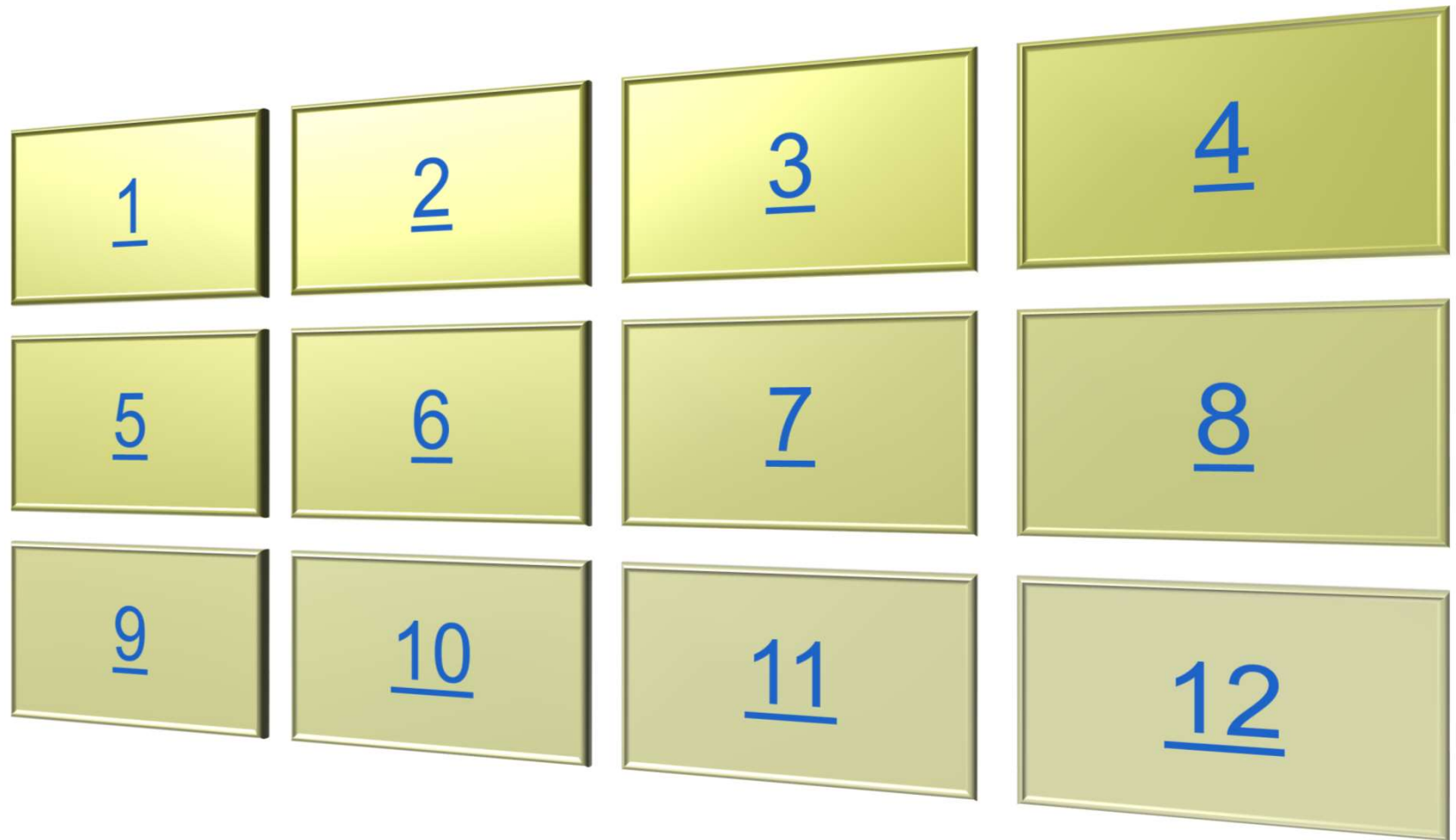
START

- Take a piece of paper
- Make a matrix of 3 by 4
- Write random: 1 to 12

1	6	7	12
2	5	8	11
3	4	9	10

RULES

- Random number
- Question
- *Correct answer: you get this coin!* (circle the number)
- Wrong answer: nothing lost
- When all numbers on a row are circled: call “Bingo”



1. Management accounting analyses accounting data with the help of _____.

A
Auditor

B
Statutory forms

C
Tools and techniques



2. Managerial accounting information is generally prepared for?

A

Shareholders

B

Statutory forms

C

Managers

D

Regulatory
agencies



3. Managerial accounting is designed for use by?

A

Internal users

B

Clients

C

External uses

D

Stockbrokers



4. Costs that do *not* vary with the volume of goods produced are called costs?

A

Constant

B

Recurring

C

Fixed



5. Costs that *do vary* with the volume of goods produced are called costs?

A

Indirect

B

Fixed

C

Variable



6. Costs incurred in the past are costs

A

Opportunity

B

Direct

C

Variable

D

Sunk



7. The welcome reception yesterday was organized in

A

Dipoli

B

Tapiola

C

Wanha Satama



8. The capital of Finland is

A

Helsinki

B

Tampere

C

Turku

D

Tallinn



9. This year the EAA annual conference is organized in

....

A

Cyprus

B

Helsinki

C

Espoo



10. In 2023 (this year), the EAA is organized for the th time?

A

25

B

35

C

45



11. From which university is the presenter?

A
Aalto

B
Glasgow

C
Ghent



12. Next year the EAA will be organized in?

A

Rome

B

Bucharest

C

Bergen

D

Cyprus



CONGRATULATIONS: CORRECT ANSWER!



OEPS!!! WRONG ANSWER!



INSTRUCTIONS FOR TEACHERS

- To go to appropriate question: click on the number in the ppt.
- To see the answer: click one time with pointer
- To go back to the board: click on this figure



BINGO

- **Acknowledgement: coins**
- **Chance**
- **Competition**
- **Cooperation**
- Experience points
- Novelty
- Objective
- Progression
- Sensation: visual stimulation (sound stimulation)
- **Time pressure**
- **Immediate feedback**

DUGA

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DUGA

Why?

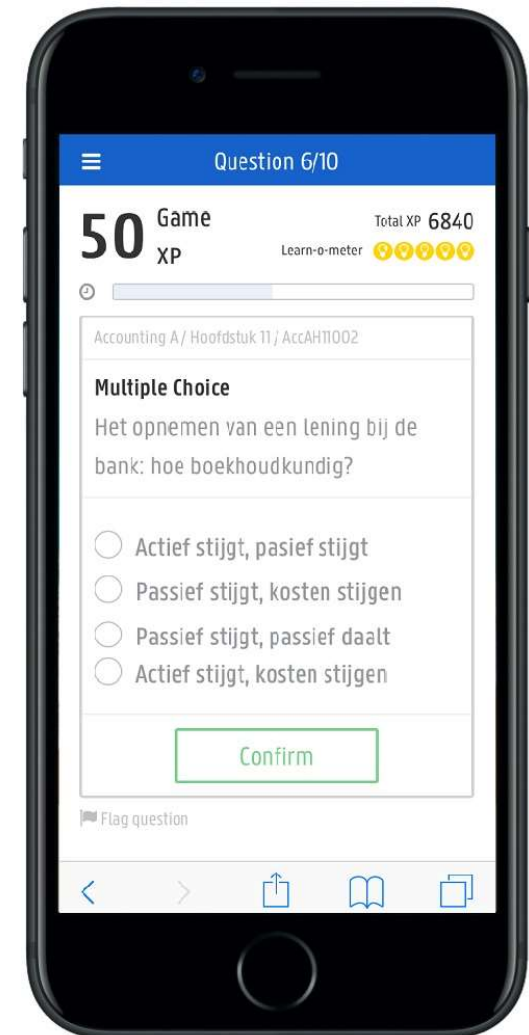
- Gamification during class
 - To engage: “surprise”
- Gamification outside of class
 - To practice

Teaser

DUGA: OBJECTIVES

To practice

- Independent
- Outside of class
- With immediate feedback
- Anywhere, anytime
 - To challenge our “stronger” students
 - To motivate our “weaker” students
- In a different way
- Using technology and AI
- And ... **fun!**

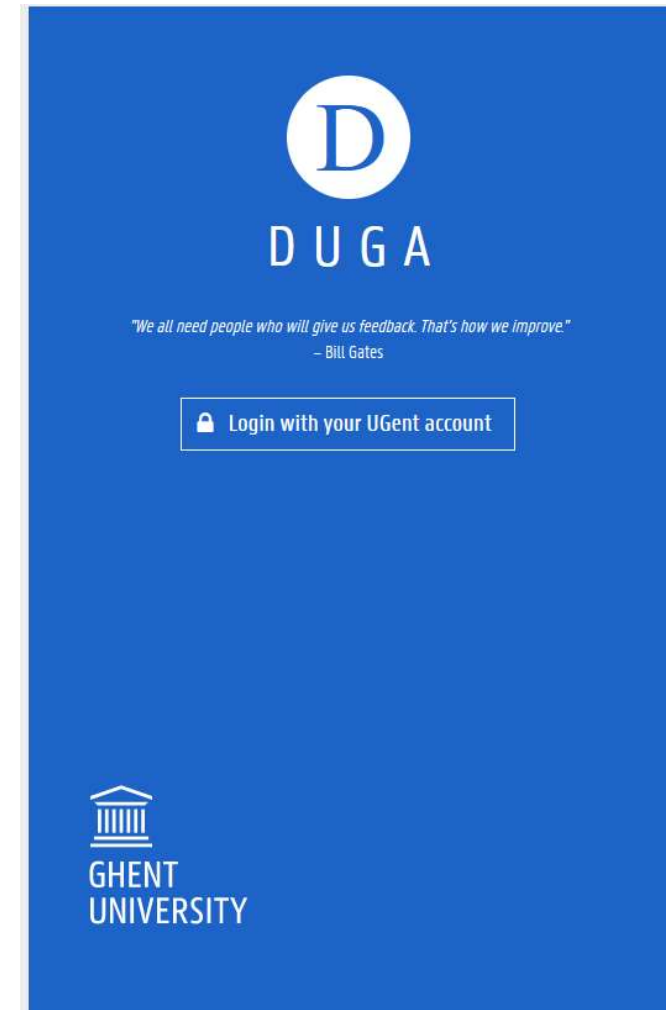


Fun ... Gamification

- Badges
- XP-points
- Level: learn-o-meter

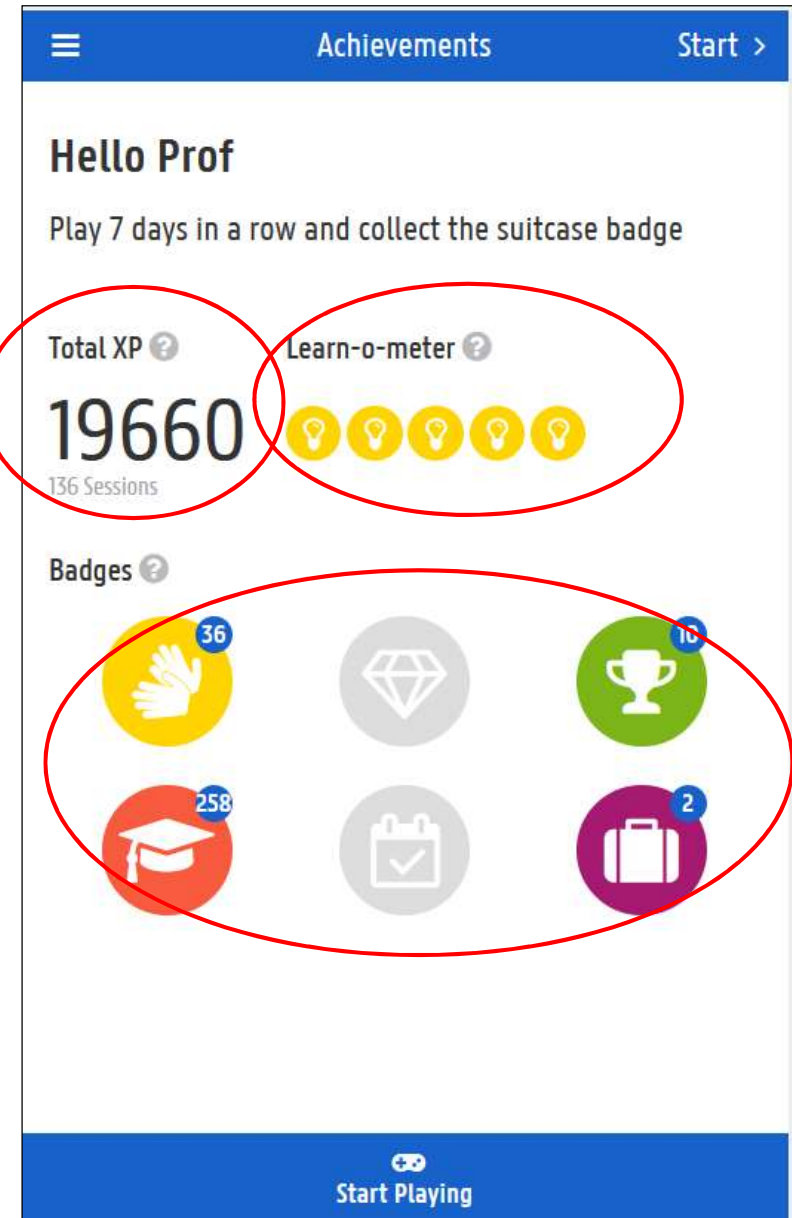
- Nicknames
- Leaderboards

- Timing
- Feedback



GAMIFICATION

- Badges
- XP-points
- Level: learn-o-meter



Gamification

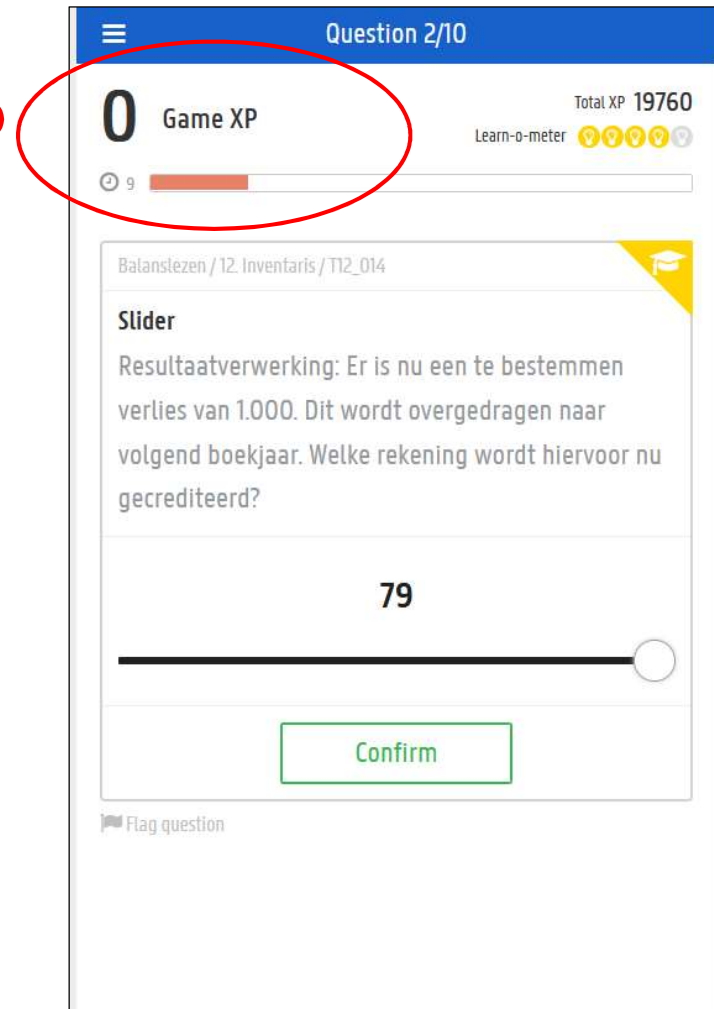
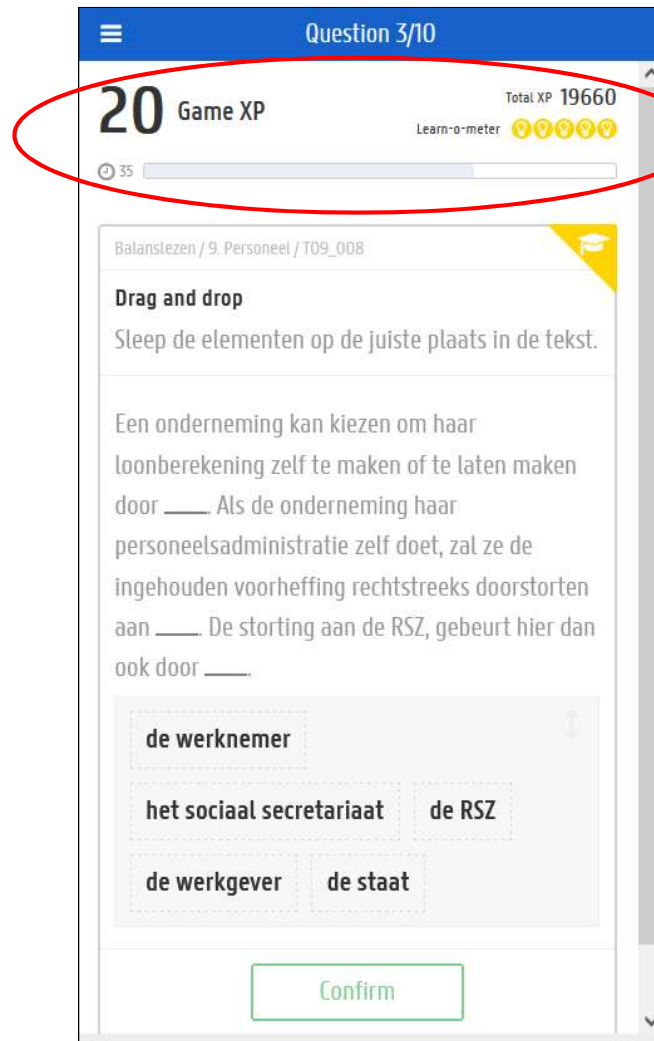
- Nicknames
- Leaderboards

DUGA hall of fame		Refresh
Total leaderboard XP:		
1	Matti19	50020 XP
	358 Sessions -	👍👍👍👍👍
2	MattiasStaes	45460 XP
	265 Sessions -	👍👍👍👍👍
3	NENC	43220 XP
	307 Sessions -	👍👍👍👍👍
4	RuysVerdragenVerdrag	33160 XP
	211 Sessions -	👍👍👍👍👍

vrijdagmorgen		Refresh
Invite code: 808374		
Total leaderboard XP: 65390		
1	Lanvic	20410 XP
	20410 Total XP -	👍👍👍👍👍
2	Lstu	17520 XP
	17520 Total XP -	👍👍👍👍👍
3	3m1tyVD	4860 XP
	4860 Total XP -	👍👍👍👍👍
4	Darkclouds	3580 XP
	3580 Total XP -	👍👍👍👍👍
5	Jonathan	3150 XP
	3150 Total XP -	👍👍👍👍👍
6	DaanDeBlende	2460 XP
	2460 Total XP -	👍👍👍👍👍
7	Nickj	2010 XP
	2010 Total XP -	👍👍👍👍👍

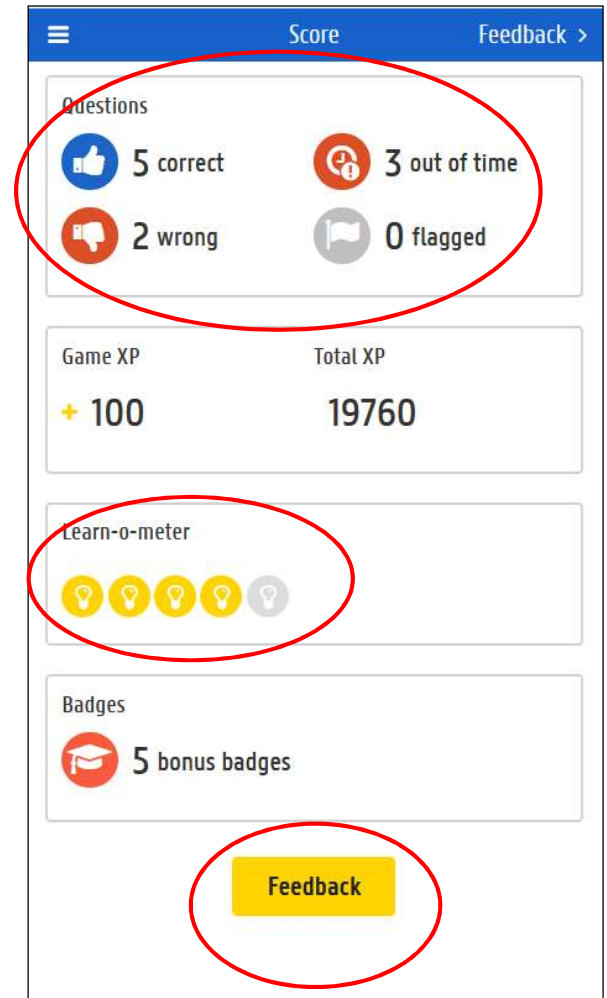
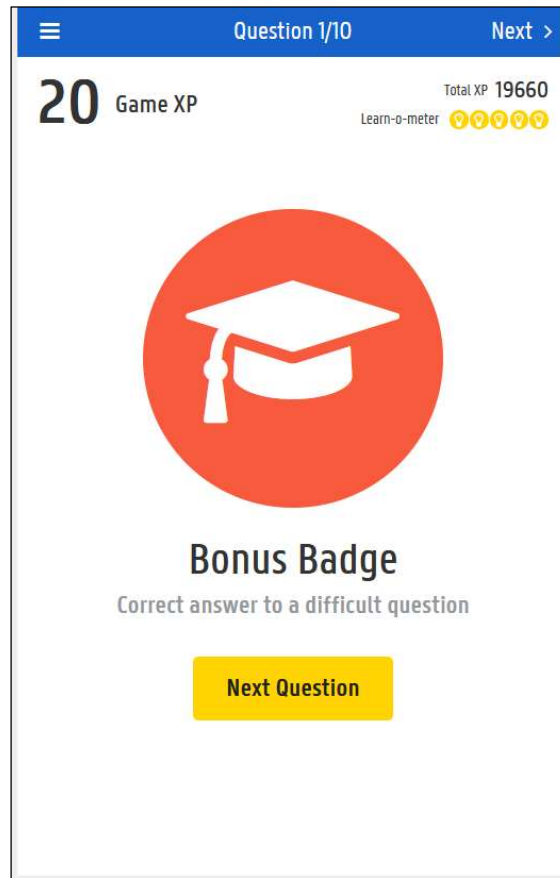
Gamification

– Timing



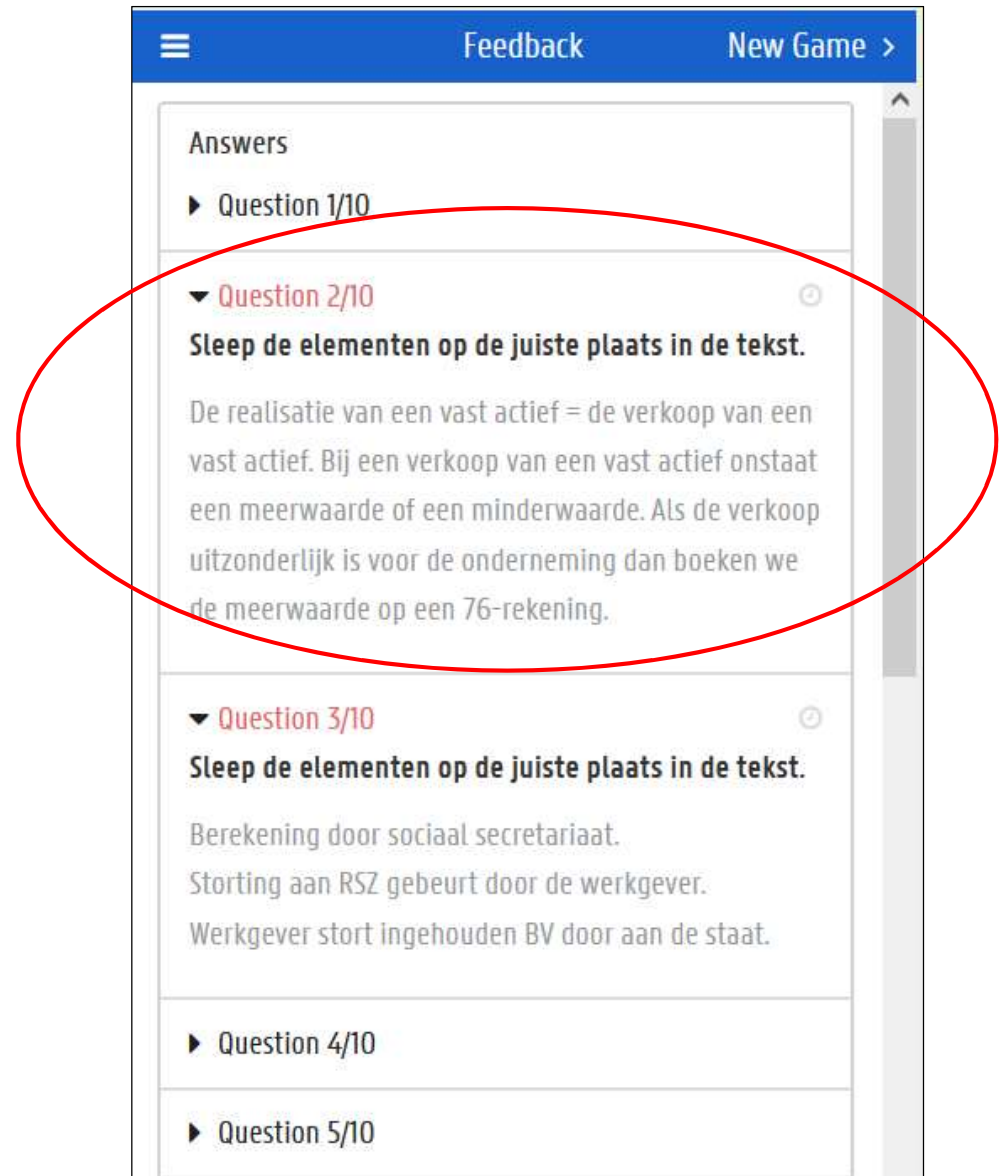
Gamification

- Feedback: immediate after each question

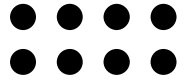


Gamification

— Feedback: on content as well



QUIZ WITH DIFFERENT FORMATS



- Multiple choice
- Slider
- Order
- Syllables
- True, false
- Outcome (picture)

Question 4/10

20 Game XP Total XP 19660

Learn-o-meter 👉👉👉👉👉

🕒 43

Balanslezen / 4. Techniek / TD4_005

Multiple Choice

Investering in machine voor 2.000 EUR. Levensduur 10 jaar. Op inventaris wordt 200 EUR geboekt op?

- 23009: Geboekte afschrijvingen op machines: C
- 23000 Machines: C
- 23009: Geboekte afschrijvingen op machines: D
- 23000 Machines: D

[Confirm](#)

[Flag question](#)

Question 6/10

200 Game XP Total XP 19860

Learn-o-meter 👉👉👉👉👉

🕒 45

Accounting B / Hoofdstuk 06 / AccBHD6001

Slider

Vorzieningen (P), eind N2=10.000. Geplande kosten in N3=18.000. Toevoegen aan voorzieningen in N2:

10000

[Confirm](#)

[Flag question](#)

QUIZ WITH DIFFERENT FORMATS

- Multiple choice
- Slider
- Order
- Syllables
- True, false
- Outcome (picture)

Question 8/10

80 Game XP Total XP 19660

Learn-o-meter 👍👍👍👍👍

🕒 36

Balanstezen / 12. Inventaris / T12_019

Order

In welke volgorde wordt deze verrichting in een journaalpost geboekt: "de btw wordt betaald via de bank."

@ +

45100 Te betalen btw +

55000 Kredietinstellingen: rekening-courant (R/C) +

[Confirm](#)

🚩 Flag question

Question 4/10

40 Game XP Total XP 19760

Learn-o-meter 👍👍👍👍👍

🕒 45

Balanstezen / 12. Inventaris / T12_018

Syllables

Een 62-rekening is een rekening.

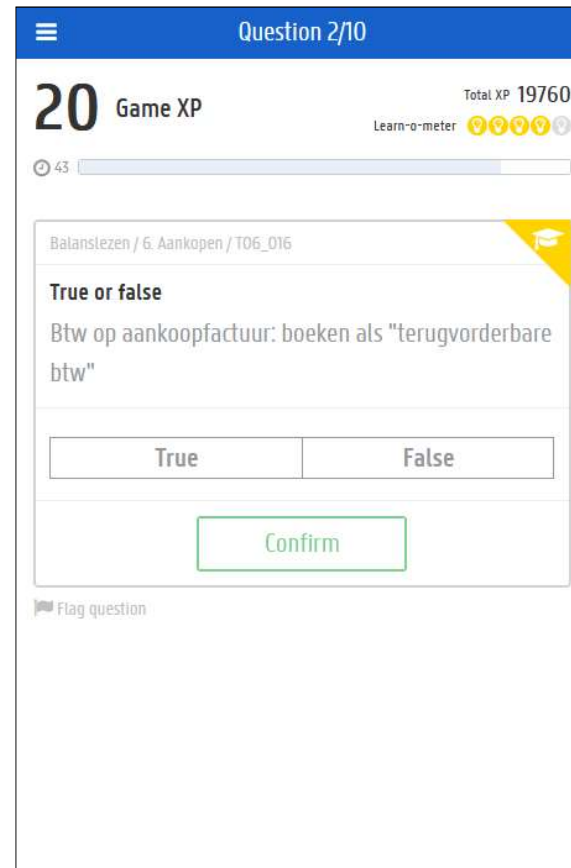
rekening	overlopende	passief	wacht
actief	kosten	opbrengsten	vordering

[Confirm](#)

🚩 Flag question

QUIZ WITH DIFFERENT FORMATS

- Multiple choice
- Slider
- Order
- Syllables
- True, false
- Outcome (picture)



The screenshot displays a mobile application interface for a quiz. At the top, a blue header bar contains a hamburger menu icon on the left and the text "Question 2/10" on the right. Below the header, the user's score is shown as "20 Game XP" in large blue font, with "Total XP 19760" in smaller grey text to its right. A "Learn-o-meter" is represented by five yellow circles, with the first four filled and the last one empty. A progress bar below this shows 43% completion. The main content area has a white background with a yellow graduation cap icon in the top right corner. The question text is "Balanslezen / 6. Aankopen / T06_016" followed by "True or false" and "Btw op aankoopfactuur: boeken als 'terugvorderbare btw'". Below the text are two buttons: "True" and "False". A green "Confirm" button is positioned below these. At the bottom left, there is a "Flag question" option with a flag icon.

In sum:

- Gamification
- Immediate feedback

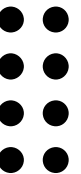
But also:

- Smart Picking
- PC or smartphone

For the teacher:

- Back-end: user friendly
- Starting from small database of questions
- Adapting questions
- Adding questions

— ...



TRY IT YOURSELF

1. Playing the role as “**student**” on your phone in my class:

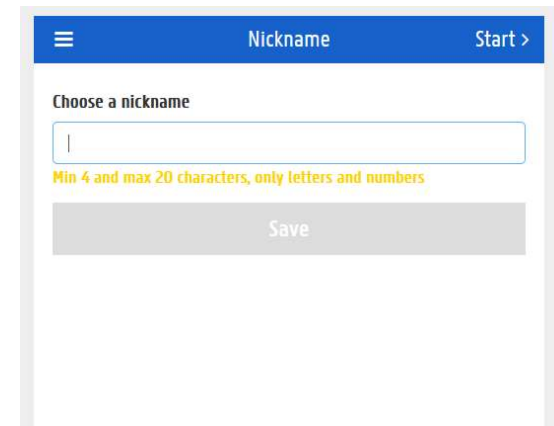
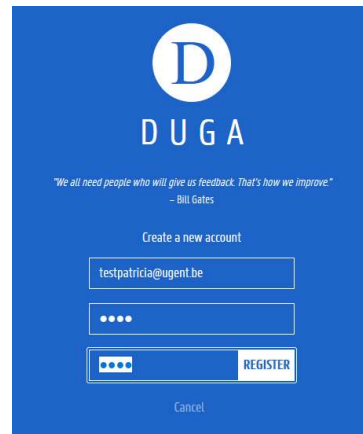
- E.g. use your hotmail email to register

2. Playing the role as “**teacher**” on laptop for your own class:

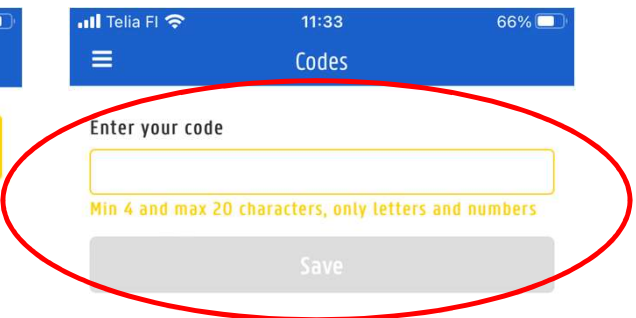
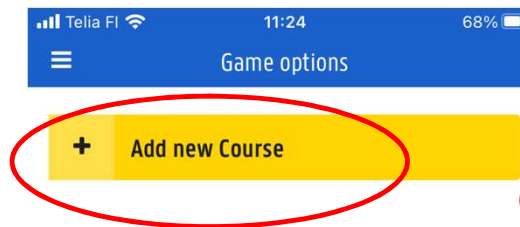
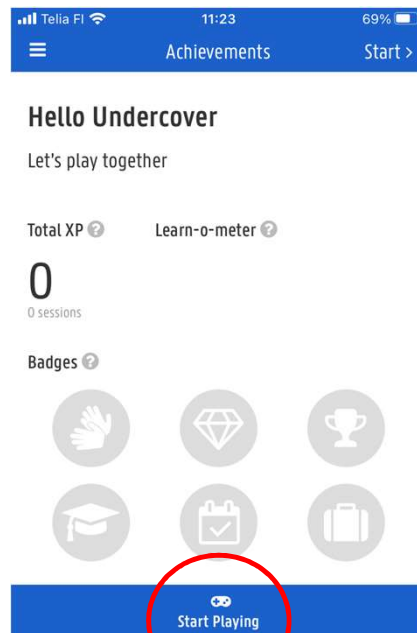
- E.g. use your university email to register

DUGA.CASTARS.NET

- Step 1:
 - Register as “student”: e.g. hotmail address
 - Password: e.g. Helsinki2023!
 - Nickname



- Step 2:
 - Start playing
 - Add new course
 - Enter code



- Step 3: Intro to Accounting

590de1

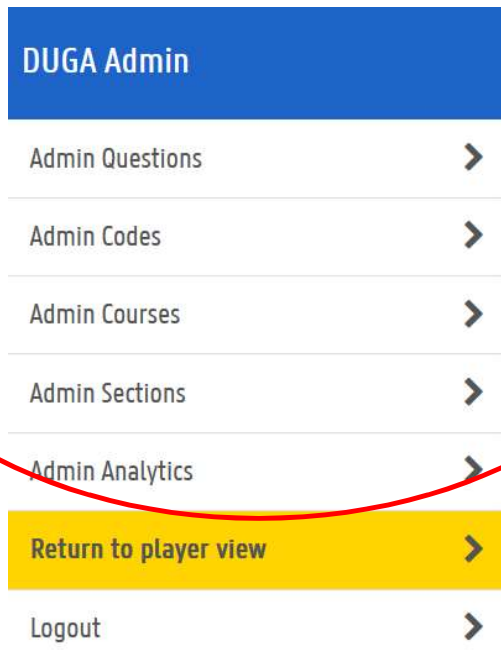


DUGA

- **Acknowledgement: badges**
- **Chance: random questions, smart picking (within schedule)**
- **Competition: leaderboard**
- Cooperation
- **Experience points: XP points**
- **Novelty: surprises**
- Objective
- **Progression: X of the 10 questions**
- **Sensation: visual stimulation** (sound stimulation)
- **Time pressure: counting down (adaptable)**
- **Immediate feedback: instant + content after 10 Q**

BACK END

– Take the role as teacher



ADMIN QUESTIONS

Add new

Search

Columns ▾

Code ↑ ▾	Description ▾	Course ▾	Section ▾	Type ▾	Date modified ▾	Time ▾	Bonus ▾	Status
IntroAcc01_01	Profit	Intro to Accounting	Chapter 1	Order	23-05-2023 at 20:59 by patricia.everaert@ugent.be	50		Published
IntroAcc01_02	paid intrest	Intro to Accounting	Chapter 1	Multiple Choice	22-05-2023 at 21:59 by patricia.everaert@ugent.be	50		Published
IntroAcc01_03	accounts receivable	Intro to Accounting	Chapter 1	True or false	23-05-2023 at 20:23 by patricia.everaert@ugent.be	50		Published
IntroAcc01_04	Income statement	Intro to Accounting	Chapter 1	Outcome	22-05-2023 at 23:29 by patricia.everaert@ugent.be	50		Published
IntroAcc01_05	Establishing capital payment	Intro to Accounting	Chapter 1	Multiple Choice	22-05-2023 at 22:32 by patricia.everaert@ugent.be	50		Published
IntroAcc01_06	fixed assets	Intro to Accounting	Chapter 1	Syllables	23-05-2023 at 19:42 by patricia.everaert@ugent.be	25		Published
IntroAcc01_07	Share capital	Intro to Accounting	Chapter 1	Slider	23-05-2023 at 21:06 by patricia.everaert@ugent.be	50		Published
IntroAcc01_08	Accounting equation	Intro to Accounting	Chapter 1	Slider	23-05-2023 at 21:08 by patricia.everaert@ugent.be	30		Published
IntroAcc01_09	fixed assets	Intro to Accounting	Chapter 1	Multiple Choice	22-05-2023 at 22:59 by patricia.everaert@ugent.be	25		Published
IntroAcc01_10	Assets: order	Intro to Accounting	Chapter 1	Order	23-05-2023 at 20:46 by patricia.everaert@ugent.be	50		Published
IntroAcc01_11	Operating income	Intro to Accounting	Chapter 1	Syllables	23-05-2023 at 18:53 by patricia.everaert@ugent.be	50		Published
IntroAcc01_12	PPE as fixed assets	Intro to Accounting	Chapter 1	True or false	23-05-2023 at 20:22 by patricia.everaert@ugent.be	50		Published

EDIT QUESTION

☰ Edit Question

Edit Question [Go Back](#)

Question Data [Add New](#) [Duplicate](#)

Question code IntroAcc01_02	Description paid intrest	Question Type Multiple Choice ▾
---------------------------------------	------------------------------------	---

Multiple Choice

Question
Paid intrest is an example of

Choices

Choice	Correct	Remove
Expenses	<input checked="" type="checkbox"/>	Remove
Revenues	<input type="checkbox"/>	Remove
Shareholders' equity	<input type="checkbox"/>	Remove

[Add Choice](#)

NEW QUESTION



Edit Question

Edit Question

Save

Save and go back

Discard changes

Discard and go back

Question Data

Add New

Duplicate

Question code

New0001

Description

Example description

Question Type

True or false

True or False

Question

Example question text?

True or False

False

Course

Intro to Accounting

Section

Chapter 1

Bonus

Off

Feedback

Example feedback

Time

50

Status

Status: Draft

[Move to Trash](#)

Publish

Flags

Question has no flags

ADMIN SECTIONS: TO SCHEDULE

– Schedule chapter 1 + 2

Sections

Sections

Add New Section

Name

The name of the section

Course

The course of this section

Name	Questions published	active
Chapter 1	21	✓
Chapter 2	3	✗

1 of 1 pages (2 items)

ADMIN ANALYTICS

Analytics										
										Search
Questi...	Descri...	Course	Section	Unique play...	Times ...	Correct	Wrong ↓	Mean t...	Out of time	Col
IntroAcc01_06	fixed assets	Intro to Accounting	Chapter 1	8	21	19%	76%	8	5%	
IntroAcc01_11	Operating income	Intro to Accounting	Chapter 1	8	13	31%	69%	9	0%	
IntroAcc01_08	Accounting equation	Intro to Accounting	Chapter 1	8	17	59%	41%	5	0%	
IntroAcc01_07	Share capital	Intro to Accounting	Chapter 1	7	16	63%	38%	7	0%	
IntroAcc01_10	Assets: order	Intro to Accounting	Chapter 1	9	27	59%	37%	12	4%	

ADMIN CODES: TO GENERATE CODE FOR YOUR STUDENTS

Codes

Generate New Code

Name

The name of the code

Course

The course for this code

Role

The role for this code

Create new Code

Name	Code	Course	Role
EAA Intro to Accounting	590de1	Intro to Accounting	Player
EAA Intro to Accounting as admin	z4c4qb	Intro to Accounting	TeacherAdmin

1 of 1

TRY IT YOURSELF

1. Playing the role as “student” on your phone in my class:

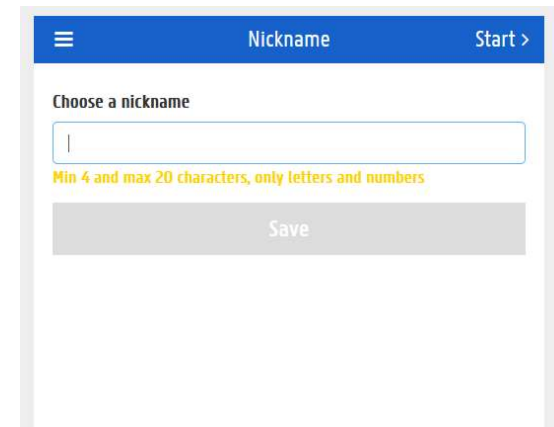
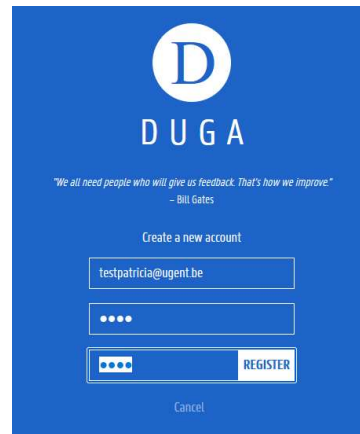
- E.g. use your hotmail email to register

2. Playing the role as “teacher” on **laptop** for your own class:

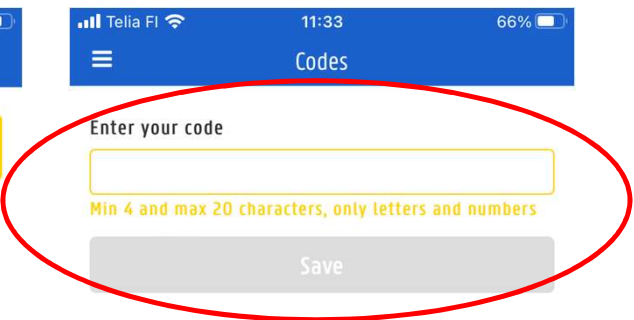
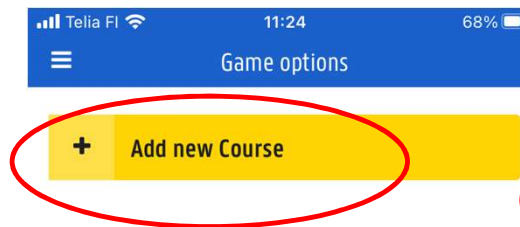
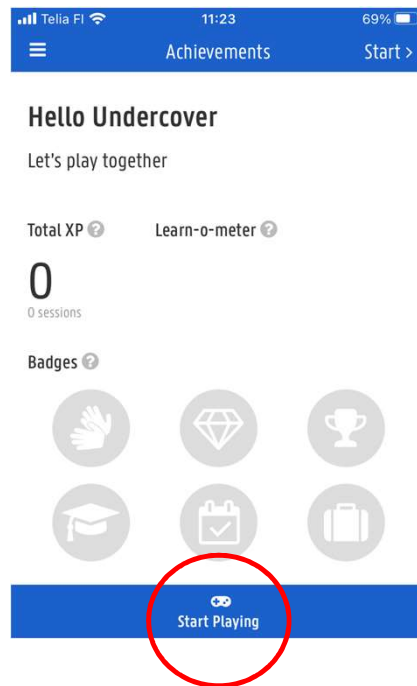
- E.g. use your university email to register

DUGA.CASTARS.NET

- On laptop
- Step 1:
 - Register as “teacher”: e.g. university address
 - Password: e.g. Helsinki2023!
 - Nickname



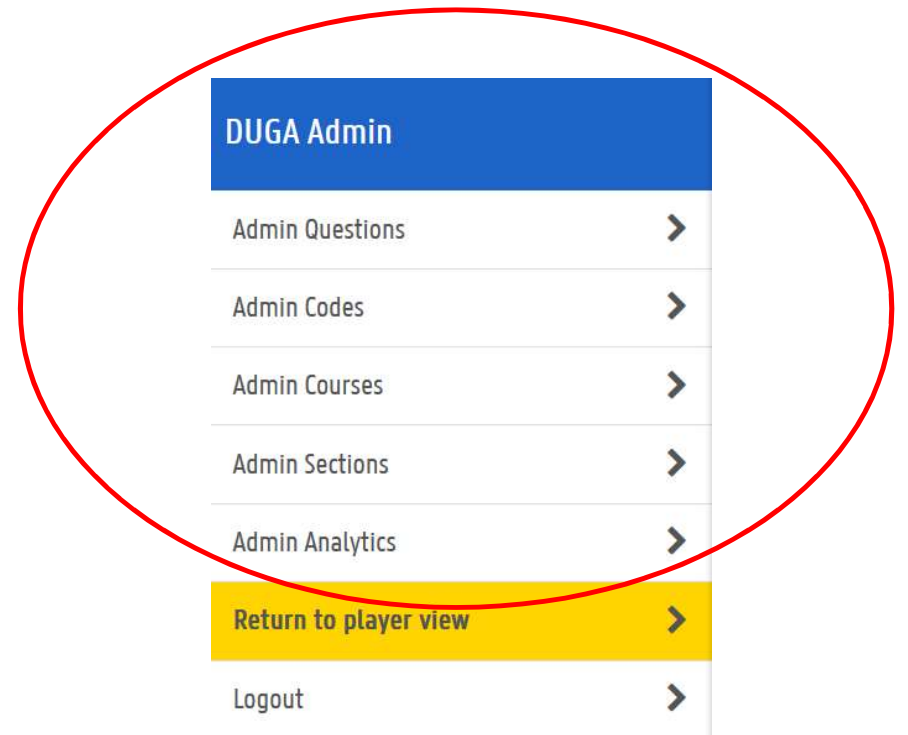
- Step 2:
 - Start playing
 - Add new course
 - Enter code:
 - personal
- Step 3: Intro to Accounting





TEACHERS = ADMIN

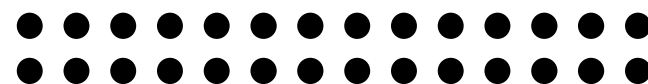
- More options:
 - Admin questions:
 - *E.g. Change a question*
 - Admin codes:
 - To give to your students



HOW TO USE DUGA?

- First time: use it in class, and play together
- Use it as a competition: “beat the professor”
- ...
- Students heavily use it before a mid-term exam or before the final exam
- Students also like to use it for the re-sit exam, to review the material in another way.

DOES IT WORK?



2nd Undergraduate: intro course

ANCOVA on exam performance

Source	Sum of Squares	Df	Mean Square	F	Sig.
Gender	49.695	1	49.695	4.261	0.040
Players	147.194	1	147.194	12.620	<0.001
Error	3417.555	293	11.664		

	N	Exam
Non-player	190	12.40
Player	106	13.88

2nd Undergraduate: intro course

	DV= Exam performance	
	Coefficient	p-value
Gender	0.091	0.889
Intensity	0.281	0.451
N	105	

	DV= Exam	
	Coefficient	p-value
Gender	0.329	0.598
Accuracy	5.924	0.002
N	106	
Adj. R ²	0.076	
F-test	5.311	
P-value	0.006	

1st Undergraduate: Financial Accounting

ANCOVA on exam performance

Source	Sum of Squares	Df	Mean Square	F	Sig.
Gender	5.630	1	5.630	0.634	0.426
Year	218.493	1	218.493	24.586	<0.001
Ability	12828.684	1	12828.684	1443.544	<0.001
Player	110.422	1	110.422	12.425	<0.001
Error	8362.608	941	8.887		

	N	Exam
Non- Player	635	10.80
Player	311	11.55

IN SUM

- Use gamification elements during your classes!
- Slides are on our website:
 - www.accountingeducation.ugent.be
- Explore the app **as student** with code 590de1
- If you want **a teacher code** to use the app with your students, leave your card with me!

Let's stay connected!

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