Creation and Use of Game-Based Learning Material

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Games

- media that combines multiple media
  - text
  - sound
  - picture
- their strength lies in their interactivity
  - players can interact with many different game contents
- most games are used in entertainment industry rather than education

Evolution of classroom technology

- schools are trying to integrate computers and multimedia in everyday classroom
- games can be used as a way of motivating students for certain subjects
  - educational games can improve the outcome of learning if designed and used correctly in class

Web games

 with HTML5 web games can be played
- on devices with different screen sizes
- on different web browsers without installing additional software

 web games are becoming much easier to make because of available free technology and gaming codes
- GDevelop
- Construct 2
- H5P
- CodePen
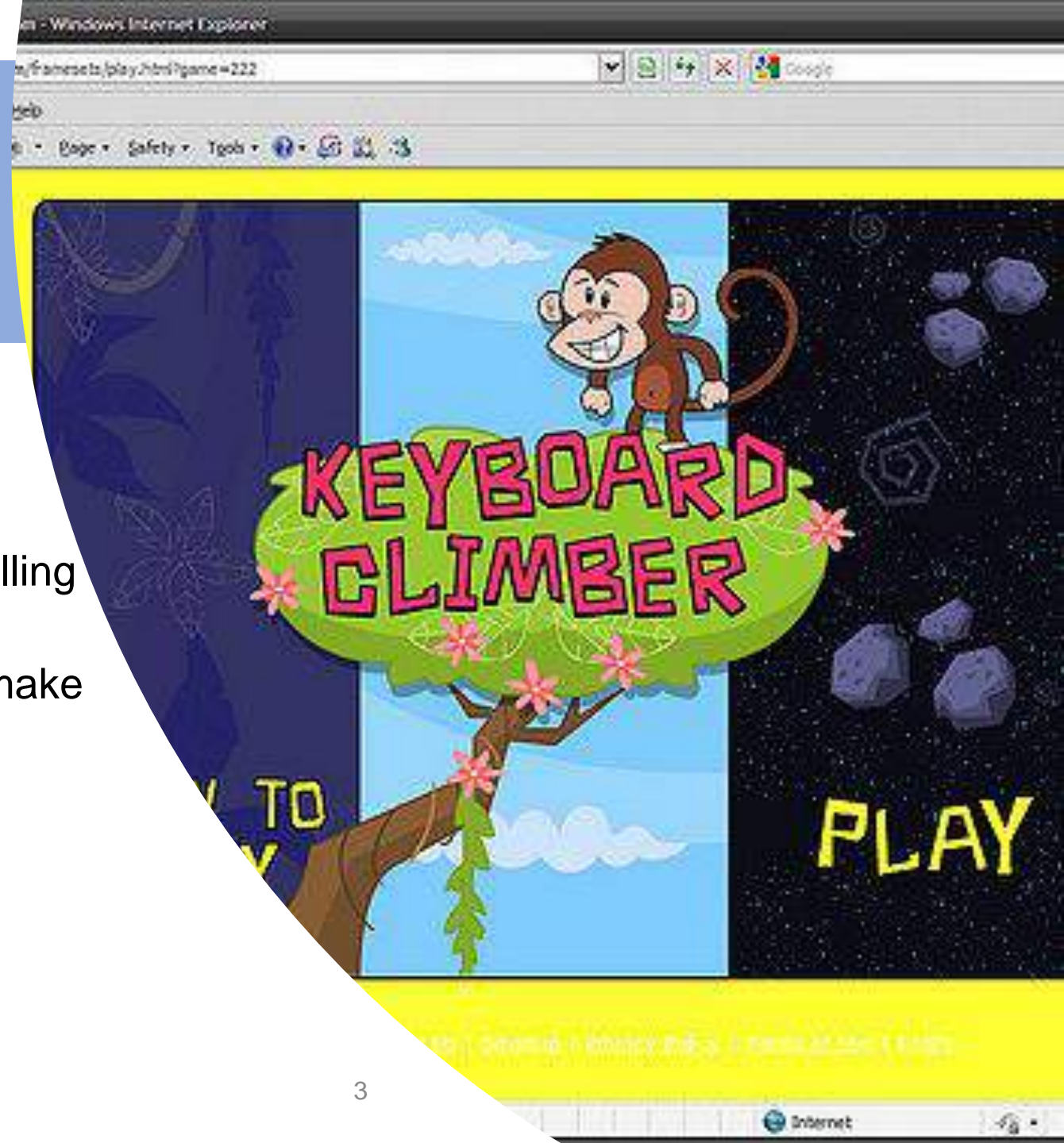
Difference between Gamification and Game-Based Learning

⚙ Gamification

- add game-elements to a non-game situation
    - corporate reward programs
    - classroom rankings

⚙ Game-Based Learning

- using video-games as medium for learning

Game-Based Learning

- there are games that are specifically designed for learning
  - *My Coach* – learning foreign languages
  - *Big Brain Academy* – learning math, logic and improving brain functions
  - ...
- games that have educational background elements
  - history – Assassin's Creed, Total War series
  - geography – Europa Universalis, Hearts of Iron
  - physics – Portal, Angry birds
  - ...

Using games in classroom

 games can be used as a good medium for motivating students for certain subjects
  - students generally enjoy working with computers, and this fact should be used to motivate them during learning process
 games with questions and assignments can be used for repeating what the students have learned
 there should be more games made for educational purposes
  - especially now when technology has become more accessible and much easier to use

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Studies on Game-Based Learning

Meihua Qian i Karen R. Clark (2016) conducted a research using the Academic Search Complete Database

- analyzed 137 studies on game-based learning

- influence of games on the success of learning is mostly dependent on the way they combine educational content with certain game mechanics which are successful in the entertainment game industry

- there is as yet not enough evidence that game-based learning improves the learning process (based on practical results)

Studies on Game-Based Learning

other researchers think that games:

- may stimulate information acquisition
- enhance the ability to think quickly and analyze different situations
- help develop aspects of coordination and concentration on visual details

disadvantages:

- children are overstimulated by games
- games may also be irrelevant to the content of the subject taught
- excessive or addictive play

Creation of Educational Websites

Three websites for different game contents where created:

- [Language Games and Multimedia Display of Language](#)
- [Computer Games and Other Multimedia Content](#)
- [Archival Games](#)

Language Games and Multimedia Display of Language

- created for the purpose of presenting and distributing language games for different languages

- language games are seen as a fun way of learning different languages and learning facts about language and literature

i multimedijski prikaz jezika

Pretraži ...

PRETRAŽI

POSLJEDNJI SADRŽAJI

Kviz o Tezeju

Kviz o Perzeju

Kviz o Heraklu

Kviz o Ahileju

Memori s dijelovima tijela

Hrvatski jezik

vemirska glagoljica

Pogodi životinju

lipnja 2017.

16. travnja 2017.

jlica, pucnjava

kviz

glagoljica igra je u kojoj svojim brodom štitite ...asteroida. Da biste spasili Zemlju, treba je ...od pet asteroida. Asteroidi su prikazani

Pogodi životinju kviz je sa slikama u kojemu igrač treba među trima ponuđenim slikama odabrati onu koja prikazuje riječ koja se nalazi na ekranu. Kviz se sastoji od 43 pitanja ...

KATEGORIJA SADRŽAJA

Odaberi kategoriju

OZNAKE ZA IGRE

anglizmi **daktilografija** flappy bird **glagoljica hrvatski kao strani jezik** igra nadopune **igra povlačenja** književnost križaljka križić-kružić **kviz memori** osnovnoumjerka **osnovna** škola povijest pravopis pucnjava **rodovi** slike lettris vjezbala vremenska lenta zmija

Utipkaj riječi s glasovnim mjenama

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Language Games and Multimedia Display of Language

 games on this site are based on popular games that are familiar to all generations such as [Memory](#), [crossword puzzles](#), [Snake](#), [Hangman](#), [Word Search](#) and [Tic-Tac-Toe](#)

 all games are made with HTML and most of them are web responsive

Language Games and Multimedia Display of Language

 in addition to games the plan is to create other interactive content such as timelines, maps, ect.

 there is also a mythology section on the site on which there are only quizes concerning heroes from Greek mythology

Kviz o poznatome grčkom junaku Tezeju koji je ubio čudovište u labirintu.
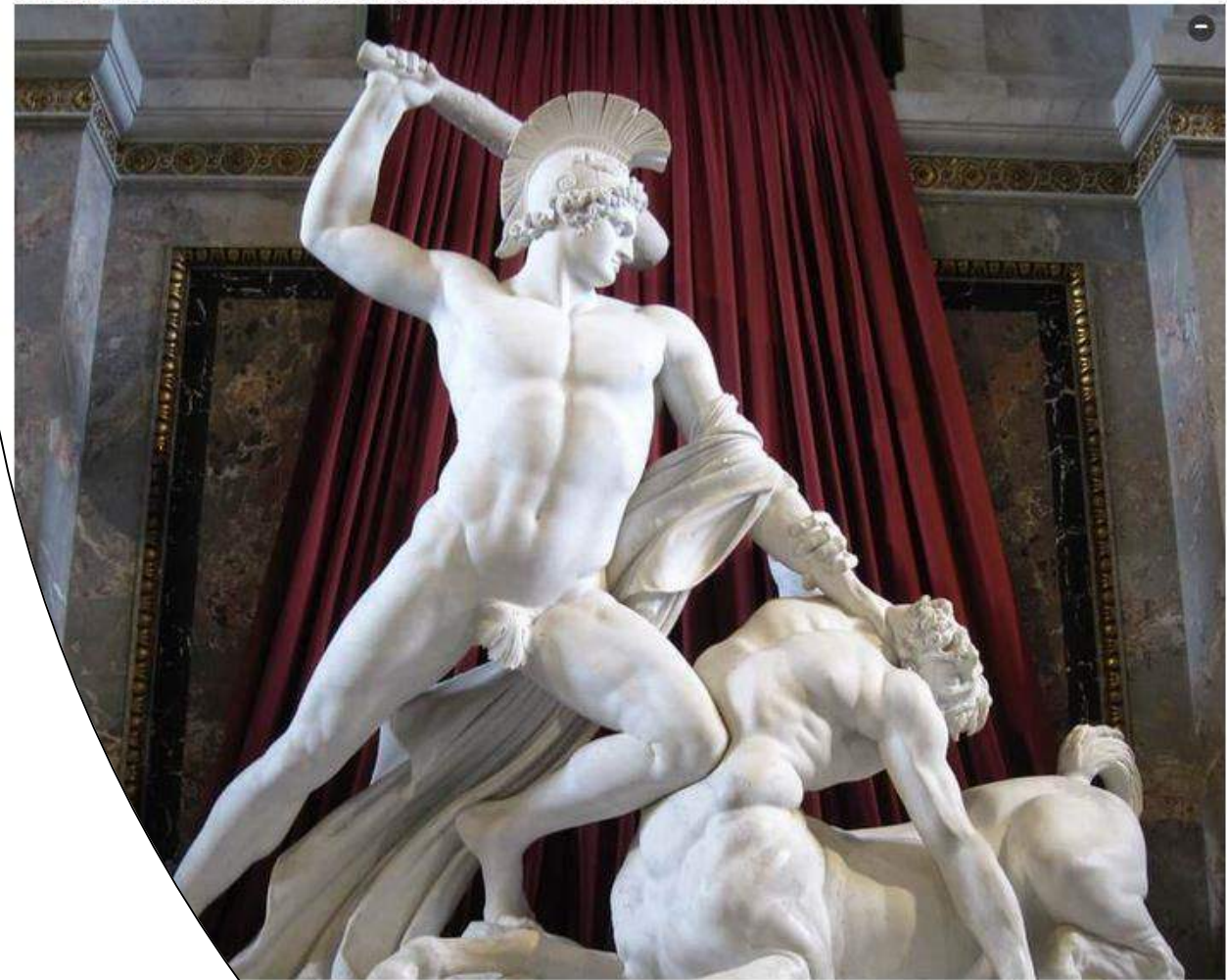
dataka kako bi dospio do svojega oca kralja Egeja te ga zatražio svoje pravo
enju.

Computer Games and Other Multimedia Content

✍ on this site students can play games for learning programming language generations, computer components, and other computer related topics

- quizzes, crossword puzzles, memory games, tetris and tic-tac-toe games

Archival games

- games are presented on the website of the Croatian Archival Society

- purpose of the games is to promote archival practice and materials kept in archives as well as archival pedagogy

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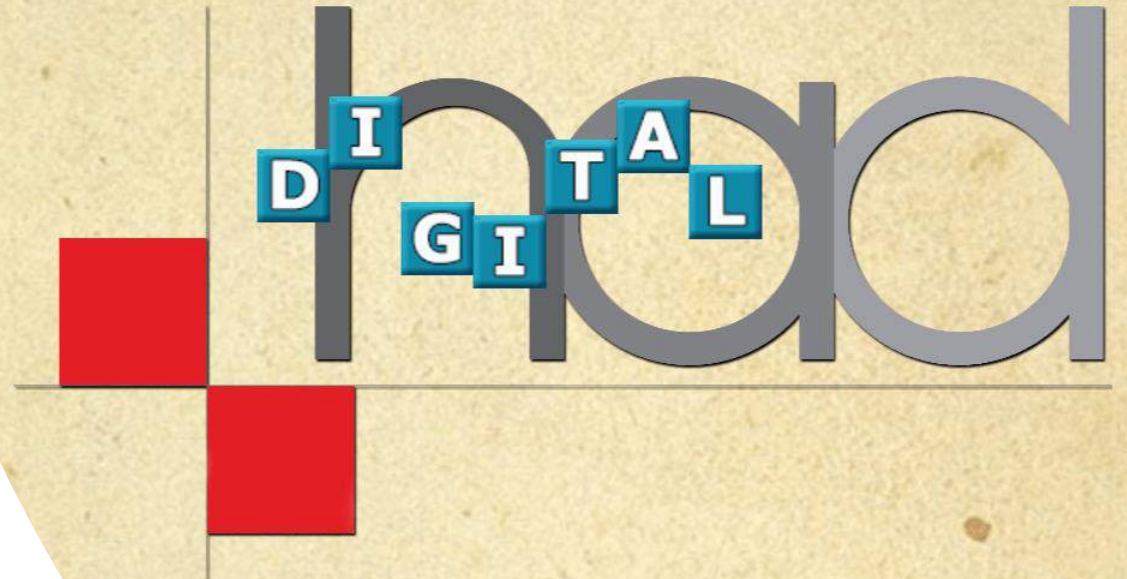
Technology for creating games

⌨ most of the games where created using [H5P](H5P) platform and CodePen

Content Types

View all   Games   Multimedia   Questions   Social media

Course Presentation
Create a presentation with interactive slides

Dialog Cards
Create text-based turning cards

Documentation Tool
Create a form wizard with text export

Drag and
Create drag a
tasks with

Fill in the Blanks
reate a task with
ng words in a text

Find Multiple Hots...
Create many hotspots for users to find

Find the Hotspot
Create image hotspot for users to find

Flashca
Create styli
modern fla

age Sequencing
images in the
order

Impressive Present...
Create a slideshow with parallax effects

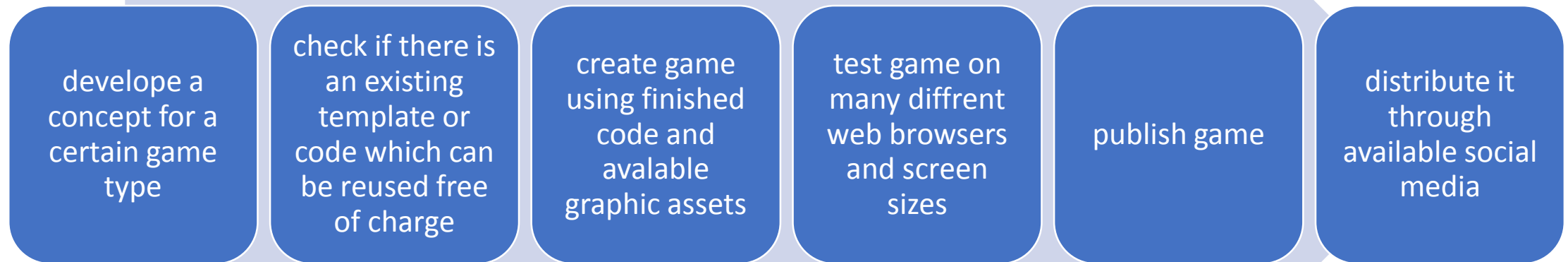Interactive
Create videos
with intera

Technology used for creating games

processes of quick web game creation

| develope a concept for a certain game type | check if there is an existing template or code which can be reused free of charge | create game using finished code and avalable graphic assets | test game on many diffrent web browsers and screen sizes | publish game | distribute it through available social media |

Pilot research

⌨ a short pilot research was conducted in the School for Nurses Vrapče in Zagreb based on the author's use of web games on the site Computer Games as a means to motivate students to learn and repeat essential facts they learned in Computer Science classes

⌨ games were mostly used at the beginning or the end of a lesson as a way to repeat and practice the previous lessons

School for nurses Vrapče

Pilot research

◌ 69 students filled the questionnaire and the results show:

- 77% students like when the teacher uses games for motivation
- 63% students considered that the games helped them learn
- 51% students admitted that they did not use the site for repetition before the exam

	YES	NO
1. Do you like it when the teacher uses computer games for repeating lessons?	53 (77%)	16 (23%)
2. Did you use the games when you where studying for the exam?	34 (49%)	35 (51%)
3. Do you think that the games helped you with the learning process?	39 (63%)	23 (37%)

Pilot research

⌨students favorite game (54%) was Tic-tac-toe with questions followed by Memory where they match computer parts (22%)
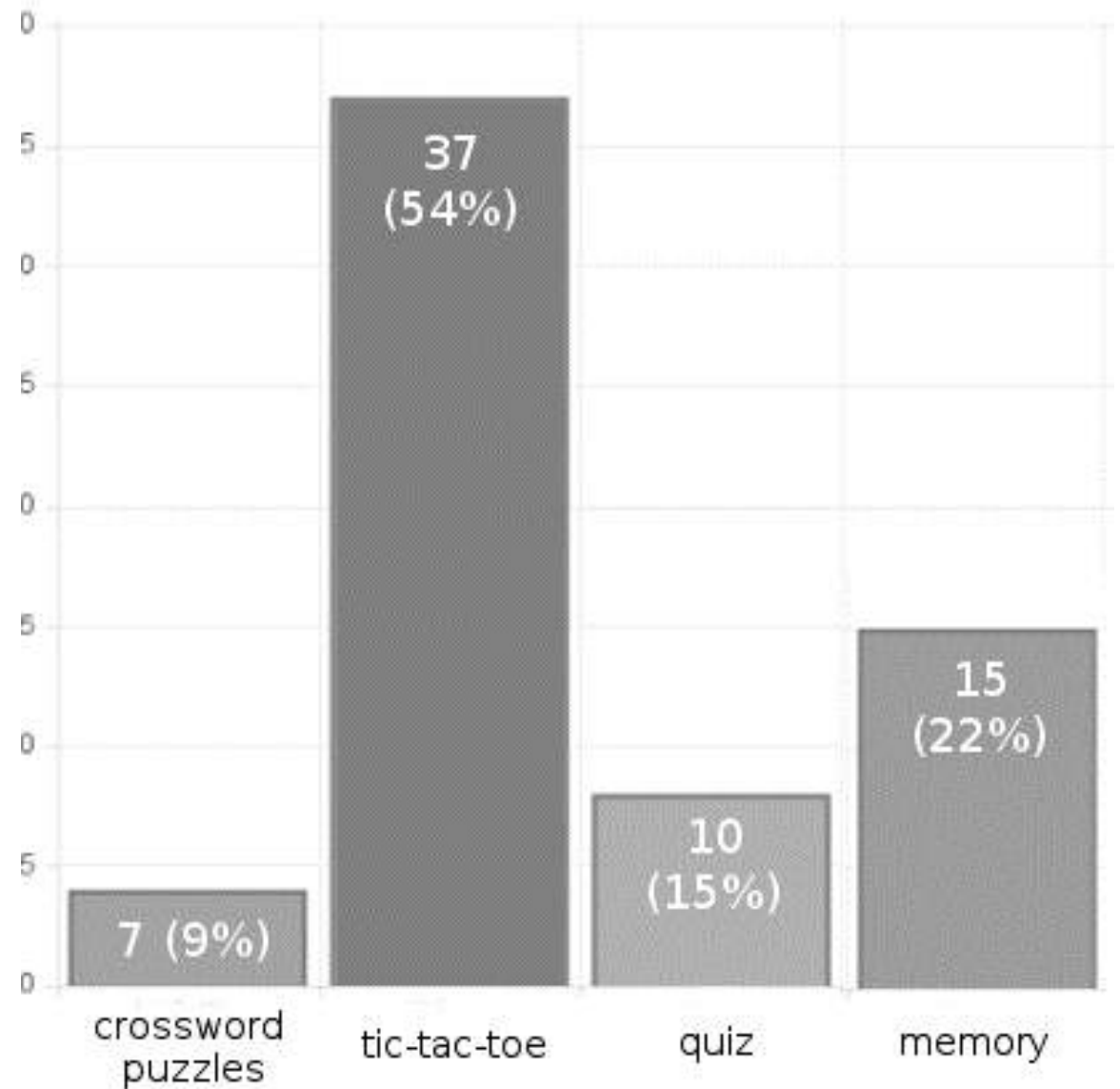
Conclusion

- even the results of the pilot research show that there is an interest for game based learning among high-school students

- there is still a growing need to:
  - design and develop specific games for learning many different subjects
  - do more research on the influence of gamification and game-based learning in specific classroom and learning situations

- good collaboration between programmers, designers, and teachers has to be established

- "Tell me, and I'll forget. Show me, and I may remember. Involve me, and I'll understand." (Popik 2012)

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Thank you for your attention!