

# Utilization of ASQ in Web Design Course

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# Outline

- 1 Introduction
- 2 Research Goals
- 3 Experimental Setup
- 4 Results
- 5 Conclusion

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# ASQ

- Web application designed to enable practice questions during lectures.
- Questions can be embedded in the slides of a presentation which are streamed to the students' devices.
- Students' answers are aggregated in real-time allowing presenters to get insight into the level of understanding in the classroom.

# Motivation for Introducing ASQ

- Turn student devices from distractions to affordances for learning.
- Use technology to scale active learning to large audiences.
- Raise teachers' awareness for each and all of their students' level of comprehension of the taught material, during and after the lecture.

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# Research Goals

- Main goal of our research is verification of ASQ effectiveness.
- We tried to answer to the following questions:
  - Do students that use ASQ perform better than students that do not?
  - Is effectiveness of ASQ different among different course topics?
- The verification was performed by conducting certain experiments.

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- The data that was used in experimental analysis was collected during the Web Design course.
- In the course we utilized ASQ only for the half of the students – other half used traditional methods.
- We compared performance of two halves of students.

# Web Design Course

- Web design is an elective course which is intended for first-year students.
- The course is divided into three main topics:
  - **HTML**: history, tags, elements of web page, attributes, text formatting, links, images, tables, lists, frames, forms;
  - **CSS**: positioning, CSS rules, selectors, declaration blocks, box model (padding, border, margin), page flow, floating;
  - **JavaScript**: variables, statements, operators, functions, arrays, objects, events, DOM, BOM, form validation, HTML5 canvas.

# Experimental Setup

- The data was collected during the two school years (2016/2017 and 2017/2018).
- The two student groups were each year balanced in terms of group size and students' foreknowledge.

	<b>2016/2017</b>		<b>2017/2018</b>	
	<b>NA</b>	<b>A</b>	<b>NA</b>	<b>A</b>
<b>Number</b>	25	26	28	28
<b>Foreknowledge</b>	44.31	44.22	47.53	41.52

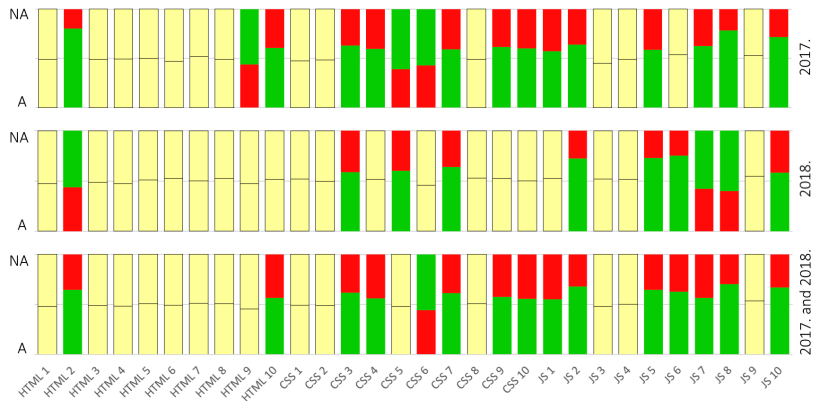
- For assessment of the students performance we used unified final test at the end of semester.
- The unified test contains thirty questions – ten per each course's topic.
- By introducing this test, we were able to obtain unbiased evaluation of students' performance.

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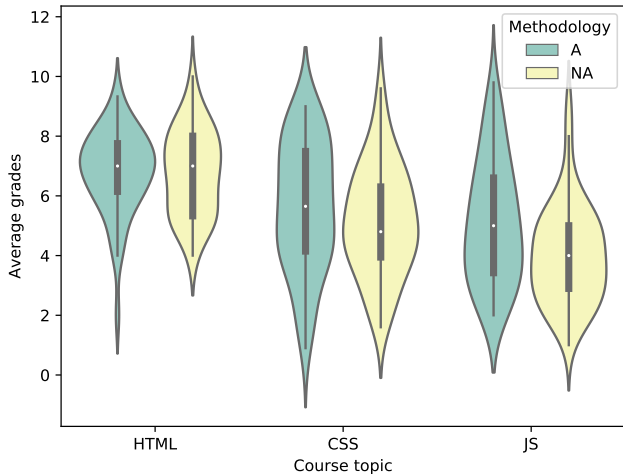
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# Overall Results

- Mean values of scores for each question of final test:



# Distributions of Question Grades



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# Conclusion

- ASQ did introduce increase of students performance in most of the final test's questions.
- JavaScript turned out to benefit the most from ASQ.



Thank you!