

# #03 AUDIENCE-RESPONSE-SYSTEMS

## Didactic Implementation of Feedback & Co.

Already profitably used at Who wants to be a Millionaire?, the Audience Response System (ARS) has been significantly developed and established in the educational sector. Originally it was developed to obtain viewer reactions, but today it is also used at universities and other institutions of higher education as a tool for enabling group feedback and interaction. Early ARS - the first was developed in the 1960s - were based on voltmeters. Students pressed a button on their seat and the teacher could use the volt number to read the students' reaction. These early ARS already showed first results, according to which the use of an ARS has positive effects on the retention performance of the students. The interaction in the lecture hall has also been proven to increase.<sup>1</sup>

### For which group sizes are ARS suitable?

Especially with large groups or courses, it is difficult for the lecturer to include all participants. A short analogue survey by students raising their hands works for small seminars, but becomes a challenge in a lecture hall. The new digital possibilities of ARS are therefore indispensable for large events.

### When do I use ARS such as feedback?

- **Constructive immanent feedback on presentations**  
Anonymous feedback allows for honest and detailed feedback on presentations or papers, so that both your students and you as a teacher can improve continuously.
- **Group discussions**  
For example, your students answer the same question before and after a group discussion. It is amazing how much the results can change!
- **Opinion polls**  
With feedback, you can make the personal opinions and assessments of your students visible. Thanks to the anonymity, students will likely answer honestly.
- **Structuring of the course schedule**  
Students appreciate being able to participate in the course or semester planning. Just leave the choice of the next topic to the students. The right of co-determination increases the motivation of the students because they feel that they are heard. You can simply use the units you have already prepared for this purpose.



**Info:**

**The 75-25 Rule:**  
Since students can see the result of an ARS poll without any time delay, the handling of wrong answers becomes a didactic focus.

**What can you do if not enough students chose the correct answer?**  
The didactic "75-25 Rule" provides a rough guide for this scenario. Wrong answers that have been chosen by more than 25% of students should be discussed again in plenum. The same goes for correct answers that have been chosen by less than 75% of students.<sup>3</sup>

**TIP**

### Exclusive tip from teaching at Graz University of Technology:

Get feedback throughout the whole course. To do so, leave a free text question open until the end of the course and check occasionally during the course whether a new question or comment has been added.

### Further possibilities for didactic application

#### Icebreaker questions at the beginning of the course

Ask your students a personal question at the beginning of your course, such as: What is the first term that comes to your mind when you think of topic/field XY? What do you see as the biggest challenge in topic/field XY right now? Have you gained any new insight (for you) into topic/field XY? What was it?

#### Peer instruction & ARS in combination

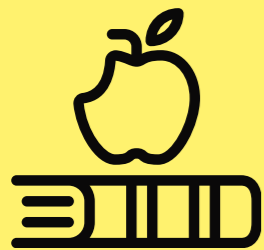
Lecturers have students first discuss the question in small groups, then each student answers independently. This way students have the opportunity to learn from peer instruction instead of learning the correct solution from the teacher.

#### 360° ARS - Student Generated Content with Audience Response Systems

This term refers to the project-like preparation of ARS questions by students. Students - not the teachers - are given the task of generating questions, answers and explanations on specific topics of the course.

<sup>1</sup> Horowitz, Harold. "Interactivity in a Classroom Environment." In: Sixth Conference on Interactive Instruction Technology for the Society of Applied Learning Technology. New York: IBM Corporate Education Center.  
<sup>2</sup> [https://www.tugraz.at/fileadmin/user\\_upload/tugrazInternal/Studium/Lehre/Lehre\\_News/feedbackr\\_Use\\_Cases\\_Lehre.pdf](https://www.tugraz.at/fileadmin/user_upload/tugrazInternal/Studium/Lehre/Lehre_News/feedbackr_Use_Cases_Lehre.pdf) (available in German)


<sup>3</sup> Persike, Malte. So viele Antworten - Anleitung Audience Response Systeme in der Lehre. Hochschulforum Digitalisierung. [www.hochschulforumdigitalisierung.de/de/blog/anleitung-audience-response-systeme](http://www.hochschulforumdigitalisierung.de/de/blog/anleitung-audience-response-systeme) (accessed 08.07.2020, available in German)  
<sup>4</sup> <https://hochschulforumdigitalisierung.de/de/blog/anleitung-audience-response-systeme> (available in German)



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The teacher curates and examines the questions and selects suitable ones for the students of the next semester.

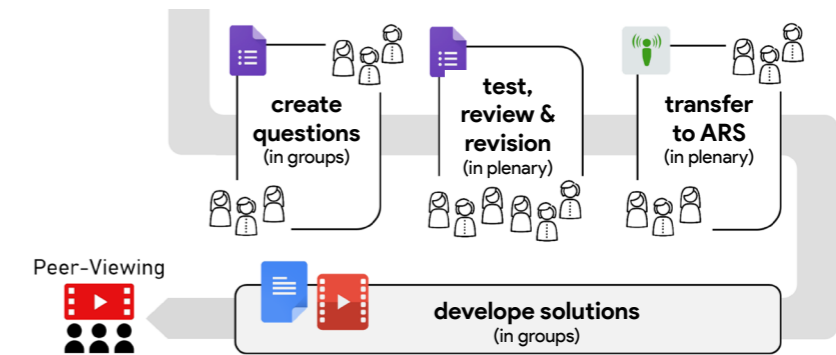


Fig.: Schedule for the preparation of ARS questions by students<sup>5</sup>

### Web-based ARS for use in higher education



**feedbackr** was developed at Graz University of Technology - more on the topic in the feedbackr article in the TELucation folder.



**Kahoot!** is probably the most colorful ARS. It is well suited for playful knowledge checking due to its high scores and team mode. Teachers need a login, participants only the session ID. When logging in, a nickname is chosen which is later displayed in a high score list.



**PINGO** has different question types. Especially the numeric question type is worth mentioning. Since PINGO is specifically designed for the peer instruction learning method, two question runs can be displayed next to each other to see the change in results. Teachers need a login, participants only the session ID.



**Poll Unit** digitizes the "dot voting method" (a form of cumulative voting): It helps to prioritize from a large number of options or ideas or to identify problems in the team through joint analysis. Neither teachers nor participants need an account.

<sup>5</sup> An innovative idea by Dr. habil. Malte Persike: Hochschulforum Digitalisierung (see footnote 3). CC-BY-SA 4.0 <https://creativecommons.org/licenses/by-sa/4.0/deed.de>  
<sup>6</sup> Didactic scenarios with PINGO: [https://groups.uni-paderborn.de/winfo2/pingo/misc/PINGO\\_Didaktische%20Handreichung%20Einsatzm%C3%B6glichkeiten\\_final.pdf](https://groups.uni-paderborn.de/winfo2/pingo/misc/PINGO_Didaktische%20Handreichung%20Einsatzm%C3%B6glichkeiten_final.pdf) (available in German)