Using an audience response system with a communication backchannel to engage students in a large-scale dermatology class

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Objective
Since 2014, every January for the span of 3 weeks a compulsory dermatology class is held for 4th year students at the Medical University of Vienna. Due to the high number of students (n = 151) the lecture is being live-broadcast to another lecture hall.

An audience response system (ARS) by Dolphin Interactive is used to foster interaction, student’s engagement and to control students’ compulsory daily attendance. The ARS additionally provides a backchannel feature, allowing students with any internet-capable device to send anonymous questions to the teacher that are presented on a message wall.

During the week (Mo-Thu) lecture make use of many voluntary ARS questions in the presentations. Each Friday a mandatory “Test Yourself” exam takes place, whereas knowledge levels on the proceeding days were measured by ARS. Their questions are being projected and the best students are rewarded with prizes.

The aim of this work is to report students’ and teachers’ satisfaction with the use of the ARS.

Methods
In 2014, 2016 and 2017 (in progress), student’s perception of the use of the ARS was surveyed by means of online questionnaires, and teachers’ feedback was gathered by mail in 2017 (in progress), incorporating two questions about what they liked and disliked.

Results
Students’ feedback was remarkably positive over the past years. They greatly value the anonymous backchannel, adding them to overcome possible hesitation to ask questions in the large setting. Around half of the students reported to have used the ARS for asking questions (2017: 47.6%); (2016: 47.1%); (2015: 53.3%). Students’ response to the statement “I would use the ARS during lectures more often if it was anonymous (2017: 16.3%); (2016: 19.1%); (2015: 23.8%);” were agreed often or always.

The majority of students agreed on strongly agreed (2017: 90.2%); (2016: 91.2%); (2015: 90.7%); that they participated more actively than normally, that the ARS enhanced the class overall (2017: 92.7%); (2016: 94.7%); (2015: 97.1%); and that it helped them to identify their strengths and weaknesses (2017: 95.3%); (2016: 95.1%); (2015: 97.5%); and that it enhanced the class overall (2017: 92.7%); (2016: 94.7%); (2015: 97.1%); which was 85.7%; (2016: 88.6%); (2015: 91.3%); (2017: 92.7%); and that it helped them to identify their strengths and weaknesses (2017: 95.4%); (2016: 96.5%); (2015: 98.3%);.

Many comments especially desire the enhancing the teaching method using the ARS, and in particular the backchannel, in other curricular elements. The biggest complaint was the compulsory attendance each day.

Preliminary feedback from teachers highlights overlaps with students’ comments. They appreciate the ARS and its backchannel capability as a means to motivate students and receive valuable feedback to improve future lectures. But all teachers prefer a smaller group of students.

Conclusion
The use of the ARS with its backchannel capability proved to be a valuable tool to promote interaction and motivation and it makes the large group lectures more enjoyable for students and teachers alike while addressing the problem of compulsory attendance.

Just by using the ARS the dermatology class doesn’t get so successful anymore. It also was motivated teachers who use the system adequately and respond to students’ voting results and messages properly.

What students say...
“...the possibility to ask questions anonymously takes away the fear to ask a potentially stupid question. That greatly enhances the active participation in the lecture.”

“The class was great, the big vote questions between impacted very positively on my attention! Because of the interactivity it was even funnier! Also the test yourself exams were good, because you can see where you still need to improve.”

Thank you that you have made us so much effort, it was as far for the best lecture in the study and never made a lecture so much fun! I’ve never learned so much like in dermatology. Each block should be like this, then the University would make it a lot more fun (and easier). Please - thank you!”

An excellent system to make lectures more interactive, exciting and instructive, if it were up to me I’d use this system in every lecture.”

“...Please persuade other disciplines to implement this Digi-lecture. Even more important is the online message system. Please! Because I was a daze ask. I found this really up to date. Thank you for the interesting introduction in dermatology. Among my colleagues, dermatology alone gained higher importance due to this lecture.”

What teachers say...
“The interactive multimedia communication with students is very exciting and helps to incorporate questions arising from a large group of students in the lecture. The possibility to include questions in the lecture which can be answered on the spot lowers the atmosphere and promotes the attention of students.”

References
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Background: Since 2014, every January for the span of 3 weeks a compulsory dermatology class was given for 4th year students at the Medical University of Vienna. Due to the high number of students (n = 640) the lecture is being live-broadcast to another lecture hall.

An audience response system (ARS) by Dolphin Interactive is used to foster interaction, students’ engagement and to control students’ compulsory daily attendance. The ARS additionally provides a backchannel feature, allowing students with any internet-capable device to send anonymous questions to the teacher via a message wall.

During the week (Mo-Thu) lecturers make use of many voluntary ARS questions in their presentations. Each Friday a mandatory “Test Yourself” exam takes place, assessing knowledge taught on the preceding days. Immediately afterwards results are being projected and the best students are rewarded with prizes.

The aim of this work is to report about students’ and teachers’ satisfaction with the use of the ARS.

Methods: In 2014, 2016 and 2017 (in progress), students’ perception of the use of the ARS was surveyed by means of online questionnaires, and teachers’ feedback was gathered by mail in 2017 (in progress), incorporating two open questions about what they liked and disliked.

Results: Students’ feedback was remarkably positive over the past years. They greatly value the anonymous backchannel, aiding them to overcome possible inhibition to ask questions in the large setting. About half of the students reported to have used the ARS for asking questions (2017: 51.5%, n=103; 2016: 43.7%, n=103) of which 35.7% (2016) to 38.8% (2017) were answered often or always. The majority of students agreed or strongly agreed (2014: 90.8%, n=112; 2016: 91.3%, n=103; 2017: 92.3%, n=103) that they participated more actively than normally, that the ARS enhanced the class overall (2014: 92.7%; 2016: 97.1%; 2017: 96.1%) and that it helped
them to identify their strengths and weaknesses (2014: 88.9%; 2016: 91.3%; 2017: 93.2%). Many comments expressed a desire to establish the teaching method using the ARS, and in particular the backchannel, in other curricular elements. The main complaint was about the compulsory attendance each day. Preliminary feedback from teachers highly overlaps with students’ comments. They appreciate the ARS and its backchannel capability as a means to motivate students and receive valuable feedback to improve future lectures. But still teachers prefer a smaller group of students.

**Conclusion:** The use of the ARS with its backchannel capability proved to be a valuable tool to promote interaction and motivation. It makes the large group lectures more enjoyable for students and teachers alike while supporting knowledge acquisition. The ARS alone does not make the dermatology class so successful among students. It also needs motivated teachers who use the system adequately and respond to students’ voting results and messages properly.