

Electronic classroom response for dental students in orthodontic courses

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Introduction

The purpose of this study was to evaluate the outcome of a small exam in terms of the effectiveness of PINGO (Peer Instruction for very large Groups) for topics in a special lecture. A cohort of dental students within an orthodontic course at the University of Greifswald was tested after every lecture with 10 questions presented with PINGO on the lectured topic.

Material/Methods

Eleven lectures were read by orthodontic clinicians. At the end of every speech, 51 dental students reviewed their knowledge about that topic by using their smartphone or tablet to cast their votes. At the end of every vote, all possible answers were discussed with the audience by showing the results. The students had a chance to ask questions and resolve problems. Subsequently every student filled out a questionnaire with appropriate or incorrect statements to evaluate the educational effect of PINGO.

Results

All 51 students participated in PINGO. Most of them enjoyed this new type of interactive learning. Nearly everyone had a chance to deepen their orthodontic knowledge with this online survey. They learned more and felt better prepared for the final exam. More than two thirds of all students would recommend PINGO for other lectures.

Discussion

Just a small part of students listening to lectures understand the central concepts of the topic. If they participate actively with the lecture, complex topics are easier to understand. To motivate students to actively participate during a lecture, CRSs are one possibility. 51 students listened to every lecture, but not everyone was in possession of a smartphone or tablet. Although the others worked together, for most of them PINGO had a positive outcome.

Conclusion

PINGO as part of CRS is an effective tool for the integration of students during a lecture and to present them a conclusion about the most important information during a dissertation. PINGO seems to be an important step to motivate students listening to lectures.

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Fig. 1: Students' view for answering the questions.

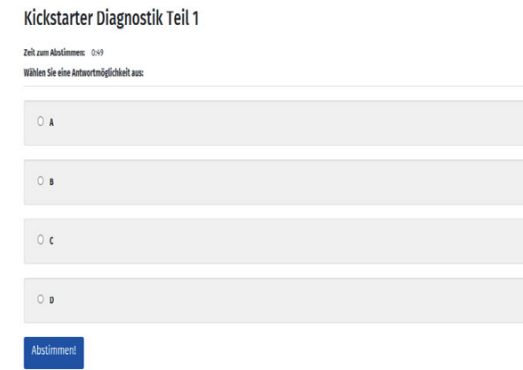


Fig. 2: Clinical case to give a diagnosis.

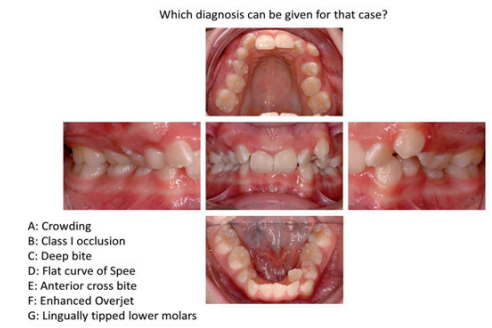


Fig. 3: Readers' view after one minute vote.

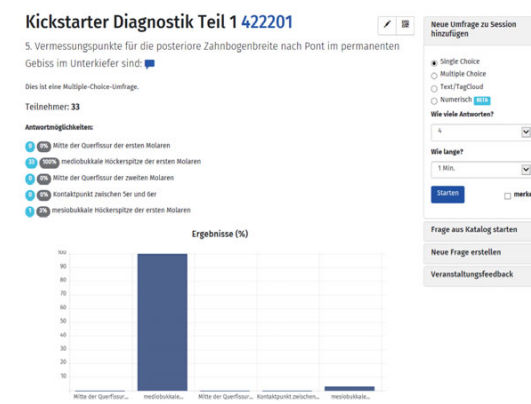


Fig. 4: Students' questionnaire for the evaluation of PINGO

Fragebogen zur Einschätzung des Lerneffekts kieferorthopädischer Themen mit PINGO

Themen mit PINGO

Alter: _____
Geschlecht: _____

- Ich habe an PINGO teilgenommen.
Ja eher Ja eher Nein Nein
- PINGO hat mir gefallen.
Ja eher Ja eher Nein Nein
- Durch PINGO bekam ich die Möglichkeit das in der Vorlesung vermittelte Wissen zu vertiefen und Unklarheiten zu klären.
Ja eher Ja eher Nein Nein
- Ich hatte ausreichend Zeit zur Beantwortung der Fragen.
Ja eher Ja eher Nein Nein
- Durch PINGO hatte ich das Gefühl aktiv an der Vorlesung teilgenommen zu haben.
Ja eher Ja eher Nein Nein
- Durch PINGO traute ich mich eher Fragen zu stellen, die mir während der Vorlesung gekommen sind.
Ja eher Ja eher Nein Nein
- Durch PINGO konnte ich mehr lernen als ohne PINGO.
Ja eher Ja eher Nein Nein
- PINGO hat mich gut auf die Klausur vorbereitet.
Ja eher Ja eher Nein Nein
- Ich würde mir PINGO auch für andere Vorlesungen wünschen.
Ja eher Ja eher Nein Nein
- Ich hatte Probleme im Umgang mit PINGO.
Ja eher Ja eher Nein Nein

Fig. 5: Histograms for students' answers in relation to the questionnaire.

