



Background

- Enhancing involvement, participation, and maximum interactivity from both the students’ and the faculty’s sides is an area of potential improvement in medical education.
- The Audience Response System (ARS) is one of the tools that has been increasingly used to achieve this goal.

Research Problem

- Improving the quality of the educational activities and maximizing knowledge sharing in an interactive environment are gaining more importance in the medical education.
- Using technology tools and principles may aid and facilitate these challenging tasks.
- Many educational technology tools are available to serve specific purposes.
- Experience and experiments are needed to choose and evaluate the appropriate educational tool to achieve the high demands on better and interactive educational activities.
- There are no sufficient information or experience about interactive learning using educational technology tools like the Audience Response System in Iraq.

ARS History and Description of Hardware and Software

- The ARS is a system of instant feedback that is integrated in the lecture or presentation.
- It is composed of small, hand-held, remote keypads that are used to respond to questions posted by the educator.
- Questions of different types and for various educational purposes are integrated and used to allow for audience feedback and interactions.
- Learners use their clickers to transmit their answers by pressing the clicker buttons.
- Typical ARS software can export or even upload student scores to classroom management systems such as Blackboard and WebCT.
- The use of ARS in Iraqi medical schools is new.
- The medical school in which this study was conducted is the first school in the country to use this system.
- Evaluation of this experience in the context of the Iraqi medical education system with all its culture and environment will help medical educators in the country to consider its use based on this and other related studies’ results.

Research Questions

- What are the students’ and educator’s perception of benefits from using the ARS educational technology tool in a medical school in Iraq?
- What is the students’ knowledge gain benefits from using the ARS educational tool in a medical school in Iraq?

Potential benefits of using ARS

- Improved learners’ engagement, attention and exam grades.
- Added information to the instructor and students through the immediately available data on the various responses of students
- Different understandings and perceptions will be shared by students.
- More entertaining for students and encourages “relaxed alertness”.
- Facilitate in-class participation and assessment, and provoke discussion
- Promotes active learning and confidence for conference attendance.
- Provides on-demand integration.
- Increases classroom attendance.
- Identify common misconceptions or misunderstandings immediately.
- Gauges student knowledge.
- Helps students to retain course material.
- Improves assessment of student learning and provides prompt feedback.
- Promotes wider participation and solidarity.
- Enables students to ask sensitive questions.
- Enables polling large number of students.
- Confirms audience understanding of key points immediately.
- Tracks individual responses.
- Makes it easier for lecturers to ask questions and makes each session interactive.

Methods

- This study was conducted in Wasit University College of Medicine (Iraq).
- ARS was used by one class of medical students during a full course topic lectures to answer interactive questions that were integrated in each of the fifteen lectures of the head and neck surgery course.

Research design

This is a mixed (qualitative and quantitative) study to assess:

- 1- Questionnaire: Students’ and educator’s perception of the use of ARS in didactic lectures of a module in medical school curriculum in Iraq
- 2- Knowledge gain: An end-of-course test was used to assess students’ knowledge-gain. Students’ grades were compared in a Quasi-Experimental way with their grades in another course where ARS was not used (t-test for dependent samples).
- 3- Focus Group Discussion: Thematic units were used in the FGD content-analysis.

Questionnaire - Students’ perception of using the ARS.

- The ARS helped to improve my attention and focus during the lecture
- The ARS helped me to understand the topics of the lecture better
- The ARS stimulated me to discuss topics with my colleagues and teacher
- The ARS stimulated me prepare for the topic in advance:
- The ARS stimulated me to study and review the topic more after the lecture
- The ARS helped me to memorize information more
- The ARS motivated me to attend lectures
- The ARS helps me answer questions and participate with no embarrassment
- Using ARS provided answers to some of the questions that I have about the topic
- Using ARS was a waste of time
- I wish ARS used in all other subjects
- Using ARS made me like the topic more than other topics
- Using ARS encouraged me to use technology in learning
- It was difficult to use the ARS.
- Overall, I find the ARS very useful

Results (Students perception of ARS use)

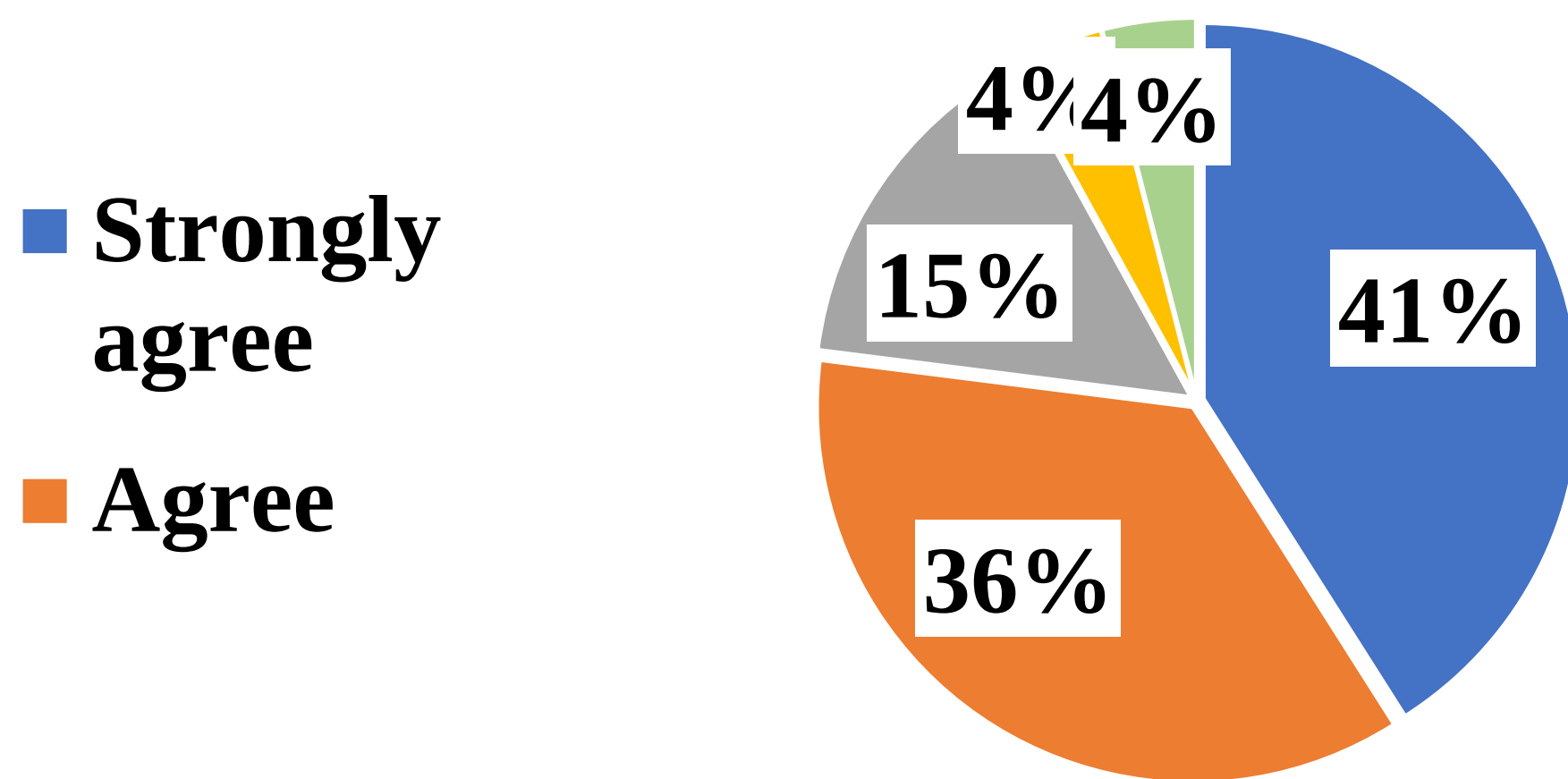


Figure. Data from the students’ survey-questionnaires showed a predominance (77%) of agreement of a positive-influence with the use of ARS

Results (Students knowledge gain)

There was no significant difference in the mean grades of the end-of-course tests between the index course compared to the neurology course where ARS was not used (46%±8 vs.45%±5).

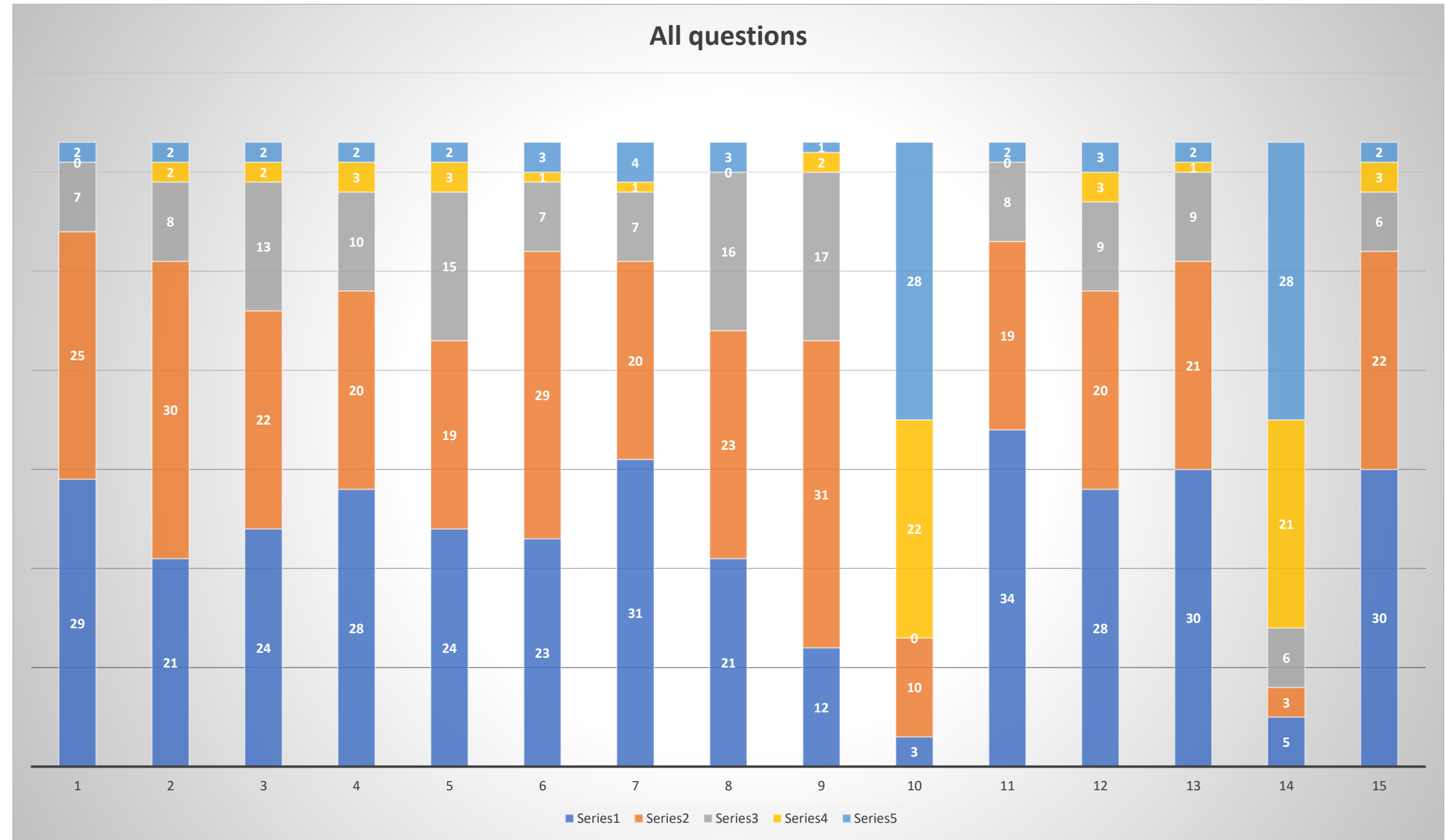


Figure. Data from the students’ questionnaires shows all responses in the Likert’s scale

Results (Students FGD analysis)

- The FGD content-analysis showed that the students reported a positive-influence with the ARS use in 85% of their comments, with thinking-stimulation, improving focus, and entertainment being the most commonly reported positive comments.
- Negative-influence with the ARS use was reported in 15% of the students’ comments, with time-consumption being the most commonly reported negative comment.

Conclusion and future perspectives

- The positive perception of the ARS use both by the students and the educator encourages the wide application of this technology in medical education.
- Further studies are needed to select, prioritize, and design the ARS use in the various educational activities.

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