

BPharm students' opinions towards active learning using clickers

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INTRODUCTION

- Active learning: aimed at engaging students in the learning process
- Includes case studies, computerised tutorials, team-based learning and audience response systems (clickers)
- Main advantage of active learning :
 - enhances students' retention of knowledge
 - promotes learning and critical thinking
- Also helps academics to:
 - gauge student comprehension,
 - engage students,
 - enhance interactivity amongst students

INTRODUCTION cont'd

- Clickers, or audience response systems, are remote control devices used by students to anonymously respond to multiple-choice questions posed by the instructor
- Integrated into traditional lectures and a form of active learning
- Main aim of introducing clickers in lectures is to:
 - capture and maintain student attention throughout the lecture,
 - monitor progress and student comprehension so that deficiencies may be addressed immediately, and
 - improve grades and student satisfaction

INTRODUCTION cont'd

- The peer-learning model:
- Requires that students think and answer questions posed to them first, without being provided with the correct answer.
- They then spend time in groups discussing a consensus answer, which are then once again submitted via clickers.
- The class response, as well as the correct answer is then indicated to the class.
- In this way, each individual student can assess his / her own understanding.

AIM

- Teaching in the Bpharm programme at UKZN has mainly been didactic
- Student numbers have increased progressively, making it all the more difficult to ensure active learning
- Clickers were introduced to a level 2 Pharmacology module in the Bpharm programme
- Little information exists in Pharmacy education literature as to what students think of active learning

QUESTIONNAIRE

- Gavaza, P., Campbell, J., & Mullins, R. (2012). Pharmacy students' perceptions toward active learning in the didactic curriculum. *Currents in pharmacy teaching and learning*; 4:273-277.
- The questionnaire consisted of five Likert type questions used to measure students' opinions and perceptions towards active learning in general.
- Additionally, eight Likert type questions were used to measure students' opinions of active learning in which they had participated in during the specific pharmacology module.
- Two open-ended questions to provide examples of what they found 1) most beneficial from using clickers and 2) liked the most from these session.
- Responses to the 13 Likert-type items were collapsed into 3 categories: strongly disagree / disagree, neutral and strongly agree / agree. Chronbach's α were used to measure internal consistency of the scales.

RESULTS

Item	Disagree / strongly disagree, n (%)	Neutral, n (%)	Agree / strongly agree, n (%)
AL is more effective than lecture-intensive didactic learning	9 (10.98)	34 (41.46)	39 (47.56)
Working in small groups helps me to learn	11 (13.41)	18 (21.95)	53 (64.63)
Active discussions and involvement with other students is essential	6 (7.32)	18 (21.95)	58 (70.73)
AL is worthwhile / important	5 (6.1)	16 (19.51)	61 (74.39)
AL is a waste of time	66 (80.49)	13 (15.85)	3 (3.66)

RESULTS cont'd

Item	Disagree strongly disagree, n (%)	Neutral, n (%)	Agree / strongly agree, n (%)
AL helped me to become a self-directed learner	7 (8.54)	27 (32.93)	48 (58.54)
AL helped me to prepare for exams in the course	6 (7.32)	17 (20.73)	59 (71.95)
AL improved my understanding of the material covered in the course	5 (6.1)	12 (14.63)	65 (79.27)
AL improved my attitude toward the subject	8 (9.76)	20 (24.39)	54 (65.85)
There was a direct / discernible correlation between the material covered in class and the AL	2 (2.44)	15 (18.29)	65 (79.27)
Sufficient class time was devoted to AL	4 (4.88)	19 (23.17)	59 (71.95)
Group presentations by students were beneficial	16 (19.51)	47 (57.32)	19 (23.17)
Lecturer clearly articulated the purpose of AL	7 (8.54)	35 (42.68)	40 (48.78)

RESULTS cont'd

Comments from students on what they found most beneficial:

Group work in class

Helped with understanding of lectures

Clickers gave an indication of own understanding of work

Comments from students on what they liked most:

Immediate feedback

Participation in the lecture / interactive

Fun

Helped (me) remember better

Helps (me) rate myself

DISCUSSION

- The use of technologies such as clickers, allows active learning i.e. student engagement and interaction in the classroom, ultimately improving the quality of students' learning
- The results from this study show that students found active learning had a positive impact on learning, academic achievement, and satisfaction with the class experience.
- It is clear that using educational technology, like clickers, and incorporating active learning strategies, change in the learning environment is stimulated that fosters student-centred learning
- The strength of active learning, also highlighted from student feedback in this study, is the interaction it fosters between students, who often find it easier to understand concepts explained to them by their peers than by the lecturer.
- Students feel that discussing questions with other students is helpful, as it aids understanding.

CONCLUSION

- Active learning with the use of clickers was incorporated into an undergraduate BPharm module to improve student learning in a larger group.
- According to student feedback this strategy was effective in that:
 - students interacted more with each other,
 - learned from their peers,
 - and had a better understanding of concepts covered
 - it is thus clear that active learning achieved its goal.
- Overall, this has been a valuable innovation for the module, and will be expanded on in future.
- The aim is thus to continue using, evaluating and improving upon this strategy of active learning using clickers in a larger class.