

Students' & Facilitators' perspective regarding introduction of Active Learning Strategies (ALSs) to enhance learning process of first year medical students: A Quantitative & Qualitative Survey

Tatheer Zahra,¹ Sumreena Mansoor,² Abida Shaheen,³ Tara Jaffery⁴

¹Department of Anatomy, ²Department of Biochemistry, ³Department of Pharmacology, ⁴Department of Health Professions Education, Shifa College of Medicine, Shifa Tameer e Millat University, Islamabad, Pakistan.

Objectives: This study was conducted to determine Students' & Facilitators' perspective regarding introduction of active learning strategies (ALSs) to enhance learning process of first year medical students.

Methodology: This cross sectional study was conducted on first year medical students & their facilitators at Shifa College of Medicine (SCM), Islamabad during a three week period. Besides conducting small group discussions as main learning strategy throughout the module, we introduced outcome based ALSs "role plays, oral and poster presentations" in a session at the end of one of our module of 1st year class of MBBS students. Students' (n=102) were randomly divided into 4 large groups (n=2526) and were assigned group themes. Each group was further subdivided into 3 small groups (n=8-9) for group

activity. Students' and facilitators' feedback questionnaires were designed, responses were recorded on 5 point Likert scale and descriptive statistics were applied.

Results: Both students and facilitators agreed that exposure of these experiential vehicles could enhance their learning process by helping them to recognize gaps in learning, promoting critical thinking and intellectual agility, improving communication/interpersonal skills, promoting integrated learning across various disciplines and developing habit of collaboration.

Conclusion: ALSs could enhance learning process of medical students. These sessions are strongly recommended for future modules. (Rawal Med J 2014;39:85-91).

Key words: Active Learning Strategies, Facilitators, Medical Students.

INTRODUCTION

Learning in an active search process by the students rather than passively receiving knowledge by just sitting in the classroom, listening to teachers, memorizing assignments, and spitting out answers.¹ In an active learning environment, less emphasis is placed on transmitting information and more on developing students' skills. It includes short writing exercises to complex group exercises in which students apply course material to real life situations.² Active learning requires intellectual effort, encouraging higher-order thinking (i.e., analysis, synthesis, evaluation). It provides means for the learner to assimilate, apply, and retain learning.³ Students generally prefer strategies promoting active learning to traditional lectures and other passive methodologies because these strategies empower students to take primary responsibility for their education although requiring faculty to

relinquish some control to the student to encourage their learning path.⁴ Active Learning Strategies (ALS) promote active learning applicable to courses at all levels including techniques making lectures more interactive, discussions, concept sketches/maps, problem/case based learning, simulations/role plays, assignments, oral and poster presentations, debates and many more. Besides conducting small group discussions as main learning strategy at Shifa College of Medicine (SCM) throughout the module, we introduced outcome based three ALSs i.e., "role plays, oral PowerPoint presentations and poster presentations". In Role playing, students can think about difficult circumstances before they actually happen such as breaking bad news.⁵ It can spark brainstorming sessions, to promote collaboration among students.^{6,7} It enhances communication/interpersonal skills e.g., interviewing, counseling

skills, personal relationships, team working (e.g., the multi-disciplinary team), and leadership.^{8,9} It also helps students to develop a vocabulary to communicate feelings and emotions.¹⁰ Role play can provide a powerful learning experience by developing self efficacy and identifying unethical practices.¹¹ PowerPoint oral case presentations improve presentation skills.¹² The use of poster presentations as an active learning strategy is well recognized within healthcare education,¹³ and is considered vital for personal and professional growth.¹⁴ It makes learning more enjoyable and disseminate information to peers by facilitating a dialogue with classmates through discussions.¹⁵ The aim of this study was to determine Students' & Facilitators' perspective regarding introduction of ALSs to enhance learning process of first year medical students.

METHODOLOGY

Learning strategies: Instead of traditional curriculum, we at SCM have system based integrated modular curriculum in which there is horizontal integration (Between anatomy, physiology and biochemistry) as well as vertical integration (with clinical correlation of basic knowledge e.g., applied aspects of anatomical sciences). Besides conducting case based small group discussions as chief learning strategy throughout the module, various techniques of active learning were incorporated in a session conducted at the end of the "Hematology, Skin and Immune System" (HSIS) module under the broad theme of Host Defense and Host Response (HDHR). Student-oriented learning strategies that were used for the whole class to enhance student's active participation in the module included role plays, oral PowerPoint and poster presentations.

Grouping: We divided whole class (n = 102) into 4 large groups i.e., A-D (n = 25-26) in the beginning of the module. Each large group was assigned specific group theme i.e., group A: anemia; group B: thalassemia; group C: asthma; & group D: tuberculosis. Each large group was further subdivided into 3 small groups (n = 8-9) i.e., A1-3, B1-3, C1-3; one each for each task i.e., either role

plays, or oral PowerPoint presentations or poster presentations.

Duration: Tasks were assigned to students on the 1st day of the module. Students were given 3 weeks in self directed learning sessions (SDLs) during the module for preparation. Session was conducted on the last day of the module before assessment week.

Data Collection: Performance: Attendance was 100%. Climate was friendly and supportive. A team of judges from the faculty involving senior faculty and facilitators of multidisciplinary modular team attended the session and evaluated students' performance. Assessment was continuous and supportive but formative. Prizes were distributed among the winners in each category i.e., role plays, or oral PowerPoint presentations or poster presentations. Certificates were distributed among the participants.

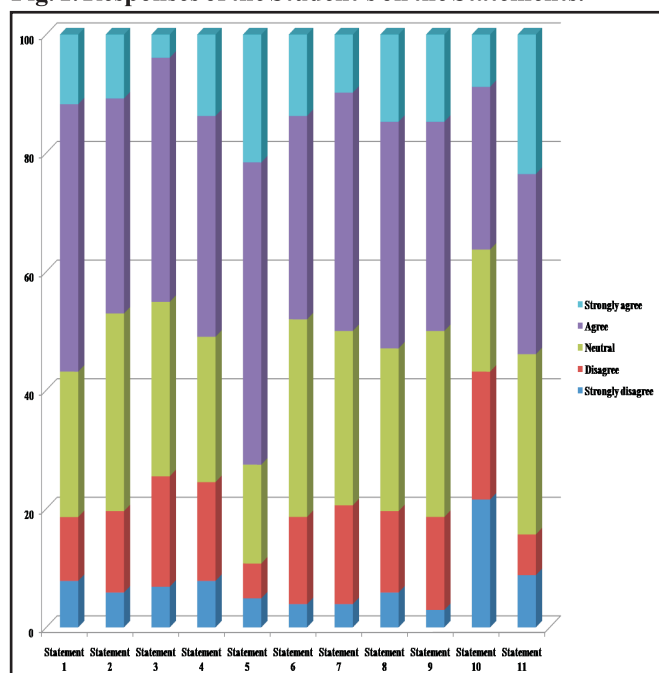
Feedback: Students' and facilitators' feedback questionnaires were designed (Appendix I and II, respectively). Medical education experts' opinion was sought to evaluate the statements and identify any concerning issues. Each statement was rated on 5 point Likert scale and one option for free comments/suggestions was given. Responses were recorded on OMR sheets using following scale: A = strongly disagree; B = disagree; C = neutral, D = agree; E = strongly agree. The statements of the questionnaires were framed in alignment with the usefulness of these active learning strategies. The free comments were asked to evaluate the students and facilitators concerns about these active learning strategies and suggestions were asked to further improve effectiveness of such sessions.

Data Analysis: Response rate was 100%. The responses to the statements on OMR sheets were analyzed in terms of percentages of respondents. Qualitative data analysis of the comments/suggestions from the students and facilitators was done by study authors independently and themes in the comments/suggestions were identified and actual comments/suggestions were associated with each identified theme. The authors had 100% agreement on identified themes after thorough discussion.

RESULTS

Students' feedback: Quantitative data of students' feedback demonstrated that most of the students (57%) agreed that time allocated for preparation of ALSs session was enough (Fig. 1). They agreed that ALSs session helped them in better understanding of the subject and helped them to recognize and investigate gaps in their knowledge. Most of the students ($\geq 50\%$) agreed that ALSs session promoted their critical thinking. Most of them ($>70\%$) agreed that this ALSs session motivated them to actively participate in group activities. They agreed that this ALSs session promoted integration across various disciplines. Most of them ($\geq 50\%$) agreed that ALSs session was helpful to stimulate their learning process and their interest in self directed learning (SDL) sessions. They agreed that such type of sessions help them to develop habit of collaborative learning. There was a mixed response (44% = disagreed, 22% = neutral and 37% = agreed) of students regarding equal participation of their team members for preparation of ALSs session in allocated groups. However, they highly recommended such type of ALSs sessions for future modules (Fig. 1).

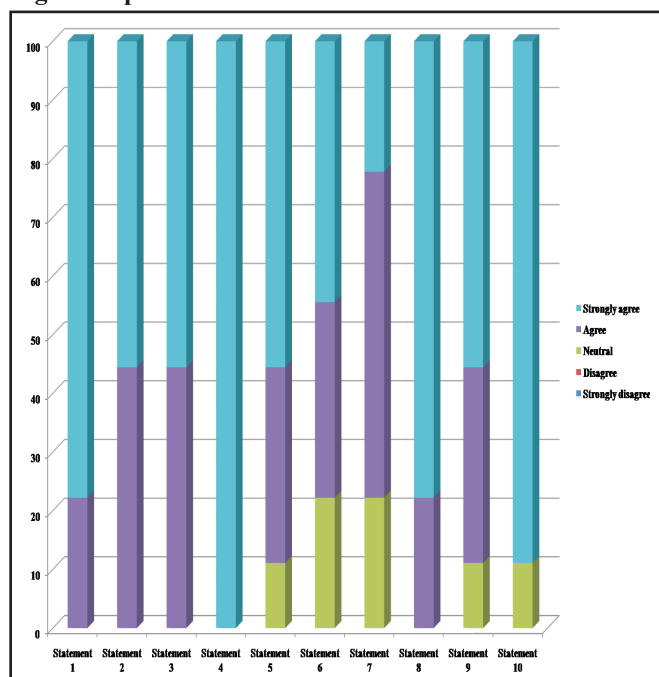
Fig. 1. Responses of the Student's on the Statements.



Students' qualitative feedback expressed their appreciation and welcoming attitude. They really enjoyed learning this particular ALSs session. Here are some of their actual comments:

"This session helped me learn actively and is a good learning strategy." "I really enjoyed and learned a lot." "I enjoyed presenting in front of class and professors." "It really boosted my confidence for future projects like this one!!!" "Group activities should be further promoted by introducing other intuitive learning activities" "Few members of our group didn't participate." "One such session every 2 months or so is a good idea."

Facilitators' feedback: Quantitative data of facilitators' feedback showed that most of them ($>70\%$) appreciated this activity very well. All of them agreed (Agree = 22% and strongly agree = 78%) that the time allocated for preparation of ALSs session was enough (Fig. 2). All of them agreed (Agree = 44% and strongly agree = 56%) that ALSs session was well appreciated by the students. All of them agreed (Agree = 44% and strongly agree = 56%) that ALSs session motivated students to actively participate in group activities. All of them (100%) strongly agreed that ALSs session helped students in better understanding of the subject. Most of them agreed (Neutral = 11%, agree = 33% and strongly agree = 56%) that ALSs session promoted student's critical thinking and intellectual agility. Most of them agreed (Neutral = 22%, agree = 33% and strongly agree = 44%) that ALSs session promoted integrated learning across various disciplines. Most of them agreed (Neutral = 22%, agree = 56% and strongly agree = 22%) that ALSs session helped students to recognize and investigate gaps in knowledge. Most of them agreed (Agree = 22% and strongly agree = 78%) that ALSs session promoted teamwork among students. Most of them agreed (Neutral = 11%, agree = 44% and strongly agree = 44%) that students were well prepared for ALSs sessions. Most of them (89%) strongly agreed that they would recommend ALSs sessions for future modules (Fig. 2).

Fig. 2. Responses of the Facilitator's on the Statements.

Facilitators' qualitative feedback showed that despite the intensity of the assessment procedure, observing the emergence of analytical debate and creative achievements of students in such active learning strategies was an exhilarating and worthwhile experience. Here are few actual remarks:

"It was very well organized session. Students participated very well." "It is very pleasant to see lot of excitement among students. Team work was evident." "Such sessions may help students to improve their communication/ counseling skills and help them in their integrated practical exams (IPE) and as a physician at large." "Such sessions prop up integrated learning across various disciplines." "These sessions endorse critical thinking of students and their intellectual agility."

DISCUSSION

Active learning provides a mean for the learner to assimilate, apply and retain by promoting critical thinking.³ In teacher-centered learning, the burden resides primarily with the facilitators. In student-centered learning, some of this burden is shared with the students by using various techniques such as

substituting small group discussions, case based studies and problem based learning sessions, demonstrations with questioning (video clips) sessions for lectures, by giving students multiple tasks, projects or assignments (group or individual), involving students in PowerPoint Presentations, simulations and role-plays, assigning a variety of alternative writing exercises (reflective journals, summaries, essays, critiques), assessment - tests and quizzes that provide immediate feedback, and using other team-based learning strategies.¹⁶

Students learn by actively participating in sessions by observing, speaking, writing, listening, thinking, drawing and doing as learning is enhanced when a person sees potential implications, applications, and benefits to others.¹⁷ Results of our study (both facilitators and students) demonstrated that students were more likely to learn and retain if we ask them to do more than learn information including activities where learner can explore applications and implications. According to students, ALSs session helped them in better understanding of the subject. Such sessions may help them to recognize and explore missing links in their knowledge. This observation is line with recommendations by Mounsey et al.⁹

Reflections of both students and facilitators demonstrated that in traditional system, class usually focuses on presentation of content by a facilitator and it does not classically promote their active contribution and engagement. Most of them are usually busy in writing down what the facilitator writes on the board or illustrates on Power Point slides but are not actively processing the information. Only a few students are engaged in critical thinking and analysis during the traditional lecture. However a lecture can be made more interactive by converting it into large group discussion session in which not only the queries of students are sorted out but facilitator may clear their concepts and make it possible that required learning objectives or goals are achieved. According to students and facilitators point of view students presentations (both oral and powerpoint), role-

playing and simulations can be an excellent way to engage students. Although these are not the substitute for lectures but these active learning strategies can emphasize the real world and require students to become deeply involved in a topic. This session once in every month or fortnightly may promote their critical thinking and intellectual agility. These sessions if conducted on regular basis may promote integrated learning across various disciplines. This is line with studies conducted by Lau et al.¹⁸ Goldenberg et al.⁶ and Nestel and Tierney.⁷

The students' reflections indicated that ALSs session was helpful to stimulate their learning process and develop habit of collaborative learning and spirit of team work in them. However, several highlighted that few team members were not equally participating in group activities. Facilitator's reflections were not different from students. This observation is line with recommendations by Chamberlain et al.¹² The students' suggestions indicated that the presentations in front of senior faculty was interesting exercise and made them to critically think, analyze and learn, a finding that concurs with that reported by Tileston.¹⁹ The posters made best use of student's visual cortices as the message grasped from the visuals seemed to be received better. This is in line with recommendations by Newbrey and Baltezone.²⁰

The study limitations include difficulty in judging presentations (oral or poster) and role plays. Body language, eye contact, voice quality, presentation skills and various other factors also influence this learning strategy. Practice might do it but a snapshot to evaluate all that is presented can be quite difficult.

CONCLUSION

Active learning strategies (ALSs) could enhance learning process of medical students. Such sessions are strongly recommended for future modules to enhance learning and promote faculty to explore other active learning strategies to make learning more useful, interesting enjoyable. This paper mainly contributes to introduction of ALSs in medical students to enhance their learning process.

Author Contributions:

Conception and design: Tatheer Zahra
Collection and assembly of data: Tatheer Zahra, Sumreena Mansoor, Abida Shaheen
Analysis and interpretation of the data: Tatheer Zahra
Drafting of the article: Tatheer Zahra
Critical revision of the article for important intellectual content: Tatheer Zahra, Tara Jaffery
Statistical expertise: Tatheer Zahra
Final approval and guarantor of the article: Tatheer Zahra
Corresponding author email: drtatheer@gmail.com
Conflict of Interest: None declared
Rec. Date: Aug 01, 2013 Accept Date: Nov 21, 2013

REFERENCES

- Hoffman EA. Successful Application of Active Learning Techniques to Introductory Microbiology. *Microbiol Educ* 2001;2:5-11.
- Ashmore R, Banks D. Student nurses' use of their interpersonal skills within clinical role plays. *Nurs Educ Today* 2004;24:20-9.
- Kennedy R. In Class Debates: Fertile Ground for Active Learning and the Cultivation of Critical Thinking and Oral Communication Skills. *Intern J Teach Learning* 2007;19:183-90.
- Hemmingway S, Lees J. Educating NHS Direct advisors to support the client with mental health problems: using role play as a tool to facilitate skill acquisition. *Nurs Educ Pract* 2001;1:127-33.
- Sogunro OA. Efficacy of role-playing pedagogy in training leaders: some reflections. *J Manag Dev* 2004;23:355-71.
- Goldenberg D, Andrusyszyn MA, Iwasiw C. The effects of classroom simulation on nursing students' self-efficacy related to health teaching. *J Nurs Educ* 2005;44:310-4.
- Nestel D, Tierney T. Role-play for medical students learning about communication: Guidelines for maximizing benefits. *BMC Med Educ* 2007;7:3.
- Shankar PR, Dubey AK, Subish P. Critical evaluation of drug promotion using role plays. *Med Educ* 2006;40:459-89.
- Mounsey AL, Bovbjerg V, White L, Gazewood J. Do students develop better motivational interviewing skills through role-play with standardized patients or with student colleagues? *Med Educ* 2006;40:775-80.
- Shearer R, Davidhizar R. Using role play to develop cultural competence *J Nurs Educ* 2003;42:273-5.
- Ahsen NF, Batul SA, Ahmed AN, Imam SZ, Iqbal H, Shamshair K. et al. Developing counseling skills through pre-recorded videos and role play: a pre- and post intervention study in a Pakistani medical school. *BMC Med Educ* 2010;10:7.
- Chamberlain NR, Stuart MK, Singh VK, Sargentini NJ. Utilization of case presentations in medical microbiology to enhance relevance of basic science for medical students. *Med Educ Online* 2012;17:10.
- Utecht C, Tremayne P. Using poster presentations in nursing education. *Nursing Times* 2008;104:26-7.

14. Halligan P. Poster presentations: valuing all forms of evidence. Nurse Educ Pract 2008; 8:41-5.
15. Weaver Moore L, Augspurger P, O'Brien King M, Proffitt C. Insights on the Poster Preparation and Presentation Process. Appl Nursing Res 2001;14:100-4.
16. Phillips JM. Chat role play as an online strategy. J Nurs Educ 2005;44:43.
17. Hoban G. Using a reflective framework for experiential education in teacher education classes. J Exp Educ 1999;22:104-11.
18. Lau KCJ, Stewart SM, Fielding R. Preliminary evaluation of 'interpreter' role plays in teaching communication skills to medical undergraduates. Med Educ 2001;35:217-21.
19. Tileston DW. Teaching strategies for active learning: Five essentials for your teaching plan. Thousand Oaks, CA: Corwin Press. 2007.
20. Newbrey MG, Baltezare JM. Poster Presentations: Conceptualizing, Constructing & Critiquing. Am Biol Teacher 2006;68:550.

Appendix I

Student's feedback form about alss session (student's oral powerpoint & poster presentations & role play) in hsis module

Thank you for taking time to fill out this questionnaire.
Please rate the following on a scale A (strongly disagree) to E (strongly agree).

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
A	B	C	D	E

Time allocated for preparation of ALSs session was enough.

ALSs session helped me in better understanding of the subject.

ALSs session help me to recognize and investigate gaps in knowledge.

ALSs session promoted my critical thinking and intellectual agility.

ALSs session motivated me to actively participate in group activities.

ALSs session promoted integrated learning across various disciplines.

ALSs session was helpful to stimulate my learning process.

ALSs session stimulated my interest in self directed learning (SDL) sessions.

ALSs session developed habit of collaborative learning in me.

Students in allocated group equally participated for preparation of ALSs session.

I would recommend such type of ALSs sessions in future modules.

[12] Comments/Suggestions:

Appendix II

Faculty's feedback form about alss session (student's oral powerpoint & poster presentations & role play) in hsis module

Thank you for taking time to fill out this questionnaire.
Please rate the following on a scale of A (strongly disagree) to E (strongly agree).

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
A	B	C	D	E

Time allocated for preparation of ALSs session was enough.

ALSs session was appreciated by the students.

ALSs session motivated students to actively participate in group activities.

ALSs session helped students in better understanding of the subject.

ALSs session promoted student's critical thinking and intellectual agility.

ALSs session promoted integrated learning across various disciplines.

ALSs session helped students to recognize and investigate gaps in knowledge.

ALSs session promoted teamwork among students.

Students were well prepared for ALSs sessions.

I would recommend such type of ALSs sessions in future modules.

Comments/Suggestions:
