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Teacher-led versus student-led seminar blended with portfolio for "assessment of learning": An interventional study

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Abstract:

BACKGROUND: Increase in competitive demands has led to the promotion of seminar presentation by the students to increase active learning and for the assessment of learning. Portfolios are an important tool for assessment for learning. The objectives of the study were to compare the gain in knowledge among the conventional and the blended seminar groups (intervention group), analyze the working portfolios to assess for learning, and to gather the perception of students.

MATERIALS AND METHODS: This was an interventional study (2016) with convenience sampling that included 27 students each in the conventional and interventional groups. It was conducted in a medical college in central India. The conventional group was teacher led and the blended seminar group was student led with interaction with the students regarding the contents of the portfolio. Student's unpaired and paired *t* tests were used for statistical analysis. $P < 0.05$ was considered as the level of significance. Class average normalized gain (g) was used as a measure of effectiveness of the intervention. Quantitative questions were analyzed using percentages and qualitative data using categorization.

RESULTS: Significant difference was found between the conventional and intervention groups ($P < 0.05$) with gain "*g*" being 0.52 for the intervention group. On evaluation of the feedback, students commented regarding its interactive nature and progress during the learning process. The reflections were coded as text as the unit of coding and student as the unit of coding. It was also found that the students who were critical reflectors were the ones who scored > 50% in the posttest scores.

CONCLUSION: The present study showed that seminar when blended with portfolio yielded positive results in the process of learning, and hence was effective in assessment for learning.

Keywords:

Assessment for Learning, portfolio, reflection, seminar

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Introduction

Learning is the ability to utilize resources to find, evaluate, and apply the information learnt, rather than just converting a set of facts to memory. Memorizing the facts supports rote memory and hinders lifelong skill development, critical thinking, problem solving, interpersonal and communication skills.[1]

Even though classroom teaching is teacher centered,[2,3] teachers and educators endeavor to provide a purposeful classroom experience for their learners in order to meet the academic needs of community and society.[3,4] Teachers can carefully consider the type and organization of information as well as the instructional strategy used by them.[1]

Student seminars are one step that can relieve the learners from becoming totally dependent on their ability to memorize,[5]

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with active learning strategies that can make seminars more interesting.[6] Seminars presented by the peers on difficult topics facilitate both the presenter and the audience to understand better.[5,7] Seminars also provide an opportunity to communicate and respond to an audience and know each other in a learning environment.[5]

Collaborative learning[6,8,9] and peer instruction[8] improve retention as well as performance in exams.[6] The seminar method is usually conducted by the teacher or by the student in student-led seminar. Since ages, the seminar method has had a positive effect on the trainees' assessment of their learning,[3,10] but these seminars are not assessed "for" the learning process that the students undergo. There is assessment "of" learning, but not assessment "for" learning.

In these situations, portfolios are assessment methods to observe students' developments and assess their learning process performance.[11] They are useful tools for students' learning products and process assessment.[11] They have a potential that enables assessment of learning and assessment for learning.[11] Portfolio assessment enables students to reflect on their weak and strong areas in academics and observe their own progress during the learning process, and encourages self-directed learning.[11] There are different types of portfolios, of which working portfolio is an ongoing, systematic collection of student work samples and exhibits of daily, weekly, monthly, or unit work products.[12] Many studies have focused on the use of portfolio and innovative seminars separately. This is a holistic study with the aim to blend portfolio and seminar to promote assessment for learning.

By blending seminar with working portfolio, the objectives set were

1. To sensitize the blended seminar group regarding working portfolio,
2. To compare the gain in knowledge among the conventional seminar (teacher-led) and blended seminar groups (Student-led),
3. To analyze the working portfolios to assess for learning, and
4. To gather the perception of the students presenting the seminar from both the intervention and control groups.

Materials and Methods

Study design and setting

This was an interventional study. The study was conducted at the Department of Physiology at a rural medical college in central India.

Study participants and sampling

The study sample consisted of first year medical students. The sample size was planned as 60 with 30 in the conventional group and 30 in the intervention group; but due to absenteeism and not completing either the pretest or the posttest, the final sample size was 27 in the conventional group and 27 in the blended seminar group.

Sixty students were planned to be randomly assigned to a conventional group (comprising 30 students) and an intervention group (comprising 30 students). The final number of students was 27 in the conventional group and 27 in the intervention group. Two sessions were held. Session 1 was held for the conventional group with 27 students and session 2 for the intervention group with 27 students. The 27 students in the conventional group were also oriented to the working portfolios later. The 27 students in the conventional and intervention groups were divided into six groups of four to five participants in each group. In each session of seminar, students had 15 min for presentation and 2 min for discussion and question answers.

Conventional group

The topic for the conventional group was given by the teacher 3 weeks before the seminar. It was a teacher-led seminar as the teacher assigned the topics, assigned the groups, and conducted the session. A pretest was conducted comprising recall, comprehension, and problem-solving questions. The students were asked to present the seminar on a pre-decided date. Posttest and feedback were taken from the presenting students.

Intervention group

The topic for the intervention group was selected by the students themselves (student led). The students were in-charge of selecting the topics, selecting the groups, conducting the session, and present the seminar. The role of the teacher was to observe and assess the students. On deciding the topic by the students, a surprise pretest was conducted on the next day. The students were sensitized regarding the portfolio and managing the portfolio. The contents of the portfolio were decided by the students along with the author. There were regular interactions with the students regarding the portfolio and reflections of the students. Students were asked to reflect on a weekly basis. Each student wrote approximately three to four times.

Data collection tool and technique

Posttest and feedback were taken from the students. Multiple choice question (MCQ) -based pretest and posttest were conducted that included recall and problem-based questions. Pretest and posttest results were added to the portfolio along with the reflections. The working portfolio was assessed for the reflections regarding the learning.

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Feedback questionnaire

The pre-validated feedback questionnaire consisted of quantitative and qualitative response-evoking questions. Quantitative data-evoking questions were six in number for the control and intervention groups, and qualitative data-evoking questions were one each for the control and intervention groups.

Data analysis

Statistical analysis was done by using descriptive and inferential statistics with Student's unpaired and paired *t* test. Software used in the analysis were Microsoft Excel and EPI-INFO. $P < 0.05$ was considered as the level of significance. Effectiveness of the intervention was evaluated using class average normalized gain (g = % posttest score − % pretest score/100− (% pretest score). High-g courses are those with $g \geq 0.7$, medium-g courses as those with $0.7 > g \geq 0.3$, and low-g courses are those with $g < 0.3$. $g = 0.3$ or 30% was taken as the minimum value where an educational intervention could be regarded as being effective. Quantitative questions were analyzed using percentages and qualitative data using categorization.

Ethical considerations

Institutional ethics committee approval was sought before the study (IEC/2015-16/1574).

Results

Statistically significant differences were observed in the pretest and posttest scores in both conventional and interventional groups. However, g was low in the conventional group compared to intervention group.

The reflection in the portfolio was coded taking into consideration text as the unit of coding and student as the unit of coding.

The closed-ended questions were asked as per the five-point Likert scale.

Discussion

Competitive demands have increased for the students, and for arousing interest in students, small group discussions, debates, and seminar presentations by students have been promoted.[3]

With lecture still being the oldest method, in strategies like seminar, students research on a topic on their own, present in front of their peers, leading to development of skills.[3] Students can be active learners if their senses are engaged through varied learning experiences.[3,13] The seminar method appeared to possess affirmative results on the students' assessment of their learning.[3,10]

The seminar method was transformed for "assessment for learning" by incorporating reflective portfolio, as conducted in the present study. Student portfolios are usually a powerful tool for assessment for learning.[14] Since reflection and assessment are critical and prerequisites for learning, the concept of assessment for learning compared to assessment of learning has emerged.[14] The motivation and performance are enhanced when students are involved in the assessment and in collecting evidence of their learning. Collecting products also increases insights into learning along with observing the learning process where portfolio plays an important role. When the students are given choices to focus on their learning and when they are provided with the opportunities to document their learning and to reflect and record the process of learning, it makes the learning more successful.[14] Reflective portfolios contain collections of attestations of achievement as well as both personal and professional development through reflection.[15,16] It makes the students analyze what was done and what is yet to be achieved.[17] Facilitator–student link is a vital component in the reflective portfolio.[15,16,18,19]

In the present study, the intervention group comprising seminar and portfolio showed significant results compared to the control group, with the class average normalized gain being 0.52 pointing toward a medium-g course [Table 1]. On analysis of the closed-ended questions, 59.25% of students from the conventional group agreed that their presentation was up to the mark, whereas 96.29% of students from the intervention group agreed regarding their presentation [Table 2]. Bahmed *et al*.,[5] in their study, also had reported 71.4% responses of the participant students on the outline of the seminar. In the present study, 18.51% of students in the control group strongly agreed that their confidence improved from preparation to presentation, whereas in the intervention group, 37.03% of students strongly agreed. When asked about the manner in which the working portfolio contributed from preparation to presentation of seminar, the students in the intervention group responded regarding the improvement in confidence and the portfolio helped them in the process of learning [Table 3].

The reflections of students were assessed as per Boud *et al*.'s model[20] and Mezirow's model[21,22] [Table 4]. According to Boud *et al*.'s[20] model, text was used as a unit of coding to classify into six subcategories: attending to feelings, association, integration, validation, appropriation, and outcome of reflection. The criterion for coding "attending to feelings" was "the removal of hindering feelings, while the positive feelings are utilized." The criteria for "association" were "discovery of previous knowledge or attitudes or feelings having no relation with fresh knowledge or attitudes or

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Table 1: Comparison of seminar pretest and posttest scores within the two groups

Group	Mean±SD (95% confidence interval)	*t*	Class average normalized gain (g)
Conventional group (*n*=27)			
Pretest	2.33±1.49 (1.7-2.8)	6.73, *P*=0.0001, S	0.28
Posttest	4.48±0.97 (4.1-4.8)		
Intervention group (*n*=27)			
Pretest	2.70±1.43 (2.1-3.2)	13.02, *P*=0.0001, S	0.52
Posttest	6.55±1.31 (6.0-7.0)		

Table 2: Analysis of closed-ended questions in feedback received from the control and intervention groups

Items	SD	D	N	A	SA
Conventional group					
Seminar was planned in an ineffective manner	10 (37.03%)	17 (62.96%)	0	0	0
Questions asked were of less relevance	13 (48.14%)	14 (51.85%)	0	0	0
My presentation was up to the mark	0	3 (11.11%)	8 (29.62%)	16 (59.25%)	0
I enjoyed the experience from preparation to presentation of seminar	2 (7.40%)	4 (14.81%)	5 (18.51%)	11 (40.74%)	5 (18.51%)
My confidence improved from preparation to presentation	2 (7.40%)	1 (3.70%)	7 (25.92%)	12 (44.44%)	5 (18.51%)
My knowledge improved after the seminar	2 (7.40%)	2 (7.40%)	8 (29.62%)	10 (37.03%)	5 (18.51%)
Intervention group					
Seminar was planned in an ineffective manner	8 (29.62%)	19 (70.37%)	0	0	0
Questions asked were of less relevance	9 (33.33%)	18 (66.66%)	0	0	0
My presentation was up to the mark	0	0	1 (3.70%)	26 (96.29%)	0
I enjoyed the experience from preparation to presentation of seminar	0	0	0	18 (66.66%)	9 (33.33%)
My confidence improved from preparation to presentation	0	0	0	17 (62.96%)	10 (37.03%)
My knowledge improved after the seminar	0	0	0	16 (59.25%)	11 (40.74%)

A=agree, D=disagree, N=neutral, SA=strongly agree, SD=strongly disagree

Table 3: Analysis of the open-ended questions in feedback received from the conventional and intervention groups

Items	Excerpts
Conventional group: What was good about the overall seminar?	"Patterns of questions asked helped a lot"
	"All the topics were discussed and it was a good revision"
	"Question-answer session"
Intervention group: How did working portfolio contribute from preparation to presentation of seminar?	"Learning process improved"
	"There were interactive sessions with teacher so we were knowing where we were"
	"Confidence improved and presentation was good"
	"It helped me to understand the topic"
	"I was progressing through the working portfolio"
	"Its excellent. It helped me to study more"
	"I got a chance to discuss the topic with teacher and got my doubts cleared during the process"

discovery; linking them and further re-assessment in order to modify and gather fresh knowledge or attitudes or discovery." The criterion for "integration" was "insightful thoughts after attempting to find the link or relation between the previous and the fresh knowledge or attitudes or feelings." The criterion for "validation" was "checking the internal consistency between fresh knowledge/attitudes/feelings and previous knowledge." The criterion for "appropriation" was "internalizing the fresh knowledge, attitudes or feelings and making them significant in own life." The criterion for "outcome of reflection" was "change in behavior, outlook, ready to commit to an action and to apply."

Some of the excerpts from students' reflections classified into six subcategories are as follows:

Attending to feelings:

> "Initially I was apprehensive. But yes, my level of knowledge and understanding improved from where I was to now."

> "I was more inclined to the topic of membrane potential, but my group members thought of ECG. Initially I was a little hesitant because ECG was never really my strong topic. Then I agreed to it and decided to study it with greater concentration this time."

Association:

> "The applied aspects need to be taught using figures. As; if the figure is good, those who are poor in grasping the info will understand quickly."

Integration:

> "I gained more knowledge by preparing the slides as it needs lots of information which requires reading more than one book which helps to learn new things."

Validation:

> "Most of the people in our group had the idea of getting our content from the internet but I

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motivated everyone to get our content from the books because it will help us with our exams and answer preparations."

Appropriation:

"I feel proud and enthusiastic as I believe I have gained a good information about the topic and yes, I have achieved something great."

"I was able to study the topic completely and finished learning the whole endocrine system a few days later after the seminar. If it wasn't for the seminar, I would probably have delayed studying it and I am very satisfied with myself completing it."

Outcome of reflection:

"I am very satisfied with how much I managed to learn because of the seminar. I did not revise ECG and it could be one of the falls for me during the seminar. Next time when a seminar or assignment is given, I would try to finish it early."

"I feel satisfied and contented towards my achievements but I feel I would have been more confident. In future, I will try to be more confident and bolder."

"I can do more research on topics and make projects, notes, power points etc. I can even present my own seminar to be appreciated by my fellow colleagues."

As per Mezirow [21,22], the students were the unit of coding and were classified as non-reflectors, reflectors, and critical reflectors. Non-reflectors showed no evidence of elements of reflection as per the model. Non-reflectors just report the incidences straightforwardly with point observations, minimal abstract thinking, and make assumptions. They fail to analyze the experience. Reflectors reflect on the first three levels of one or more elements of model, that is, attending to feelings, association, and/or integration. Critical reflectors demonstrate reflection at all levels of the six elements of model. In our study, out of 27 students in the intervention group, five students were identified as non-reflectors, nine students as reflectors, and 13 students as critical reflectors. When the posttest scores of students scoring ≤50% and >50% were plotted against number of non-reflectors, reflectors, and critical reflectors [Figure 1], it was seen that students who were critical reflectors scored >50%, reinforcing the significance of reflection in the process of learning.

Table 4: Coding of reflection in portfolio

S. No.	Coding of portfolio	Number of students (out of 27)	Percentage
A	Text as the unit of coding		
1.	Attending to feelings	11	40.74
2.	Association	8	29.62
3.	Integration	1	3.70
4.	Validation	2	7.40
5.	Appropriation	13	59.25
6.	Outcome of reflection	13	59.25
B	Student as the unit of coding		
1.	Non-reflector	5	14.81
2.	Reflector	9	37.03
3.	Critical reflector	13	48.14

Limitation and recommendation

This was a single seminar-based study. Since it was an educational project, randomization of the individual sample was not possible.

Conclusion

In the present study, blending of seminar with working portfolio, with reflection as an important component of any portfolio, yielded positive results in the form of significant increase in the posttest scores in the intervention group compared to the conventional group. There were two units of coding of reflections: text as the unit of coding and students as the unit of coding. Text as the unit of coding had six subcategories and students as the unit of coding were classified as non-reflectors, reflectors, and critical reflectors. The reflections aided in the process of learning and indirectly aided in assessment "for" learning.

Financial support and sponsorship

Nil.

Conflicts of interest

There are no conflicts of interest.

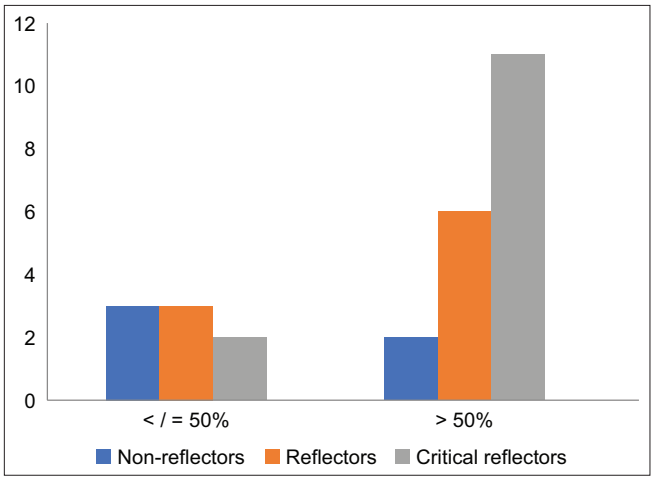

Figure 1: Students classified as per the posttest marks

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References

1. DiCarlo SE. Too much content, not enough thinking and too little FUN! Adv Physiol Educ 2009;33:257-64.
2. Schreiber EB, Fukuta J, Gorden F. Live lecture versus video podcast in undergraduate medical education: A randomised controlled trial. BMC Med Educ 2010;10:68.
3. Patel JR, Patel DS, Desai R, Parmar J, Thaker R, Patel ND. Evaluation of student seminar in medical education: Student's perspective. Int J Curr Res Rev 2015;7:6-9.
4. Jain A, Bansal R, Singh KD, Kumar A. Attitude of medical and dental first year students towards teaching methods in a medical college of northern India. J Clin Diagn Res 2014;8:XC05-8.
5. Bahmed F, Anthony David M, Arifuddin MS. Impact of seminars by and for medical students. Natl J Integr Res Med 2014;5:103-6.
6. Singh S. Use of wikiversity and role play to increase student engagement during student-led physiology seminars. Adv Physiol Educ 2013;37:106-7.
7. Mauricio J, Giuliodori MJ, Lujan HL, DiCarlo SE. Peer instruction enhanced student performance on qualitative problem-solving questions. Adv Physiol Educ 2006;30:168-73.
8. Cortright RN, Collins HL, Rodenbaugh DW, DiCarlo SE. Student retention of course content is improved by collaborative group testing. Adv Physiol Educ 2003;27:102-8.
9. Guiliodori MJ, Lujan HL, DiCarlo SE. Collaborative group testing benefits high and low performing students. Adv Physiol Educ 2008;32:274-8.
10. Skeff KM, Stratos GA, Campbell M, Cooke M, Jones HW III. Evaluation of the seminar method to improve clinical teaching. J Gen Intern Med 1986;1:315-22.
11. Birgin O, Baki A. The use of portfolio to assess student's performance. J Turk Sci Educ 2007;4:75-90.
12. Melograno VJ. Designing a portfolio system for K-12 physical education: A step-by-step process. Meas Phys Educ Exerc Sci 2000;4:97-116.
13. Twigg CA. The need for a national learning infrastructure. Educom Rev 1994;29:4-6.
14. Davies A, Le Mahieu P. Assessment for learning: Reconsidering portfolios and research evidence. In: Segers M, Dochy F, Cascallar E, editors. Innovation and Change in Professional Education: Optimising New Modes of Assessment: In Search of Qualities and Standards. Dordrecht: Kluwer Academic Publishers; 2003. p. 141-69.
15. McMullan M, Endacott R, Gray MA, Jasper M, Miller CML, Scholes J, *et al*. Portfolios and assessment of competence: A review of the literature. J Adv Nurs 2003;41:283-94.
16. Plaza CM, Draugalis JR, Slack MK, Skrepnek GH, Saur KA. Use of reflective portfolios in health sciences education. Am J Pharm Educ 2007;71:1-6.
17. Van Tartwijk J, Driessen EW. Portfolios for assessment and learning: AMEE Guide No. 45. Med Teach 2009;31:790-801.
18. Crandall S. Portfolios link education with practice. Radiol Tech 1998;69:497-82.
19. Harris S, Dolan G, Fairburn G. Reflecting on the use of student portfolios. Nurse Educ Today 2001;21:278-86.
20. Boud D, Keogh R, Walker D. Promoting reflection in learning: A model. In: Boud D, Keogh R, Walker D (Editors), Reflection: Turning Experience into Learning. London: RoutledgeFalmer; 1985. p. 18-40.
21. Mezirow J. How critical reflection triggers transformative learning. In: Fostering Critical Reflection in Adulthood A Guide to Transformative and Emancipatory Learning. San Francisco, CA: Jossy-Bass; 1990. p. 1-20.
22. Wong FKY, Kember D, Chung LYF, Yan L. Assessing the level of student reflection from reflective journals. J Adv Nurs 1995;22:48-57.