

Comparison of Student and Teacher Centered Teaching Strategies in Postgraduate Ophthalmology Trainees

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Abstract

Background: The education of students at the postgraduate level is an essential component of our teaching hospitals, which serve as the primary tertiary referral centers. Self-directed learning readiness is an important part of training and learning.

Objective: To compare students centered with teacher centered approach among first year students of fellowship training in Ophthalmology.

Study type, settings & duration: This randomized controlled trial was carried out at the Ophthalmology Unit of Lady Reading Hospital, Peshawar from January to July 2015.

Methodology: Thirty postgraduate students participated in the study. They were graded based on individual-based written assignments, individual projects including models and drawing charts, individual presentations on related topics, and an overall summative evaluation based on multiple-choice questions at the end of the course. Evaluation was conducted on group 1 and 2 Using SPSS version 22.0, the data was analyzed and the results were presented in the form of tables. The t-test was used to compare mean scores for a variety of assessment scales for both groups.

Results: Mean age of the students was 28.8±1.18 years. Students score in all assessment methods were significantly better in group 1 compared to group 2 (p value <0.05 as significant) while gender wise analysis showed that it was not significant.

Conclusion: The value of student centered teaching strategy was significantly higher as compare to teacher centered among postgraduate ophthalmology students in their first year of training in subject of orbit and oculoplastics.

Key words: Teaching strategies, ophthalmology, resident, teacher centered, student centered.

Introduction

The discipline of medicine is one that is always expanding, gaining new knowledge at an ever-increasing rate. There is a continuous process of

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Authors Contribution

MI & HY conceptualized the project. MI also did the data collection. BD, MAK & EN did the literature search. MAK also performed the statistical analysis. Drafting, revision & writing of manuscript were done by MI, HY & MAK.

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development and improvement being applied to a variety of instructional methods, and the overarching goal of all of these approaches is to determine how to improve one's ability to teach in order to produce superior future consultants.¹ It is feasible to teach a student in the most effective manner when an approach is utilized that actively engages the student. There are two main groups of pedagogical approaches to choose from.² An approach that is concentrated on the teacher makes the teacher the active participant while making the student the passive learner.² The converse is true for a technique that focuses on the student, known as the student-centered approach, in which the learner is responsible for seeking knowledge while the teacher assists him to attain the goal.² Postgraduate training, which entails teaching future consultants. Things have gone through a fundamental sea

change as a direct result of the advent of newly developed training methodologies. The research suggests that the student-centered teaching technique is beneficial in developing the essential practice skills in students, and this strategy has been incorporated into the curricula of developed world countries.³

The conventional method of instructing students in undergraduate and postgraduate programmes is called "teacher-centered." In this method, the primary focus is on the instructor, when the teacher is the central character in the learning process, students are expected to take a more receptive role, and lectures are given a higher priority.²

During postgraduate training in clinical subjects such as ophthalmology, in the clinic or OPD, the consultant teacher receives the patient seeking treatment when the patient comes in with some clinical problem. The instructor will then provide the group of trainees in the OPD or ward with some information regarding the disease, such as the diagnosis or the treatment. The teacher plays an important part in the process of learning, and this depends on the teacher concept (problem-based learning).²

If a student participates in OPD, ward, or OT discussions, then the student will feel more confident, will take more interest, and will develop the skills necessary to become a good and expert consultant, which is the most important aspect of postgraduate education.⁴ In this region of the world, there is typically a very low volume of research conducted on the instructional strategies utilized by postgraduate trainees.^{5,6} Clinicians and supervisors who are constantly pressed for time have less time to teach students in an interactive manner. Self-directed learning, problem-based learning, cooperative learning techniques, and team-based learning all help students improve their ability to solve problems and analyze information. If a student-centered strategy is implemented from the very beginning of a training programme, it makes adaptation quite simple for both the trainees and the trainers.⁷

Assessment is one of the most important aspects of the curriculum because it serves as both a learning tool and a means of determining whether or not the objectives have been met.⁸ It includes both practical and written examinations that cover the candidate's knowledge, ability, and attitude.⁹ The quality of instruction, as well as the improvement of that instruction, and, ultimately, the improvement of student learning, are all directly impacted by assignments.¹⁰ Students can benefit from giving presentations in the form of lectures in the classroom or in the lecture hall.¹¹ The different

projects that the instructor assigns to the students over the course of the training help evaluate the students' levels of creativity, knowledge, and in-depth learning.¹² The use of multiple-choice questions as a form of summative assessment is both extremely reliable and expedient.¹³ As a result, presentations, assignments, and projects are the primary assessment tools, and multiple choice questions are used to evaluate students' performance in the summative assessment.

Learning that is focused on the needs of the student has a number of beneficial effects at both the undergraduate and postgraduate levels. Students should be prepared for lifelong learning in their professions and should make it a priority to stay current through the use of an appropriate and preferred learning process.¹⁴

There is a shortage of teaching methods, particularly at the postgraduate level, particularly in the field of ophthalmology, and even more so, on the significant subject matter of orbit and oculoplastics. The topic of orbit and oculoplastics surgery was chosen for the present study. The reason is that this topic does not involve sophisticated equipment for which the use is a bit difficult at the first year of training. There is no much need of microscopic examination and most of the pathologies are seen with naked eye. This increases the level of interest of fresh trainees as well. The field of ophthalmology is one that is expanding at a rapid rate, and as more time passes, more subspecialties requiring more advanced education are emerging. Ophthalmology has a number of subspecialties, one of the most important being orbit and oculoplastics, which focuses on periocular structures such as eyelids, adnexa, and the orbit.¹⁵ As a result, a study was conceived to address this gap in knowledge. As a result, this kind of research was carried out on the topic of orbit and oculoplastics with the intention of locating helpful methods that could be used to teach the topic effectively.

The purpose of this study is to determine which method of instructing postgraduate students in the early stages of their careers in orbit oculoplastics is most beneficial.

Methodology

This randomized controlled trial study was conducted at ophthalmology unit, Lady Reading Hospital, Peshawar. We used a comparative design. This study was conducted on 30 postgraduate students of Ophthalmology Unit, Lady Reading Hospital, Peshawar enrolled in FCPS ophthalmology course between Jan 2015 to July

2015. Both genders are first year students who were selected by convenient sampling and written consent was taken individually. These 30 Students were divided into two groups based on the two teaching strategies by lottery method. Inclusion criteria includes all first year FCPS Ophthalmology students with not more than 3 months of training started to ensure that there wont be any transition of the learning method before study. The exclusion criteria include residents of FCPS Ophthalmology with more than three months training from start of residency and those not willing to participate. In group 1, 15 students selected with student centered approach and was assigned group 1 to get self-directed learning throughout the session. In group 2, 15 students were included in teacher centered group in which they were taught by the senior consultant throughout the session. Students of two groups were evaluated by four different equal categories. Only most important and commonest topics covered according to CPSP syllabus. They were evaluated through individual based written assignments, individual projects including models and drawing charts, presentations on related topics and at the end summative assessment through MCQs.¹⁵

Projects were given on various topics like ptosis, epiphora, eyelid trauma, orbital cellulitis and tumors. Students were asked to search cases and write case reports as project. Written assignments include essays on various topics like management of orbital tumor. Students were given topics like ectropion for presentation and through a checklist students were assessed. Finally 50 MCQs were designed for summative assessment of students. Outcome based evaluation was made. 100 marks were assigned for each assessment using a checklist and evaluation was taken during the session by the teacher. Since the required sample of study is less compared to undergraduate students, therefore we used fewer samples. No reference was found to calculate on the said subject. Non parametric independent sample t test was used as Tool for statistics analysis. Frequency and percentage were calculated from the data and “t” test were applied to assess the mean ± Standard Deviation of scored marks and level of significance among both the groups. Data was analyzed and presented in the form of tables using SPSS version 22.0.

The Ethical approval was obtained from institutional research and ethics board of Postgraduate Medical Institute, Lady Reading Hospital, Peshawar.

Results

Fifteen students in each group were included with mean age 28.8±1.18 years. There were 16 female and 14 male students. Age wise comparison between two groups among minimum and maximum ages was calculated which is not significant between two groups ($p = 0.73$). Various assessment scores were compared in both groups. All the scores were significantly different between group 1 and group 2. Mean Assignment Score between the two groups was 37.93±25.37 with 12.00 minimum and 91.00 as maximum score. Mean Project Score was 42.63 ±28.16 with 8.00 as minimum and 93.00 as maximum score. Presentation Score was 39.57±25.90 with minimum of 5.00 and maximum of 95.00 score. MCQ Score was 49.87±24.84 with 9.00 as minimum and 93.00 as maximum score (Table-1).

Table 1: Descriptive statistics. (n=30)

Variables	Mean	SD	Minimum	Maximum
Age(in years)	28.80	1.19	27.00	31.00
Assignment Score	37.93	25.37	12.00	91.00
Project Score	42.63	28.16	8.00	93.00
Presentation Score	39.57	25.90	5.00	95.00
MCQ Score	49.87	24.85	9.00	93.00

SD = Standard Deviation

Table 2: Comparison of assessment scores in both the groups.

Various Assessment Scores	Groups	SD	p-value
Assignment Score	Group 1	26.53	0.001
	Group 2	11.01	
Project Score	Group 1	26.71	0.002
	Group 2	19.56	
Presentation Score	Group 1	24.13	0.001
	Group 2	18.77	
MCQ Score	Group 1	22.32	0.018
	Group 2	23.56	

Gender wise comparison of various assessment scores was not significant in both groups. Using t-test, students’ scores in all assessment methods have shown that it was significantly better in group 1 compared to group 2. Students’ scores in all assessment methods have shown that it was significantly better in group 1 compared to group 2 using t-test while gender wise analysis showed that it was not significant. Assignment Score was 26.53 in group 1 and 11.01 in group 2 with a p value of 0.001. Project Score was 26.71 in group 1 and 19.56 in group 2 with a p value of 0.002. Presentation Score was 24.13 in group 1 and 18.77 in group 2 with p value of 0.001.

MCQ Score in group 1 was 22.32 and 23.56 in group 2 with p value of 0.018 (Table-2).

Discussion

Main findings of the study are that student-centered approach was better compared to teacher-centered approach. The group who followed student-centered approach performed better on all assessment methods i.e. assignment score, presentation score, projected score and MCQs score. Gender wise comparison showed that the score of both genders on all assessment methods was not significantly different. These findings are in line with an Indian study which showed that with self-directed learning readiness individuals understand patients' conditions and diagnose them without the assistance of other people.¹⁶

According to the findings of Kar SS et al., males demonstrate a greater readiness for self-directed learning.¹⁷ On the other hand, Kell C et al. found that women are superior when it comes to self-directed learning.¹⁸ Our research found that there was no significant difference between the genders, which is in line with the findings of Campos F et al.¹⁹ Learning that is self-directed and student-centered plays an important role in medicine, especially for those who hope to become consultants in the future. In the medical field, the ability to learn on one's own is absolutely necessary in order to achieve effective lifelong learning in the face of rapidly shifting knowledge.²⁰

According to the findings of a study that was carried out by Beaudoin C and colleagues, there was a significant disparity between what medical trainees are expected to learn and what they actually experience while they are in training, which posed a significant challenge to the process of skill acquisition.²¹ In spite of the fact that the study suggested that certain components of the hybrid curriculum, most notably PBL, could encourage self-directed learning in preclinical students, Kidane HH et al.²² came to the conclusion that the curriculum is not yet free from a teacher-centered culture because the majority of teachers still have a great deal of power in deciding how the learning process will take place. In a manner that is analogous to the findings, the findings of our study sample revealed that activities conducted with a focus on the student contributed more to the students' knowledge and understanding of the subject.²³ It was found that students were able to acquire new knowledge and ideas while the study was being conducted, as was observed in a study by Chan SC et al.²⁴ There are a lot of other studies that are emphasizing how important it is to centre learning around the student,

and there needs to be more research done in order to find new strategies for self-learning and improve upon the ones that already exist.^{23,25}

Khan et al.,¹⁵ carried out a study that compared the effectiveness of various instructional approaches, with regard to the subject of Ocular Anatomy, among students of optometry And used a variety of evaluation strategies which was used in present study. According to the findings of the current study, students in the first year of ophthalmology post graduate programmes scored higher on various assessment methods when the class was centered around the students (student centered) rather than the traditional method, which was centered around the teachers (teacher centered). To eliminate the possibility of selection bias, the study sample of students from both groups was taken during the same year and time period. However, there are some slight age differences between the two samples, as well as between the genders of the participants, which could be considered a confounding factor.

This student-centered strategy, as opposed to a teacher-centered one, was found to be very useful and interesting, and the students took a keen interest in the entire activity. This is according to our current experience. It is also clear from the overall score as well as from each individual's performance on the assessment.

As a result of the current research, it has been suggested that the postgraduate curriculum of the FCPS course undergoes necessary changes beginning in the first year, and these adjustments are made not only in the field of ophthalmology but also in a variety of other fields as well. These kind of strategies offer the benefit of a more rapid learning process for "mature" students, who are more commonly referred to as adult learners. Self-directed learning is defined as "a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes."¹⁶ This student-centered adult learning is also known as self-directed learning.

It has been suggested that additional research with a larger sample size and additional topics in the field of ophthalmology should be carried out at the postgraduate level in order to achieve more meaningful results and less bias.

The most important limitation of the study is that it was carried out on a relatively small sample and was restricted to first-year students of FCPS and orbit and oculoplastics only. The second

limitation of the study was that it only addressed the most common and significant aspects of the subject being investigated. It is suggested that additional studies be conducted with large sample sizes in order to further justify the findings of the study.

When comparing the value of student-centered instruction to that of teacher-centered teaching for postgraduate ophthalmology students in their first year of training, the value of student-centered teaching was found to be significantly higher in subject of orbit and oculoplastics.

Conflict of interest: None declared.

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