
FORMATIVE AND SUMMATIVE ASSESSMENT IN THE LIGHT OF STUDENTS PERCEPTIONS

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ABSTRACT

OBJECTIVES

To collect information about the Perceptions of dental students regarding Formative and Summative Assessment in Sardar Begum Dental College.

METHODS

This cross sectional study was conducted at Sardar Begum Dental College, Peshawar. Pre validated Assessment Experience Questionnaire was used to collect information. All the students of 2nd, 3rd, 4th year BDS and House officers who have joined and continued their bachelors education at Sardar Begum Dental College and Hospital from the first year were invited to participate in this study through Convenience sampling technique after taking verbal and written consent.

RESULTS

Overall response rate was 29.3% in 2nd Year, 35.1% in 3rd year, 75.7% in 4th Year and 92.7% among house officers. 60-70% students opined that formative assessment experiences stimulated deep learning and were useful in the preparation for summative assessment. Majority of the students were satisfied with the atmosphere, structure and conduct of summative assessment. More than 70% admitted that they learn more when preparing for summative assessment near the examination. Almost 60% prefer to have more number of SEQs by claiming that these let them apply deep learning. Despite of accepting the contents of OSCE/OSPE as of good quality, majority students from all the professional years were dissatisfied from the time allocation as well as slides and images placed in each station

CONCLUSION

Students like formative assessment mainly because of feedback as it helps them in learning as well as preparing for summative assessment. All parts of summative assessment were more satisfactory for the students.

KEY WORDS: Formative, Summative Assessment, Students Perception

INTRODUCTION

Formative assessment is a process used by teachers and students during instruction that provides feedback to adjust ongoing teaching and learning to improve students' achievement of intended instructional outcomes.¹ So it is a known fact that the use of Formative assessment (assessment for learning) leads to improvement in quality learning.² In other words teacher engage students in instructional conversations, probe out students thinking by in sighting into it and try to uncover misconceptions in order to correct these.³ There are sufficient research evidence available that Formative assessment for learning practices lead to improvement in student learning and achievement.³ Critically, the formative assessment process is prospective. It helps to point out the way forward for students,

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and provides the learner with feedback which supports to take steps through the zone of proximal development toward greater levels of autonomy and mastery.¹

In contrast summative assessments are the assessments of learning. They measure student achievement and progress after a period of learning, and within increasingly broader contexts. They are also used to make judgments about the student learning and to evaluate and hold accountable educational programs.⁴ Results from this assessment may also serve a formative purpose but differ from in a way that they are retrospective regarding teacher moves and student learning.⁴ The tools of summative assessment are designed to measure performance outcomes at the conclusion of a period of learning.⁴ Effectiveness of the curriculum in addition to its design, way of implementation and assessment also depends on perceptions about it by the students.⁵ There are multiple factors like cultural differences and emotions that can affect student's perception about assessment and overall curriculum.⁶ Therefore a wise combination of summative and formative assessment based on learning objectives is required, by taking into consideration student's cultural background, values and implemented education system⁶. This is important because authentic assessment is among the powerful motivators that drive students learning approach⁶. Ultimately positive perception by the students will enhance the students learning motivation.⁶ So it is important to evaluate their perceptions at regular intervals⁷, in order to keep learning and assessment in interaction.

The importance of evaluation is further highlighted by the drastic change in learning style at school level (strategic learning characterized by motivation to be successful to achieve high grades) to University level Professional education that requires deep learning style which depends on subject interest/understanding and vocational relevance.⁸ Besides this superficial approach to learning by frequently use of old examination material is also a problem in many students.⁹ And particularly medical students are at risk of developing such practice.¹⁰ Therefore it seems meaningful to evaluate student's perception regarding their study efforts, formative and summative assessments in order to set goals and charting process towards improving learning outcomes. So, aim of this cross sectional study was to collect information about the Perceptions of dental students regarding their study efforts/ practices, Formative and Summative Assessment.

METHODOLOGY

This cross-sectional study was conducted at Sardar Begum dental college. All the students of 2nd, 3rd, 4th year BDS and House officers who have joined and continued their bachelors education at Sardar Begum Dental College and Hospital from the first year were invited to participate in this study. Non willing participants and those absent at the day of data collection were excluded. Using non-probability convenient sampling technique, pre validated "Assessment Experience Questionnaire",⁷ after being approved by the Advanced Studies and Research board and Ethical Committee of Gandhara University Peshawar was used to collect information.. Before finalization of study design permission was taken from the author of Assessment Experience Questionnaire through e-mail. Questionnaire was comprised of three parts; first part comprises of five questions related to Students study efforts. Second part having eight questions related to the Formative assessment, while the third part with fifteen questions belonging to Summative assessment. After taking verbal and written consent they were given to complete the questionnaire.

Data entered and analyzed in Statistical Package for Social Sciences Version 16. For the ease of analysis participants responded to the individual questions as agreed / strongly agreed and disagree / strongly disagree were pooled together as agreed and disagreed respectively.

Descriptive statistics applied to get frequency of responses by the participants as agreed, disagreed or remain uncertain to the statements of the individual questions. While Chi square test was applied to assess whether there is any significant difference exists between the responses by the participants belonging to different level of Professional education.

RESULTS

Overall response rate was 29.3% in 2nd Year, 35.1% in 3rd year, 75.7% in 4th Year and 92.7% among house officers.

Part 1: Questions Regarding Study Efforts

Results from the first part which consists of three questions suggests that most of our students give more time to the studies near their assessment. Result of Question 4 shown, increased trend of assessment driven study among the students with increase in level of professional education. Majority of students disagree to the statement of “being not very keen to obtain position in the class”.(Table 1).

Table No 1: Students Perception Regarding Study Efforts

Questions Regarding Study Effort	2 nd Year BDS			3 rd Year BDS			4 th Year BDS			House Officers			P Value
	A	U	D	A	U	D	A	U	D	A	U	D	
Q1.I do same amount of study each week regardless an assessment is due or not	4 (2.4 %)	5 (3%)	13 (7.8 %)	7 (4.2%)	4 (2.4%)	15 (9.1 %)	17 (10.3 %)	8 (4.8 %)	28 (17%)	24 (14.5 %)	20 (12.1 %)	20 (12.1 %)	0.07
Q2.I can do well in the assessment by doing selective study	15 (9.1 %)	2 (1.2 %)	5 (3%)	8 (4.8%)	13 (7.8%)	5 (1.2 %)	35 (21.2 %)	9 (5.4 %)	9 (5.4%)	44 (26.6 %)	6 (3.6%)	14 (8.4 %)	0.001
Q3.In week when the assessment is due, I put more hours in study	15 (9.1 %)	2 (1.2 %)	5 (1.2 %)	22 (13.3 %)	2 (1.2%)	2 (1.2 %)	38 (23%)	6 (3.6 %)	9 (5.4%)	46 (27.8 %)	11 (6.6%)	7 (4.2 %)	0.53
Q4.I omit to prepare subjects which are likely to be minimally represented in the assessment	6 (3.6 %)	10 (6%)	6 (3.6 %)	12 (12.1 %)	6 (3.6%)	8 (4.8 %)	26 (15.7 %)	10 (6%)	17 (10.3 %)	32 (19.3 %)	22 (13.3 %)	10 (6%)	0.12
Q5.I am not very keen on obtaining positions in the class	5 (3%)	5 (3%)	12 (12.1 %)	9 (5.4%)	8 (4.8%)	9 (5.4 %)	21 (12.7 %)	14 (8.4 %)	18 (11%)	28 (17%)	14 (8.4%)	22 (13.3 %)	0.56

Part 2: Questions Regarding Formative Assessment

Overall importance of Formative assessment is well appreciated and admired by the students particularly by the clinical students. About the regularity of feedback provision clinical students of 4th year and house job were more satisfied compared to 2nd and 3rd Professional BDS according to question 3 responses. But students belonging to all professional years accepted the feedback as a source to remedy the mistakes. There was increase trend of reading marks only among the 4th year and House job students compared to 2nd and 3rd year students (Q5). In response to question 6 and 7 majority students accepted the importance of formative assessment in deep learning and its role for the preparation of summative assessment. The numbers of formative assessments are too many were accepted by majority of students of all the professional years (Table 2).

Table No 2: Students Perception Regarding Formative Assessment

Questions Regarding Formative Assessment	2 nd Year BDS			3 rd Year BDS			4 th Year BDS			House Officers			P Value
	A	U	D	A	U	D	A	U	D	A	U	D	
Q1.I take Formative assessment regularly and seriously	17 (10.3%)	2 (1.2%)	3 (1.8%)	15 (9.1%)	8 (4.8%)	3 (1.8%)	37 (22.4%)	8 (4.8%)	8 (4.8%)	50 (30.3%)	11 (6.6%)	3 (1.8%)	0.21
Q2.Methods used in Formative assessment are multiple, diverse and stimulate learning	18 (11%)	3 (1.8%)	1 (0.6%)	12 (7.2%)	9 (5.4%)	5 (3%)	39 (23.6%)	9 (5.4%)	5 (3%)	41 (24%)	13 (7.8%)	10 (6%)	0.16
Q3.Feedback is regularly provided by the Faculty based on Formative assessment	6 (3.6%)	6 (3.6%)	10 (6%)	8 (4.8%)	9 (5.4%)	9 (5.4%)	30 (18.1%)	14 (14%)	9 (5.4%)	32 (19.3%)	10 (6%)	22 (13.3%)	0.04
Q4.I take the feedback seriously to remedy my mistakes	14 (8.4%)	6 (3.6%)	2 (1.2%)	16 (9.6%)	9 (5.4%)	1 (0.6%)	37 (22.4%)	6 (3.6%)	10 (6%)	44 (26.6%)	11 (6.6%)	9 (5.4%)	0.15
Q5.I tend to read the marks only	9 (5.4%)	4 (2.4%)	9 (5.4%)	13 (7.8%)	6 (3.6%)	7 (4.2%)	22 (13.3%)	13 (7.8%)	18 (11%)	27 (16.3%)	17 (10.3%)	20 (12.1%)	0.95
Q6.Formative assessment is very helpful in stimulating deep learning	18 (11%)	2 (1.2%)	2 (1.2%)	17 (10.3%)	5 (3%)	4 (2.4%)	38 (23%)	9 (5.4%)	6 (3.6%)	50 (30.3%)	9 (5.4%)	5 (3%)	0.84
Q7.Formative assessment is very helpful in preparing for Summative assessment	19 (11.5%)	1 (0.6%)	2 (1.2%)	16 (9.6%)	9 (5.4%)	1 (0.6%)	41 (24%)	9 (5.4%)	3 (1.8%)	54 (32.7%)	6 (3.6%)	4 (2.4%)	0.17
Q8.There are too many Formative assessments in a year	18 (11%)	2 (1.2%)	2 (1.2%)	13 (7.8%)	5 (3%)	8 (4.8%)	29 (17.5%)	15 (9.1%)	9 (5.4%)	27 (16.3%)	18 (11%)	19 (11.5%)	0.04

Part 3: Questions Regarding Summative Assessment

This section primarily evaluated about the summative assessments. Majority of students agreed to the statement that there are too many summative assessments in a year. In reply to question 2 and 3, majority students from all the professional years admired that the weightage of curriculum based assessment is appropriate and shown satisfaction about the examination environment and conduct. Regarding exam format in question 4, 5 and 6, majority students from all the professional years accepted the good correlation of examination content with the learning objectives, ease of understanding the questions and number of MCQs are adequate regarding the subject matter. Most students were in favor of different other types of MCQs besides one best type (Q7). In reply to question 8 again majority students prefer to have more number of SEQs by claiming that these let them apply deep learning. Despite of accepting the contents of OSCE/OSPE as of good quality, majority students from all the professional years were dissatisfied from the time allocation as well as slides and images placed in each station (Q 9, 10, 11).

Majority of students accepted that the examination invigilators and observers were impartial and there was hardly any room for unfair means (Q12, 13). Another appreciable finding regarding our assessment was that maximum students accepted that, they learn new things or gain new knowledge while preparing for the assessment (Q14). But, most of them were of opinion that they tend to forget some of the studied stuff after assessment (Q15)(Table 3).

Table No 3: Students Perception Regarding Summative Assessment

Questions Regarding Summative Assessment	2 nd Year BDS			3 rd Year BDS			4 th Year BDS			House Officers			P Value
	A	U	D	A	U	D	A	U	D	A	U	D	
Q1. There are too many Summative Assessment in a year	18 (11%)	2 (1.2%)	2 (1.2%)	16 (9.6%)	2 (1.2%)	8 (4.8%)	30 (18.1%)	10 (6%)	13 (7.8%)	29 (17.5%)	10 (6%)	25 (15.1%)	0.07
Q2. Weightage of Curriculum based Assessment is appropriate in professional exam and result	11 (6.6%)	10 (6%)	1 (0.6%)	13 (7.8%)	9 (5.4%)	4 (2.4%)	30 (18.1%)	19 (11.5%)	4 (2.4%)	37 (23.6%)	17 (10.3%)	10 (6%)	0.51
Q3. General atmosphere and conduct of examination is satisfactory	19 (11.5%)	1 (0.6%)	2 (1.2%)	14 (14%)	4 (2.4%)	8 (4.8%)	41 (24%)	6 (3.6%)	6 (3.6%)	40 (24.2%)	7 (4.2%)	17 (10.3%)	0.11
Q4. Contents of the examination correlate well with the Learning objectives	19 (11.5%)	1 (0.6%)	2 (1.2%)	10 (6%)	10 (6%)	6 (3.6%)	42 (24.4%)	2 (1.2%)	9 (5.4%)	46 (27.8%)	11 (6.6%)	7 (4.2%)	0.001
Q5. The questions are easy to understand	14 (8.4%)	4 (2.4%)	4 (2.4%)	16 (9.6%)	2 (1.2%)	8 (4.8%)	28 (17%)	9 (5.4%)	16 (9.6%)	42 (25.4%)	15 (9.1%)	7 (4.2%)	0.13
Q6. There are adequate number of MCQs for each module and	20 (12.1%)	0 (0%)	2 (1.2%)	17 (10.3%)	3 (1.8%)	6 (3.6%)	33 (20%)	10 (6%)	10 (6%)	37 (22.4%)	8 (4.8%)	19 (11.5%)	0.09

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Q7. There should be many types of MCQs in addition to one best/ correct type	8 (4.8%)	4 (2.4%)	10 (6%)	17 (10.3%)	6 (3.6%)	3 (1.8%)	29 (17.5%)	15 (9.1%)	9 (5.4%)	41 (24%)	14 (14%)	9 (5.4%)	0.03
Q8. There should be SEQs in the assessment as these let us apply deep learning	17 (10.3%)	2 (1.2%)	3 (1.8%)	18 (11%)	4 (2.4%)	4 (2.4%)	36 (21.8%)	11 (6.6%)	6 (3.6%)	53 (32.1%)	6 (3.6%)	5 (3%)	0.50
Q9. The contents of OSPE/ OSCE are of good quality	19 (11.5%)	2 (1.2%)	1 (0.6%)	16 (9.6%)	6 (3.6%)	4 (2.4%)	37 (22.4%)	6 (3.6%)	10 (6%)	52 (31.5%)	7 (4.2%)	5 (3%)	0.20
Q10. The time allotted for each station is adequate for the response	5 (3%)	1 (0.6%)	16 (9.6%)	8 (4.8%)	6 (3.6%)	12 (7.2%)	15 (9.1%)	6 (3.6%)	32 (19.3%)	26 (15.7%)	11 (6.6%)	27 (16.3%)	0.14
Q11. The slides and images placed on OSPE/OSCE are of good quality	10 (6%)	1 (0.6%)	11 (6.6%)	5 (3%)	4 (2.4%)	17 (10.3%)	20 (12.1%)	10 (6%)	23 (14%)	33 (20%)	11 (6.6%)	20 (12.1%)	0.05
Q12. The observers and invigilators are impartial	6 (3.6%)	9 (5.4%)	7 (4.2%)	12 (7.2%)	8 (4.8%)	6 (3.6%)	26 (15.7%)	17 (10.3%)	10 (6%)	32 (19.3%)	15 (9.1%)	17 (10.3%)	0.51
Q13. There is hardly any room for unfair means	11 (6.6%)	4 (2.4%)	7 (4.2%)	13 (7.8%)	4 (2.4%)	9 (5.4%)	27 (16.3%)	14 (8.4%)	12 (7.2%)	26 (15.7%)	15 (9.1%)	23 (14%)	0.70
Q14. I learn new things while preparing for assessment	20 (12.1%)	2 (1.2%)	0 (0%)	18 (11%)	2 (1.2%)	6 (3.6%)	42 (25.4%)	7 (4.2%)	4 (2.4%)	58 (35.1%)	4 (2.4%)	2 (1.2%)	0.02
Q15. I forgot most of what I learn after the assessment	10 (6%)	7 (4.2%)	5 (3%)	15 (9.1%)	7 (4.2%)	4 (2.4%)	34 (20.6%)	9 (5.4%)	10 (6%)	35 (21.2%)	14 (8.4%)	14 (8.4%)	0.83

DISCUSSION

It is well established fact that assessment not only drives learning but also influences students study habits markedly.¹¹ Depending upon its role in the curriculum, assessment can be performed in many ways, like summative and formative etc. ¹² Ideally learning at university / professional level demands change in the style i.e. from superficial/ selective learning to deep learning.⁷ But usually learning style developed during the period of schooling take their toll in the professional level education in university as well. ⁷Our study results shown minimal change in the study habits of our dental students. They are still following the selective approach of studying near the assessment. But, our results were in agreement to the studies conducted by Anwar M et al⁷ as well as to Endstrom et al¹². They both reported the concept of studying selectively near the examinations. Students therefore should be assessed throughout the year so as to guide them

through adequate feedback well timely to improve their learning.¹³ This infact was the concept to introduce formative assessment early in the program.⁷Our study results further highlighted the consideration of formative assessment as a favored learning tool. This finding was in agreement to those of Figueroa C¹⁴ et al and Anwar M et al.⁷

Promising finding related to students was that the majority were taking formative assessment quite seriously and considering it useful for their preparation of summative assessment. Again this was also in agreement to other researchers.^{7,15}Regarding frequency of formative assessment majority of students were considering it more. Reason might be that the trend of formative assessment was introduced in the recent past, so our students are not tuned to the frequent assessments. But this finding was also in partial agreement to those of Anwar M et al, whom study results shown more agreement to the existing frequency of formative assessment primarily by the senior compared to junior basic levelstudents.⁷

Most of students were agreed to the statement that there are too many assessments in a year. It could be a reason that at the end of a course assessment is usually viewed as a frightening obstacle so has some negative effects on learning as well.¹⁶ But the weightage of curriculum based assessment and correlation of the exam content with the learning objectives was considered appropriate. Similar results were also concluded by other researchers as well.^{7,17}

Majority of the students in this study agreed to the present number of MCQs in the exam. But most of them demanded inclusion of other types of MCQs besides one best type. It might be because one best MCQ needs significant brainstorming in order to solve the issue. Otherwise single best MCQs are more reliable and have high discriminating power compared to other type of MCQs.¹⁸ Students in our study agreed to the inclusion of more number of SEQs in the exam. Our this finding was in contradiction to those of Anwar M et al, probably because of difference in curriculum being followed i.e. integrated compared to non integrated in our dental college.⁷Majority of students were not agreed with the time allocation and quality of images/ stuff placed in the OSCE/ OSPE stations. This was the finding in common by another researcher who then advised to sort the issue by pilot testing of each station before examination.⁷Student's remarks were quite positive about impartial invigilation and lack of unfair means about our summative assessment, but they claim to forget most of what they have learnt after assessment.

CONCLUSION

This study confirms that study habits at the time of admission to medical school are difficult to change but can be modified. It also confirms that students like formative assessment mainly because of feedback as it helps them in learning as well as preparing for summative assessment. Summative assessment, on the other hand, was more satisfactory for the students except that they opposed inclusion of more methods of assessment.

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