

## ORIGINAL ARTICLE

# Students' Perceptions towards Formative and Summative Assessment: A Single Institution Study

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## ABSTRACT

**Purpose of the Study:** The purpose of this study was to get an understanding of the MBBS students' perception and experience about their formative and summative assessment. Since the implementation of integrated curriculum students need to adopt deep learning approach contrary to traditional learning. We were interested to explore what approach our students take towards the preparation of their exam. We were also interested to get their views about formative and summative assessment currently being undertaken in our medical college.

**Objectives of the Study:** To collect data using a Pre-validated questionnaire and then analyze it, regarding:

- Students study efforts towards passing the exam.
- Students' perception about the importance of formative assessment held in our college.
- Students experience and their views about conduction of summative assessment.

**Study Design:** A quantitative cross-sectional analytical study.

**Place and Duration of Study:** The Study was conducted from Jan 2015 to June 2015 at Islamic International Medical College Rawalpindi.

**Materials and Methods:** This was a quantitative cross sectional study using a structured, pre-validated questionnaire. The questionnaire was administered to all present students of 2<sup>nd</sup> to 5<sup>th</sup> year students. Data was entered in MS Excel sheet and analyzed using one sample binomial test.

**Results:** The response rate was 75% (5<sup>th</sup> year) to 84% (3<sup>rd</sup> year). Only 27% students performed same amount of study regularly. Whereas 73% put more effort near the assessment. Almost 50% students still performed selective studies for the assessment. 60-80% students opined that formative assessment experiences stimulated learning and were useful in the preparation for summative assessment.

Except for final year, more than 50% students were satisfied with the general atmosphere, structure and conduct of summative assessment. More than 70% admitted that they learn more when preparing for summative assessment near the examination. Almost 90% resented the inclusion of SEQs in methods of summative assessment and were contended with MCQs and OSCE/OSPE.

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

**Key Words:** Learning Styles, Student Perceptions, Assessment.

## Introduction

The importance of training future doctors through relevant and effective curriculum cannot be overemphasized<sup>1</sup> Effectiveness and relevance of the curriculum not only depends upon the curriculum

design, its implementation methods and assessment but also on how it is perceived by the students. It may be below optimum if the students have poor perceptions<sup>2</sup> The students' perception largely depends upon how the curriculum is implemented<sup>3</sup> Positive perceptions are known to enhance the motivation level of students therefore it is important to evaluate students' perception regularly at frequent but predefined intervals.<sup>4</sup>

The importance of regular evaluation is further emphasized because of the change involved in learning style in transition from Higher Secondary/A Level schooling to University/Professional Education level education. The learning style at school level is Strategic Learning Style characterized by motivation to be successful, to compete with others and to achieve high grades. The learning process results in

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patchy and variable understanding. In contrast University/Professional education requires deep learning style in which student is motivated by interest in the subject, vocational relevance and personal understanding. It involves processes of identifying general principles, relating ideas to evidence and integrating material across courses.<sup>5</sup> In Pakistan admission to medical school still remains the dominant desire among Secondary School and A Level students therefore the learning style in school is strategic learning. Majority of the medical schools are still following traditional subject based curriculum and old assessment methods and hence no change is required in learning style of the students to be successful. At Islamic International Medical College reformed integrated curriculum and new methods of assessment were introduced in 2009 and one 5 years course has been completed. This curriculum demand deep learning style from the students who have to struggle hard to meet this demand. Hence it was important to evaluate the changes in students' perception of new assessment methods and the time which they took to acquire these changes in order to improve the curriculum design, implementation methodology and learning environment to make their education more relevant and effective. With the above mentioned objectives this quantitative cross-sectional analytical study was designed and conducted among four years (2<sup>nd</sup> year to 5<sup>th</sup> year) of MBBS students of Islamic International Medical College (IIMC).

### Materials and Methods

This was a quantitative cross sectional study using a structured, pre-validated questionnaire. The questionnaire had three parts; one with 5 questions recorded the study habits/effort by the students, second of 8 questions recorded students' perceptions towards formative assessment and the third with 15 questions dealt with perceptions towards summative assessment, total of 28 questions (Annex A). The questionnaire was administered to all present students of 2<sup>nd</sup> to 5<sup>th</sup> year (100 students each) and collected back after completion by them. Data was entered in MS Excel sheet. For meaningful comparison 2<sup>nd</sup> and 3<sup>rd</sup> year (first half of the program) students have been grouped together (Group A) and 4<sup>th</sup> year and 5<sup>th</sup> (second half of the program) have been grouped

together (Group B). Those responding as strongly agree and agree were pooled together and those who responded as disagree and strongly disagree were collected together. Those who were uncertain were excluded. Results were analyzed using SPSS 17.0. One sample binomial test was applied and significance was calculated to three places of decimal.

### Results

**Study Habits/Effort (Table I):** Responses to question 1 and 3 (complimentary questions) suggest that majority of the students still are in the habit of giving more time to studies near the assessment and are not uniformly committed to regular study hours as demanded by deep learning style. Similarly results did not reveal any significant change in perception towards selective study to pass summative assessment.

**Table I: Question Regarding Study Effort**

Q	2ND YEAR		3RD YEAR		C	
	A	D	A	D	A	D
1	32.53	51.81	32.14	50.00	32.34	50.90
2	43.37	44.58	40.48	44.05	41.92	44.31
3	87.95	9.64	86.90	9.52	87.43	9.58
4	53.01	32.53	52.38	30.95	52.70	31.74
5	37.35	51.81	35.71	47.62	36.53	49.71

  

Q	4TH YEAR		FINAL YEAR		C	
	A	D	A	D	A	D
1	36.78	49.43	22.67	57.33	29.72	53.38
2	43.68	36.78	24.00	46.67	33.84	41.72
3	79.31	5.75	85.33	10.67	82.32	8.21
4	54.02	22.99	48.00	42.67	51.01	32.83
5	41.38	29.89	42.67	41.33	42.02	35.61

Response to question 5 indicates some change in desire to work for a position in the class, while progressing in the program, but the change is not significant statistically. It implies that Strategic Learning Habits acquired at Higher Secondary School and A Level education still prevail and students have not adapted to deep learning style required for effective implementation of the new curriculum.

**Formative Assessment (Table II):** The level of interest in formative assessment remained high from the beginning and was maintained throughout the program (responses to Q1). Majority of the students

is satisfied with diversity of methods of formative assessment (Q2) as well throughout the program. Satisfaction with feedback (Q3) diminished significantly as students progressed in the program ( $p=0.001$  for agreement and  $0.002$  for disagreement).

Both groups overwhelmingly agree that they take feedback seriously to remedy their weaknesses (Q4). This also supported by response to Q5 by group A. However significantly higher number of group B students tend to take marks seriously as well, ( $p=0.029$  and  $0.035$ ) for agreement and disagreement. Both groups strongly agree that formative assessment is very helpful in stimulating deep learning (Q6). Same perception is portrayed in response to Q7. The interest of students in formative assessment is further substantiated in response to Q8 where majority of students of group B do not agree with the statement that formative assessment is more frequent.

**Table II: Questions Regarding Formative Assessment**

Q	2ND YEAR		3RD YEAR		C	
	A	D	A	D	A	D
1	89.16	8.43	85.71	3.57	87.44	6.00
2	78.31	10.84	80.95	10.18	79.63	10.51
3	67.47	22.89	71.43	22.62	69.45	22.76
4	77.11	14.46	75.00	14.29	76.05	14.37
5	42.17	39.76	39.29	39.29	40.73	39.52
6	89.16	6.02	88.10	4.76	88.63	5.39
7	93.98	2.41	96.43	2.38	95.20	2.40
8	45.78	38.55	45.24	38.10	45.51	38.32

  

Q	4TH YEAR		FINAL YEAR		C	
	A	D	A	D	A	D
1	74.71	8.05	81.33	10.67	78.02	9.36
2	55.17	24.14	68.00	13.33	61.59	18.74
3	34.48	48.28	49.33	38.67	41.91	43.47
4	60.92	18.39	80.00	17.33	70.46	17.86
5	40.23	40.23	82.67	10.67	61.45	25.45
6	68.97	14.94	82.67	10.67	75.82	12.80
7	74.71	10.34	93.33	1.33	84.02	5.84
8	26.44	60.92	22.67	56.00	24.55	58.46

To summarize responses to this segment indicate that the students not only like formative assessment but also agree that it is more effective in deep learning and preparing for summative assessment. At the same time responses suggest to introduce

more methods of formative assessment and to improve feedback mechanism.

**Summative Assessment (Table III):** This segment comprises questions mainly to evaluate assessment policy of the program. Although majority in both groups do not agree that the number of summative assessments are too many but students in group B significantly ( $p=0.019$ ) surpass those in group A in this disagreement (Q1). This is probably because introduction of clinical clerkship in 4<sup>th</sup> and 5<sup>th</sup> year increases the number of summative assessments in this period. Students in both groups equally support

**Table III: Questions Regarding Summative Assessment**

Q	2ND YEAR		3RD YEAR		C	
	A	D	A	D	A	D
1	38.55	48.19	38.10	42.86	38.32	45.52
2	69.88	20.48	78.57	17.38	74.23	18.93
3	80.72	18.07	66.67	19.05	73.69	18.56
4	54.22	36.14	51.19	34.52	52.70	35.33
5	53.01	28.92	51.19	30.95	52.10	29.93
6	62.65	22.89	64.29	21.43	63.47	22.16
7	49.40	38.55	47.62	34.52	48.51	36.54
8	12.05	85.54	10.71	85.71	11.38	85.63
9	40.96	44.58	41.67	40.48	41.32	42.53
10	49.40	39.76	44.05	47.62	46.72	43.69
11	36.14	54.22	34.52	55.95	35.33	55.08
12	60.24	19.28	57.14	20.24	58.69	19.76
13	49.40	36.14	48.81	36.90	49.10	36.52
14	95.18	2.41	78.57	2.38	86.88	2.40
15	50.60	39.76	47.62	38.10	49.11	38.93

Q	4TH YEAR		FINAL YEAR		C	
	A	D	A	D	A	D
1	17.24	70.11	18.67	64.00	17.95	67.06
2	59.77	27.59	82.67	12.00	71.22	19.79
3	60.92	25.29	46.67	34.67	53.79	29.98
4	27.59	45.98	46.67	46.67	37.13	46.32
5	19.54	56.32	44.00	29.33	31.77	42.83
6	26.44	50.57	32.00	60.00	29.22	55.29
7	41.38	25.29	60.00	24.00	50.69	24.64
8	16.09	58.62	24.00	66.67	20.05	62.64
9	49.43	33.33	68.00	21.33	58.71	27.33
10	16.09	62.07	45.33	34.67	30.71	48.37
11	17.24	57.47	56.00	32.00	36.62	44.74
12	42.53	32.18	49.33	26.67	45.93	29.43
13	50.57	28.74	48.00	29.33	49.29	29.03
14	73.56	6.90	86.67	9.33	80.11	8.11
15	37.93	19.54	53.33	21.33	45.63	20.44

the weightage given to combined assessment (semester examination) in annual examination (Q2). Students in group B as compared to group A agree less to next three questions Q3, 4, 5 pertaining to conduct of summative assessment. This difference is highly significant ( $p=0.019$ ,  $0.021$ ,  $<0.001$  respectively). Students in group B also do not agree that there are adequate number of MCQs for each module and subject ( $p<0.001$ ). This necessitates reviewing the process of summative assessment for clinical subjects.

A significantly higher number in group A is against inclusion of other types of MCQs and SEQs ( $p=0.047$  and  $0.002$  for Q7 and 8 respectively). More students in group B ( $p=0.02$ ) disagree to the statement in Q9 regarding correlation of contents of OSCE with learning objectives. Significantly less number in group B ( $p=0.01$ ) thinks that the time for response is adequate (Q10). Both groups are not satisfied with quality of OSCE material (Q11).

Both groups agree that the examination is fair (Q12, 13). They also agree that they learn new things while preparing for examination but are of the opinion that they tend to forget these afterwards (Q14, 15).

To summarize students are contented in general with present system of summative assessment, while at the same time they have pointed out areas requiring improvement particularly in clinical subjects.

## Discussion

The purpose of assessment is understood to be to test what students have learnt. However it is now widely accepted that the students orient their learning in relation to what they are assessed. This led to formulation of well-known rule that "assessment drives learning".<sup>6</sup> Students attune their learning habits according to the demands of assessment which, in turn is an integral part of any educational system. In addition to learning, assessment also has an impact on how and what the teachers teach which, in turn directly affect student learning thus completing the cycle.<sup>7</sup> After introducing integrated modular curriculum it was imperative to evaluate students' perceptions about various aspects. This study dealt with students' perceptions towards assessment.

The efficacy of integrated modular system of medical education is greatly enhanced if we can promote

deep learning style in our students. It contrasts markedly with Strategic Learning Style, hallmark of learning styles in pre-medical school education. The results of this study indicate that learning style of the students has hardly changed in the medical school as they are still studying more near the examination and doing selective studies. Study habits a learning styles acquired over a long period of schooling take their toll in the University/Professional education which demand a change in learning style. This has also been highlighted by other investigators. Endstrom et. al., have reported that students achieving high grades support the concept of studying more and selectively near the examinations.<sup>8</sup> Doing selective studies is also highlighted by Vos as well. He found that students give fewer study hours to those subjects which are less frequently assessed.<sup>9</sup>

Students should be assessed throughout the academic year at regular intervals when there is still time to intervene to improve students' learning.<sup>10,11</sup> Formative assessment was therefore introduced early in the program. Results of this study indicate that Formative assessment was highly favored approach towards learning. This is also concluded by other researchers.<sup>12</sup>

Another clear message from this study is that students take feedback seriously for improving their learning. Feedback is recognized as a single most powerful influencing factor since years as described in a review by Hattie in 1087.<sup>13</sup> About 89% students in this study confirm that formative assessment is very useful for preparing for summative assessment. This fact has been substantiated by other investigators as well.<sup>14</sup>

Regarding frequency of formative assessment, a significantly higher number of senior students are in agreement with existing frequency. Junior students (who are not tuned to frequent assessments) do not agree to that extent. This finding is supported by Ghiatau et al and Kadri et al and.<sup>11, 15</sup> Most of the senior students were of the opinion that OSCE correlated well with the learning objectives. This is in conformity with results of another study in which 81% students thought OSCE to be more interesting and educative.<sup>16</sup>

The time allowed for different stations needs to be optimal or conversely stations should be piloted

before assessments to see whether they can be undertaken in the stipulated time. Most students are of the opinion that time allocation in the OSCE was insufficient. Similar observations have been reported in other studies.<sup>17</sup> Students in this study have not favoured inclusion of Short Essay Questions in assessment, whereas Rafique et al have reported contrary results.<sup>17</sup> While in a study by Ibrahim et al 56.8% of respondents preferred MCQs for written assessment.<sup>18</sup>

Students' satisfaction with the overall conduct of the assessment, in comparison was greater in our study.

### Conclusion

Like others 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 preparing for summative assessment. It has also indicated some weaknesses in design, conduct and provision of feedback which necessitate further faculty training. 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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**Annex A: ASSESSMENT EXPERIENCE QUESTIONNAIRE**

Please answer every item quickly by giving your immediate response. Circle the appropriate code to show your response to assessment. SA=Strongly Agree, A=Agree, U=Uncertain, D=Disagree, SD=Strongly Disagree

<b>REGARDING STUDY EFFORT</b>						
1.	I do the same amount of study each week regardless an assessment is due or not	SA	A	U	D	SD
2.	I can do well in the assessment by doing selective study	SA	A	U	D	SD
3.	In weeks when the assessment is due, I put in more hours in study	SA	A	U	D	SD
4.	I omit to prepare subjects which are likely to be minimally represented in the assessment	SA	A	U	D	SD
5.	I am not very keen on obtaining position in the class	SA	A	U	D	SD
<b>REGARDING FORMATIVE ASSESSMENT</b>						
1.	I take formative assessments regularly and seriously	SA	A	U	D	SD
2.	Methods used in formative assessment are multiple, diverse and stimulate learning	SA	A	U	D	SD
3.	Feedback is regularly provided by the faculty on formative assessment	SA	A	U	D	SD
4.	I take the feedback seriously to remedy my weaknesses.	SA	A	U	D	SD
5.	I tend to read the marks only	SA	A	U	D	SD
6.	Formative assessment is very help full in stimulating deep learning	SA	A	U	D	SD
7.	Formative assessment is very helpful in preparing for summative assessment	SA	A	U	D	SD
8.	There are too many formative assessments in a year	SA	A	U	D	SD
<b>REGARDING SUMMATIVE ASSESMEN</b>						
1.	There are too many summative assessments	SA	A	U	D	SD
2.	Weightage of CBA is appropriate in professional result	SA	A	U	D	SD
3.	General atmosphere and conduct of examination is satisfactory	SA	A	U	D	SD
4.	The contents of the examination correlate well with the learning objectives	SA	A	U	D	SD
5.	The questions are easy to understand	SA	A	U	D	SD
6.	There are adequate number of MCQs for each module and subject in a paper	SA	A	U	D	SD
7.	There should be more types of MCQs in addition to one best/correct type.	SA	A	U	D	SD
8.	There should be SEQs in the assessment as these let us apply deep learning	SA	A	U	D	SD
9.	The contents of OSCE correlate well with the learning objective being tested.	SA	A	U	D	SD
10.	The time allotted to each station is adequate for the response.	SA	A	U	D	SD
11.	The slides and images placed on OSCE are of good quality.	SA	A	U	D	SD
12.	The observers and invigilators are impartial	SA	A	U	D	SD
13.	There is hardly any room for use of unfair means in the assessment	SA	A	U	D	SD
14.	I learn new things while preparing for assessment	SA	A	U	D	SD
15.	I forget most of what I learnt after the assessment	SA	A	U	D	SD