

Original article

Continuous Formative Assessment in Teaching- Learning Anatomy in a Medical College of West Bengal: Perception of Students & Teachers

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Abstract:

Introduction: The goal of continuous formative assessment (cFA) is to enhance learning. CFA gives feedback to students on learning, and teachers on teaching lacunae. Disadvantages are also there, including shortage of academic staff and implementation. From 2019, CBME curriculum implemented by MCI necessitated continuous formative assessment along with summative assessments. The aim of this study is to study perceptions of students and teachers towards cFA.

Methods: This is a Cross Sectional study, performed during a period of 6 months in our institution. Majority of students studying in 1st phase MBBS and all teachers of Anatomy Department participated. Standardized structured questionnaires were developed, distributed among participants, collected back and analysed.

Observations: Students' perceptions about why teachers assessed them were found. Most students perceived that cFA improved their performance and let them know about weaknesses, thus help them to improve. Students were found to overwhelmingly prefer MCQs as theory question types. Previous knowledge of topics to be assessed in cFA helped students to perform better. Majority of students agreed that teachers gave them feedback which helped them improve later. 50% students found cFA to be stressful. All faculty-members opined that cFA helps to improve students' performance and gave teachers feedback regarding their teaching lacunae. They said they consulted about topics, and gave feedback to students, which helped students perform better in future. Teachers were content with current frequency of cFA; they regarded formative assessment to be more helpful in learning than summative assessment.

Conclusion: In general, majority of the students and faculties accepted utility of cFA in academics.

Keywords: assessment, formative assessment, continuous formative assessment, feedback

Introduction:

Assessment drives learning.^[1] The aim of assessment is to test student's acceptance toward the teaching process.^[2] The main goal of continuous formative assessment is to enhance learning among students.^[3] Literature has increasingly demonstrated the importance of formative assessments, and the positive effect they have on student outcomes.^[4] It has many advantages and some disadvantages. Uses of the continuous formative assessment have a positive impact on both the academic achievement and the psychological status of students^[5,6,7] and also gives a feedback to students on their learning^[8] and diagnosis of areas of their weaknesses. It gives feedback to both the teachers and students on their performance. It allows intermittent interactions between students and teachers. Feedback given to students related to how performance can be more effective have a positive impact on the student's learning process and outcomes.^[9] Formative assessment involves a continuous way of checks and balances in the teaching learning processes. The method allows teachers to check their

learners' progress as well as the effectiveness of their own practice, thus allowing for self-assessment of the students and teachers.

Intermittent formative assessments foster student engagement in the content on a regular basis versus a cram session before a summative assessment. Students who are exposed to formative assessments periodically in preparation for the final highstakes exam show a significant increase in grade point.^[10] Its disadvantages include loss of students' interest as they are examined frequently and students do not have an opportunity to integrate knowledge and skills acquired in the whole semester. Also, there are problems related to the academic staff and practice and implementation of continuous formative assessment.^[11] Knowledge, time and resources are key barriers to implement formative assessments, which is supported in the literature.^[12,13] Faculty often have difficulty with reconciliation of a balance between the workload associated with using formative assessments and their other academic responsibilities.^[14] Teachers should view assessments not only as moments to gauge the knowledge base of their students, but as opportunities to engage them in meaningful learning for uncertain futures. Enabling faculty and students to self-regulate their teaching and learning processes respectively through the use of formative assessments has a positive effect on overall student outcomes.^[15] In our Institution, which is a peripheral medical college of West Bengal, Anatomy is taught to the 1st year (1st Phase) MBBS students. From this year (2019), the new curriculum implemented by the MCI requires implementation of continuous formative assessment of the students along with end-semester assessments and summative assessment. Therefore, it is necessary to appraise the students and teachers' perceptions regarding continuous formative assessment.

Aim & Objectives

Aim: This work aims to study perceptions of students and teachers toward continuous formative assessment.

Objectives: To assess the perception of students toward continuous formative assessment in Anatomy.

- To find out whether continuous formative assessment in Anatomy gives feedback to students regarding areas of their weaknesses.
- To check whether teachers get feedback on the learners' progress as well as the effectiveness of their own performance.

Material and Methods:

The study design: This is a Cross sectional study.

Study period: The study was performed during a period of 6 months (November, 2019 to April, 2020).

Study site: Department of Anatomy in a peripheral medical college in West Bengal.

Study Population: 90 out of 125 students studying in 1st phase MBBS took part in the study, and 7 teachers of the Department of Anatomy.

Exclusion criteria: Students who did not participate in this study.

The study was conducted after obtaining permission of Institutional Ethics Committee.

A standardized structured questionnaire was developed, one for the students and another for the teachers. The questionnaires formed of close-ended questions and Likert's scale (five points). The questionnaires were validated by the faculty of Medical Education Unit of the medical college. Those were distributed among 90 students studying in 1st phase MBBS during mid-session, i.e. month of January, 2020. By that time, several formative assessments were done, in the form of written examinations, OSPE, viva voce. These are considered as continuous formative examinations or cFA.

Questionnaires were also distributed among seven teachers of the Department of Anatomy.

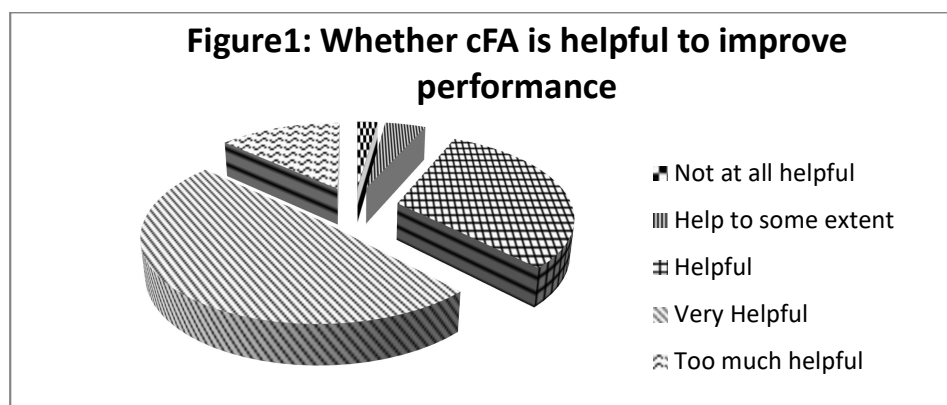
Verbal informed consents were taken from all the participants, as discussed previously in Institutional Ethics Committee. After filling up, the questionnaires were returned back. Data collected was analysed, using SPSS software.

Observation & Results

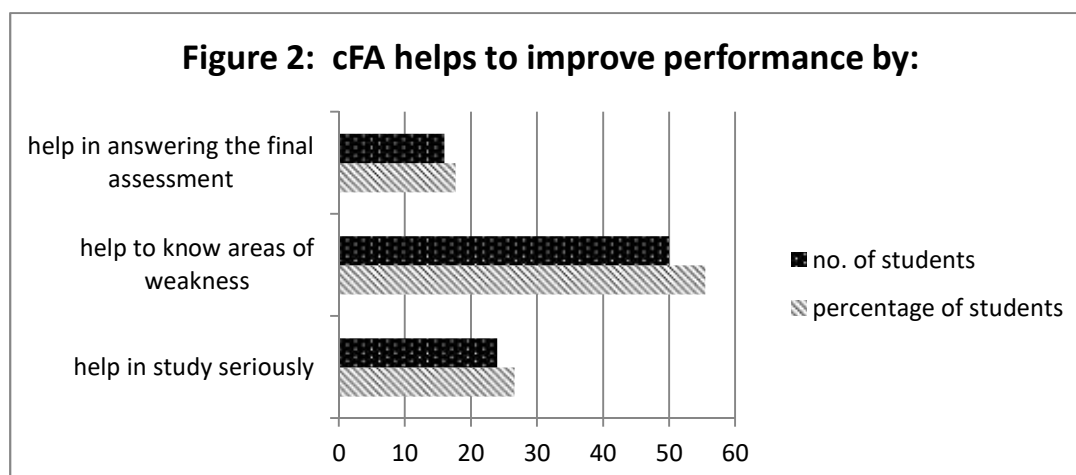
In the present study, we tried to find out students' perceptions about why teachers assessed them. Their responses were:

- a) To improve their knowledge and learning,
- b) To help them score better in final examination,
- c) To let them know about their weakness.

When asked whether continuous Formative Assessment (cFA) is helpful to improve performance, 48.8% students said it was very helpful, 31.1% said helpful, 13.3% too much helpful, while 2.2% did not find it helpful, 4.4% helpful to some extent (vide Figure 1).



Twenty four (26.6%) students found that continuous Formative Assessment (cFA) help to improve performance by studying seriously, 50 (55.5%) said cFA helped to know areas of weakness, and 16 (17.7%) predicted that it will help in answering the final assessment. (Vide Figure 2)



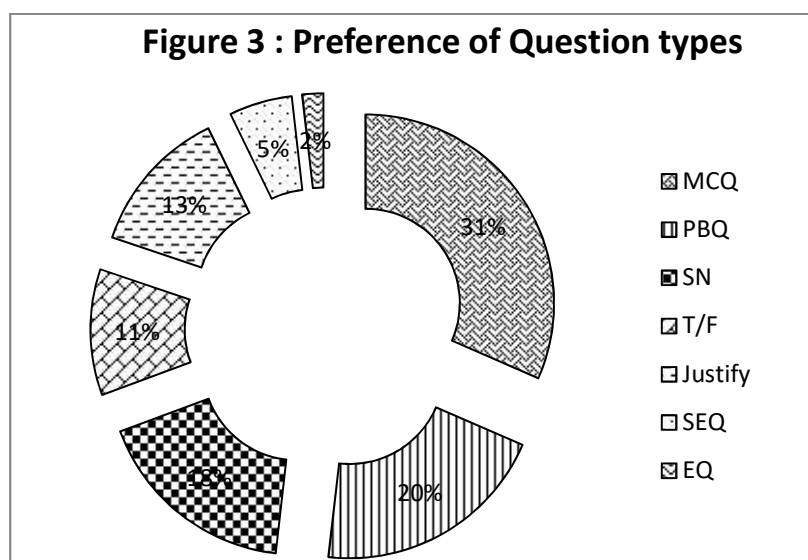
65.5% of the students agreed that their score in the continuous formative assessment (cFA) tells them about their learning, 7.7% strongly agreed to this, 23.3% could not agree or disagree, while 2.2% disagreed and 1.1% strongly disagreed.

71% students agreed that continuous formative assessment encouraged the way they were doing their studies, 20% students were not sure, 7.7% strongly agreed to the fact and 1.1% strongly disagreed.(Vide Table no.1).

Table No. 1

	Score in cFA tells the students about their learning	cFA encourages the way they are doing their study
Strongly disagree	1.10%	1.10%
Disagree	2.20%	0%
Neither agree nor disagree	23.30%	20%
Agree	65.50%	71%
strongly agree	7.70%	8%

When asked about the types of question they preferred in theory question paper of cFA, students were found to prefer Multiple choice questions overwhelmingly (70responses), followed by Problem Based Questions (45), Short Notes (39), True/False (24), Justify (28), Structured Essay –type Questions (12) and Essay type Questions (4). (videFigure 3).



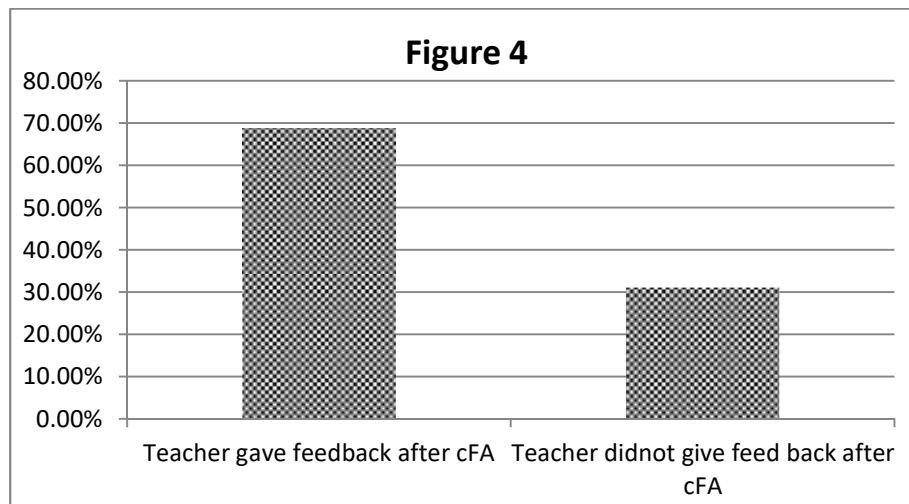
Highest number of students (74.4%) agreed that previous knowledge of what they will be assessed in their cFA will help them to score higher, 15.5% strongly agreed to this, 8.8% had no opinion, while 1.1% strongly disagreed.

Majority of the students (80%) said that their teachers consulted with the class about the topics or chapters they will be assessed in the cFA, while 20% students gave a negative answer.(vide Table 2).

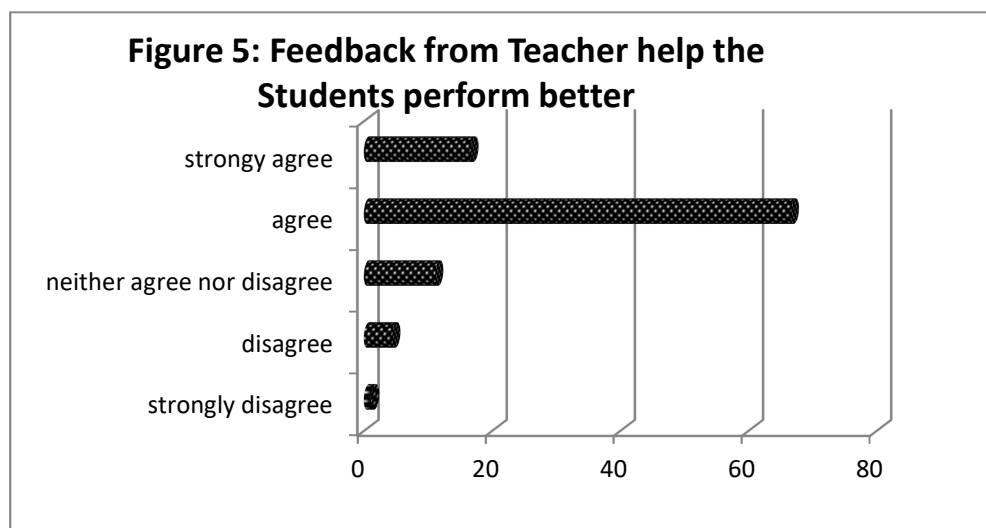
Table 2

Whether Teachers consulted with the class regarding topics for cFA	Percentage of students
Yes	80%
No	20%

31.1% students responded negatively and 68.8% students positively when asked whether their teachers in Anatomy gave them written or oral feedback after ‘cFA’ (Vide Figure 4).

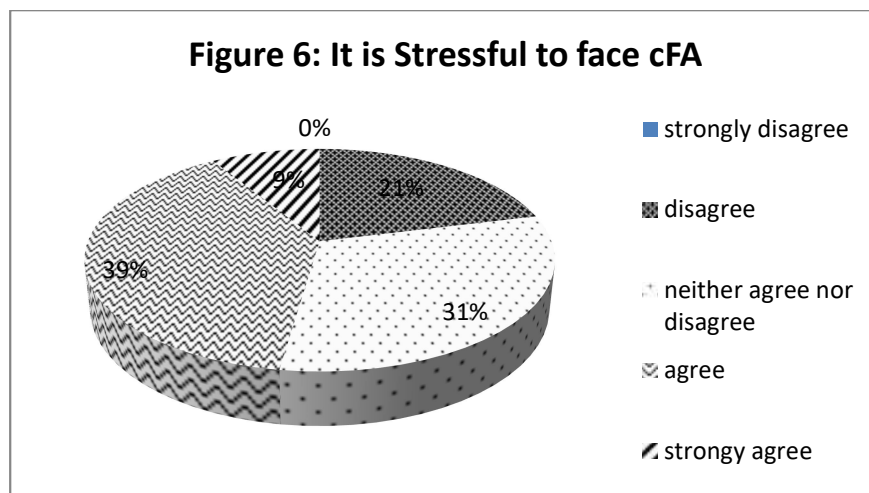


Most of the students agreed (66.6%) or strongly agreed (16.6%) that feedbacks from teacher definitely help them perform better in their future work; 11.1% were not sure, 4.4% disagreed and 1.1% strongly disagreed.(vide Figure 5).



When asked how frequently cFA should be taken, 68.8% opined that cFA taken were adequately frequent, 18.8% were for more frequent, and 10% were for less frequent cFA and 1.1% students were for each of least frequent and very frequent cFA.

Almost half of the students agreed ((38.8%) or strongly agreed (8.8%) that it was stressful to face cFA, 31.1% students neither agreed nor disagreed, while 21.1% disagreed that cFA was stressful (Vide Figure 6).



Of the 90 students who participated in the present study, 62 were male and 28 were female. Most of the students belonged to age-group of 19-20yrs, were residents of urban area and scored between 61-70% in the last cFA in Anatomy (Vide Table No.3).

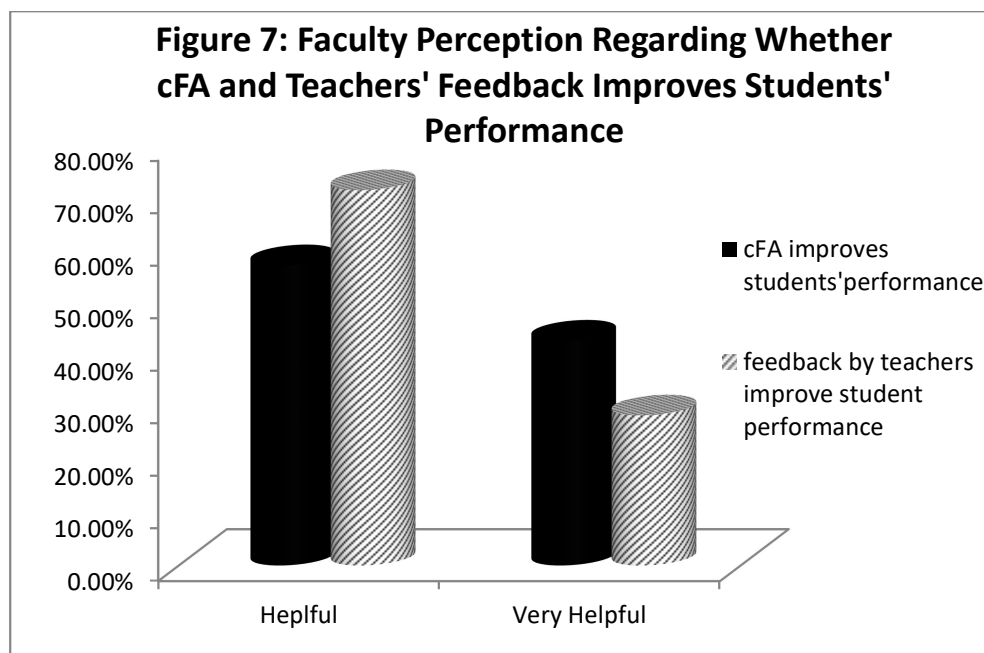
Table 3: Baseline Information about the Students:

	AGE In years						SEX		Residential area			Score in last 'cFA' in Anatomy in %					
	17	18	19	20	21	22	M	F	Ur ban	Se mi urb an	R ur al	91 -- 100	81 - 90	71 - 80	61- 70	51- 60	50 or >
No. of stude nts	2	7	40	27	13	1	62	28	42	23	25	--	3	9	30	45	3

Faculty perception regarding cFA in Anatomy

When asked whether continuous Formative Assessment (cFA) improves the students' performance, 4 out of 7 faculty-members of Anatomy (57.14%) responded that it was very helpful, and 3 out of 7 (42.8%) said it was helpful.

The faculty-members agreed (71.42%) or strongly agreed (28.57%) that feedback given by them help students perform better in their future work (vide Figure 7).



57.18% of the faculty said that they consult with the class about what (Topics or chapters) will be assessed in the cFA, whereas 42.8% said they did not consult.

Most of the teachers (85.71%) commented that they gave feedback to the students after 'cFA', only 14.28% did not give feedback. (vide Table 4).

Table 4: Whether Teachers Consult the Class about Topic of cFA and Give Feedback

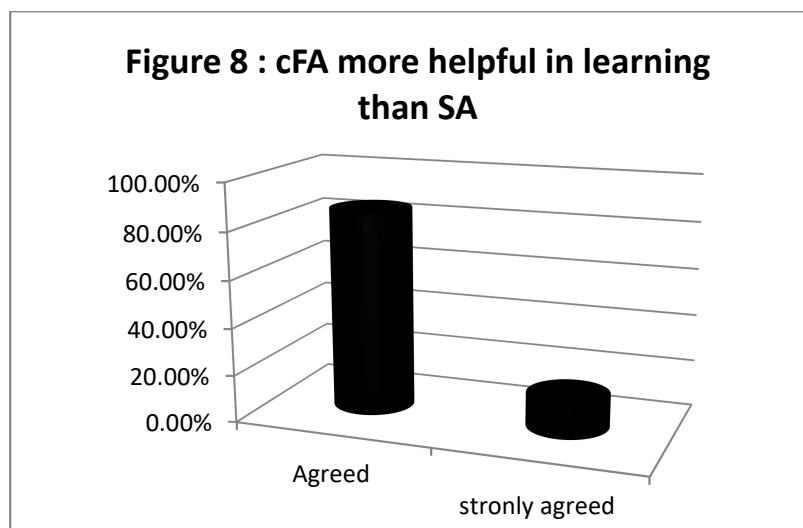
	Consult with the class about what (Topics / chapters) will be assessed in the cFA		Give feedback to the students after 'cFA'	
	Yes	No	Yes	No
% of faculty	57.18	42.8	85.71	14.28

In response to the query how frequently cFA should be taken, 71.42% said the present frequency was adequate, whereas 28.57% opined that it can be taken more frequently.

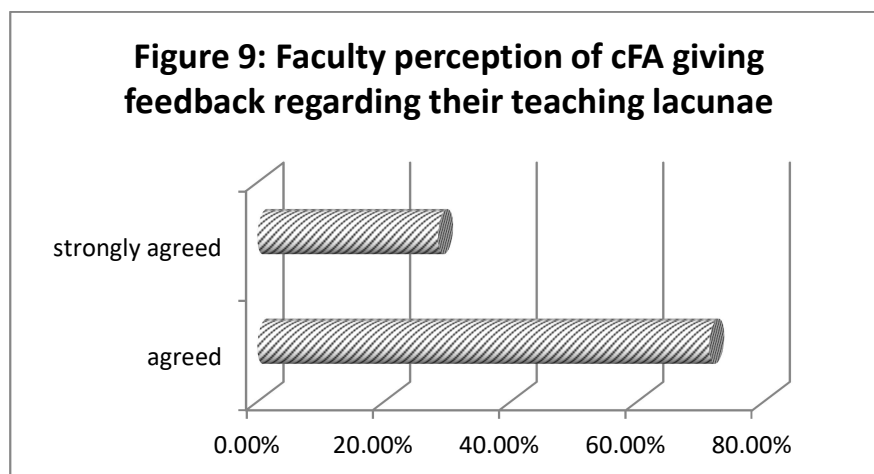
Table 5: Faculty Perception Regarding How Frequently cFA should be taken

How frequently cFA should be taken	% of Faculty
Adequately frequent	71.47%
More frequent	28.57%

The teachers agreed (85.71%) or strongly agreed (14.28%) with the statement that formative assessment is more helpful in learning than summative assessment (SA). (vide Figure 8).



Out of 7 teachers, 5 teachers (71.42%) agreed and 2 (28.57%) strongly agreed that continuous Formative Assessment (cFA) helps teachers to get feedback regarding their teaching lacunae (Vide Figure 9).



Baseline informations about faculty is given in Table 6.

Table 6: Baseline informations about faculty

Total Number	Age in yrs				Sex		Teaching experience in years		Whether attendedFDP	
	20-30	30-40	40-50	50-60	M	F	<10	>10	Yes	No
7	1	2	2	2	5	2	5	2	6	1

Discussion

In the present study, majority of the students perceived that continuous Formative Assessment (cFA) improved their academic performance. 71% students agreed that continuous formative assessment encouraged the way they were doing their studies, 65.5% of the students agreed that their score in the continuous formative assessment

(cFA) tells them about their learning, This was at par with a study by Zulfiqar et al (2017) who found that 64% students agreed that formative assessment facilitated their learning process and motivated students to learn more.^[16]

Students, by and large, were of the opinion that cFA let them know about their areas of weakness, thus help them to improve future performance. The response was similar to those of the students participating in a study done by Arati S et al (2014) who said that the feedback they receive from teachers through assessment were taken very positively and some students work towards the weaker areas.^[17]

When asked about preferred question types in theory question paper of cFA, students were found to prefer Multiple Choice Questions overwhelmingly (70 responses); this was similar to the reports of Kaddam et al (2013) where 60.5% of students declared that MCQ is the best method of evaluation.^[18] Student's responses support the uses of MCQs in cFA in another study by Rezigalla AA et al (2017).^[19]

Previous knowledge of topics to be assessed in cFA helped most of the students to perform better, most of them responded that the teachers consulted with them regarding the topics for cFA. Most of the students agreed / strongly agreed that teachers gave them feedback and feedbacks from teacher definitely help them perform better in their future work; this was similar to a study conducted by Al Kadri et al (2009).^[20] This study also noted that students wanted to have enough time before formative assessments, which should not be too frequent, which was similar to the present study. Of the students participating in the present study, 50% found cFA to be stressful. These remarks give pause for thought. The primary sources of stress have been repeatedly found to be examination and grades^[21], be it formative or summative. Presenting formative assessment using a temporal journey format encourages a continuous and staged approach to learning rather than an intense period of study just prior to summative assessments, thus stress can be reduced.^[22]

Faculty perception

In the present study, all the faculty-members of Anatomy opined that continuous Formative Assessment (cFA) helps to improve the students' performance. The teachers opined that they consulted the class about topics of cFA, and gave feedback to the students. They also agreed/strongly agreed that feedback given by them help students perform better in their future work. This was at par with the study conducted by Price et al (2010), which stated that the staff recognised the place of feedback in learning and had faith that it made a contribution to learning, believing it helps student to 'leapfrog to the next level'.^[23]

In our study, most of the faculty-members were content with the current frequency of cFA, few said the number of FA should be increased. The finding was in congruence with a study by Panchbhai A et al (2014).^[24]

Most of the teachers in the present study regarded formative assessment to be more helpful in learning than summative assessment, unlike in the study by Al Kadri et al (2009), where teachers were more in favour of summative assessment.^[20]

When asked whether cFA helps teachers to get feedback regarding their teaching lacunae, majority of the teachers participating in the present study agreed. Formative assessment helps the teacher to device appropriate teaching strategy to serve the needs of the learners and continuously improve the teaching learning process.^[25]

Conclusion

In general, the majority of the students and the faculties accepted the utility of cFA in the academics. Most of the students agreed that teachers gave them feedback which definitely helps them perform better in future. Students, by and large, were of the opinion that cFA let them know about their areas of weakness, thus help them to

improve future performance. Students were content with the frequency of cFA, and 50% of them found cFA to be stressful.

The teachers perceived that they consulted the class about topics of cFA, and gave feedback to the students. They opined that feedback given by them help students perform better in their future work. Most of the faculty-members were content with the current frequency of cFA, few said the number of FA should be increased. Most of the teachers regarded formative assessment to be more helpful in learning than summative assessment.

When asked whether cFA helps teachers to get feedback regarding their teaching lacunae, majority of the teachers participating in the present study agreed. This feedback can help the teacher to continuously improve the teaching learning process.

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