

One Minute Preceptor Method for Teaching Histology: An Efficient Tool

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Abstract

Introduction: One-Minute Preceptor (OMP) model was first introduced by Neher et al in 1999 as “Five Step Micro skill Model” of teaching learning for the clinicians having busy ambulatory clinics. Although the model is conceptually sound, it remains largely untested. So present study have been conducted in identification and interpretation of routine histology slides of Anatomy among undergraduate students to assess the effectiveness of this model over that of the traditional model.

Aim: To study the utility of One minute preceptor as a teaching method for the students of Anatomy.

Objectives: 1. To sensitize the students for One minute perception. 2. To sensitize the faculty members to one minute perception. 3. To assess the perception of the faculty and the students for this new teaching method.

Methodology: With prior approval of ethical committee, Orientation Programme on OMP teaching learning was conducted to introduce the concept of “One Minute Preceptor” for the faculty as well as the students. Perception evaluation of the students to OMP method was done from checklist of pre-test and post-test performance through observation (Likert scale). Effectiveness of the OMP method was judged by comparing the performance of the students in Pre-test and Post-test. Wilcoxon sign rank test was used. P value <0.05 was taken as statistically significant. Perception evaluation of the faculty was done by taking their feedback.

Results: OMP proved to be useful for the students in improving presentation skills, involvement in decision making, reasoning behind decision making, providing positive feedback as ‘p’ value was highly significant for it. Most of the faculty members strongly agreed that OMP is feasible, useful and an effective tool which improves teaching skills, helps identify specific lacunae in learner’s understanding. However, they also felt that it was more time consuming but not cumbersome. It must also be mentioned that all the faculty members were willing to adopt OMP as a teaching methodology.

Conclusion: All the 30 students showed satisfaction at the end of OMP session. OMP proved to be useful in improving presentation skills, involvement in decision making, reasoning behind decision making, providing positive feedback as p value was highly significant for it. As it was a new teaching methodology students were apprehensive initially but with repeated sessions students showed enthusiasm and were eager to continue OMP sessions in future for histology and other subheads of Anatomy. It must also be mentioned that all the faculty members were willing to adopt OMP as a teaching methodology.

Keywords: One-Minute Preceptor; Teaching learning methods; Anatomy; Histology.



Introduction

As a responsible teacher it is our duty to get equipped and updated with appropriate teaching - learning tools that will impart knowledge, built confidence and improve the presentation skills of the medical graduates. Due to shortage of staff, time and ever expanding knowledge, conventional method of teaching medical graduates rarely spare time for giving constructive feedback. One Minute Preceptor method of teaching aims to overcome this shortcoming. One-Minute Preceptor (OMP) model was first introduced by Neher et al¹ in 1999 as "Five Step Micro skill Model" of teaching learning for the clinicians having busy ambulatory clinics. One Minute Preceptor includes five micro-skills for teaching: Get a commitment, Probe for supporting evidence, Teach general rules, Reinforce what was right and Correct the mistakes.¹

Preceptorship lies in the domain between teaching (delivering knowledge in a group or individually) and mentoring (providing individual support). In this teaching technique a commitment is made by the student. The act of commitment pushes the learner to move beyond their level of comfort and makes the teaching encounter more active and more individualized. This also shows respect for the learner and fosters an adult learning style. Initially it enables the preceptor to have adequate information on learner's knowledge and thus teaching does not become misdirected and disobliging. Preceptor evaluates the thought process of the student and identifies the gaps. Certain general rules are taught by the teacher to improve the concepts of the student as the given information is both memorable and more transferable. Learner's knowledge, skill and attitude are not well established unless reinforced. So a positive feedback² is given and his deficiencies are pointed out using constructive feedback. Mistakes, if left unattended often get repeated, therefore suggestions are given in the end to the student on how to make improvements in the future. Thus the preceptor bridges the needs and expectations of students with varied learning skills and preferences.

In the OMP method, inquiry and discussion phases are learner focused.² In the inquiry phase, OMP elicits the learner's understanding of the topic by asking open-ended "what" type of questions. For this we followed following procedure.

1. Commitment:
 - a. What do you think is the slide of?
 - b. What other information would you like to add?

2. Evidence to support the finding:
 - a. What lead you to that conclusion?
 - b. What else did you consider, what kept you from that choice?
 - c. What are the key features of identifying this slide?
 - d. What questions are arising in your mind?
3. Whatever the learner revealed (some teaching values) he needs to know certain general concepts, considerations according to learner's level of understanding. Information given at this stage is more memorable and transferable.
4. Feedback:
 - a. Positive feedback for good work.
 - b. Constructive feedback for mistakes, omission, distortion and misunderstanding.

Based upon this information, the preceptor better comes to know about the learner's understanding of the topic, make a targeted teaching point, and provide positive and corrective feedback. Although the model is conceptually sound, it remains largely untested. No studies have been conducted in identification and interpretation of routine histology slides of Anatomy among undergraduate students. The effectiveness of this model over that of the traditional method, is yet to be assessed.

One Minute Preceptor is a learner-centered, one to one teaching model focused on the learner's thinking and reasoning behind decision making ability which provides standard checklists and criticism.³ In the present study both faculty and under graduate students were sensitized to OMP method of teaching. Perception evaluation of this teaching method was done by taking feedback from the faculty and conducting pre-test and post-test for the students.

Aim

To study the utility of One minute preceptor as a teaching method for the students of Anatomy.

Objectives

1. To sensitize the students for One minute perception.
2. To sensitize the faculty members to one minute perception.
3. To assess the perception of the faculty and the students for this new teaching method.

- To evaluate the use of OMP method on performance of the students.

Methodology

Research type: Educational research.

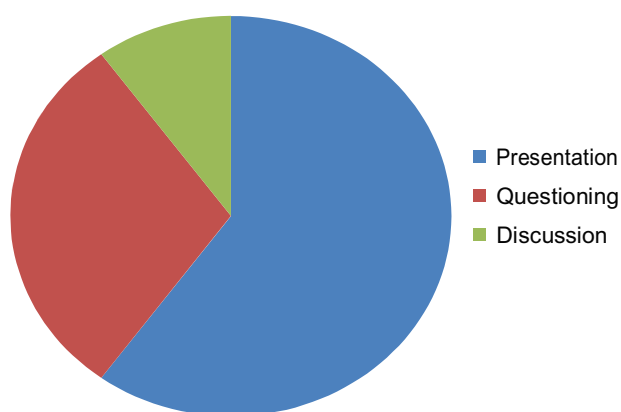
Study Design: Prospective, Interventional.

Intervention: Use of one minute preceptor method of teaching-learning.

Setting: Department of Anatomy, at Dr Shankarrao Chavan Government Medical College, Nanded. Ethical issues: Prior approval of ethical committee has been taken as per letter no 87/2018.

Duration: 6 months October 2017 to March 2018. The time frame for various steps in study is shown by graphically representation. (Graph 1).

Time distribution



Graph 1: Pie diagram showing time distribution.

Participants: Subjects for the research project were first year MBBS students from batch 2017-2018. All the students were already exposed to the traditional/conventional teaching methods for routine Histology slide identification and interpretation.

Inclusion: Low achievers. *Exclusion:* Not ready for consent.

Sampling and Randomization: A pre-test was conducted and then the students with low performance in the terminal exams were sensitized to One minute preception test.

Sample size: 30 students, 3 undergraduate teachers. *Sampling method:* Cross sectional interventional method.

Study design:

- Low achiever students were sorted.
- Pre-test was been conducted by giving a Questionnaire to the participants who were

already exposed to the conventional method of teaching.

- Orientation Programme on OMP teaching learning was conducted to introduce the concept of "One Minute Preceptor" for the faculty as well as the students.
 - Sensitization of the students to OMP by Small workshop on OMP, Role play, Interactive lecture.
 - Sensitization of the faculty members by Small workshop on OMP, Role play, Interactive lecture.
- Histology slides for OMP teaching were chosen and evaluated for the level of difficulty by senior faculty members. These slides were given to the students for a period of five minutes.

Histology slide → OMP → Get commitment → Probe for support evidence → Reinforce what was done well → Guidance about errors and omissions → Teach a general principle → Feedback.

10 sessions were carried out by three faculty members on each student in rotation. Duration of each session was approximately 5–8 minutes depending on the interpretation and knowledge of the learner and the time availability.

- Post test Questionnaire form was filled and submitted by the students.
- Effectiveness of the OMP method was judged by comparing the performance of the students in Pre-test and Post-test.
- Perception evaluation of the faculty was done by taking their feedback.

The survey form was filled in anonymously to protect the identity of the students. The questions included the efficacy of OMP in identification and differentiation of slides, reasoning behind decision making, evaluating knowledge and skills and encourage to read more.

Data collection method: Quantitative data was collected from checklist of pre-test and post-test performance through observation (Likert scale).

Qualitative data was collected by feedback form having open ended Questionnaire. Wilcoxon sign rank test was used for statistical analysis. 'p' value < 0.05 was taken as statistically significant.

Result

OMP is a vibrant learning activity unlike passive traditional teaching methods. The primary aim

of this educational research project was to know if one minute preceptor (OMP) is an effective teaching method for the first year medical graduate students. Secondary aim was to sensitize the other faculty members so that OMP teaching method can become a routine practice in the histology practicals if proved to be effective.

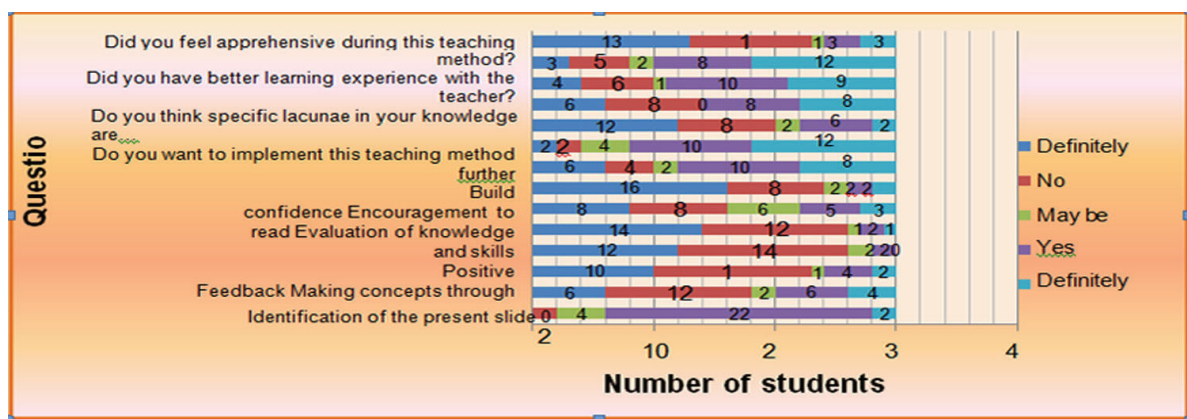
The total number of participants was 33 which included 30 medical Graduate students and 3

Under Graduate Teachers. The attendance of the participants was 100%. Survey response rate was 100% for both pretest as well as post-test questionnaires. All the 30 students showed satisfaction at the end of OMP session. The learners were given pre-test questionnaires to answered, response of pretest is shown in Table no 1.

After which an orientation programme was conducted on One Minute Preceptor (OMP).

Table 1: Students pre test questionnaire with their response representing conventional Method.

Q.No	Statement	Likert's scale					Total	Mode (Column No)
		Definitely No (1)	No (2)	May be (3)	Yes (4)	Definitely Yes (5)		
1	Identification of the present slide	0	2	4	22	2	30	4
2	Differentiate present slide from other slides	6	12	6	2	4	30	2
3	Improve Presentation skills	10	13	1	4	2	30	2
4	Involvement in decision making process	12	14	2	2	0	30	2
5	Reasoning behind decision making	14	12	1	2	1	30	1
6	Making concepts through general rules	8	8	6	5	3	30	1 and 2
7	Positive Feedback	16	8	2	2	2	30	1
8	Evaluation of knowledge and skills	6	4	2	10	8	30	4
9	Encouragement to read	2	2	4	10	12	30	5
10	Build confidence	12	8	2	6	2	30	1
11	Do you want to implement this teaching method Further	6	8	0	8	8	30	2, 4 and 5
12	Do you think specific lacunae in your knowledge are identified?	4	6	1	10	9	30	4
13	Did you have better learning experience with the teacher?	3	5	2	8	12	30	5
14	Did you feel apprehensive during this teaching method?	13	10	1	3	3	30	1



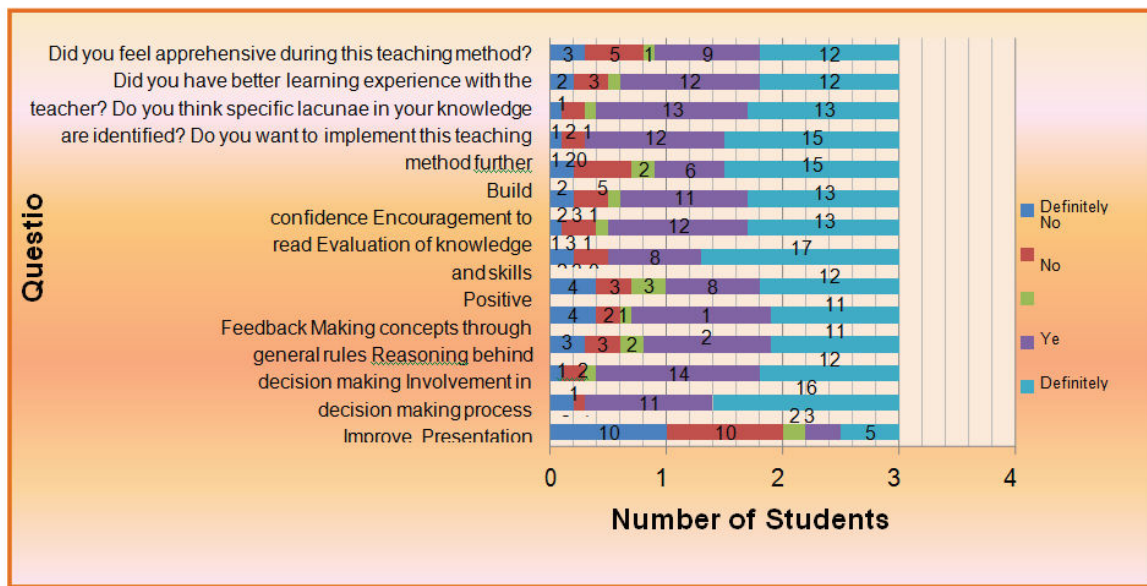
Graph 2: Student participants Pretest.

Table 2: Students post test questionnaire with their response representing OMP Method.

Q. No	Statement	Likert's scale					Total	Mode (Column No)
		Definitely No (1)	No (2)	May be (3)	Yes (4)	Definitely yes (5)		
1	Identification of the present slide	10	10	2	3	5	30	1 and 2
2	Differentiate present slide from other slides	2	1	0	11	16	30	5
3	Improve Presentation skills	1	2	1	14	12	30	4
4	Involvement in decision making process	3	3	2	11	11	30	4 and 5
5	Reasoning behind decision making	4	2	1	12	11	30	4
6	Making concepts through general rules	4	3	3	8	12	30	5
7	Positive Feedback	2	3	0	8	17	30	5
8	Evaluation of knowledge and skills	1	3	1	12	13	30	5
9	Encouragement to read	2	3	1	11	13	30	5
10	Build confidence	2	5	2	6	15	30	5
11	Do you want to implement this teaching method Further	1	2	0	12	15	30	5
12	Do you think specific lacunae in your knowledge are identified?	1	2	1	13	13	30	4 and 5
13	Did you have better learning experience with the teacher?	2	3	1	12	12	30	4 and 5
14	Did you feel apprehensive during this teaching method?	3	5	1	9	12	30	5

Table 3: Showing the statistical significance of OMP method.

Q. No	Statement	p value	Interpretation
1	Identification of the present slide	0.0003	Significant
2	Differentiate present slide from other slides	0.0002	Significant
3	Improve Presentation skills	<0.0001	Highly Significant
4	Involvement in decision making process	<0.0001	Highly Significant
5	Reasoning behind decision making	<0.0001	Highly Significant
6	Making concepts through general rules	0.0073	Significant
7	Positive Feedback	<0.0001	Highly Significant
8	Evaluation of knowledge and skills	0.0500	Significant
9	Encouragement to read	0.7683	Non Significant
10	Build confidence	0.0005	Significant
11	Do you want to implement this teaching method Further	0.0014	Significant
12	Do you think specific lacunae in your knowledge are identified?	0.0359	Significant
13	Did you have better learning experience with the teacher?	0.5043	Significant
14	Did you feel apprehensive during this teaching method?	0.0002	Significant



Graph 3: Student participants Post test.

Table 4: Response of teachers.

	T1	T2	T3
Question1 :	Were you aware of OMP method of teaching with its five microskills before attending role-play and the interactive lecture on it?		
Response	No.	No, I was not aware of this teaching technique.	No, It was completely new method for me.
Question2 :	Whether OMP method of teaching is feasible? If yes why? Or if no why?		
Response	Yes, it is simple method without use of audiovisual aids. Can be used routinely	Yes, initially we have to take efforts to train the faculty and do proper orientation of the students.	Yes, as it does not require much resource, it is easily feasible.
Question 3:	Whether OMP method has improved your teaching skills?		
Response	Yes, definitely.	Yes, it has improved my teaching skill, but as it is one to one teaching method, it is time consuming.	Yes.
Question 4:	Whether traditional method of teaching is more effective than OMP method?		
Response	OMP is more effective in giving positive feedback which is often not given in traditional method.	OMP is more effective than traditional methods in certain areas like Involvement in decision making process, Positive Feedback, Evaluation of knowledge and skills. But it is more time consuming.	Personally, I didn't feel there was a difference with or without the OMP
Question 5:	Did you come across any difficulties with the OMP teaching?		
Response	No, Students were equally enthusiastic in learning with new teaching technique.	Yes, As it is one to one teaching learning method, it is time consuming, it is difficult to keep other students engaged.	Yes, As I am used to traditional teaching method, teaching at times was not spontaneous.
Question 6:	Would you adopt the OMP teaching technique in future sessions? If so, why?		
Response	Yes, I would use this teaching technique. Commitment to enhance thought process and feedback to overcome mistakes are two essential steps of this technique not covered in traditional teaching.	Yes, I would adopt some portions of it as it is difficult and time consuming to cover all the steps of the OMP. Even in routine teaching I correct errors made by students.	Yes, it is useful for students.

The important observation of the present study was that none of the participant was aware of OMP. None of the participants could correctly note the order of the steps involved in the OMP process. After 10 sessions of OMP conducted by

three faculty members with the thirty learners in rotation; post-test questionnaires were answered by the participants. Comparison of the change in behaviour of the learner after intervention is given in Table 2. Results were shown after the analysis of

pre- and post project questionnaire which depicts their learning experience with traditional and OMP teaching method, respectively.

The finding of table 1 and table 2 are also summarized by graphical representation (graph 2 and 3).

Table 3 depicts the statistical significance of OMP method. OMP proved to be useful in improving presentation skills, involvement in decision making, reasoning behind decision making, providing positive feedback as p value was highly significant for it. The p value was significant for differentiating present slide from other slides, evaluation of knowledge and skills, encouragement to read, build confidence and identify specific lacunae in their knowledge. As it was a new teaching methodology students were apprehensive initially but with repeated sessions students showed enthusiasm and were eager to continue OMP sessions in future for histology and other subheads of Anatomy.

After the sessions of OMP, the three faculty members involved in the teaching were requested to fill a feedback questionnaire regarding their experiences with OMP. The findings were summarized in Table 4. Most of the faculty members strongly agreed that OMP is feasible, useful and an effective tool which improves teaching skills, helps identify specific lacunae in learner's understanding. However, they also felt that it was more time consuming but not cumbersome. It must also be mentioned that all the faculty members were willing to adopt OMP as a teaching methodology.

Discussion

The OMP begins with open-ended questions that enhance the learner to reveal their thinking process rather than the more superficial information received spontaneously in the traditional model.⁴ The OMP may help to disclose the students reasoning behind decision making. The preceptors in our study rated the OMP to be more efficient and effective teaching method. As it is one to one teaching, students got the opportunity to interact with the teacher individually so that they could ask their difficulties more frankly and the teacher could then adjust the level of questions and teaching according to the student's needs.^{2,5} This reduces distance between the teacher and the student.⁶ Early exposure to OMP in medical education in Anatomy may help students prepare for clinical settings, where the OMP is commonly used.⁷ Positive feedback to the students is important step in their learning.⁸

In the present study teachers had already inculcated some microskills of OMP into their routine teaching. However, this finding doesn't match so well with the finding in the study by Chan LK et al,⁹ which states that training experienced anatomy teachers in the use of OMP did not improve the student learning perception in the gross anatomy laboratory. They stated, confining the teachers teaching behavior to OMP structure could limit their performance. According to script theory altering the teaching behaviors of experienced teachers by asking them to adopt new teaching technique, may have decreased their teaching performance until the new scripts could be equally automated.¹⁰

In order to make best use of OMP the teacher should have stronger knowledge base. The lack of such knowledge and pedagogical skills may be the reason for more students saying that the post OMP was worse than the pre OMP.⁹ In the present study students were eager and enthusiastic to adapt new teaching method but commented that some students were shy and it was difficult to get commitment from such students.¹¹ These students did not prefer the OMP since it was stressful for them. The OMP offered the teachers greater insight into student knowledge and reasoning. This result is similar to the improved self-evaluation after OMP training as reported by Kertis M.⁵ The Preceptors in present study mentioned a few difficulties in using the OMP. It was more time-consuming; and it required the teachers to be more confident and have stronger knowledge base. Kachewar SG¹² implemented one minute preceptor for effective learning among radiology residents by a systematic approach toward performing the ultrasound scan for acute abdomen. In the post interventional phase he found that resident's level of learning had significantly improved. In a study conducted by Gulati HK¹³ on routine teaching of histopathology slides to pathology postgraduates, found OMP to be effective in improving exam skills, communicating the findings, thinking of logical differentials, and in motivating the learner to do self-study. Most of the faculty agreed that OMP was an effective teaching tool which helped identify specific lacunae in learner's understanding and were willing to adopt OMP as a teaching methodology. However, they also felt that it was more time consuming. In another study by Harkare et al¹⁴ use of OMP for effective clinical teaching in ear, nose and throat (ENT) for final year MBBS students found implementing OMP as effective teaching and learning method for undergraduate's students in ENT. Chan et al⁹ in his study on novice teachers in the gross anatomy

laboratory found OMP to be very useful in faculty development as anatomy teacher. Aagaard et al² in his study on OMP found that they had greater self-confidence in rating students. Similar to present study Furney et al¹⁵ found OMP model as a easy to administer intervention that provides modest improvements in resident's teaching skill. Teherani A et al¹⁶ stated that students rate the OMP as a more effective model of teaching than traditional model.

OMP makes the preceptors aware of the learner's strong and weak areas of need so that they can focus on those areas and bring out the best in the learners. OMP has thus emerged as a satisfactory approach and a problem-solving tool in this scenario.

Limitations of the present study: This study has small sample size (n=30) and was performed over short period. Hence, further study with large number of subjects and conducted for longer duration is needed for drawing statistical inferences. This study mainly takes account of effect of this intervention on students as only three undergraduate teachers were involved in the study.

Conclusion

All the 30 students showed satisfaction at the end of OMP session. OMP proved to be useful in improving presentation skills, involvement in decision making, reasoning behind decision making and providing positive feedback as 'p' value was highly significant for it. As it was a new teaching methodology students were apprehensive initially but with repeated sessions students showed enthusiasm and were eager to continue OMP sessions in future for histology and other subheads of Anatomy. Most of the faculty members strongly agreed that OMP is feasible, useful and an effective tool which improves teaching skills, helps identify specific lacunae in learner's understanding. However, they also felt that it was more time consuming but not cumbersome. It must also be mentioned that all the faculty members were willing to adopt OMP as a teaching methodology.

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