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Channelizing the Existing Perceptions of Medical Students Towards Reflective Learning: A New Insight

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Abstract

Introduction: Reflection is an important component of medical education promoting deeper learning. It creates responsibility among medical students for their own learning. The aim of the present study is to gain insights into their existing perceptions on the concept of reflection in terms of attitudes and practices. Channelizing such perceptions helps in transformative learning to apply in similar situations in future. **Methodology:** A total of 76 first year MBBS students both male and female were included in study. Two questionnaires were administered with an interval of one week with priming, to channelize their outlook towards reflective learning. Questionnaire I was used for quick assessment of existing attitudes towards learning and need- oriented practices. Questionnaire II was developed to assess changes in their attitudes on reflective learning and goal oriented practices after priming. **Results:** The responses showed a shift in the perceptions on attitudes and reflective learning practices from rather naive to a more mature type. **Discussion:** Priming indeed had an important role in enabling students to express their true behavior and help channelize their reflective habits. These differences in the responses were further explained on the lines of defense mechanisms probably operating at different levels in the minds of the students. **Conclusion:** Including reflective practices routinely in the curriculum would help students learn, remember and perform better as future health care professionals and also inculcate the habit of lifelong learning.

Introduction

Reflection is universal. Reflection is needed for personal development, to plan for future and to promote deeper learning. Historically, John Dewey

(1933) is considered one of the originators of the concept of reflection. He described reflection as “active, persistent and careful consideration of any belief or supposed form of knowledge in the light of grounds that support it” (1). Schon defined that reflection occurs both in action and on action (2). Human behavior has an innate component of reflection which acts like, catalyst in the process of analysis of performance and acts like a buffer to maintain harmony in positive and negative reinforcing elements of learning. Reflection can bring about changes in attitude and behavior by integrating learning with

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existing cognitive structure (3). Though reflection has an enormous role in learning and behavioral adaptation, by and large, it goes unnoticed in the mind. According to Gibbs, received experience may be forgotten without reflection (4). Sobral further described reflection as a cognitive regulation strategy essential for processing of information by selective attention, decoding, rehearsal, elaboration and organization (5). The concept of reflection was viewed by many researchers in multiple dimensions and hence the approaches to the same were also varied, few developing their own models and scales (5-9). Active reflection as a metacognitive element aids one in focusing on premises and to reshape inner world of ideas and thoughts taking the form of transformative learning (9). Sandars first defined reflection as a metacognitive process (10). Experience is the key element to reflection that results in change (3, 11).

Even though every human does some degree of reflection in all kinds of learning, a systematic and disciplined act of reflection is of utmost importance when concerned with professional acquisition of knowledge. The practice of reflection early in student life would benefit them in their higher education and develop professional skills effectively (2, 11, 12). The aim of the present study was to know their existing attitudes and learning practices and find out the shift in these attitudes and practices after exposing them to the concept of reflective learning. We predict that priming the students will help them channelize their attitudes in the right direction towards self-directed learning with a probable tendency to change their attitudes and learning practices. When applied to the medical students in particular, reflection enhances their learning by encouraging conceptualization and inquiry, reinforcing positive learning experiences, incorporating a feeling of responsibility for their own learning and induces empathy for the community and may eventually improve diagnostic abilities, molding them into lifelong learners and better health care givers (12). Therefore, a systematic approach to learning and practice of medicine by critical reflection should be an important and integral component of medical education (13, 14, 15). Even though measuring reflection in learning can be an effective tool in

appraisal of medical students' learning profiles, it is rarely adopted in medical student's curriculum, particularly in this part of the world (16, 17). Hence, it is necessary that studies in this field are actively taken up in our country to know the existing tendency of the students in first hand before even employing curriculum changes. The authors strongly believe that the outcome of the present study would surely help in discovering the behavioral change in medical students before and after priming them on the importance of reflective learning. This behavior has been later understood in the lines of defense mechanisms operating in their minds.

Methods

An informed consent was taken from all the participants and the Institutional Ethics Committee clearance was obtained. A questionnaire based cross sectional qualitative study was conducted in the department of Physiology. Due to the limitations in available resources in man power and time, only half of the class was included as part of the initial study. A convenient sampling was done to include 50% of the students from a class of 150 so as to include about 76 students. Random sampling yielded 46 male and 30 female students. There were no specific inclusion or exclusion criteria apart from being a medical student, as we thought their rank or IQ levels would be of no interest in this study. Two questionnaires were prepared after referring to previous studies done in this area so as to include appropriate questions as applicable to our students (9). These prevalidated questionnaires were taken as a guide to prepare our questionnaires. Then, these were administered in two phases with priming sessions in between. In the first phase, the first questionnaire (Q I) consisting of ten closed ended questions was given which was designed to obtain information on the existing attitudes of the students towards learning in general and the need oriented practices they follow, namely, rote learning, memorizing, referring to question banks and guides etc. The responses were sought in 'Yes' or 'No' format to get an overall and quick assessment as a strategy to sustain their interest and evoke curiosity for the next phase of the study (Table I). Open ended questions were not used in the questionnaire in this

phase of the study as the students were new to the system of medical education and would probably find it difficult to express their views. Hence, we reserved this method for the next phase of the study after priming, which was done for a period of one week before administering the second questionnaire with an intention to introduce the concept of reflective learning. This would stimulate them to reflect on their existing learning methods and to channelize their perceptions accordingly. The intention of short period of priming was to only make a difference in the way they think about their attitudes and practices but not to completely change their existing learning methods. This shift in their perceptions is what we studied. Throughout the week, daily mini sessions for about 30 minutes after the regular teaching hours were organized to the selected group of students to prime them about the concept of reflective learning. Such priming was done through methods like narrating past student-teacher experiences, inspirational audio-visuals, delivering lectures on significance of adopting reflective learning methods, projecting previous studies that showed benefits of reflective learning making it more evidence based and continuously interacting with students to get them more involved. After the priming sessions, in the second phase, the second questionnaire (Q II) consisting of ten questions designed to obtain information on the attitudes of the students towards learning through reflection and their goal oriented practices was given. The responses were sought on a five-point Likert's scale (Table I). The results were analyzed through Microsoft Excel statistical software. The questions on "attitudes" in Q I like, 'retaining knowledge for long', 'focusing on understanding the concepts', etc. were designed to know their existing perceptions towards the concept of reflective learning. In depth probing was further improved in Q II with questions like 'continuously introspect myself about the subjects learnt previously', 'keep myself informed

about the level of knowledge I possess', etc. Regarding the questions on "practices", Q I contained the questions on general prevalent practices of the students which are need oriented like 'rote learning', 'going through previous exam papers to predict questions' etc., while Q II had questions on goal oriented practices like 'regularly summarize the acquired information', 'prepare a time-table to suit my way of learning', etc. Such a difference in the type of the questions asked was intentionally employed to see whether the attitudes and practices of the students were pointing towards superficial and selective learning or were working towards deep and holistic learning.

Results

The results for each questionnaire were expressed as mean of total number of responses and their mean percentages after analysis. The internal validity of the questionnaires was established by calculating the Cronbach's Alpha (0.720).

Responses sought on attitudes and need oriented practices through Q I showed an inclination of students towards ideal learning attitudes and denial of need oriented practices. Responses sought on attitudes and goal oriented practices through Q II after priming showed a new group of neutral responders who emerged probably as a result of priming. Also, majority of responders showed a shift towards goal oriented practices from their previous need oriented practices.

Responses on 'attitudes' questions

86.84% gave a positive response indicating their apparent perception about the concepts of reflective learning. However, when subjected to the Q II after

TABLE I: Comparison between responses on attitudes and practices of Questionnaires I and II.

Response Type of Questions	Yes (%)		No (%)		Neutral (%)	
	Q I	Q II	Q I	Q II	Q I	Q II
To assess Attitudes towards learning	86.84 (66)	47.36 (36)	13.15 (10)	17.10 (13)	0	35.52 (27)
To assess prevalent Practices of learning	38.15 (29)	51.31 (39)	61.84 (47)	17.10 (13)	0	31.57 (24)

priming, the positive response showed a decline to 47.36% indicating their true perception about reflective learning. Interestingly, this difference in the percentage reflected in their neutral responses rather than negative responses, indicated a transition in their thought process from seemingly mere impression seeking behavior to a naïve introspection. It showed that this group with proper guidance can be molded to adopt reflective practices in their learning. A small percentage (13.15%) gave a negative response in the QI. Though we expected a decrease in this percentage when the Q II was administered after priming, surprisingly there was in fact a slight increase to 17.10% (by 3.95%) indicating that this group of students were probably refractory to any new methods of learning indicating that they may remain as low or slow performers and hence require special attention.

Responses on ‘practices’ questions

When asked about the need oriented practices in learning through Q I, 38.15% of the students gave a positive response and 61.84% gave a negative response. This indicates that the former group wanted to continue such practices while the latter group wanted to improvise their learning practice. However, after priming, when the Q II was given to know their goal oriented learning practices, a contrasting observation was made. It was seen that 17.10% of students gave a negative response and were probably refractory to such practices and 82.88% formed the

other group who were welcoming it. Among this 82.88% of students, 51.31% gave a positive response showing their inclination towards a better learning process while 31.57% were neutral to the goal oriented practices in learning.

Discussion

Owing to great flexibility inherent to the concept of reflection, the previous researchers employed diverse criteria and assessment methods to study the degree of reflection in their subjects only to add to the multiple dimensions (5-9). In contrast, authors of the present study, at more fundamental level, wanted to understand the perceptions of the students in terms of their attitudes and practices towards learning and the importance of reflection in learning. The students here in this part of the country are exposed to a highly competitive environment where the time constraints limit opportunity for reflection right from their schooling. Hence, conducting study soon after their entry in to the medical school was proved reasonable to have an insight in to their minds.

The questions were carefully designed to see that all students comprehend them rightly. Knowing about their prior stressful memory based educational environment, we believed it would really be difficult for the student to respond to questions with too much comprehension. To avoid leaving questions as blank

TABLE II : Questionnaires I and II.

S.No.	Questionnaire I		Questionnaire II				
	(Quick assessment on attitudes and practices towards reflection)		(Assessing ability to comprehend and respond)				
	Yes	No	Never N(%)	Rarely N (%)	Sometimes N (%)	Very often N (%)	Always N (%)
1.	Do you relate new information with previous acquired knowledge?		1. Carefully plan my learning tasks				
2.	Do you critically analyse the subject/topic taught?		2. Discuss with friends / classmates about methods of learning				
3.	Do you focus on understanding the concepts ?		3. Review previously studied subjects				
4.	Do you focus on retaining knowledge for long?		4. Integrate various topics				
5.	Is your goal only to reproduce information and pass exams?		5. Mentally process what I already know				
6.	Is rote learning your habit?		6. Try to be aware of what I already know				
7.	Do you selectively memorize information that is needed for examinations only?		7. Try to adapt myself to the new system of learning				
8.	Do you try to understand the assessment criteria?		8. Systematically reflect on my learning				
9.	Do you follow all the suggested reading?		9. Mindfully summarise what I was learning				
10.	Do you go through previous exam papers to predict questions?		10. Constructively self assess my work				

responses, closed ended questions with 'yes' or 'no' response were administered to sustain their interest. From the actual responses of the students to Q I, it was observed that majority of them gave a positive response saying 'yes' (86.84%) to the attitude based questions and a negative response saying 'no' (61.84%) to the need oriented practices projecting an ideal behavior on their part (Table II). Whether these kind of contrasting responses from the proposed indicates that students are stereotypically tuned to give answers as if to win the impression of the teacher or is there a degree of comprehension present in them, intrigued the authors. The possibility for such unexpected responses may be due to the fact that the students might have had an inherent ability for reflection, unconsciously driving them to differentiate between good and bad means of learning, without even knowing that a concept called reflection in learning exists. Realization that, practicing need oriented habits like rote learning etc. just to pass out the examinations is indeed not a good practice. However, after a brief session of priming the students on the importance of the concept of reflection in learning and taking their responses from Q II it was clear that there was a tendency to shift in the existing perceptions. After priming, their responses were sought again using a different scale for responses which was intentionally employed to study the level of comprehension the student was able to make and to know if at all priming could bring in a change. Priming had indeed played an important role in transforming their amateur ideas on reflection in learning about attitudes and practices in to mature or near concrete ideas. When asked about the attitudes towards reflection in learning, from most of them (86.84%), who said 'yes' in QI, only 47.36% continued to give positive response indicating the degree of maturity they already possessed while a significant proportion had now become 'neutral' (35.52%) in their attitudes towards reflective learning. This neutral response indicated that they started appreciating the concept of reflection in learning, showing their maturity to introspect and respond as 'sometimes' rather than simply jumping to conclusion by saying 'yes'. Even on the five grade Likert scale, if they really were to jump to conclusion they could have answered 'always' or 'more often' but their neutral response really amazed us. Similarly, those

majority of the students who said 'no' (61.84%) to need oriented practices like rote learning etc. now opted for goal oriented practices (51.31% said 'yes'). They, after priming, must have learnt to know that goal oriented practices are superior and long lasting than the others. Surprisingly, majority of them who opted for need oriented practices before priming (38.15 % of them) shifted to 'neutral' response (31.57%) of goal oriented practices. Lastly, a small proportion of them (17.10%) remained refractory to welcome any change in their attitudes towards reflective learning as well as goal oriented practices even after priming (Table II).

The unusual and unexpected contrasting responses as discussed above inspired the authors to investigate further in to the factors possibly responsible for the students' varied responses. For this purpose, the authors thought of making an attempt to understand the young minds of students operating using the defense mechanisms (18, 19).

When asked about the attitudes towards reflective learning, though an entirely strange concept to them, most of them saying 'yes' portrays their application of defense mechanism of '*Acting out*', wherein, there is a direct expression of an unconscious wish without being aware of the emotion that drives the expressive behavior. This innate emotion present in every one of us is the emotion for reflection. Called by a few as the inner conscience, this reflection acts like a comparator for wanted or unwanted behavior.

When asked about the need oriented practices majority of the students saying 'no' to what is an expected practice is another point to discuss. They were probably exercising the defense mechanism of '*Dissociation*' wherein the emotional distress experienced by them during such un-targeted and blind practices to get through their examinations have driven them to modify their identity or character to a perceived safe zone where they could boldly stand and say 'no' to such need oriented practices in learning.

The small group of students who were refractory to any change even after priming probably was operating

the defense mechanism of '*Reaction formation*'. This defense explains that even though the inherent tendency in the unconscious mind instructs them towards a positive change, which, in this study, is, 'to reflect', they remained refractory. This may be due to some distressing or uncomfortable emotions preventing them to actively indulge in priming and reform their ideas. This is the group probably with loads of issues or concerns to be resolved. This group poses the challenge to the medical teacher wherein planned mentoring sessions are required to bring them in the first instance to the level of operation of the defense, '*Suppression*' so as to at least counsel them to suppress their distressing emotions and prepare them to cope up with the reality. Such serial mentoring sessions would finally help this group distance themselves from such emotions and enter the level of '*Intellectualization*'.

Conclusion

This study on the perceptions of the medical students about the concept of reflection has helped the authors to analyze their varied behaviors probably operating through defense mechanisms at different levels. This study recommends that medical teachers may attempt to understand the underlying psychological principles that define a student's perceptions towards learning. Hence, the medical teachers should be

encouraged to take up the role of a mentor and promote reflective classrooms to introduce approaches that channelize the behavior of the medical student towards reflection in learning at the beginning of the undergraduate course itself (20). The medical education institutions may carefully plan their curriculum so as to cater specific hours to teach the art of reflection which will only free it from the limits of hidden curriculum to a more explicit one. Few of the methods that may be employed are maintaining log books, faculty sharing their experiences of reflection, videos stimulating reflection, etc. Further studies are required to design strategies to improve the performance levels of students through such metacognitive skills so that learning becomes a continuous process in the life of the student. The authors finally emphasize the fact that it should be the right of every medical student to be given the opportunity to learn the art of reflection.

Limitations

The study however does not measure the behavior of the student in an objective manner for which further analysis of mind and body are necessary using appropriate psychometric instruments. Nevertheless, the study provides new insights for researchers to further explore student behavior in a more objective manner.

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