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To study the Effect of Practical Teaching with Demonstration on Urine Analysis in Second Year Medical Students

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ABSTRACT

Aim: To evaluate how regular theory lectures on urine analysis and practical demonstrations on its physical and biochemical aspects affect the knowledge of topic.

Method:

- A group of students were taught theoretically about urine analysis. And Pre questionnaire was given to analyse their understanding.
- A practical demonstration was given to them. And post questionnaire was given to analyze their knowledge gained through practical work and theoretical class.

Result: Performance of students in post questionnaire was found to be much higher than that in pre questionnaire. Further the performance based on level of difficulty of questions (easy, moderate and hard questions) in prequestionnaire and post questionnaire also showed positive results where students were able to answer the questions with much ease in post questionnaire then in prequestionnaire.

Conclusion: Study was conducted on second year medical students for the topic: URINE ANALYSIS, concludes that learning through practical demonstration imparts more understanding as compared to theoretical teaching.

Keywords: Miller's Pyramid; Psychomotor Domain; Communication Domain; Affective Domain

Introduction

- According to the latest guidelines laid by National Medical Council, a new pattern of assessment has been made which gives priority to psychomotor, communication and affective domains which were not included in the traditional method of assessment.
- These domains are given weightage according to Miller's pyramid [1].

Miller's Pyramid

Basic Model of Miller's Pyramid:

- Millers pyramid is way of ranking clinical competence both in educational settings and in the workplace.
- As a framework it distinguishes between knowledge at the lower levels and action in the higher levels.
- Miller's ideas to define education by its outputs and not by its inputs and so at the end of any teaching intervention we are

interested in what learners can do, which is not the same as what we have taught them. The higher levels of learning have greater professional authenticity.

- Miller's pyramid is usually described as having 4 levels; knows, knows how, shows how and does. Additional levels before these have been added to suggest that learners need to have heard about and have awareness of before knowing (Figure 1).

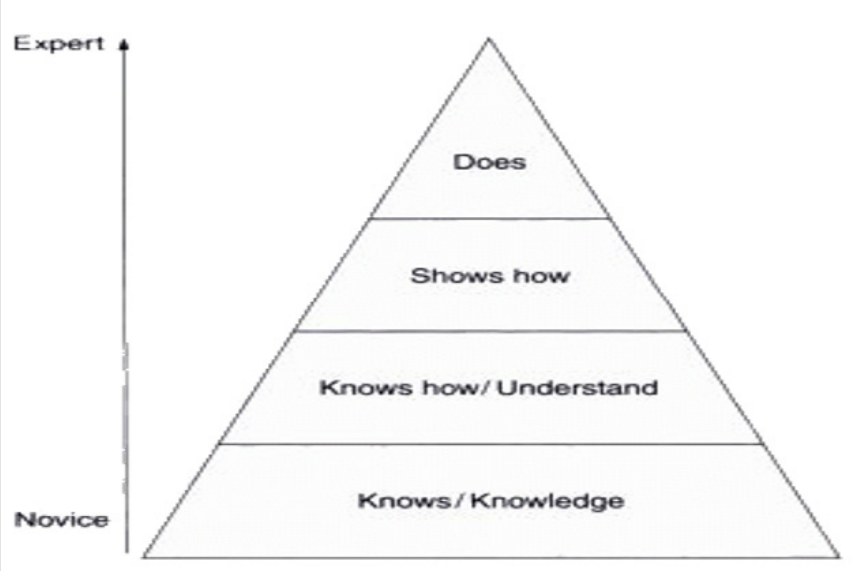

Figure 1.

Millar's Prism (Modified Millar's Pyramid):

- Millar's prism further integrates knowledge, skills and attitude which is used in clinical settings.
- Every aspect of the prism has its own importance and any individual aspect alone is not sufficient while assessing a student (Figure 2).

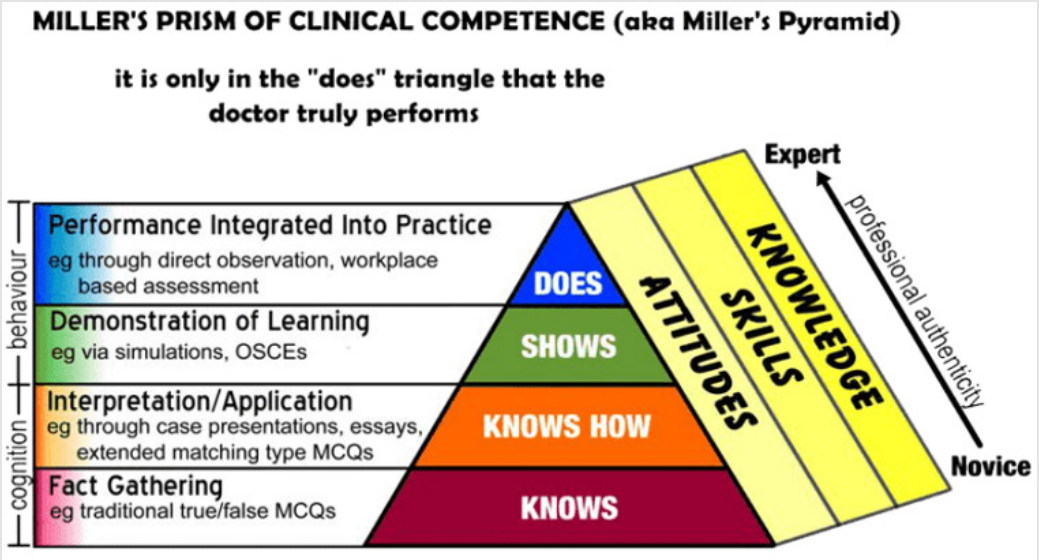

Figure 2.

Methodology

- A group of 110 students were taught theoretically about urine analysis.
- Pre questionnaire was given to analyze their understanding based on the knowledge they have gained.
- A practical demonstration was given to them.
- Thereafter they themselves performed that practical.
- A post questionnaire was given to analyze their knowledge gained through practical work and theoretical class.

About the Topic Urine Analysis:

- It is one of the basic tests with great clinical and pathological importance.
- Further urinalysis consist of physical, questionnaire and microscopic examination which helps us to assess an individual on different grounds of understanding.

About the Questionnaire:

- Topic: URINE ANALYSIS
- The questions were based on:
- What student learnt (Know).
- How much he understood the topic (Know how).
- What interpretation is he able to make when demonstration was shown (Show and Show how).
- Is he able to demonstrate the same tests himself (Perform).
- These questions were also graded as (Table 1).

Table 1.

Difficulty Level	Weightage
Easy (know and know how based ques.)	28%
Moderate (show and show how based ques.)	44%
Hard (perform based ques.)	28%

Result

Performance in following type of questions (Tables 2 & 3).

Table 2.

General Performance	
Pre-questionnaire	32.58%
Post-questionnaire	65..76%

Table 3.

Difficulty Level	Pre-Questionnaire Result	Post-Questionnaire Result
Easy (know and know how based ques.)	52.83%	78.36%
Moderate (show and show how based ques.)	32.35%	66.91%
Hard (perform based ques.)	13.55%	47.79%

Conclusion

- The pre questionnaire and post questionnaire used as tool of understanding showed that post questionnaire done after practical demonstration had better results than pre questionnaire done after theoretical teaching.
- Only theoretical teaching can be a boredom and very monotonous on a long run. Practical understanding adds a uniqueness to the learning process.
- Henceforth, it concludes that "hands on experience" has a significant difference in understanding of a topic as well as retention of knowledge [2].

References

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