

**MEDICAL STUDENTS AND BASIC MEDICAL SCIENCES FACULTIES' PERCEPTION OF HANDWRITTEN INDIVIDUAL ASSIGNMENTS AS A TOOL FOR LEARNING AND A METHOD OF ASSESSMENT**Abdulrhman M. Kamel\*<sup>1</sup> and Alani A. H.<sup>2</sup><sup>1</sup>Department of Basic Medical Science, College of Medicine, Al Maarefa Colleges for Science and Technology, Riyadh, Saudi Arabia.<sup>2</sup>College of Pharmacy, Al Mareefa Colleges for Science and Technology (MCST), Riyadh, Saudi Arabia.

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**ABSTRACT**

**Objective:** The aim of this study is to assess the perception of students and staff about handwritten assignments as a tool of learning and a method of medical student assessment. **Design:** A Cross-Sectional study to evaluate knowledge, attitudes and practices (KAP) of medical students and teaching staff of Basic Medical Sciences (BMS). Data analysis was carried out using Statistical Program for Social Sciences (SPSS) Version 17. **Setting:** Two Medical Schools in Khartoum State, Republic of the Sudan, during the period of Nov. 2013 and Feb. 2014. **Results:** A total of 280 medical students and 31 teaching staff members of BMS participated in this Study. Results showed that the majority of students wrote their assignments through mixing between references and their own styles (60%) and depending mainly on textbooks (62%) compared with other resources. In addition, (40%) of students used to copy/paste the information and (46%) did not write their assignments in regular arrangement i.e. introduction, body, conclusion and references. On the other hand, (55%) of the teaching staff considered handwritten assignments as a fourth in terms of importance; based on a scale out of four we proposed to compare it with other common assessment methods, However, they requested these assignments mainly as for self-learning purposes. Furthermore, (65%) of teaching staff preferred handwritten over typed assignments. Students were given three marks for formulating regular arrangement formulation and six marks as a discount for plagiarism. **Conclusions:** The results of our study suggest that a handwritten assignment is one of the methods that facilitate learning and enhance its process. In addition, Feedback shall be considered to promote students learning.

**KEYWORDS:** Undergraduate medical education, Handwritten Assignments, assessment methods, learning outcomes.

**INTRODUCTION**

Learning and Teaching the discipline of medicine is an ever-evolving process that requires both students and their teachers a lifelong continuing professional development (CPD). The concept of gaining large amount of knowledge within a limited duration in a way that is retained, remembered and effectively interpreted by a student has been and still a considerable tactic of medical education. This has resulted in crucial changes within the field, with a shift from a didactic teacher-centered and subject-based teaching to the use of interactive, problem-based, student-centered learning (Koh GC2008). Exposure, processing and feedback are required as part of the learning process that passes through each other and connected within one cycle; each phase driving the other one. However, teaching is defined as the art of transmitting knowledge, skills and attitude via passing it through the concept of education.

The learning process started with primitive tools and expanded to E-learning as revolutionary new tool, yet based on the well-known skills of reading, writing, listening and speaking. Moreover, learning tools has been modified to ensure the harmony with curriculum objectives. Lectures, small group tutorials, seminars and assignments are examples of such tools. According to the new Schools of Health Professions Education, ranking these tools depend mainly on the effectiveness and action on student-centered learning. As Assessment drives learning in the heart of its philosophy in which tells us the depth of such relation. (Amin Z, Eng KH 2006).

**BACKGROUND**

Assessment and its methods considered as the indicators of Intended Learning Outcomes (ILO's). It includes Problem-Based Learning (PBL), quizzes, seminars and assignments as engines of learning process. These

methods shall be adjusted to standard criteria like: validity, reliability, objectivity, and practability (Erwin TD 1991).

Assignments are more often in the form of an essay or a report alongside a number of different types of assignments, which may not be quite familiar to educators. It is important to understand what specific type of assignment meant to be used and how to use it appropriately.

Carol H. in University of Otago concluded that well-written assignments are not normally produced overnight, and then mentioned the important stages of planning and pre-writing. However, writing Assignment has several steps, but basic steps include; analyzing the assignment question, researching, drafting, editing and finally proofreading.

The very first stage, even before beginning to research, is to establish a relation between objectives and tasks. This action will help to clarify how and what shall be asked in the assignment. The next step will be brainstorming all possible approaches of the topic and make a list of research questions (things to read about). Carol H. suggested variety of resources: books, journal articles, course readings, and electronic resources. He also listed expectations of the students who went through such references as a follow: acknowledging the creator of the knowledge, demonstrating ideas pathways (how thoughts are progressed), helping others find the same material and avoiding plagiarism. (Carol H. 2009).

Plagiarism is the illegal use of the intellectual property of another by copying others' work without permission or acknowledgement by implying material is one's own when it's not. Sometimes this could be also done by presenting an idea as new when it has come from another source. This definition for students' behavior summarized by (copy and paste) which is considered as ethically, educationally and psychologically. (M Kate, Ekanayake K 2013).

In fact, many researchers conducted studies about writing assignments for many years, it started after publication of famous and known taxonomy published by Benjamin bloom. (Bloom BS 1956). Some of these papers considered writing an assignment as writing pattern that improve student learning while other papers considered it as method of a formative assessment tool.

It is difficult to deny the strong relation between writing as a skill and learning as a process especially after many researches over years describing this relation. Walvoord and Anderson suggested that every reading assignment must be linked explicitly to a writing assignment to enhance students' learning. As any other learning tools, writing exercises are valuable because they help students to think critically about course material while encouraging them to grasp, organize, and integrate prior

knowledge with new concepts. Furthermore, good communication skills are another valuable asset to be used inside and outside a classroom. When instructors provide students with opportunities to organize ideas and improve their ability to articulate such ideas, they contribute to both the education and professional development of their students. (Walvoord P, Anderson VJ 1998).

On the other hand, Hamilin *et al.*, conceded the writing assignment theme of active learning that is seen as an appropriate way for students to develop vital skills and knowledge with a positive attitude towards learning.

All active learning opportunities can be supported when necessary through sensitive intervention to support or extend learning. All areas of the curriculum, at all stages, can be enriched and developed through an active approach. (Hamilin J, Janssen S 1987).

Additionally, Craw *et al.*, stated that students need to be active in the learning process, and this means they should be making their own connections – in writing. They advocated the use of short writing assignments, usually for five or ten minutes done in class. (Graw D, Youga J 1986) Furthermore, Simpson *et al.* 1999 concluded that short papers and analyses of class readings were judged as best in preparing students for graduate programs and future occupations. Quantitative research papers, followed by short papers and analyses of class readings, were considered the best way to enhance student learning of economics. (Simpson MS, Carroll SE 1999).

While Erwin TD. defined the term of assessment as the process of defining, selecting, designing, collecting, analyzing, interpreting, and using information to increase students' learning and development (Erwin TD 1991) More specifically, educational evaluation is a careful, rigorous examination of an educational curriculum, program, institution, organizational variables, or policy.

For each one of these categories, assessment process may involve either understanding or improving the process already in existence - a formative assessment. On the other hand, the evaluation may entail passing a judgment of its intended or unintended outcomes - a summative assessment. (Krasne *et al.* 2006).

Formative assessment is a method of judging the worth of a program while the program activities are forming or happening. Meanwhile formative evaluation focuses on the process. Summative assessment is a method of judging the worth of a program at the end of the program activities thus it focuses mainly on the outcome. Formative assessment is a process-focused and it collects information from ongoing educational activities and feedback for further improvement of learning and program effectiveness.

In medical education, Formative assessments are systematically designed as instructional interventions to assess and provide feedback on students' strengths and weaknesses within the course of teaching and learning. It can be used also as an effective predictive tool of summative performance in medical school.

Khocher published a paper in 2000 about Assignments' methods and concluded that: Written assignments help in organization of knowledge, assimilation of facts and better preparation for examinations. It emphasizes on individual pupil work and the method that helps both teaching and learning process. (Khocher 2000)

However, writing assignment like any other method of assessment could be developed as a result of changes in the nature of teaching and learning especially in post compulsory education; alike to part-time and distant learning students in many countries. (Linn, R. L., & Miller, M. D 2005).

### Justification

Since it is very prevalent to use written assignment as a tool of learning process and a method of assessment, we would like to explore opinions of both faculty members and students about written assignments.

### OBJECTIVES

#### General Objectives

The aim of this study is to assess the perception among medical students and faculty members of the written assignments as a tool of learning and method of medical student assessment.

#### Specific objectives

1. To determine medical students' knowledge, attitudes and practices of written assignments.
2. To determine the position of written assignments between other methods of students assessment from a faculty member perspective.
3. To propose recommendations that may improve the quality of written assignments.

### MATERIALS AND METHODS

#### Study design

A Cross-sectional (KAP) Study.

#### Study Location

The study was conducted in two Medical Schools of Khartoum state, Republic of Sudan.

#### Study population

Medical students and medical faculty members specialized in anatomy, physiology, and biochemistry.

#### Sample size

280 students registered in the first and second year plus 31 faculty members of basic medical sciences during the academic year 2013- 2014.

### Data Collection

A Structured questionnaire to be distributed among students and another structured questionnaire for faculty members designed as primary tool for data collection.

### Statistical analysis

Data analyzed and fed into the statistical program for social sciences (SPSS) version 17.

### Ethical Considerations

Verbal consents were obtained from all participants.

### RESULTS

Demography of the sample a total of 280 medical students and 31 faculty members of BMS participated in this study. 46% of students were males and 54% were females. 79% of students had a Sudanese secondary school certificate, 20.6% had an Arabic secondary school certificate and 0.4% were from other schools.

Regarding faculty staff members, 45% were physiologists, 23% anatomists and 32% biochemists. The academic ranking of them were as follow: Lecturers (78%), Assistant professors (16%), associated professors (3%) and full professors (3%).

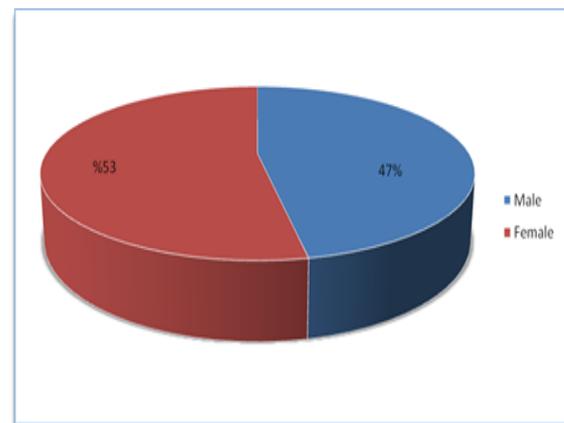


Figure 1: The percentage of participants according to gender (N=280).

Table 1: The percentage of participants according to secondary school certificate (N=280).

Certificate	Frequency	Percent
Sudanese Certificate	221	79%
Arabic Certificate	58	20.6%
Others	1	0.4%
<b>Total</b>	<b>280</b>	<b>100%</b>

Table 2: Distribution of participants (Faculty members) according to specialties (N=31).

Subject	Frequency	Percent
Physiology	14	45%
Anatomy	7	23%
biochemistry	10	32%
<b>Total</b>	<b>31</b>	<b>100%</b>

**Table 3: Distribution of participants (Medical students) according to the method of writing assignment (N=280).**

Variable	Statement	Frequency	Percent
The writing style	Typically use references	68	24%
	Reading references first to be expressed then by his/her own style	45	16%
	Both A and B	167	60%
Total		280	100%

**Table 4: Distribution of participants (Medical students) according to type of resources they usually utilize (N=280).**

Variable	Statement	Frequency	Percent
Types of references	Websites	85	30%
	Journals	22	8%
	Textbooks	173	62%
Total		280	100%

**Table 5: Distribution of participants (Medical students) according to copy and paste of assignments – Plagiarism (N=280).**

Variable	Statement	Frequency	Percent
Copy and paste the knowledge	Always	113	40%
	Often	57	20%
	Sometimes	63	23%
	Rare	30	11%
	Never	17	6%
Total		280	100%

**Table 6: Distribution of participants (Medical students) based on the ideal arrangement of their assignments. (N=280).**

Variable	Statement	Frequency	Percent
Writing assignments by the following arrangement 1. Introduction 2. Body 3. Conclusion 4. References)	Always	24	9%
	Often	21	7%
	Sometimes	56	20%
	Rare	51	18%
	Never	128	46%
Total		280	100%

**Table 7: Distribution of participants (Faculty members) according to the suggested ranking of assignment methods as an important tool (N=31).**

Variable	Statement	Frequency	Percent
Methods respectively: Test, seminar, participation in PBL and written assignments	The first one	2	6%
	The second	7	23%
	The third	5	16%
	The fourth	17	55%
Total		31	100%

**Table 8: Distribution of participants (Faculty members) according to the use of written assignments for other purposes (N=31).**

Variable	Statement	Frequency	Percent
Other purposes for assignment	Punishment	4	13%
	Self-reading	18	58%
	To put the student under academic pressure	7	23%
	For more consolidation	1	3%
	Other	1	3%
Total		31	100%

**Table 9: Distribution of participants (Faculty members) according to the pattern of written assignment submitted by students (N=31).**

Variable	Statement	Frequency	Percent
Preferable pattern for writing assignment	Handwriting	20	65%
	Typing (via computer)	11	35%
Total		31	100%

**Table 10: means of marks that has been given as a score during assignment assessment (N=31).**

Test	Mean $\pm$ (SD)
General appearance and beauty	2 $\pm$ (.720)
Organization and formulation of the knowledge	3 $\pm$ (1.274)
Using figures and tables	2 $\pm$ (.763)
Discussing the content of assignment by the students	2 $\pm$ (.860)
List of references	2 $\pm$ (.626)

**Table 11: The means of marks that discount during assignment assessment (N=31).**

Test	Mean $\pm$ (SD)
Similarity, Copying (Plagiarism)	6 $\pm$ (2.821)
Delayed Submission	3 $\pm$ (2.735)

## DISCUSSION

Assignments could be formed in many shapes, from the narrative essay to the structured report. Obviously, handwritten assignments has been always considered as a tool that can be utilized to improve learning tactics and to evaluate students. The data analysis revealed variations in the perception and opinions of our students and faculty members. It also expressed that writing is often recommended as a tool to improve reading skills. In addition, results also showed that students tend to read using from different resources and then completed their assignments by writing with their own style (76%) which is matching to what has been reported by Biancarosa G. et al. (2006) in (Reading Next) that writing would improve skills such as grammar alongside spelling reinforces reading skills. It is believed that writing a text would improve comprehension, as it helps students to make connections between what they read, know, understand, and think. (Carr S. 2002).

Langer et al (1987) defined writing as an extended response to material involved either a personal reaction to the text or analysis and interpretation of it. The former included that writing a personal response to narrative reading material or writing about a personal experience related to it. Analysis and interpretation of activities, in contrast, focused on writing an analysis of characters in a novel, writing a paper showing how it was applied on a material that was read. Actually, this is matching with our results regarding the aim of requesting an assignment by faculty members, they mainly agreed on self-reading (58%). On the other hand, even their perception regarding the style of such assignment was in favor of handwriting (65%) Over typing (35%). Goodfellow and Lea 2005 defined writing as an integral process of learning. In fact, Writing plays an important part in language development and knowledge construction (Lindblom S, Pihlajamaki H 2003). This explains why the majority of faculty members were in favor of handwriting as a competency.

The new framework for understanding cognition and the affect in writing adopted by the International Literacy Association, concluded that the information-processing models of self-regulated learning approach are consistent. Both sets of conclusions point to the overarching finding that student writing enhances student learning in all disciplines and particularly in economics' classes. It was capable of improving students' thinking and learning, these articles do not explicitly link writing assignments to Bloom's taxonomy of educational objectives. (Butler D, Win 1995) (Zimmerman BJ, Shschunk 2001).

These findings suggest that additional instruction and practice should emphasize the importance of handwritten assignments in medical education. Recommendations are provided below for an effective integration of writing assignments into the curriculum.

## CONCLUSION

There is a wealth of assessment methods used in medical education to assess our students and it can really make a difference on our students' learning. A handwritten assignment is one of these methods that facilitate learning and enhance its process despite the presence of some sort of plagiarism as subjective character. Students are in need of feedback to help them to identify what is good and what is bad of their works to improve their writing skills and promote their learning.

### Recommendations

1. Educators shall give an effective feedback about handwritten assignments to their students.
2. Educators should teach their students how to formulate their assignments.
3. Students should be warn about plagiarism as concept and its consequences.
4. A Larger sample size is recommended to increase the reliability of the study.

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