Student Learning Approaches in A Ghanaian Medical School

Kofi T. Mensah[1], Alexandros Argyriadis[2], Ebenezer A. Arkoh[1]

[1]*Department of Surgery, Komfo Anokye Teaching Hospital, Kumasi, Ghana, WEST-AFRICA*

[2]*Faculty of Life Sciences, University of South Wales, WALES*

ABSTRACT

Despite admitting the best of qualified applicants, the approaches of these students to learning in Ghanaian medical schools has not been sufficiently examined. We sought to examine medical students' approach to learning, the factors influencing their choice of learning approach, and their motivations to continue in a particular approach. An interpretive qualitative study was undertaken using a purposive sample of 10 medical students in their clinical years of training at the School of Medical Sciences, Kwame Nkrumah University of Science and Technology (SMS-KNUST). Separate semi-structured interviews were conducted for the participants followed by thematic analysis of the data. Students were found to pursue understanding and recall capability when learning. Participants also portrayed considerable preoccupation with examination demands and performance, which we termed the "assessment complex". Some underlined the almost indispensable role of memorisation in their study of medicine. It is our observation that when faced with the decision on an approach to learning, students of SMS-KNUST would settle for "what works best" for them under the given circumstances. Student obsession with test results sometimes influenced the adoption of surface learning.

Keywords: *Learning approach, Assessment, Understanding, Curriculum*

CORRESPONDING AUTHOR   Kofi Tawiah Mensah, Komfo Anokye Teaching Hospital, Box KS 1934, Kumasi, Ghana, West-Africa | E-mail: tawiahmensahkofi@gmail.com

INTRODUCTION

An approach to learning has been described as the differences in the motives or plans a person selects when faced with a learning task (1). It can be expected that how a person learns would have a significant impact on what and how much they learn. Student approach to learning (SAL) should be of particular importance to both learners and educators because approaches to learning may promote or hamper academic results (2). In modern day education, the learner has rightfully assumed the centre stage of the discourse on learning and, as a consequence, teaching is to be seen as a process of assisting student learning (3). It can be expected that students do not all approach learning in a single way. The question arising then is why this person, in this place, at this time chooses to learn this subject in this manner?

Three main learning approaches have been described – deep, surface, and strategic learning. Deep approach to learning is an individual's intentional effort to engage

and appreciate a learning task, function in it, and cultivate the new knowledge (3). The individual appears to activate an inner predisposition to embrace the learning task in all its entirety, seeking to be fulfilled and excel in it. Deep learners are intrinsically motivated by interest, engage energetically with the content and employ interrogation, judgement, and critical thinking (4).

Surface approach refers to a student's focus on selectively memorising some portions of the subject with motives which are alien to the intended learning goals (5). One such motive is the fear of failure. It has been proposed that in surface learners, "the motivation tends to be that of jumping through the necessary hoops in order to acquire the mark" (3). In a wider perspective, there probably are aspects of the surface approach which might be useful and can be harnessed by both educators and students for the attainment of the best learning outcomes. In medicine, for example, the steps in conducting a surgical procedure are often inflexible, having to be learned and practiced in the documented sequence (6).

The strategic approach to learning identifies that group of learners who set decisive learning goals at the outset, develop and adhere to a plan to accomplish these goals (7). It is a deliberate decision borne out of intrinsic motivation. A strategic approach to learning aims at attaining the highest possible assessment performance. One typical feature of such learners is their use of past questions and marking schemes. They are disciplined and consistent with learning timetables. They focus on the accepted learning outcomes and create for themselves the environment conducive for achieving this feat.

Learning approaches are influenced by several factors, some of which are modifiable. As future practicing physicians who will manage complex patient problems, having medical students simply recall factual knowledge would probably be inadequate. Students do not automatically subscribe to

a fixed approach to learning but rather, the approach could change from task to task, and even from topic to topic (8).

Peer-reviewed studies on medical students' approach to learning are limited in Africa. Many existing studies are often quantitative (9). In Ghana, where medical students do not have to pursue a pre-medical programme, their approach to learning their curriculum probably should stimulate much research interest. This is also relevant because of the professional demands of medicine and the vocational emphasis on lifelong learning (10). As a result, this qualitative study has been conducted to capture the unique mix of factors influencing learning approaches among students of the School of Medical Sciences, Kwame Nkrumah University of Science & Technology (SMS-KNUST).

METHODS

The purpose of the study was to pursue a detailed examination of the learning approaches adopted by students in SMS-KNUST. This would help to accurately characterise the methods adopted by the students in their quest to acquire medical knowledge. The three research questions addressed were: examining respondents' approaches to learning, the factors influencing their individual choices, and their motivations to continue in a particular learning approach.

Study Setting and Participants

An interpretive qualitative approach was adopted to pioneer investigations into the medical students' approaches to learning in SMS-KNUST. This design is in line with the purpose of the study which sought to explore and understand how medical students in this institution handled their learning in the unique environment in which they found themselves. The clinical-year medical student population was considered suitable for the study because, having successfully completed three years of pre-

clinical training and currently pursuing their clinical rotations, they had been sufficiently exposed to the rigours of the medical programme, both in the clinic and the classroom.

Sampling

Ten study participants were conveniently sampled from the clinical-year medical students of SMS-KNUST. They were the first 10 volunteers who opted to participate in the study after going through the information sheets supplied. The interviews were conducted after due informed consent had been obtained.

Ethical Approval

Ethical approval was obtained from the Committee on Human Research, Publications and Ethics (CHRPE) of Kwame Nkrumah University of Science and Technology with the reference code CHRPE/AP/053/19.

Data Collection

The interview guide was initially piloted with three respondents after which the final version was developed. The 10 participants were then engaged in separate in-depth, semi-structured interviews, each lasting approximately 45 minutes. The interviews took place over a period of one week during the first semester of the 2018/19 academic year, at a time when students had no ongoing or impending examinations. The interviews were audio-recorded with the consent of participants and transcribed. Participants were allowed to validate their transcribed accounts before data analysis proceeded.

Data Analysis

Thematic analysis of the data was carried out after each interview had been transcribed. The data was coded to identify predominant themes that could be used to answer the research questions. The

data analysis and discussion were focused on exploring each respondent's unique situation regarding approaches to learning. Three themes with eight sub-themes were identified (Table 1).

RESULTS

The study participants were clinical year medical students whose ages ranged from 20 to 25 years. The results have been structured under three major themes with eight sub-themes (Table 1). Two of these were emerging sub-themes. The substance of the first theme had participants describing their learning approaches as they experienced it. The second theme shed light on the factors which participants felt had influence on the approach to learning they adopted. The concluding segment focused on the agencies that motivated participants, or otherwise, to pursue their preferred learning approaches.

Table 1: Original sub-themes identified from student accounts

- Personal learning priorities
- Adaptation to "what works" and "what does not work" under given circumstances
- Some facts just have to be memorised in medicine, with or without understanding (emerging sub-theme)
- Recognition of traits compatible with successful medical training
- Assessment-focused learning
- Performance impact
- Instructor role in student learning
- Recognition of personal capabilities and limits (emerging sub-theme)

Learning Approaches Adopted by Students

Subtheme 1 - Personal learning priorities

For a learning endeavour to be categorised as belonging to one approach or the other, an effort often has to be made to identify what the priorities of the learner are.

Some of the students emphasised understanding as their study goal:

> So, I always try and understand. Most often when I'm going to write an exam, I don't really read textbooks for verbatim and those stuff, I don't really read slides. I just go to my jotters and recall everything because I understand already.

> It helps me to appreciate what I am going to do, to get a little understanding about what I am going to do so that when the lecturer teaches, all my questions are answered.

Other participants identified the ability to integrate or remember as their learning aim:

> It's not that it's difficult to understand, there is a lot to read and the difficulty may come in integrating all you've read so that's basically what it is. To me the integration is what is important. It's visualizing what you read and all; you don't really have a lot of time to do that.

> Sometimes people will say it's not about being smart, but I think the smartness also counts, like in terms of a good memory. Because if you can't remember the things, like you have to remember; they're just a lot and you're supposed to remember.

Subtheme 2 - Adaptation to "what works" and "what does not work" under given circumstances

Students had discovered what worked for them under any set of learning conditions and what did not quite do so:

> When the lecture notes are so packed, sometimes I don't read everything. I read the textbook and maybe I don't read the lecture notes. I just read the textbook and get the understanding especially if I have a lot of topics I'm supposed to read.

> Yeah, I realised that last semester there was some cases that I actually read before going to class, as in, read what we were going to do, and it really helped me a lot and my results last semester were really good so I realised it was a way of actually stepping up so that is one thing that really influenced me to read ahead a lot of the time.

> So, I might pick this strategy today, tomorrow I'll be picking another strategy because as per the time I have or as per the circumstances surrounding me, that's what I can do.

> The truth of the matter is there is a way that it should be done that would actually help retain the information but as to whether I do that all the time, you know, is the problem. Well, I'm saying "should be done" because the couple of times I've tried that it has really worked.

Students demonstrated dynamic adjustments to changing academic demands.

Subtheme 3 – (Emerging theme) Some facts just have to be memorised in medicine, with or without understanding

Some participants went further to stress that there were aspects of the medical training where they had no choice but to memorise:

> There are certain things you can't say that you're understanding it, you just have to cram it. Like in anatomy, this is ulna, this is radius, they're located here so that one it's not something you can understand.

> You see, some lecturers, they prefer their notes, they don't go outside their notes so it's better for you to "chew" [jargon for memorise] their notes and reproduce their notes. Even if you have the understanding to give them a pictorial view of what is happening, they wouldn't accept that, they just prefer their

notes. Even if you're on course, they prefer their notes so in such instances I do my best to "chew" the notes and reproduce.

I believe that the examinations have been set for answers which you have to "chew" so initially it was very difficult but I had to psyche my mind up, you know, that I need to start "chewing" cos I need to be able to provide answers that would be required so, yes. You'd have to have a basal understanding to be able to "chew" at all.

Factors Influencing the Choice of Learning Approach

Subtheme 4 - Recognition of traits compatible with successful medical training

Students identified certain traits which included dedication, diligence, discipline, and commitment, and they considered them as a necessity for successfully studying medicine:

I realised that learning in medical school is more for the diligent and the ones who'd commit time into it, not necessarily smartness because I realised that smartness doesn't count as much.

It's not really tough but it's very stressful. But if you're hardworking you can make it. It's just about hard work and dedication.

Medicine, you should be disciplined. You need to be disciplined because there are lot of stuff to learn within a limited time, discipline as in how to plan your time, yeah, how to take responsibility and all that.

I believe the study of medicine is quite tedious, it's not as easy or as liberal as some other courses in my opinion, however if you actually have the passion to see it through then you'll be able to actually see it through. I think the key component there is passion.

Subtheme 5 - Assessment-focused learning

There seemed to be a preoccupation with examinations among interviewees. Students shared on their unrelenting focus on quizzes and assessments:

For exams, me I've realised, well, most people [lecturers] are lazy. They can't go back every year setting fresh, new questions so well, if that's the strategy, let me use it [past questions], after all I'm supposed to pass and go, if it helps me pass.

Yeah, I do use past questions. I remember when we were on campus, as in pre-clinical, you'll go and write a test and after we've written the test they'd come and say "oh the past questions came" and you notice that I didn't solve it, aha, but it came. So over here, I decided whichever past question, I have to look for it and also solve it so that we'll all be at par, cos it's like sometimes you learn and learn and learn and last minute someone will just get some past questions somewhere and you notice that the person would be able, I'm not saying that I'm in a competition with anyone but sometimes it's painful you see, mmm, you study, study and last minute someone will sleep and get some small past questions somewhere, aha. And that is it, it will come. It's not like maybe they'll take some out and leave some, no, no, no, no it will come. So over here, I don't rely on past questions. I do study but I have to make sure I solve the past questions.

Student Motivation to Pursuing Learning Approaches

Subtheme 6 - Performance impact

Some students cited their experience with a poor performance or a re-sit in a course as being quite important in driving them through their learning journey:

So, I think it's not something [re-sit] I'm scared of but I think it gives me a reminder, like a check to sit up. But I don't want to get to that point where I have to be reminded to sit up before I sit up. So, I check myself like within the last week, how many hours have you studied? Do you know what you're studying? Do you remember what you've been studying? Can you answer questions if you're asked? That re-sit experience encouraged me. The main message was that you are not putting in enough.

It instils fear, when I think about trailing [jargon for failing a subject], that one makes me study more because I just don't want to come back when your colleagues are at home, then why have you moved to school whiles everyone is at home? I cannot answer such questions so when I think about it too it makes me do better, go the extra mile. Answering, like when people question you why? No, I cannot do that. I have to go and go away.

There is something they call 'washing' [a bedside scenario where a consultant hotly quizzes a student who is usually unable to come up with the answers] on the ward and I think in answering one of the questions I mentioned the fact that I focus a lot on what is going to be done on the ward to avoid 'washing'. Nobody expects to be embarrassed, but I think it's a good thing that keeps a lot of us on our toes, it's a pressure that – its positive even though some people may not like it, I mean, yes. To avoid it, it keeps us on our toes.

Subtheme 7 - Instructor role in student learning

Participants also described how their tutors impacted their (students) approaches and attitudes toward learning:

> Yes, lecturers who demand more from the students, get more from

me. Let's say you go to a lecturer that likes to have one-on-one interaction, it pushes me to study more before I come for the person's class. Some lecturers don't really mind, they come and then talk and then go. So, someone like that you wouldn't mind going to their class without knowing anything, but some actually make you know that they expect something from you before you go to that class so before I go to that class, I try to skim.

How they teach and how they prepare their lecture notes as well, affects my approach to learning. For instance, if the lecture notes are not understandable, sometimes I won't read it at all.

So, if a lecturer comes to class and is excited, he's not reading what is already on the lecture slides then it makes me want to read to find out cos due to their practice or their experience they'll be saying something from the ward or from experience not necessarily in the slides so then it makes me want to read the slides to know the theoretical aspect of it and add it to whatever I learnt in class and then they're excited, I mean, so it makes me feel like their slides could be exciting… Some lecturers come and they're already dull. It's like I'm just wondering, wait, "how do I get myself to follow you?" It doesn't help. So, I think they should be energetic in their approach.

Subtheme 8 – (Emerging theme) Recognition of personal capabilities and limits

The students spoke of their acknowledgment of personal learning capabilities and limits:

> The stress-free aspect of my personality doesn't push me to go further. Let's say if I understand a topic up to 80%, I'm quite okay but someone would want to go to 99%. Personally, I try my best.

I wish I could push myself to higher limits, but you get to some point and you're like, it's okay.

My long-term memory is somehow very good, like even if I learn something right now, I can reproduce it in say, 10 years. I can give you the details. So, I've noticed this pattern. So, I prefer the long term, so I try my best to, if I'm able to reproduce it, that means its somehow in my long-term memory and I will by all means remember.

What I can do I do, yes, because its medicine, you can't know everything but what you know, you must know well, that's what I believe.

DISCUSSION

Approaches to learning demonstrate some delicate variations even among persons belonging to the same category of learning approach. Medical students, representing only one subgroup of learners, are believed to be subjected to a somewhat universal syllabus based on the nature of the profession they are being trained to operate in. Although across medical schools, course content may be similar, the mode of curriculum delivery could vary. This variation exists among medical schools in Ghana and the situation is not too different globally. In the same institution, the system of instruction could be modified from time to time for a variety of purposes (7). The inspiration for this study has been to uncover the unique experiences of clinical-year students of SMS-KNUST as they approach the learning of the predominantly subject-based curriculum (11) they are presented with.

The study findings have commonalities with other peer-reviewed work carried out among comparable populations of medical students, which have also displayed a predominant deep approach to learning (12, 7). However, there are some intricate details

which surface and are believed to be setting-specific. The study participants described these individual learning experiences and approaches in a manner that was a departure from the traditionally exclusive domains of deep, surface, and strategic approaches. Some students could borrow tactics from any of the three domains as they deemed appropriate for the given circumstance, and this they appeared to do with fluidity and considerable ease. While some participants were comfortable with their capabilities and their preferred learning approaches, others appeared to be still open to new methods in search of improved results.

Implications for Student Development

In line with the research recommendations for effective medical learning (13), a deep approach to learning could be presumed among students who pursued understanding as the goal for their learning. This may not be too surprising because as medical practitioners, they would have to ensure that they had adequate mastery over their principles and concepts. Beyond obtaining understanding, the practice of going along with "that approach which worked best or yielded results" was quite pervasive among participants. Since students come with their idiosyncratic learning preferences, any attempt to inculcate in them a "new" learning approach can be expected to be challenging (14).

The description of memorisation as an occasional necessity for learning success also emerged from this study. This is a finding whose impact has been denied adequate recognition and documentation in SMS-KNUST and other circles of medical training. As similarly argued in other works (3), surface learning methods, which include aspects of memorisation, are not entirely unhelpful in the medical learning journey and could be the building blocks for additive and integrative learning. In the event that memorisation of facts emerges as "what works best" for the majority of a given student population, based on the existing

curriculum structure and assessment design, surface approaches to learning could be expected to sprout up along with it.

The term "assessment complex" has been coined in this study to describe the overriding engrossment with examinations by medical students in SMS-KNUST. It was discovered that some students were strongly interested in knowing the manner in which their assessments will be structured with the hope of securing a good performance and avoiding a re-sit. They were observed to employ strategies such as using past questions (in varying degrees of intensity) and even predicting likely questions to prepare for, sometimes at the expense of the rest of the lesson. This tactic may not satisfactorily mirror the essence of a strategic approach to learning (3). In as much as some of these procedures could get them to pass, there is the danger that they could graduate with inadequate knowledge (15) of some fundamental concepts of medical training.

Implications for Faculty Development

Participants stressed the value they placed on the verbal and non-verbal communication cues from their lecturers and were prepared to incorporate instructor feedback into their learning. Medical instructors must recognise the crucial impact they have on the progress of students' learning. The instructor's enthusiasm with the topic went a long way to promote deep learning among some students (3). Although only one participant in this study submitted that his learning approach was not particularly influenced by instructor disposition, the study design does not permit his opinion to be considered as a minority sentiment.

The role of faculty in knowingly or unknowingly bolstering the "assessment complex", however little, should probably not be ignored. Assessment management may need to be thoroughly reviewed in light of the widespread expectation some students have that lecturers could repeat past questions, unchanged. Going forward, assessment designs which are less anxiety driven, test for higher order learning objectives and are known to promote deep learning (14) may need to be introduced as part of efforts to address this complex.

Next Steps

This study offers the platform for further research using quantitative designs to assess the distribution of various learning approaches and how these patterns behave over the course of time. It would be beneficial if the findings from this study would stimulate conversation among the faculty about shifting from a subject-based curriculum to an integrated curriculum such as the problem-based learning (PBL) curriculum, which has been demonstrated to encourage deep learning (9).

CONCLUSION

The participants in this study were unequivocal that propitiously studying medicine in SMS-KNUST required one to adapt their learning approach to the existing conditions in the learning environment. In addition, adopting "what works" or "what gives results" was often the reality of student learning approaches in this setting. As part of the "assessment complex", student expectations of the assessment design or the likely line of questioning in exams, were key influencers of their approach to learning. These issues have served to sometimes promote surface approaches to learning and could threaten to entrench a culture of memorisation and over-reliance on past questions.

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