

HIGHER EDUCATION STUDENT PERSPECTIVE ON THE TEACHING OF RESEARCH METHODOLOGY: GHANA

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ABSTRACT

Higher National Diploma (HND) students of faculty of Engineering in the Ghanaian Polytechnics embark on research methods as a mandatory module in second year of their studies. The need for the module is to improve students' knowledge and skills on the concept of research methods that will enable them to design and carry out suitable research methodology during their final project work write-up. However, the rate at which student's trail the module and the poor standard of project works that is produced is an indication that students have no interest in the research methods as a subject. As a result, this study seeks to explore the perception of students on the teaching of research methods. This exploratory study collated data using extensive interviews with ten students who passed and ten who trailed the module which were selected via purposive sampling technique from each of the departments within the faculty of engineering. The information gathered using semi-structured interviews were reordered and transcribed. The study revealed that the method applied in teaching research methods subject do not fully engage student's interest, this has caused students to perceive research to be just an ordinary module and a mere formality that needs to be done and submitted. Further, it was established that students tend to be more interested in courses in line with their career rather than research methods. Also, offering research methods just for a semester alone is not adequate for students to have comprehensive understanding. The study recommends that Lecturers must endeavour to design interactive sessions with students. Research methods must be redesign to be taught from the first year through to the final year. The main component parts research must be taught and fully completed with feedback from students from students' depicting their understanding before commencing another part.

Keywords: Research, Methods, Interesting, Polytechnic, Students

1. INTRODUCTION

Final year Higher National Diploma students in the faculty of engineering which consist of Building, Mechanical, Civil, Electrical and Furniture Department in the Ghanaian Polytechnics embark on project work, which is a requirement of their level three (3) studies. Research methods subject taught at the second year of students' studies is to ensure that they have the needed knowledge and the ability to understand the concept that will enable them to design and carry out suitable research methodology

during their final project work. Research methods as a subject has usually been perceived by students as a conceptual subject and has been taught as such: focusing upon theory rather than practice. Undoubtedly, this had consequently led to students not fully comprehending the module. The subject focused on theoretical methods and was taught once a week without seminars and workshops. As a result, the way the course (research methods) could inform other areas of their career path was not always apparent to students. Students do not really appreciate the significance of the research methods and proposal writing they were taught at the second year of their studies which is to guide them when embarking their final year project work. Both the research methods and the proposal writing which would act a vehicle for their final project work were seen as mere subjects that need to be passed as a requirement in order to obtain the High National Diploma certification. The wide gap between the pass and the trail rate in the module couple with the poor standard of project work is an indication of lack of student's interest for the subject. This failure rate of students and the level of project work that is produced may be as a result of several factors such as the teaching methods of the module which does not make the course interesting, student's personal interest amongst others. This suggests that a more extensive innovative and simplified way of teaching research methods would have to be established to improve on the interest for the module. NABTEX (2000) suggests that Higher National Diploma (HND) syllabus for research methodology is to enable students develop research skills and be able to write a technical report. Despite this assertion, student's results on the module do not fully enhanced the core objective of research methods syllabus. Research primarily does not include the routine activities of applying what is already known. It is designed for activities meant to discover facts and relationships that will make knowledge more effective (Osuala 1982a). Educational research can be defined as a systematic and scholarly application of the scientific method, interpreted in its broadest sense, to solve educational problems. It relates the systematic studies designed to provide education with a more effective means of attaining a worthwhile educational goal (Osuala, 1982b). Polanyi (1998) and Tsoukas (1996) among others supported this assertion that the transfer of useful knowledge involves the transmission of both explicit and tacit knowledge. Further, most lecturers have a particular teaching style that they use in every teaching context, regardless of the type or level of students learning (Amundsen *et al.* 2004). This teaching attitude contributes to the loss of student's interest in the module. There appears to be a general student's perception that the research methods module is an auxiliary subject and as such students normally would just study and excel. Even though research methods prepare the individual of student's individual research interest, the students do not seem to establish that concept. Rather the students focus on modules which are directly linked to their main career. Biggs (2003) suggests that classrooms need to have a couple of different dynamics at work if students are to learn effectively. It is apparent that to be successful in encouraging and achieving students' interest in the subject (research methods) a move towards achieving proactive, integrated teaching methods must be introduced. This study, therefore, seeks to explore the perception of students on teaching of research methods and further establish alternative strategies to make the module interesting.

2. OBJECTIVES OF THE RESEARCH

- (1) To determine prudent ways to encourage student's interest on research methods.
- (2) To ascertain the perception of students on research methods.

3. RESEARCH OF METHODOLOGY

The research was carried out in two stages. The first phase was a comprehensive literature review. The literature review provided the theoretical basis for the paper and also the basis for the second stage - the interviews. Interviews are most useful in research where depth is required for understanding of natural phenomena. The research interview is characterized by a methodological awareness of question forms, a focus on the dynamics of interaction between interviewer and interviewee, and also a critical attention to what is. All the interviews were recorded and transcribed. The interviews carried out were semi-structured. Semi-structured interviews were chosen because it did not only provided the best flexibility but also it positioned the issues in context. Analysis of the data was carried out, and emerging themes were identified. In embarking the interviews, four departments from the faculty of engineering Polytechnics were considered. These departments include Building Technology, Civil of Engineering, Mechanical Engineering and Furniture & Design. In order to have a prudent representativeness of students, ten final year (3rd year) students who passed and another ten who trailed the module from each department were selected via purposive sampling technique in order to have a fair balance in argument for the study. Third-year students were chosen because they have already studied research methods in the second year to prepare them embark on their final year main project work at the final year level. The semi-structured interview designed to collect data engaged students for a period of eight minutes for each session. The duration however for the interview was enough and as such it paved the way for the students to provide in-depth expressions relating to their perception on research methods module and other challenges surrounding their final project works. A desk-top literature review carried out revealed other relevant information such as furnishing students with outdated information among others also contributes to the lackadaisical interest towards the subject. Each interview session was tape-recorded and subsequently transcribed. Detailed views for making comparisons and contrasts between the different respondents in the various department was created by looking for trends which are present in the whole set of the interview.

4. DISCUSSION OF FINDINGS FROM MECHANICAL ENGINEERING AND FURNITURE DESIGN STUDENTS

Students who passed the module (interviewees) from Mechanical and Furniture & Design departments stressed that research methods subject has given them in-depth understanding into what they are researching on because they are applying the theoretical knowledge acquired from the subject. An example of such statement is *“My topic is related to my course, because I have been taught about machines and repairs”* *“My project topic relates cutting tools and as such am applying the concepts of the taught research methods to do my project work”* Interviewees who trailed the module on the other hand stressed that qualitative aspect of the research methods was quite simple to understand rather than the quantitative part and the major part of their examination questions was always based on the quantitative section enhance the failure.

4.1 STUDENTS’ INSIGHT ABOUT RESEARCH METHODS

Interviewees (trailed student) stated explicitly that they do not have any interest for the subject especially the manner in which the subject is taught implying students have challenges with teaching methods for the subject. One of the students mentioned that *he understands the concept of research methodology*. A student, on the other hand, remarked that *he understood the concept of research methodology partially due to the limited time* (credit hours) allotted for investigating methods in second year. Respondents, however, suggested that it will be prudent to teach research methods from

first year through to the third year to enable students grasp the concept and get a comprehensively understand the subject. The student stressed “*Because the duration of the module is limited the subject must be taught in first year so that students will have more time to study it well.*”

4.2 COMMON MISCONCEPTIONS OF STUDENT

Students are likely to enter their program with some or all of these common misconceptions about research projects. These are misconceptions shared by the general student’s body. It is, therefore, necessary for Instructors or lecturers to ensure ways of helping students confront and critique these misconceptions so that they can be intelligent creators.

Interactions with the students revealed some common misconceptions which include the following:

- Research is a complicated undertaking that can only be done by seasoned scholars.
- Research is an institutional task, not an individual task.
- Research is conducted in a place designed for a particular research purpose.
- Separate time is required for research work.
- There is no practical use for research.
- Research needs a lot of resources and funding.

4.3 SOURCE OF INFORMATION

One of the students who passed the module stated that the source of information for his project work is via *observation in the workshop, the internet and interaction with fellow students*. Further, the student stressed that their research methods lecture missed the technique he was applying for his project work, and that has posed as a challenge. According to the other student, *his source of information is via personal experience since the automobile industry is a practical field*. The students further remarked that the internet and library were their sources of his information. Another student also lamented that *he was not getting relevant information related to his topic from textbooks since the library on campus is ill equipped*.

4.4 LECTURE MATERIALS AND NOTES

Lecture notes include a number of exercises for the students so that they can examine themselves whether they have understood the topic under consideration and also for the students to enter their class work and assignment in it whenever they are tested. Generally, notes are considered private and meaningful only to the note-taker, making it that much harder to establish good criteria for high – quality notes (Piolate *et al.*, 2005). Bui *et al.* (2013) also argued that notes quality cannot be assessed by anyone other than the user of the notes.

Interviewees from the Mechanical Engineering and Furniture Design department who trailed the module affirmed that most of the lecture materials/notes given to them at the end of each class were not simplified to ease student’s understanding compared with other lecture notes they were furnished. Besides, some of the information is irrelevant to engineering research. As a result, specific learning outcomes for the module are not achieved. On the contrary, interviewees who passed the module also remarked that the lecture materials were simplified and generic which covers all areas including engineering. According to students’ research methods is a mandatory pass for the final year project work, therefore no student is allowed to carry on a project work if the student has not passed research methods at the second year level. As a result of this practice, students tend to use sham means to excel in this subject in order to gain entry into the third year.

Similarly, one of the students opined that research methods must not be a compulsorily and a must-passed subject for students before they commence their project work. Otherwise, students will just memories the needed information to just pass exams without any accomplished interest for the module. With reference to the level at which research methods should be taught, interviewees (trailed students) were emphatic *that the subject should be taught at second year level to enable students apply the theoretical knowledge acquired in research methodology during the third year*. On the other hand students who passed the module maintained that the concept of research methods must be taught in the second and be repeated in the final year (3rd year) whiles students are undertaking their project work. Other interviewees who trailed the module also *lamented that research methods are a broad subject which should not be taught only at a second year since the time allocated for the subject is very short*. A student remarked, *“When dealing with a broad subject like research methods I think a semester alone would not be the best time allocated for that particular course. When talking of project work it is not all about research work, one has to do production work and other modules. Normally the perception students have about the project is research work, so if we are taken for two semesters we will know more about research work”*.

5.0 DISCUSSION OF FINDINGS FROM BUILDING TECHNOLOGY AND CIVIL ENGINEERING STUDENTS

Effective lecturing/teaching is one which leads to improving student’s achievement using outcomes that matter to their future success. These findings indicate how students perceive research methods module they are taught prior to their final year research dissertation. According to the respondent who passed the module, the subject was taught effectively with interactive sections. Interviewees who trailed the module, on the other hand, remarked that lecture was usually based on nonfigurative examples as such it was difficult to comprehend. Other students who passed the module also emphasized that research methods taught in their second year prior to the final year research project work are barely effective because they usually forget the entire concept whilst at the third year doing their project work. Interviewees who passed the module from Building and Civil engineering departments further stated that research methods gave them an in-depth understanding into what their research was about because they are applying the theoretical knowledge acquired in research methodology during their second year of study.

5.1 STUDENTS’ INSIGHT ABOUT RESEARCH METHODOLOGY

Interviewees (trailed students) stated clearly that they do not understand fully the concept of the module even though the introductory lecture was quite interesting. Also, a student who passed the module stressed that though he passed the module, initially the concept posed as a challenged but later he understood it. On the other hand, a respondent who passed the module remarked that the concept of research methods was clear to him.

5.2 SOURCE AND QUALITY OF INFORMATION

Respondents who excel in the module stated that the sole source of information for his project work is via the internet. Further another interviewee who also passed the maintained *that though he uses the internet, retrieving the necessary information was difficult due to the slow rate at which internet works on campus*. Also a student who excel remarked *that because the institution does not subscribe to journal and conference papers related to their field of study students find it difficult to know the current trends in their career enhance lost of interest in the module*. On the contrary respondents who trail the module had no information on the source and quality of information.

5.3 QUALITY OF LECTURE MATERIALS AND NOTES

Critically, learning can occur during both the production and review of notes by allowing the learner to make connections between idea units and engage in deep processing of course content (Bohay et al., 2005). Kiewra (1985) reported that students who only review detailed notes provided by the instructor after the lecture generally do better on a subsequent fact-based test of the lecture than students who only review their own notes. In fact, students who did not even attend the lecture but reviewed the instructor's notes scored higher on such tests than students who attended the lecture and took and reviewed their own notes. This should not be surprising because, unlike the students' notes, the instructor's notes contain all the critical ideas of the lecture. Interviewees who excel in the module stated that the lecture materials/notes were in vital and enabled them to embark on further reading which resulted in their pass in the module. However, interviewees who trailed in the module lamented that the lecture notes provided them were not concise enough and adequate to give them in-depth understanding of what and how research can be undertaken. For instance one student was quoted as saying; *"In fact as I speak right now, the lecture notes that I have compared to what my project work is about is quite conflicting."* With the question of what level of their study must research methods be taught? Interviewees who passed the module were emphatic that the subject should be taught from first year through to third year so that students can get the understanding that they need. However, interviewees who trailed the module stressed that research methods must be taught at both second and third-year classes.

6. CONCLUSION

The following conclusions as they relate to the research can be drawn: (i) differences exist in how research methods subjects are taught without any core linkage to students programme of study, thereby making the subject uninterested. (ii) Theoretical concepts by which the subject is taught does not make it so interesting to students learning the subject. (iii) A single semester alone with its limited credit hours for the research methods subject taught is not enough for students to be able to understand fully and apply the concepts of the subject needed for their project work. (iv) The research methods subject was not taught at all the levels rather only at the second year of students study to be applied at the third year. (v) There was an apparent lack of student engagement with their learning process that was affecting both the research methods subject itself and also their zeal to undertake independent research at the final year. Admittedly it would be prudent to stress that since research module forms the fundamentals of the student's individual research all efforts by project supervisors and lecturers must be established in order to make the module attractive to enhance to students interest. The study concludes that research methods can be interesting and appreciable by considering and implementing these recommendations.

7.0 RECOMMENDATIONS

The study recommends that there should be uniformity in the pattern of how the research methods module is taught. The subject must not only be theoretical rather there must be involvement with students such as assigning of mini projects to students so as to make it practical oriented. For a successful development of interest for the module and achievement of a good standard of project work by students, the study further recommends that research methods are taught right from the first year and through to final year. Research methods must be taught by dividing the main research components into sections per a lecture to make the lecture comprehensive and easy to follow thereby enhancing

student's interest. Also, ensuring that each component is completed with feedback from student's depicting their understanding will inspire them have interest for the subject. Students must be encouraged to discuss any problems they have with the lecturer, and feedback is an important part of the whole process. Basic statistics and numerical techniques aspect of research must be introduced before taking-up an actual research work to build-up the interest of students and also to ease the teaching of the research methods. Lecturers must endeavour to design interactive session with their students such as organizing hands-on activities, small class presentations, summarizing of class lecture notes and brainstorming sessions on the research methods. This will help students to get deep insight on the subject and adequately prepare them for their final project work write-up.

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