

Undergraduate Student Research Experiences: A Call for ICT-Aided Supervision

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Abstract- This paper makes an analysis of undergraduate students' experiences of their research supervision at a state university in Zimbabwe. Undergraduate students' research supervision experiences during their studies varied, mostly dichotomously. While some students experienced rewarding and gratifying experiences, others, however, underwent frustration, constricting and stressful experiences. Faculties did not show any significant variations, but mode of entry did. Most visiting/block students recorded more negative than positive experiences about their supervisory process. The study concludes with suggestions to reduce student vulnerability and enhancement of the quality of the supervision process. Key suggestions included that: faculties set up research project monitoring focal persons, supervisors be trained in research supervision, and also that both supervisors and students be trained in ICT.

Key words: undergraduate student, supervisory relations, supervision, experiences, supervisor.

"If by any chance, I grow up to find myself supervising student research projects, I know what irritates a student most" (Chimanga, undergraduate Accounting student).

I. INTRODUCTION

The findings reported in this paper are based on a study at one of Zimbabwe's major state universities. Research at this institution is at the core of all academic programmes. According to the regulations of the particular institution, all undergraduate degrees require that a student completes a project or dissertation within his/her programme of study (University Yearbook 2011-2014:114). At the studied institution, like at any other state university in Zimbabwe, successful completion of a degree programme entails a research project, continuous assessment and examination. However, studies reveal that students face a variety of challenges during their research process [5]. Although a plethora of factors have been advanced in relation to the phenomena of challenges faced by students carrying out their research projects, most researchers concur that working relations between supervisor and student are indeed the greatest thing accountable for the research experiences that the student eventual undergoes during his/her journey of research supervision [13] By student research experiences in this study, is meant what the students actually went out to do, what they were expected to do, challenges they encountered and their coping mechanisms.

The wealth of literature on student research supervision points to the criticality of student experiences, whose quality, in fact, has been shown to determine success or failure of the research study. Most studies on research supervision have been carried out at post graduate level [16], [26], [2]; [7], [5], [21]. At the particular institution, little efforts have been directed towards undergraduate research, yet experiences at this level could be a determining factor of whether one aspires for post graduate work or not, since almost all post graduate work involves research. The present study, which aims to explore research project supervision experiences of undergraduate students, assists in filling this gap.

Research Question:

- What kind of experiences do the undergraduate students have of their research projects supervision?

Theoretical Perspective

The study made use of the Theory Triangulating Perspective, where multiple theories and perspectives were combined to help interpret and explain the data. The two theories that were used by the study were the Social Exchange Theory and the Rational Action Theory [23]. These two socio-psycho-theories heavily overlap and are both traceable to George Homans [23]. Central to these two theories, and of significance to this study, is the idea that social actions and relationships are calculative and rational and embedded in structures of reciprocity and social obligation [23]. According to these two theories, society is a series of interactions that are based on estimates of rewards and benefits on the one hand and punishments and risks on the other hand [3], [7] [23]. When risks outweigh benefits, people terminate or abandon the relationship. Thus, social credit is preferred over social indebtedness [7]. Applying the theory to this study, if the supervisor-student relationship is deemed beneficial by the student, the student will reciprocate by having more positive emotions towards the research work [18], [18], Pyun and Xie, 2009).

II. LITERATURE REVIEW

Literature for this study focuses mainly on some of the crucial factors that impact on student research supervisory experiences. Research has shown that several complementary elements simultaneously influence the type of student experiences. Most of these are highlighted below. But before

coming to these issues, the study first defines what a supervisor is in the context of this study.

Who is a Supervisor?

In this study a supervisor is a “member to whom authority is delegated to direct, coordinate, enhance and evaluate the ...performance of the supervisees for whose work he or she is held accountable” [18]

The Role of a Supervisor

While authorities offer different ideal styles of supervision, [21], they are generally agreed on the role of a research supervisor [10]. The growing body of literature concur that the quality and type of research supervision rendered is a critical dimension of student’s experiences on his/her road in the research process [18]. The body of literature also concur that effective supervision buffers negative student experiences and limits detrimental outcomes. Regardless of differences across disciplines, all research involves critical skills in enquiry and these skills do not happen by chance but are a developed and nurtured. A supervisor should be able to develop and nurture critical enquiry skills in his/her research student. In this regard he/she is a mentor [6] who provides the student with appropriate advice and mentoring. In performing this role, disciplining and bringing the student on course is unavoidable. This role requires good communication skills, so it goes without saying that the supervisor should be a good communicator and listener [10]. Thus though playing an academic role, a supervisor also plays a human role. Academic criticism of a student by the supervisor is unavoidable as the supervisor examines and formatively assesses the research project. But the criticism has to be done humanly, according the student all respect and dignity that he/she deserves. At all times, the criticism should aim to achieve academic excellence.

Role of the Student

The supervision process is bi-lateral, involving both supervisor and student and in this bi-lateral process, it is important that the student understands his/her role. He/she is the researcher, so should not expect the supervisor to research on his/her behalf [10]. The successful completion of the research project depends to a larger extent on the student. However keen and committed the supervisor maybe, the project is more important to the student than to the supervisor. The student should implement the advice of the supervisor, and can only do this if he/she takes the advice, feedback and criticism by the supervisor to the heart [10]. Inarguably, the student has to be a good listener, reflective and problem solver.

Supervisor-Student Relationship

[17] contend that the first critical issue in the student research supervisory journey is not only the choice of the supervisor but “the effective management of the relationship with him/her”. In some universities, the student is allocated a

supervisor without any influence, yet in some, students can actively influence the choice of the supervisor. However, whether allocated or influenced, the growing body of literature concur that the key to negative outcomes for the student is substance of a positive supervisor-student relationship. A shared sense of responsibility, commitment and cooperation is a precondition for positive student outcomes. Healthy supervisor-student relationships are not by chance, hence, it’s worth that both parties put some considerable effort into it. The two have to commit to and provide the necessary conditions for the student to research [24]. To begin the process, the two need to formulate a project plan and keep a record of their meetings [10]. The two have to be very open and honest with each other, and the student especially, has to respect the time and privacy of the supervisor. The wealth of literature has established that when the supervisory relationships are rather too loose, the result in most cases is insufficient guidance, and when too tight, the result is student burn-out. [21] The ideal is a situation where relations are meaningfully tight, good oriented and constructively aligned to both (ibid). Openness and honesty are important ingredients of the relationship.

III. RESEARCH METHODOLOGY

Research Design

The study lay within the qualitative interpretive. This is because of the study’s need to “discover and understand... the perspectives and worldviews of the people involved” (Merriam, 1998, p.11) through studying the students’ views, voices, perceptions and expectations of their research project supervision. The qualitative interpretive paradigm “contends that knowledge is subjective and ideographical, and truth is context-dependant and only be obtained after entry into participants” [26]. The study was a case study of only one state university because of the need to study the student experiences of their research project supervision in depth.

Sampling

The researcher found it strategically convenient to include only the finalist students who had just handed in their final research projects for final marking. The sampling technique employed was purposive sampling. It was purposive in that it chose only those students with a fuller established relationship with their supervisors and also had a recent memory of this experience since it was retrospective evaluation of their experiences. These, the researcher felt, were best placed to provide in depth data on the problem under investigation. There were 6 major faculties at the institution and one small one. Ten students (5 males and 5 females) from each of the major six faculties and five (3 females and 2 males) students from the relatively small faculty were randomly selected from the purposively sampled students. This was at least 12, 5% and at most 28, 5% of the faculty population. In all 65 students took part in the study.

Research Instruments

The questionnaire and the interview were the two instruments used to solicit information from the sampled students. Interviews and questionnaires were not run concurrently. First were the questionnaire and then the interview, and the interview followed up on many issues that were quite sticking from the questionnaires.

The Questionnaire

The questionnaire had 2 sections. The first section solicited biographical data on sex, faculty, mode of entry and sex of supervisor. The other section solicited information on student experiences through both the likert type questions and open-ended questions. All the six-five students in the sample completed the questionnaire and fourteen of these were further interviewed.

The Interview

Thus, interviews were carried out to triangulate the questionnaires, thus improving the validity and reliability of the data. All the interviews were audio-recorded and were conducted by the researchers within five days. Individual probing was the main advantage enjoyed by the researchers, and the merit of this was that there were no gaps in the information, as the researchers were physically present to clarify any issues and responses were spontaneous. Also, the information received was not influenced by anyone around, as would have been the case had group interviews been held. The other advantage was that of supplementary information from the gestures and other non-verbal expressions. These came out loud and clear. Though the interviews were interviewee-directed, they were kept focused on perceptions and experiences of the students' research journey.

Research Ethics

Gaining entry was granted by the University registrar. Participation in the study was purely voluntary and participants did so out of own free will. Each participant's right to privacy was maintained. The names of the institution studied and of the participants are not divulged. Instead, pseudonyms, which in anyway do not link the participants to the data collected were used in this article to preserve the identity of the participants. There was no risk whatsoever in participating in the research. Prior to issuing out the questionnaires and conducting of interviews, a consent form was signed by each participant.

Data Analysis

Data was initially treated according sex, mode of entry and faculty. After this initial treatment cross sex, mode of entry and faculty assessment was made, data was throughout qualitatively analysed mainly according to [19]'s stages of qualitative data analysis where emphasis was on inspecting the data with the aim of highlighting useful information to arrive at conclusions. The first stage involved transcribing the interviews and other notes into a word

processing document. The second stage involved segmenting the transcribed data into analytical units which were then coded (i.e. marked the segments of data with descriptive or category names). The codes used in this study were not priori, but inductive [19] as they were developed as the data was being directly examined. The third stage involved forming conclusions about students' beliefs, views and perceptions about their research supervision experiences.

IV. OUTCOMES AND DISCUSSION

Questionnaire Responses

The following was an evaluation of the statements from the student perspective

TABLE1 THE LIKERT TYPE RESPONSES

| QUESTION | S A | A | D | SD |
|---|-----|----|----|----|
| Research supervision was stressful for me | 48 | 3 | 6 | 8 |
| If I were to do it again, I would prefer a different supervisor | 43 | 6 | 8 | 8 |
| My supervisor obstructed rather than helped me | 42 | 8 | 8 | 7 |
| I did not receive sufficient guidance from my supervisor | 38 | 7 | 6 | 14 |
| I was not satisfied with my supervisor | 40 | 5 | 7 | 7 |
| I was not treated with respect | 40 | 4 | 10 | 11 |
| Research project stimulated my personal development | 8 | 12 | 3 | 42 |
| N = 65 | | | | |

Key: SA – Strongly agree, A-Agree, D- Disagree, SD- Strongly disagree

a) Responses to the long questions

An analysis of the student responses to the long questions revealed that many intricate aspects were involved in the student research journey. The following issues were brought out:

Students listed a myriad of things that they expected from their supervisors. Topping the list was expectation of a healthy working relationship (49/65), work read on time (39/65), availability of supervisor for consultation when needed (38/65), guides the student (33/65), and friendly (19/65). From a reading of their responses, less than half had their expectations met. There were no significant variables by faculty, mode of entry or sex of supervisor.

The most common adjectives put forward when describing their research process were: burn out period (34/65), depressing 943/65), stressful (51/65) (interviews, however, revealed that some of the stress came from the many modules they took concurrently with research project and other many competing academic tasks like pressures such as presentations.), psychologically depressing (39/65), academic harassment (23/65), unhappy venture (33/65), frustrating (34/65), exposure to a wide array of ideas, thoughts and views (14/65). By and large, it would appear that for many students the research process was a trying time, hostile, unenjoyable, etc. However, studies by [1] show that when students are

experiencing a hostile research supervision environment, it affects not only the quality of their work, but also their motivation and zeal to work. Again, faculty, mode of entry or sex of supervisor did not show any significant variation.

It would appear from the results that students encountered varied and various challenges on their supervisory journey. All, except (13/65) 20% indicated that they encountered problems here and there. Some of the problems included: not having scheduled meeting times (49/65), supervisor not listening to them (50/65), loss of prestige (13/65), lecturer not available for consultation most of the time (13/65), supervisor unduly slow in reading student's work (38/65), unfriendly and unwelcoming supervisor (17/65), demeaned and always made to feel nervous (31/65), kept compared with others (15/65).

Students' judgement of what an ideal supervisor is, as well as a description of what their supervisors were, were determined. By far, a lot of incongruencies between the ideal supervisor and theirs existed. While they noted the ideal supervisor as one who keeps the student's morale high (40/65), they found theirs intimidatory and threatening them with failure (47/65). For these (47/65), opposites existed between the ideal and their supervisor. These indicated that they will forever remember their supervisors for the terrible times endured. One male student scribbled on the questionnaire that "sitting in my supervisor's office is one of the most horrible things that I will remember." However, for (15/65) 20%, there was congruency between their supervisors and the ideal.

These found their supervisors friendly, guiders, mentors, quality controllers and social supporters. It would also appear from the results that most of the students (47/65) were stifled to conduct independent-initiated research projects. Consciously or otherwise, it looks like most of their supervisors took over. This finding was consistent with interview results. Faculty, mode of entry and sex of supervisor did not show significant variation.

However, prevalent as it was, the finding is retrogressive for ideal research supervision. It could be the main reason why most students described their research journey as depressing (43/65), and incredibly frustrating (44/65).

Students' descriptions of their relationships with their supervisors could be put on a continuum from wonderful to awful and ineffective. (40/65) found their relationship with their supervisors as ineffective, while (18/65) found it productive and (13/65) found it healthy. Most of those that found it ineffective were the ones who had indicated that they had been forced to take up topics against their will, or had a constraining relationship with the supervisor

All the students indicated that they did not fill in exit forms nor had an exit interview. Literature points to this as poor practice. An exit questionnaire or interview, as its name implies, is a post research evaluation or assessment. The evaluation gives the supervisor a clue as to where some

improvements need to be made, and for this reason, it is not of little value. Through such an instrument, the supervisor may know student grievances. A supervisor who is honest with oneself will look into the feedback and make corrections where necessary. Questions like 'what did you enjoy most/least about my supervision, what suggestions can you make that would make my supervision stronger, etc.' may provide any supervisor with a wealth of knowledge especially to improve on whatever is necessary. Such feedback strengthens and deepens one's understanding of oneself, "weaknesses, prejudices, stressors, biases and needs. Understanding these about oneself allows for better understanding of others and how to best communicate with others" in future [7]. Feedback of any kind is a powerful tool in the hands of a good supervisor.

Students proffered a category of practices that could help the growth of a stronger and healthier supervisor-supervisee relationship. High on the list was the need for the student to chose own supervisor or that at least a supervisor chooses a student after some preliminary discussion (38/65). The other prominent issue was that supervisor-supervisee clarify their expectations right at the beginning so that both become clear of each other early (34/65). Not be overlooked was the need for the supervisor and supervisee to work out meeting schedules right at the beginning (33/65). One student wrote on the questionnaire: *coz of no schedules, I was plunged in a last minute rush to submit.*

Interview Results

Important to note is that all the participants expressed a willingness to provide information about their experiences. Interviews were generally lively. Data in this section is presented according to the themes that emerged from it. Analysis of the interview transcripts illuminated the following issues/themes.

Choice of Supervisor

The study established that the university plays an important role in how undergraduate students experience their project supervision journey. At the studied institution, deployment of students to project supervisors was purely a departmental assignment and undergraduate students did not in any way choose their own supervisors. The study then got interested in finding out how students found their way out in the context where the project supervisors were allocated to them. The majority of the students were not happy with the institutional practice. The following excerpts captured some of their feelings: (N.B. All interview excerpts are unedited).

I, given a chance, would have preferred to choose my own project supervisor. But I had to bow to university practice. You see, it's not just a matter of being given a person, but getting along. If I were accorded a chance to make my choice, then I would have made some preliminary consultations with the chap (Interviewee 1),

Though I got on quiet well with my supervisor, appointing a supervisor on behalf of a student, to me, is not the best practice (interviewee 5),

I blame the institutional supervisory system where your lecturer for 1,2 3 or even 4 modules is your supervisor. You get into the research project already supervisor holding built-up expectations about you. Mind you, lecturers are human beings. Its most unfortunate, as in my case, that the preconceived expectation was negative, quiet negative indeed. The result is me finishing the project as a repeat- a year after my other colleagues finished. I don't think I deserved the repeat, but impressions were already built (interviewee 3)

Given a chance I would have preferred to choose my own supervisor or be supervised by someone who did not know mw completely (interviewee 8).

However, even when such were their feelings, the information received showed that all the students accepted their supervisors, and none had changed a supervisor midway, no matter how negative the relationship was portrayed by the student. All the interviewees reported adaptation mechanisms in situations that Lonka in [21] call 'dysfunctional' project supervision process, and what Vermunt and Verloop in [21] call 'destructive' supervision process.

Supervisor-Supervisee Relationships

The responses from the interviewees indicated two types of supervisor-supervisee relationships. The first group comprised relationships that were smooth running.

...not that there was no criticism, but all was done in a constructive and respectful manner. At first I would get angry, but as we got to know each other more, I ended up appreciating the criticism. He remained firm to his remarks and struggled to make me see light in what he would be saying. He didn't force me into anything but made facts bare that I would see the light myself.

Oh! Yes. I will die remembering my supervisor. Contrary to what some students said, I found my supervisor quite helpful. She taught me what research is, accorded me the chance to do my project with minor interruptions on my ideas throughout the research process.

I was personally enthused by my supervisor. I would give him my views, and he would tell me his opinion and give me advice. He was an inspiring character. He wanted me to self discover without blunting his ability to be critical. Never at any one point did I work feverishly to his tune.

Most interviewees in this category said they will die remembering their supervisors as people who have made positive marks in their academic journey

The second group is where the relationship could best be described as 'dysfunctional' (Lonka in [21]). Within this group, most students reported that they experienced a thorny research supervisory journey that did not stimulate any personal development. Most students in this category said they will have life long memories of their supervisors and will bear the scars for a long time. Students in this group reported lack of independent thinking

...the tension arouses after I had indicated that the area she was driving me into was not my area of interest. She insisted on the topic and up to this day I do not own that project. I was pressurised to do it. Even if I pass, that's not my own. Right through I couldn't tell her my thoughts and points of view. I only received hers. I am absent from this project (interviewee –male fulltime social science student)

and a deprivation of chances to discuss or negotiate on research issues, but

...only told what to do. Even the topic was not mine. Mine was discarded. I would read the materials he said I should read, and brought the ideas that he wanted full stop. I tried to raise the issue with the Faculty Executive Dean (because my supervisor was chair of the department) but I was scared. (Interviewee-female full time Arts student).

I knew the differential power inequalities in our relationship. This made me even less assertive, despite the self-empowerment preached in one of my modules. Empowerment in theory is way different from empowerment in practice, (interviewee – male Natural Resource Management visiting student).

I could sum up my research experience as having been functionally and academically successful. There was trust in each other but communication was not that easy for me. I used to travel to this place at least once a week during proposal and data analysis stages. And think of it, my work place is Hwange (a city of about 300km from the university). Getting paid leave from work every month was difficult. Well, I think those are the costs of education at times. (Interviewee- male visiting commerce student.)

V. RECOMMENDATIONS

A reflective analysis of the study findings reveals that the visiting/block students encountered immerse challenges in trying to juggle with work, school and family commitments, especially that they found themselves travelling to university to meet their supervisors sometimes weekly, monthly and so on. In view of this, the study recommends that the university trains its students and lecturers in Information Communication Technology so as to develop their technological literacy. This will make it possible for students to meet their supervisors electronically [27]. This will eradicate the students' physical

presence during research consultations. Nullifying geographical proximity in this way will also be cost effective to the student in terms of not effort, but time and finance. This could go a lot in making it easier for students to balance their busy work and research lives.

Inarguably, the study found that the relationship between the student and the supervisor is key in how a student experiences his/her supervision journey. A strong implication of this is need for institutional training of research supervisors, so that at least there exists some commonality in the supervisor-supervisee partnership. The training referred to should aim at raising awareness to the minimum expectations of this partnership. This, the study feels, will peel away layers of negative problems experienced by the students in how a student experiences his/her research supervision journey. This, as [13] argue, may help greatly, more so, to those who may have unexpectedly been plunged into the role of research supervision. It is this study's contestation that training of supervisors may eliminate student sentiments like "...I am absent from this project".

The study also recommends empowering lectures on research supervision; so that students can stand up where they feel they would be treated unfairly. The response '*I thought I would overstep or out step. I found it better to switch off, than to fight. I didn't want to create a power struggle* or perhaps be labelled 'supervision resistant', are a clear sign of lack of empowerment.

The study also recommends that the institutions encourage research supervisors to let their students complete exit questionnaires/ or undergo exit interviews. The merits of caring out such an exercise have been outlined in the text.

The study revealed that research projects at the institution were handled at faculty level and that within these faculties no one had the mandate to monitor the unfolding of the research process between supervisor and student. In this regard, the researcher recommends that faculties institute project monitoring individuals whose duty it is to monitor the research process as it unfolds, checking for instance such things as setting and meeting of time lines between student-supervisor. Comments like "... *coz of no schedules, I was plunged in a last minute rush to submit*" can be over overcome.

This paper has looked at students' experiences during their research supervision. However, since the experiences emanated from a partnership of two people, a holistic picture comes from views from both parties. In this regard, the researcher recommends further research on the topic that incorporates the supervisors' perspectives.

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