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USING THE WRITING CENTRE MODEL TO ENHANCE REPORT-WRITING SKILLS AMONG ENGINEERINGSTUDENTS: A CASE STUDY

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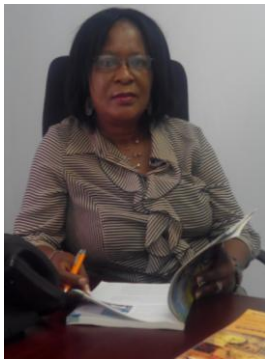

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ABSTRACT

This paper discusses the initiative the researcher made to use the Writing Centre model in teaching report-writing to students pursuing engineering and technology programmes at a technical university. The researcher realised that students have serious writing problems generally, and problems with technical writing in particular, as well as following writing conventions expected in an academic institution. Furthermore, English - the language of instruction- is not a first language for almost all the students. The Social-Constructivism theory (Vygotsky, 1962), which advocates for learners' collaborative learning with adults for better learning outcomes informed the conceptual framework of this paper. The data were collected and analysed qualitatively. The results showed that because of the interactive nature of the writing centre model, students' report-writing skills improved tremendously. Consequently, a Writing Centre is a necessary resource at institutions of higher learning to enhance students' writing skills. The results of the study will be useful to lecturers teaching a similar course in similar institutions where English is not the learners' first language, as well as other lecturers of a similar course in non-technical tertiary institutions.

Key words: Writing Centre, Writing Skills, Language of Instruction, Writing Process, Technical Writing

INTRODUCTION

Undergraduate students for whom English is a second or third language face a number of challenges with academic writing in general and Technical Writing in particular. The challenges are even more evident among students who are following a specialized discipline such as engineering, which requires that they communicate in a discipline-specific genre. These challenges are frustrating to both the lecturers of Technical Writing and lecturers of discipline-specific courses. One of the challenges is that poor writing skills often result in miscommunication between the students and their lecturers, yet it is through writing that lecturers mainly assess the performance of their students.

When the Botswana International University of Science and Technology (BIUST) enrolled it students for the first time in 2012, the curriculum did not include the Technical Writing and Academic Literacy (TWAL) course. Therefore, the students pursued their programmes without the language support course. This soon manifested into incoherent writing and the lecturers of discipline-specific courses decried the students' poor writing skills. The University decided to introduce the TWAL course in January 2014 as a two year course to assist the students to become better writers for Science, Engineering and Technology, including Information Communication Technology. However, this paper only focuses on the Engineering and Technology students to whom the researcher taught the course. The students enrolled under the five engineering programmes of Telecommunication, Mining, Computer, Geological, and Energy engineering.

The Government established BIUST with a mandate to be a leader in the diversification of the country's economy through Science, Engineering and Technology. The central pillars of the country's economy are diamonds, beef and tourism. Due to fluctuating markets of diamonds and beef, the government felt that the economy was vulnerable; and therefore it needed to expand into a knowledge-based economy. In that regard, BIUST's commitment is to widen national, regional and international opportunities for higher education in science, engineering and technology, as well as providing opportunities in applied research (BIUST Undergraduate Prospectus, 2015).For this reason, it aims to produce graduates who are not only conversant in their disciplines, but who can also compete internationally with their counterparts. However, these graduates cannot compete globally if they are not competent communicators – both orally and in writing. Hence the decision to introduce the TWAL course to improve their writing skills, especially Technical writing, including meeting the standards expected in academic writing.

The first year offersa bridging course to groom students from general writing to writing for specific purposes, including improving their grammar in English. The students also learn the academic literacy skills they require to learn and write at university. In the second year, emphasis is on writing for specific purposes including producing documents inherent in the engineering profession such as reports. The objective is to equip these students with the necessary writing skills that will assist them to cope with university learning and eventually at the workplace upon graduation. The following are the course objectives relevant to the skill of writing (Department of Technical Writing, 2014):

The course will help the students to:

- produce specific texts that are fluent, accurate and reflect a style appropriate for Engineering and Technology.
- apply principles of grammatical organization that characterize the styles of different technical texts.
- apply critical thinking skills in academic writing

The lecturer introduced the students to writing for engineering and technology consistent with the above-stated objectives, and technical report-writing was one of the main topics. Although the lectures covered various examples of reports, for the purpose of this study, focus was on the progress-report. The researcher and her students applied the writing centre concept to produce coherent progress reports.

The Writing Centre concept

The Writing Centre concept originated in American universities in the early 20th century with the establishment of the writing centres as "writing labs" (Carino, 1995). Initially, the writing labs were a method focused on addressing grammatical aspects of students' writing not as a place for coaching writing (Waller, 2002). According to Boquet (1999) and North (1984), the idea behind the writing labs was that students were to do all work during class time in the presence of a teacher to enable the teacher to help with any revision or answer any question a student may have. However, as universities grew and class sizes increased, they removed writing labs from the classrooms and reestablished them as writing centres. Their functions were to provide editing service and remediation to students' writing to enhance proficiency (Waller, 2002).In Botswana and in many African Universities, the Writing Centre concept is very new. In fact, in Botswana, the researcher knows of no university that has a fully-fledged Writing Centre that operates similarly to writing centres found

in North American, Australian and European universities. However, in neighbouring South Africa, all the universities in the Western Cape have well established writing centres, as well as the University of the Witwatersrand in the Gauteng province, the University of the North West and many others.

BIUST strongly emphasizes the importance of Technical Writing for its students-undergraduate and post-graduate because of its unique status as the country's international university that specializes with science and technology programmes. Therefore, the skill of writing is the one that receives the most attention in line with BIUST's Mission, which is to produce globally competitive and high quality graduates who are entrepreneurial and employment ready because of their globally-relevant skills (BIUST' College of Engineering and Technology Handbook, 2015). For BIUST' graduates to be globally-competitive, they should master their disciplines and also be excellent communicators. Furthermore, lecturers and prospective employers use writing as a primary basis upon which to judge a student's work, learning, and intellect in the university and eventually at the workplace respectively. It is also through writing that students can demonstrate their clear thinking (Mokgwathi and Jeffrey, 2013). Through writing, the writer moves easily between facts, inferences, and opinions without confusion and without confusing the reader. Because the reader's needs are central in writing, writing also requires the writer to anticipate the reader's reaction. Over and above, writing stimulates the writer's thinking to go beyond first impressions or immediate responses. Most importantly, it is through writing that academic staff members mainly assess their students' ability and determine their success or failure.

Based on the above, the Department of Technical Writing and Academic Literacy aspires to be a leading centre of excellence in Technical Writing in the country and the region. It is against this background that the department proposed to establish a writing centre dedicated to improving the students' writing skills relevant to science, engineering and technology disciplines. Before the establishment of the writing centre, the researcher embarked on a writing project through which to coach students' writing skills by applying the writing centre concept. The researcher chose progress report-writing for this purpose. The objective was to give the students an opportunity to take charge of their own learning. According to Nicol and Macfarlane (2006), education mainly aims to assist students recognise gaps between their own performance and what a given task aims to achieve. This recognition occurs when they meaningfully engage with a learning task. Therefore, a structured task such as the one the researcher gave will eventually enable the students to independently assess themselves. The objective of the task was also to enable the students to produce tangible evidence of the success of this mode of teaching and learning.

2. Conceptual framework

The Social-Constructivism theory based on Vygotsky [1896-1934](1962)'s theory of the "Zone of Proximal Development" (ZPD) (Blake and Pope, 2008) informed the conceptual framework of this paper. ZPD refers to the distance between the actual developmental level as determined by independent problem-solving and the level of potential development as determined through problem-solving under adult guidance or in collaboration with more capable peers (McLeod, 2012). The social constructivism theory posits that children performed better when working collaboratively on a task with an adult than when working on their own (Daniels, 1996). This is because the process of engagement with the adult enabled them to refine their thinking or their performance to make it more effective. This theory suggests that the learners are much more actively involved in a joint enterprise with the teacher of creating ("constructing") new meanings. The researcher found this theory appropriate for this paper because in a writing centre set-up, there is interaction between the students as learners and the peer tutor who is often a postgraduate student or the lecturer as the facilitator of the learning process. The writing centre model actively involves the learner in the writing process because there is more emphasis on interaction than on observation.

Furthermore, the students did the task in groups to enable them to enrich each other's ideas. The researcher, therefore, adopted the writing centre model in teaching the progress report-writing process to enable the students to be constructors of their own knowledge rather than passive receivers of knowledge from the lecturer. This model was consistent with Farrell (2009)'s notion that students should actively partake

in learning to construct knowledge and create meaning. Similarly, Bransford et al. (1999) state that this approach emphasizes that students should take charge of their own learning through active engagement in learning, knowledge acquisition and transfer. The researcher preferred this model over the traditional lecture method because it also bridged the distance between the lecturer and the students often created by the latter through delivering a lesson to passive learners. Furthermore, the model empowered the students as they took charge of their own learning.

3. Research problem

The following two sub-questions helped to address the study's main question:

1. Is the Writing Centre model appropriate for teaching progress report-writing?
2. What are the limitations of this strategy in teaching progress report-writing?

The researcher had realized through her many years of teaching Technical Communication Skills, including report-writing, that the lecture method whereby the lecturer delivers a lesson on report-writing and then gives students a task to produce a report independent of their lecturer was not effective. Therefore the researcher decided to apply the writing centre model in the teaching of report-writing so that students and their tutors and the researcher as their lecturer could work collaboratively on the production of a report.Lai (2011: 6)explains that collaboration involves participants working together on the same task …"

The rationale for this approach was to ensure that as the students go through the report-writing process, they also produce a report so that by the end of the process, they would have a quality product with which they will be very familiar. The outcome should be a quality product they could own and be proud of. Again the researcher had realized that often students focused more on the mark they obtained in each written work than on the mistakes they made that warranted the marks they obtained. Therefore, working collaboratively using the writing centre model in line with the social constructivism theory (Vygotsky, 1962) would ensure that each student is involved in the production of a report. Furthermore, the report-writing task was also an opportunity for the students to apply their word-processing skills and to improve their writing skills.

4. Methodology

The study was theoretical and empirical in design, and the site was Botswana's first university focused on Sciences, Information Communication Technology (ICT) and Engineering and Technology only – the Botswana International University of Science and Technology (BIUST). The researcher used the qualitative method to compile the data for the study in the form of students' written progress reports. One hundred (100) students out of a total of 147 third-year students enrolled in the five engineering programmes of mining, computer, telecommunication, geological and energy engineering participated in the study. The students were to formulate a scenario of a project relevant to their respective disciplines, which they may undertake, and then write a progress report on to stimulate their critical thinking. According to Kasten (2015), every educator has opportunities and obligation to incorporate critical thinking into his or her subject area. The progress report-writing task served this purpose and the students worked on the task in groups of five students. Thereafter, the researcher chose four progress reports randomly from each discipline and a total of 20 reports formed the data for the study. The class comprised of both male and female students; however, gender was not a variable in this instance.

4.1. Process

The students worked on the project for three months in three stages. The first stage (one month) involved introducing the students to report-writing in general and progress report-writing in particular. The purpose was to enable the students to understand the different key considerations in report-writing and to familiarise them with the different types of discourse they may apply in writing reports, with examples. These are: Descriptive, Analytical, Argumentative, Narrative and Expository writing depending on the nature of the report.

The students were to produce a progress report using the narrative form as the specific task for the study. This type of report is appropriate for engineering students because it is one of the reports that engineers may produce from time to time in a workplace since they inherently deal with projects. An engineer

needs to write a progress report to inform the reader about a project's progress. The writer informs the reader if the project is proceeding as per the original plan and is on schedule; or if there have been any significant changes in the scope or organization of the project (Lannon and Gurak, 2015). A progress report by its nature presents preliminary key findings which would serve as achievements. It also reports on the work remaining; and offers tentative conclusions if any. As its name implies, a progress report reports on work completed and work remaining to keep the major stakeholder up-to-date about the project at hand. Therefore, it is important for the report-writer to explicitly report on the achievements and challenges in relation to the project, if there were any. In a nutshell, a progress report is a preview of the final report that the writer will make once the project comes to an end. Therefore, the task coached the students in producing quality progress reports similar to those that a practicing engineer may produce.

Report-writing was also ideal because it required the students to display their writing skills. Therefore it was an appropriate exercise for engineers-to be because according toBugos (1991: 8), "writing and documenting are essential aspects of an engineer's job. … engineers spend approximately 50 to 60% of their time documenting their work."The task also gave the students an opportunity to apply their critical and creative thinking skills by imagining a scenario on which they can write the progress reports.

The researcher then introduced the Writing Process (Emig (1977) to the students. This process was applicable in the report-writing task because it involves collaborative learning as the constructivism theory (Vygotsky, 1962) advocates. Its steps are: brainstorming, grouping of related ideas by outlining, drafting, revising and editing. The students were to carry out the last two steps twice before submitting the final work to the lecturer for marking. Furthermore, the researcher encouraged the students to practice conciseness in their writing, which is central in technical writing. (Pfeiffer and Adkins (2012) state that experts in technical writing believe that careful attention to conciseness could shorten technical documents by 10% to 15%. The researcher also cautioned the students that in reading their work, she will give special attention to correct use of grammar since it contributes to overall meaning of the reports. In that regard, Agarwal and Yadav (2014: 293) observe that, if any written work "is full of errors and ambiguity, it will be completely meaningless to … the receiver." Furthermore, there was also emphasis onthe importance of correct in-text citation and provision of a reference list (if necessary) to guard against plagiarism. Park (2003: 472) defines plagiarism as "literary theft, stealing (by copying) the words or ideas of someone else and passing them off as one's own without crediting the source."

The next stage (one month) involved the actual production of the progress report by applying the writing centre model. Consultation between the researcher / teaching assistants and the respective groups took place throughout the duration of the task. The students were to produce a write-up at each stage and discuss it with the researcher as their lecturer. The consultation involved conversing with each group about the topic at hand, discussing principles and processes of writing, 'modeling rhetorical and syntactical moves' for the students to apply, and assisting them in identifying patterns of grammatical error in their writing. The researcher informed the students that as the consultant (including teaching assistants during tutorials), she was not going to proof-read or edit their work, but would work with each group or its representatives to assist them to identify their mistakes and shape their writing. The idea was to assist the students to become better writers and own the final product of their work. Writing for an aspiring engineer is important given that "as the professional world becomes more diverse, competitive and result-oriented, the importance of technical communication skills continues to increase (Agarwal and Yadav, 2014: 292)."

The students worked on the following task in their groups:

> Think of a situation in your engineering discipline (that is, energy, telecommunication, geological, mining and computer engineering). You entered into a contract with a client to undertake a project on their behalf (please determine who the client is) for a specified period. During the period of the contract, you are to abreast your client about the work at hand.

Prepare a progress report for your client that will give satisfactory information on how you are handling the project. Decide whether you are preparing a first progress report, mid-term or final progress report.

Instructions

- *Work on this task in your respective tutorial groups.*
- *Your progress report should cover all the relevant aspects.*
- *Write your progress report in the correct format.*
- *Strictly adhere to grammar, punctuation, capitalization, spelling and all mechanics that contribute to coherence and cohesion in a written piece of work.*

The task was a take-home assignment and a tutorial task; and students worked on it following Emig (1977)'s writing process. The report production was step by step to ensure that students understood the process, and the students were to make weekly group presentations during tutorials. This was in line with the spirit of the course as a knowledge-application course instead of being an information-recall course. The idea was to take each group member and each group on board.The ultimate learning outcome was to ensure that each group produces a progress report that demonstrates that they have internalized the format and key elements of a progress report. They were to produce progress reports that meet both academic and industry standards. Lino and Duarte (2011 : 20) similarly state that the Masters in Mechanical Engineering course at a university in Portugal was to develop "skills that will be very helpful in the future active professional life" of a mechanical engineer.Some could ask, "Will a task for marking and grading demonstrate the difference in competency in writing between students if they execute it in this way?" In the researcher's view, the objective was to ensure that learning has occurred; while the marks were evidence of that learning.

Throughout the process, the facilitators (Lecturer and the Teaching Assistants) worked closely with the students. This close working relationship bridged the gap between the students and the facilitators. The students worked on the task in a very relaxed atmosphere and they began to freely demonstrate their writing ability. In that regard Carino (2011: 112) describes writing centres as "…nonhierarchical and nonthreatening collaborative environments …" Similarly, Lunsford (2011:73) talks of a collaborative environment as "one in which goals are clearly defined and in which the jobs at hand engage everyone fairly equally, from the student clients … to peer tutors and professional staff. … such an environment rejects traditional hierarchies."

The students came up with a variety of topics on which they prepared their progress reports. Some of the topics were:

a. Energy engineering
- Electrical wiring of BIUST staff housing
- Solar power station construction at Nakalapodi
- Setting-p of a wind energy mini sub-station on the BIUST grounds

b. Computer engineering
- Setting up a broadband internet connection in the BIUST campus
- Introduction of automated voting machine in elections
- Setting up of a metropolitan area network at Ratholo Village

c. Telecommunication engineering
- Provision of an optic fibre network cabling system
- South to North Fibre Optic Installation
- Network provision in Moetanosi village

d. Geological engineering
- Investigation for a proposed area for construction of a petrol filling station
- Site investigation of the BIUST Science Block
- Construction of the BIUST football pitch

e. Mining engineering
- Development of a site for surface mining for Bokone mine

- The Construction of the Chritie Tie Diamond Mine
- Production and Supply of Concrete to Xian Jung Roads Construction Company

The students were also to apply their technical writing skills such as writing in well-structured paragraphs and applying conciseness. According to Pearson Higher Education Guidelines for Grammar, Style and Punctuation (2015:476), "Technical Writing is most effective when it is concise." Therefore it is important to choose words that express ideas precisely, accurately, and crisply. Adherence to correct punctuation, grammar and capitalization is also vital for cohesion and coherence. Students were also to correctly apply summarizing and paraphrasing skills. In addition, there should be evidence of editing and proof-reading of their work in line with Emig (1977)'s the Writing process.

In the last stage (one month), the students made oral presentations in class based on the written reports they produced. Before they could make final submission of their work, the students revised their work based on the feedback they received from their peers during oral presentation sessions.

5.0 Data Analysis

The analysis of the contents of the 20 reports, which formed the data for the study, was qualitative to identify the learning outcomes that emerged from the process. The learning outcomes formed the basis for answering the two research sub-questions. The analysis of the data involved examining the contents of the progress reports to determine if the students reported adequately on the said projects. The contents of the reports were to reveal the project stage which formed the basis of the reports. The reports had to address the key elements of a progress report articulated earlier viz: the status of the project - that is, is it on schedule, its scope and organization. To sufficiently inform the reader, the report should state achievements and work still remaining. The contents of the reports were also to show evidence of students' critical thinking and creativity skills as key attributes of an engineer.

The analysis also involved examining the language of the reports as it determined the coherence of the reports and consequently their quality. This included grammar, punctuation and spelling. In addition, the researcher checked if the students adhered to the format of a progress report, and they presented the reports in an easy-to-read manner. For cohesion, reports should reflect good paragraphs; each paragraph should start with an opening statement to present a main idea supported by its relevant subordinate statements. Furthermore, reports were to show evidence of careful editing and proof-reading. The reports were to reflect that they have addressed all the above because consultation between the students and the facilitators had dealt with these issues following the writing centre model. Therefore, marking was very stringent.

Hymes' mnemonic of SPEAKING (Hymes, 1974) served as a framework in the analysis of the data from the reports. Hymes initially developed this model to promote the analysis of discourse as a series of speech events and speech acts within a cultural context. Its development was mainly for analysis of literary work; however, due to its flexibility in analysis of different kinds of discourse, the researcher adopted and adapted it for application on the present data. However, not all its features were applicable. The SPEAKING model refers to the following features of the speech event (Hymes, 1974):

- **S:** refers to *Setting* and *Scene*: *Setting* is the time and place of a speech act or the physical environment
- **P**: *Participants* and *audience*
- **E:***Ends*: Purposes, goals and outcomes
- **A**: *Act sequence,* the form and order of event; how speech act begins, develops and ends.
- **K**: *Key,* the *clues* that establish the tone, manner, or spirit of the speech act.
- **I**: *Instrumentalities*, forms and styles of the speech taking place
  (formal or informal)
- **N**: *Norms* - social rules that govern the event and the participants' actions and reactions.
- **G:***Genre*; the *form of speech* being used. G*enre* is determined by *nature* of speech act - is it *oral* or *textual?*

The following features were applicable in the present paper: Setting, Participants and audience, Ends, Act, Instrumentalities and Genre. The setting was the classroom; participants were the students as the producers of the reports. The audience was the lecturer as the reader of the reports. Ends were the learning outcomes of the task. Instrumentalities refer to the style of writing the reports - the style was formal because the task at hand was academic. Genre was textual.

In judging the quality of the reports' contents, focus was on Ends (learning outcomes), the Instrumentalities (the format of the reports and the formality of the language), and Genre - presentation of the report and the quality of language of the reports. The latter include paragraphing, grammar, punctuation and spelling, which all contribute to cohesion and coherence of the reports. These were to reveal students' ability to produce progress reports and to demonstrate their writing competency. This is consistent with the main aim of the Technical Writing course, which is to develop the students' academic and professional communication skills within the context of the specific needs of engineering, thereby producing specific texts that are fluent, accurate and reflect an appropriate style (Department of Technical Writing, 2015). To do that, they need to use appropriate language which reflects clarity, accuracy, conciseness, brevity and courtesy.

In using the above-stated model to analyse the contents of the reports, the following emerged: The students correctly followed Emig (1977)'s the four-stage writing process to produce the progress reports, and their reports reflected the key elements which are pre-writing, drafting, revising and editing [including proof-reading].These elements applied on all sections of the reports - introduction, body and conclusion. However, there were few instances where some reports did not have a conclusion. In such instances, the researcher could only surmise that the students had not fully mastered the writing skill. In spite of such omissions in a few cases, the Ends (positive learning outcomes) were clear.

The reports production followed a correct format. For instance, each report was to bear the name of the company from which the report emanated, the name of the client organization or its representative, the date of the report preparation, and the subject of the report. For creativity, the groups gave themselves names of imaginary companies in line with the nature of their business and to assume a corporate identity. Furthermore, the language reflected that each report specifically addressed an individual; hence the writer was the first person and the reader was the second person. The students also used formal language because the task was an academic exercise that the researcher will use to evaluate their competence in technical writing. Therefore the Instrumentalities were met.

The use of graphics for illustration also enhanced the reports 'quality because they aptly corresponded with the content. Graphic communication involves the creation, production, and distribution of information through images. The students used graphics either in the form of pictures to demonstrate to the reader the nature of the projects the progress reports emanated from or graphs or tables summarising the details of the reports. The use of graphics also contributed to the conciseness of the reports because students used them to relate ideas instead of giving lengthy explanations.

Despite the positive Ends stated above, there were instances that revealed colloquial use of language. For example, one group wrote:

"We have been granted *a go-ahead* on the project" instead of "We have been granted *permission* to proceed with the project."

"Orange Botswana *hired* us to install this cable. "instead of "Orange Botswana *contracted* us to install this cable."

"The optic fibre cable "*came"* late. The correct word choice would be "*arrived*"

Such instances demonstrated failure to master conciseness, which is central in technical writing. Other instances of informal writing were wrong choice of words as reflected below:

"*lays* ahead" correct word: *lies*

"go beyond" correct word: *exceed*

Furthermore, some of the reports were characterised by long sentences which was also evidence of lack of conciseness. For example:

"*The cable should be tested on the reel for continuity before installing to ensure that no damage was done during shipment from the manufacturer to the job site but the experts who do the testing are rare to find*."

This 39-word sentence could actually be divided into two sentences for clarity and conciseness.

Lack of explicitness was also evident. For instance, one group wrote:

"*We request for extra funds* …."

It was not clear how much funding the contractor required to further fund the project. The client needed to know exactly the amount of money to disburse for funding of the next stage of the project. In another project, the group wrote:

"*The population of Moetanosi village has grown*." The writers did not state what the population was previously; and what it is now to justify the statement that it has grown.

Another problem was tautology as reflected in the sentence below:

"*Only a few people are experts in connecting the optical fibre cable* ***but since***…"

The two words in **bold** and *italics* cannot appear adjacent to one another. The writers should choose either *but* or *since*, not both.

The use of contraction form was also a common occurrence in some reports. For instance, the use of "*couldn't"* instead of the formal version "*could not*";"won't" instead of "*will not*".

Although the instances above did not affect comprehension of the reports, they nonetheless affected the reports' quality.

Furthermore, in analysing genre, focus was on report presentation and the quality of the language the students used since the reports were textual. Presentation involved paragraphing while language quality focused on grammar use, punctuation, capitalisation and spelling. Normally, a paragraph may represent an idea and sentences within it should reflect cohesion. The students used short paragraphs which had sufficient details. Students appeared to have mastered paragraphing. However, the language quality was problematic in some instances. For instance, there was a problem of subject-verb agreement as the sentence below illustrates:

"The work done *meet* …" The correct verb is "*meets*".

Another observation was that the students wrote numbers of single digits in numerical form instead of writing them in words consistent with the standard practice that from zero to nine, numbers should appear in words; and from 10 to infinity, they appear in numerical form. Another common error was the wrong use of the punctuation mark comma (,). Generally students either used the comma wrongly or omitted it where it was necessary. There were also instances of non-use of capitalization even where it was obviously necessary; for instance, at the beginning of a sentence or when stating a name of a person or place. Wrong internalization of words also affected the language quality. For example, some groups failed to make a distinction between "*where*" and "*were*" as shown below:

"This report includes the site image ... phase one and phase two of the project *where* conducted." The correct word choice is "*were*".

The use of different font types and / or font sizes where it was obvious the contrast was unjustified affected the text quality.

The mistakes cited above affected the quality of the language of the reports, and revealed specific language problems that students had. The researcher later addressed these problems individually with the groups concerned during the consultation sessions.

6.0 Findings

The contents of the progress reports revealed that the students had appreciated the writing centre model used to teach report-writing. They had internalized the features of a progress report as the information they provided was consistent with the requirements of a progress report. The answers to the two research questions demonstrate the effectiveness of this teaching strategy in report-writing. The first research question was: Is the writing centre model appropriate for teaching progress report-writing? The answer to this question

is in the affirmative because this model gave the researcher and the students an opportunity to work collaboratively on the production of quality progress reports.

Using the writing centre model motivated the students to focus on the work they saw as a joint enterprise between them and the lecturer and teaching assistants consistent with Vygotsky (1962)'s social-constructivism theory which advocates for interaction in learning. The model also enabled the students to internalise the stages of the writing process by following Emig (1977)'s the four-stage writing process. The consultation also gave the students an opportunity to correct the language errors they seem to have internalized. For instance, some groups did not seem to know that because the task was academic, they needed to use formal language. Irvin (2010: 8) describes academic writing as "a form of evaluation that asks you to demonstrate knowledge and show proficiency with certain disciplinary skills of thinking, interpreting, and presenting**."**Lack of conciseness either by using less technical words or phrases or even the use of long sentences was another problem that the researcher was able to address through the writing centre model. Other writing problems that the consultations addressed were lack of explicitness, yet explicitness is central in technical writing. A technical reader does not want to indulge in lengthy reading which may result in lack of clarity. The use of redundant words, which add no new meaning, was also another common problem that the researcher addressed. The writing centre model also revealed that the students were unaware of some of the characteristics of academic writing. Some students were not aware that it was unacceptable to use contraction forms such as '*couldn't, don't*' in writing because they are informal. However, face-to-face consultation on their writing helped to reduce this problem.

Furthermore, it also emerged that some students still had a problem with subject-verb agreement in English. The problem seemed to be due to mother tongue (Setswana) interference. For instance, in English an '*–s*' suffix to a verb denotes singular form, but a verb that denotes plural needs an *'–s'* suffix. However, in Setswana (which is the mother tongue for the majority of the learners in the study), a prefix that precedes a verb clearly denotes if the subject is in singular or plural form. For example:

English: The machine *turns* very quickly. (singular)

The machines *turn* very quickly. (plural)

Setswana: Tshipi*e e*bofefu (singular)

Ditshipi*tse di*bofefu (plural)

In the Setswana version of the same sentence, '*e e*' denotes singular form, whilst '*tse di*'denotes plural form. It therefore, appears the students who had a problem of subject-verb agreement were applying the Setswana grammar rules to English sentences. The consultations between the students and the researcher reduced this problem.

Another problematic area that consultations addressed was the use of single digit numbers in their numerical forms instead of writing them in words. In other cases, the students wrote the double digit numbers in words even when they appeared in the middle of a sentence. The consultations helped to bring to the attention of the students that single digit numbers should always be written in words; while double digit numbers should be written in words if they appear at the beginning of a sentence. However, if they appear in the middle of a sentence, they should be written numerically.

The application of the writing centre model also helped to enhance the overall quality of the reports. For instance, the researcher encouraged the students to use graphics to avoid lengthy discussions, which may result in ambiguity of the message. In that regard, Bailey (2015: 146) states that "visual devises such as graphs and tables are a convenient way of displaying large quantities of information in a form that is easy to understand."The researcher informed the students that as engineers-to-be, most of the time their audience will be fellow engineers. Therefore, it was important to practice writing for a technical audience which prefers graphic presentation of information over lengthy sentences. Bertoline and Wiebe (2006: XVii) state that "engineers and technologists still find it necessary to communicate and interpret designs, using graphics methods such as drawings or computer models." For instance, the students correctly used graphic illustrations

on the cover page that were consistent with the topics of their progress reports. This enhanced the appearance of their reports.

The instances discussed above, therefore, affirm the first research question, that the writing centre model was appropriate for teaching progress report-writing because it revealed the students' strengths and weaknesses in writing. This form of teaching also gave the researcher and the students an opportunity to identify the writing problems that students had generally, and remedial action was immediately provided.

The second research question was: What are the limitations of this strategy in teaching report-writing? The study revealed that there were no limitations in using the writing centre model to teach progress report-writing. Production of a progress report is a process; therefore, working on it step-by-step gave both the researcher and the students the opportunity to be closely engaged in the process. The strategy was especially a success for engineering students because according to Beer and McMurray (1997: 1), "many engineers and engineering students dislike [lengthy] writing" because they want to work with machines, instruments and numbers instead of words."Further, Beer (2002: 364)states that "many engineering students may have had unpleasant experiences with earlier English courses both in high school and college …."

Therefore, the writing centre model gave them an opportunity to produce brief write-ups at each stage which they examined jointly with the researcher and consultants, and improved before they could move to the next step of the write-up. The consultations gave the students an opportunity to learn the correct forms of writing which they applied to the subsequent write-ups. This was in contrast to a situation whereby the students write the reports independently and submit them to the lecturer with numerous language errors that recur throughout the reports. The strategy greatly enhanced the quality of the progress reports produced.

The writing centre model also made learning fun as the consultations were made in an informal manner yet the final product was formal. The learning that took place resulted in impressive students' continuous assessment marks. Consequently, the students' final scores for the course were high. Furthermore, the writing centre model reaffirmed the saying that "together everyone achieves more" consistent with Vygotsky (1962)'s theory which advocates for collaborative learning. The progress reports were tangible products that show-cased students' knowledge. Hence, the researcher considered the reports to be authentic assessment. Wiggins (1990) refers to an authentic assessment as an assessment that requires students to be effective performers with acquired knowledge. Similarly, Meyer (1991) contends that authentic assessment must be judged by the same kinds of criteria (standards) used to judge adult performance on similar tasks. For instance, a report an engineering student produces at university should be judged by standards of a similar report produced at the workplace. This is because the knowledge they acquired for academic purposes would be eventually applicable at the workplace. According to Kreth (2000), report-writing is inherent in the work of an engineer since he / she may report on the status of a project. Therefore, 30% to 90% of an engineer's work is characterised by writing depending on his / her level on the professional ladder (Silyn-Roberts, 1998). Consequently, it is vital for engineers to master the skills of report-writing.

7.0 Study limitations

The study has demonstrated that the writing centre model is an effective strategy in the teaching of progress report-writing. However, the researcher noted that even though the strategy generally resulted in quality progress reports, the level of competency in writing by individual students was not revealed due to group work. This was the limitation of the study. However, it is hoped that individual students would use the group reports to benchmark the reports they will write individually in the future.

8.0 Conclusions and Recommendations

In conclusion, the study has shown that a Writing Centre is a necessary resource at institutions of higher learning to enhance students' writing skills. It is even more critical to have a resource of this nature in a set-up where the Language of Instruction (LoI) is not the learners' first language. This mode of teaching also provided assistance that the researcher could not render within the time allocated for the course (two hours per week). Furthermore, the study has shown that the students did not struggle with correct grammar only,

but they also had a mammoth task of honing their writing skills from general grammar to technical writing, which calls for objectivity, brevity and conciseness.

From the conclusions above, the researcher recommends that the university should support the efforts of the Technical Writing and Academic Literacy Department to develop a fully-fledged Writing Centre. The Centre would not only enhance the teaching of the Technical Writing course but will also assist those students that lecturers of content subjects may refer for remedial tutoring due to poor writing skills. Once the Writing Centre is fully operational, its services will be available to postgraduate students as they work on their dissertations. The researcher also recommends that in any extended writing, other TWAL teaching staff should adopt this mode of coaching writing. Once the students see its benefit, they may apply it to other courses which require extensive writing. The end result would be quality written assignments which will be a pleasure to read by the lecturers and consequently earn high marks for the students. By the time the students graduate from the university, they will be competent and confident writers. They will meet the expectations of their prospective employers contrary to the common view backed by research studies that employers are increasingly concerned about poor communication skills among engineering graduates (Oo et al.2012). The quality of these graduates will be consistent with the university's mission of producing high quality graduates who are globally competitive and employment ready (BIUSTUndergraduate Prospectus, 2015).

The researcher, therefore, recommends that lecturers teaching a similar course in technical institutions, especially where English is not the first language of the learners should adopt this mode of teaching technical writing. They need to be cognizant of the fact that technical writing is a specialized form of writing that students do not learn at high school, but they learn it at university or at tertiary technical institutions. Therefore, a mode of instruction that makes learning a support course like this one enjoyable motivates the students to take it seriously. Literature has shown that generally the attitude of engineering students towards a course like this one is negative (Beer and McMurray, 1997; Beer, 2002).In the view of the researcher, it is not the content of the course that the students find uninteresting, but it is the mode of teaching it. Finally, this mode of teaching writing can also be applicable to non-technical tertiary institutions.

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