

REVIEW

Interrogating the contemporary English language needs for the ICT industry in the Namibian context

L. Gawazah^{1*} and H. Z. Woldemariam²¹University of Namibia, Windhoek, Namibia²Namibia University of Science and Technology, Windhoek, Namibia

*Correspondence:

L. Gawazah,
lazarusgawazah@gmail.com

Received: 27 February 2023; Accepted: 11 March 2023; Published: 06 April 2023

New digital technology advances throughout the globe are principally responsible for the impetus behind the modern information and communications technology (ICT) industry's requirement for English language skills. There is a steady increase in highly computerized new machinery, each with more complex, difficult -to-understand instruction manuals that demand a correspondingly high degree of linguistic proficiency. Thus, students studying computer science need access to subject-specific English for both immediate usage and long-term career development. Due to these constant changes and rapid advancements in the technology sector, it was essential to conduct research on the current needs of the ICT industry. It is essential for graduates and professionals in the ICT industry to be able to communicate fluently with teams working in the same field but located in different parts of the world. This can be in the form of written manuals or conversation. The purpose of this study was to interrogate the contemporary English language demands for the ICT industry and the necessary proficiency required of undergraduate ICT majors. The theoretical underpinning of this research was the Material Design Model proposed by Hutchinson and Waters (1). A mixed-methods research approach was used. The total number of participants that took part were 170 ($N = 170$), thus that is what the sample size was based on. Using convenience sampling, a sample size of 118 was drawn. The results indicated that ICT students often lacked skills in essay writing. The students' lack of technical language skills seriously weakens the strength of their scientific argument. Students are recommended to attend subject-specific language courses in order to prepare for their present academic and future professional language demands. The study indicated that the existing curriculum for computer science students does not adequately prepare them for the kinds of work that would be available to them in the ICT sector. The study recommends utilizing education support professionals (ESP) professionals to teach English in Science, Technology, Engineering, and Mathematics (STEM) courses, with a focus on using examples from specialized journals, magazines, and blog channels. The study concludes by suggesting that instructors of computer science language be incentivized to increase their usage of specialized scholarly terminology in their classrooms.

Keywords: Namibia, ESP needs analysis, target and present situation

Introduction and Background

English designated as the “sole official language of the nation” by the government of Namibia not long after the country gained independence in 1990 (Buschfeld and Schröder, 2019, p.334, (p.334). The primary motivation was to formally separate from the colonial past and establish

a unified worldwide language with practical use in trade, diplomacy, and education (Plonski et al., 2013). Instead of German or Afrikaans, the newly independent Namibia decided to adopt English as its official language in an effort to foster national unity.

As the great majority of Namibians do not know English, the new official language has created a pressing demand

for English language instruction in the country's schools (Ola-Busari, 2014). After 30 years of independence (1990– 2020), Namibia will need English for specified purposes (ESP) models that are up-to-date to meet its citizens' educational and professional goals (Uys, 2017). There are two distinct types of English: the kind used in academia and the one used in the workplace, where skills like reading manuals and communicating with foreign clients are essential (6).

Evans (2012) expressed concern that the English language competencies of government employees in the public and business sectors were unsatisfactory, and as English literature is viewed as a rich resource for language acquisition, this may be an easy remedy (2). Every business will suffer if its employees aren't given the chance to acquire the necessary English language abilities via formal training. A package carrier for the United States Postal Service whose command of the English language is limited because of a lack of formal education is a good illustration of this point.

Packages are delayed by about 2 days due to the policy of returning them to the depot for resending if they are delivered to the incorrect address. Hence, the owner of the package would phone the depot, only to be informed with disappointment that the package had been sent to the incorrect address. Eventually, the consumer may lose interest in using that company's postal services and may choose to go with a new company the next time around.

Because to this employee's inability to read the client's address in English, the postal service loses a paying customer. A course in "English for Professionals" (EBP) would have helped the employee acquire the necessary reading abilities. Students in rural and urban areas do not get the same quality of education in the Namibian education system, according to research that investigated the causes behind the poor performance of Grade 12 English students in the Oshikoto region Woldemariam and Kamati, 2016.

In addition to socioeconomic factors, the study cited inadequate English teacher training, subject selection, an absence of cutting-edge teaching methods, low student self-esteem, and a lack of motivation. Inequality in socioeconomic conditions within the Namibian school system may be the root cause of the problems experienced by the postal worker in the aforementioned scenario. Rural high schools can provide a less-than-ideal environment for students to get their diplomas.

To better meet the academic and professional demands of computer science students at the Namibia University of Science and Technology, this study seeks to get a better understanding of their English language requirements. After graduating, these students will enter the workforce in the field of computer science, where they will face real-world English language demands. As Namibia has been a sovereign nation for 30 years, the study's findings may be indicative of the English language requirements of Namibia's scientific university students at the present time.

Although ESP is widely used in the workplace and classrooms, very little research has been done in Namibia to improve the practice (3). A successful salesman, for instance, may require training in demand analysis, business letter writing, and invoice creation (1). This kind of English is known as "English for Particular Business Purposes" or "business English" (ESBP).

In this case, ESP can help figure out what kind of linguistic support these students require. Yet, in order to meet the linguistic requirements of medical equivalency, students must demonstrate an understanding of medical vocabulary, including oliguria, decreased skin turgor, and tremor. Before beginning a study of a student's linguistic needs, it is important to determine the student's existing knowledge level. In this section, we will first examine the literature on needs assessment from a regional perspective and then examine the same literature from a global one.

Makamani (3) argues that college students should be able to choose between English Language Instruction (ELI) for Academic and Professional Purposes and English for Professional Purposes (EAP and EPP), respectively. However, this perspective is at odds with the delivery of English classes that fall short of meeting their goal of equipping students with functional English proficiency. Courses labeled "Language in Practice" (LIP) or "professional writing" are really more broad-based than their titles suggest (4).

According to Mukoroli (5) analysis, this is because they are poorly tailored to their target demographic. The pedagogical dynamics of university-level EAP instruction were the focus of Mukoroli (5) research. The results of this research reveal that current EAP education at the University of Namibia lacks critical, relevant, and experiential pedagogy.

Researchers in Namibia evaluated the effectiveness of an English course called Language in Practice by polling both instructors and students on their students' oral and written communication skills (6). Constructive criticism was found to be highly valued by both teachers and students in terms of assisting students in increasing their ESL efficiency. In a second piece of research, Mungongi (7) voiced worries about the specialized use of English in higher education.

Employees and companies alike have found that the current state of workforce training falls short of their requirements. Based on the results of the evaluation, it is clear that the EAP course is not adequately preparing its students for the rigors of their chosen disciplines, both in terms of language literacy and professional competence. A recent study by Dudley-Evans and St John (8) found that enrollment in ESP programs was rising not just in the USA but also in Namibia.

According to Namibian research, there is a paucity of ESP studies in the field of technical English. The following section of this investigation explores ESP in three distinct institutional contexts: the academic, the professional, and the scientific.

A study was conducted of Ethiopian business students to find out how much exposure to the English language they needed to succeed in their studies. This study included a number of different approaches to data collection and analysis. Findings indicate that business students were not offered English classes that were tailored to their future employers' language requirements (9).

This research revealed flaws in linguistic context and terminology. Even still, the research showed that business graduates' employers were unhappy with their workers' English skills. A separate study examined the ESP needs of engineering students.

Students' proficiency in technical writing was the key research interest. The survey indicated that English is in high demand for both educational and occupational objectives (10). The gap between present English proficiency and the capabilities need in the future was wide.

Findings from these two studies inform the current investigation of the English language requirements and professional expectations of computer science students. Due to these constant changes and rapid advancements in the technology sector, it was essential to conduct research on the current needs of the information and communications technology (ICT) industry. It is essential for graduates and professionals in the ICT industry to be able to communicate fluently with teams working in the same field but located in different parts of the world.

Theoretical framework

The Target Needs Assessment Framework (TNAF) was used in this investigation. According to Hutchinson (1987, p. 54), needs have two categories: target and learning. The terms "learning needs" and "target needs" refer to what the learner must do in order to achieve his or her goals in the target circumstance.

In order to address the question, "Why are the learners taking the ESP course?" a work that is entertaining, satisfying, manageable, and productive is given to the students. An essay competency test was given to computer science students in order to evaluate their current proficiency with the English language and their potential for future improvement (academic needs). As a final step, each student was given a questionnaire to fill out based on their own personal preferences.

Meanwhile, information technology (IT) professionals were given a comparable questionnaire tailored to their specific job requirements. In order to determine the discrepancy between what students in computer science genuinely need in English language proficiency and what was taught in class, the results of the tests were compared.

This is a type of needs analysis that focuses on identifying the language needs of learners in their workplace or academic environment. There are three types of "target

needs": necessities, lacks, and desires. There are a variety of methods for doing a need analysis, and the information gathered depends on which methods are employed (Richards and Renandya, 2002). The current study examines how the target situation and the framework for analyzing learning demands can be applied to meet the study's purposes. The hypothesis is in line with the current study's objectives, which were to investigate computer science students' English language needs.

Based on the target's needs and English language requirements, the materials design model can be implemented. Examples are students in the sciences who require specialized terminology for doing experiments. The field of materials development is concerned with the theory and practice of creating, implementing, and evaluating educational materials. Input, content emphasis, language focus, and duties all fall under the umbrella of the materials design model.

He differentiates between "target needs" and "learning needs." What is meant by "learning needs" and "target needs" are, respectively, the actions that the learner must do and the characteristics of the situation that the learner must acquire. In order to answer the question "Why are the learners doing the ESP course?" the course aims to provide the students with a career that is exciting, rewarding, attainable, and fruitful.

Methods and procedures

The university's enrolment statistics were used to establish a sample size of 170-students. According to Krejcie and Morgan (11) and the convenience sampling approach, 118 participants were selected for the study ($N = 118$). In this study, both qualitative and quantitative methodologies were used in a mixed method design.

A competency assessment test was used to obtain qualitative data, while three questionnaires were used to acquire quantitative data. Computer science students were asked to fill out a questionnaire, as well as professionals in the field (the occupational group). Finally, a survey was sent out to academics who work in educational institutions.

Using thematic analysis, the data was organized into groups of themes that were pertinent to the study subject at hand. The processes of data familiarization, coding, and topic generation together with revision were all necessary procedures in this study's thematic analysis. To portray quantitative data graphically, tables, charts, and graphs were employed. The APA referencing style and NUST ethical guidelines were used to acknowledge all of the sources cited.

Procedures for data collection

Two electronic questionnaires were administered to the lecturers in the Department of Computer Science; one was

designed for second-year computer science students, and the other was designed to gauge the lecturers' reactions to the study aims and the relevant information that had been studied. Each student and instructor were given two separate digital questionnaires, one with open-ended questions and the other with a combination of both types of questions. Participants assessed their level of agreement using a 5-point Likert scale, where 1 indicated strongly disagreeing and 5 indicated strongly agreeing. A five-point scale from "extremely bad" to "excellent" was used to gauge how people felt after hearing or reading the remarks.

Participant recruitment using WhatsApp group

Students in their second year of undergraduate computer science programs and recent graduates of IT programs were recruited for the research. While recruiting the initial set of students, we started by sorting them into their respective classes. Then, the researcher requested that a representative from each class group ask the primary sample ($N1 = 135$) for permission to join the students' WhatsApp group. When the researcher had been integrated into the group, she was formally presented and introduced as such. The researcher next briefed the participants about the study's goals and ethical issues. The researcher provided the following link for the online digital questionnaire: <https://bit.ly/3F0rqkD>. During the course of a maximum of 2 weeks, participants filled out the survey. Out of the total 135 people who were supposed to be a part of the sample, 84 actually participated ($S1 = 84$). There was a 99% participation rate in the research.

The second group of participants (occupational) comprised computer science graduates and IT professionals ($N2 = 25$), as opposed to the first group of participants (undergraduates), who were all recruited via the MTC Corporate Communication Department. The IT department head was requested to assist the researcher with survey management. The supervisor had no objections to this and provided specific directions to the researcher to print and personally present the documents to the MTC's headquarters. It took 2 months, but the manager eventually called the researcher to collect the completed questionnaires. The same paper questionnaire was also made available online at <https://bit.ly/3VDX2SO> for individuals who preferred to respond digitally. As a last step, the researcher's mentor, who was designated by the Dean of the Faculty of Computer Science, distributed the online survey to the academic teaching staff ($N3 = 10$).

Results and discussions

This part shows the findings and descriptive statistical analysis. Tables, histograms, pie charts, and bar graphs

are all used to visually represent the outcomes of the statistical analysis. Descriptive statistics were used to analyze data received from undergraduates studying ICT using a Google Forms questionnaire. Charts, graphs, bar graphs, and histograms were then used to display the information. Each question and category's performance evaluation is color-coded to show how significant or extensive it is. IT workers who have completed an English course as part of their degree in computer science or a related area are eligible to participate in the research. Students who have not completed any college-level English courses will not be eligible to participate in the study.

Presenting the study's rationale is crucial at this stage. The primary objective of the research was to explore the needs of ICT students at the Namibia University of Science and Technology in terms of their proficiency in English.

The three aims of the study were to:

- examine the gaps in the current language requirements of ICT students
- assess the gap in language needs between academic and professional variants
- measure the level of language needs of ICT students

What are the students' written English essay performance skills?

This component of the research focuses on the current English language shortages and issues. By analyzing the current performance of the pupils' written essays, this was accomplished. Students' written essays are evaluated by setting a standard to gauge their language skills performance, which is a common practice.

The essay performance evaluation scale was used to assess 113 essays from students who took the EAP course. This data was then analyzed using descriptive statistics, which included percentages and participant scores. Descriptive statistics are used to briefly summarize the results of a study based on a specific dataset (12). The data includes measurements of central tendency and measures of variability (spread).

The essay evaluation was conducted in three steps, as below:

- Isolating the identified competencies
- Measuring the competencies (quantifying)
- Evaluation of competencies through descriptive statistics

Isolating the identified competencies

The four levels of English essay skills are clearly identifiable. Subject knowledge, the topic of the essay, grammatical precision, and oral and written communication skills fall into

this category. In case you forgot, the written component of English proficiency was used to determine the four skills.

These competencies were uncovered and modified from the Performance Assessment at the University of Cambridge (13). Correct use of technical terms and expressions is about the ability to do so in an appropriate way. Terminology and appropriateness were also considered in the assessment of the written articles.

Through the content of the essay, the student has shown another facet of his or her abilities. To be effective, the content and topic of the essay must be interwoven. Fluency in speaking and writing was assessed as one of the most important skills.

English grammar, spelling, and sentence structure accuracy were all tested in this competency essay. As an example, the essay's meaning and effect might shift if a single phrase is employed incorrectly (Mukaovsk, 2014). I doubt that the essay can effectively explain its views.

It has a negative effect on a person's ability to communicate. The ability to speak effectively is the last English language skill to be tested. When writing an essay, the writer must be able to maintain the reader's attention while conveying complex issues clearly and concisely.

Measuring the competencies (quantifying)

The graph below presents the numerical data gathered by utilizing the Written Essay Performance Assessment scale to grade the essays the students turned in. The scale used for rating was "poor," "fair," "satisfactory," "very good," and "excellent." A bar chart summarizing data for the aforementioned four categories of writing abilities by grade level is shown below.

Results from an essay performance scale

Using a survey and descriptive statistics, the following bar chart was generated to examine the students' essay writing abilities.

The preceding bar chart is the result of a descriptive statistical analysis. Students' technical essay writing abilities received the lowest grade of any review category, with the majority of students (49% obtaining a fair grade) receiving a passing grade. About 23% of pupils then followed suit and got failing marks.

Technical proficiency also includes a heavy reliance on industry-specific vocabulary that is specifically relevant to the essay topic. Students were unable to employ sophisticated technical terminology or avoided using them altogether, preferring simple words that could not effectively express a topic. Only a small number of students earned grades of "very good" or "excellent" in both subjects.

However, 52% of pupils received an acceptable grade on their written essay assignments, according to the results of the assessment. The classifications for "outstanding" and "fair" were tied at 9% apiece. Students who receive grades of "satisfactory" or better are considered to have passed the course in any academic grading scheme.

Thus, students who received satisfactory, very good, or exceptional grades on their written essays received a score of 52, 23, or 9% of the total points available in the area. Only 8% of pupils had a bad performance on the content of their essays. When it came to language accuracy, the pupils did exceptionally well.

Nearly half (43% received a score of "sufficient," while 26% received a "very good," and 9% received a "excellent" mark. Overall, it was a good performance. However, 38% of pupils' essays achieved 38% in the communicative achievement category. It was clear to the intended audience that the writings were being delivered in a clear and concise manner.

English language demands for ICT students

Participants' responses were collected using a questionnaire that responded to the purpose of the study. The data was then presented in the logical statistical form of bar graphs, charts, and histograms, as demonstrated in the sections below:

How would you rate your English language skills?

The students were asked to evaluate their own skill levels in reading, writing, listening, and speaking the English language. Asking students to consider how they may apply the knowledge they gained from one question to the next might help them to better prepare for the latter. It was a benefit that the question also prepared the pupils for the direction of the subsequent inquiries. The students were asked to rate the overall quality of the course in one of four possible categories: excellent, average, fair, or terrible. Below is a pie chart displaying the results.

Students' data presentation of their language skills self-rating

The information in the graph below was gleaned from a survey in which participants were asked to rate their level of English proficiency. On a scale of good, average, fair, and terrible, they had to pick the one that best suited their assessment. None of them evaluated themselves as having a low opinion of themselves.

About 66.3% of the students said they were proficient in all four areas of English language proficiency. This is true

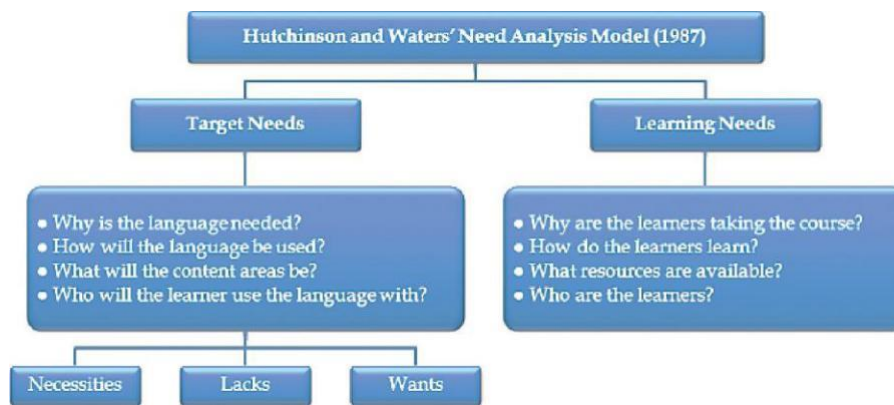


FIGURE 1 | Target needs situation analysis framework ((1), p. 58).

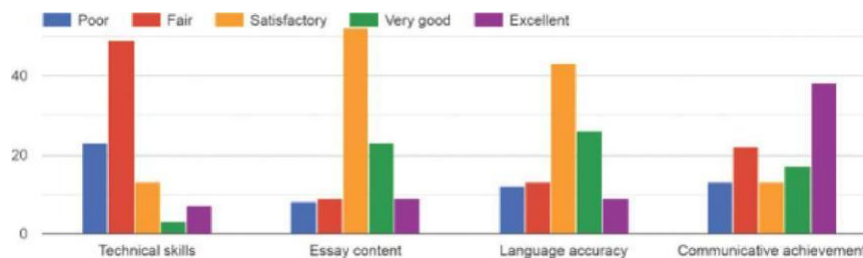


FIGURE 2 | Essay assessment data presentation

in all four areas of communication: written, oral, and non-verbal. "Poor" received 0 points in the evaluation process. Respondents gave the lowest rating of any group, with a total of 28.4% of the vote. There were just 5.3% of respondents who stated that their English language abilities were adequate.

Students' rating of technical writing skills

An analysis of the survey data using descriptive statistics revealed that the NUST students had acquired the following abilities related to technical writing, which they had acquired through their English classes.

The goal of this assessment was to have students reflect on how the English skills they developed at NUST aided them in their technical writing. Their responses are summarized in the following pie chart. It is essential to restate the purpose of the research at this time.

In this research, we'll take a look at the English proficiency levels of CS students. Asking the students what they know and have been taught, as well as what they think is lacking from the English language curriculum, may give you a good notion of what they need. The concept of "target needs" developed by Hutchinson and Waters (1) serves as the theoretical framework for this study.

Successful use of the target language requires that the learner have a firm grasp of the fundamentals. To what extent does the learner's existing knowledge contrast with the gaps that need to be filled? The existing skill level is lower than the ideal skill level.

Objectively speaking, the research presupposes that a need does not exist if there is no one to fill it (1987). The research team at NUST set out to figure out how much help with English they would need in order to succeed in the field of computer science. By learning about the students' needs, gaps, and wants, the research may more accurately pinpoint the areas in need of attention.

The vast majority of the 11.6% of students who filled out the survey reported being taught a wide variety of technical tactics for enhancing their writing abilities. Types of this writing include critical writing, business writing, and report writing. Simply defined, the goal of every piece of technical writing is to provide a clear and simple explanation of a complex topic (14).

The following word cloud illustrates how often each skill was introduced to the pupils. It's important to remember that the data used to create the word cloud was taken directly from the participants' replies.

The frequency of words in a cloud representing the pupils' written skills

Word cloud impacts of participants' technical writing abilities are seen in the figure below. In brackets next to each word, you can see how often students highlighted that particular skill during the course of the interview. The most frequently uttered word reflects the agreement of the participants as the most sought-after linguistic competence.

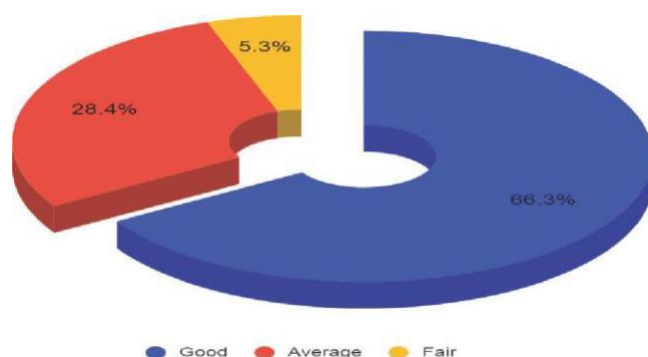


FIGURE 3 | Students' self-rating.

Students' replies are summarized in the word cloud frequency effects seen above. When asked about their strongest suit, students most frequently said they wished they had better writing skills. It was reported that the writing abilities included report writing, test-taking skills, academic writing, research-writing and research-writing. Most respondents (28 out of 95) said they had good writing skills as did 29% of the participants. Research, vocabulary, citations, and how to approach exams were among the other skills students said NUST taught them.

English language skills that are lacking in the EAP, according to students

Using survey responses, descriptive statistics were used to determine what language abilities were missing from the EAP curriculum and what could be taught as a replacement.

The demand of EAP students to propose additional language skills to be taught as part of the curriculum was met with positive responses. Based on the survey results' pie chart visualization, it's clear that students' perspectives are dispersed over many different domains.

Students' top request for enhancing the EAP curriculum is reading comprehension.

Student feedback also identified editing and pronouncing as important reading abilities. The ability to understand written language may have inspired the idea. When students read with understanding, it greatly improves their capacity to react and complete assignments. A writer is only as good as his or her last piece of writing, and the two go hand in hand. Below are the responses to a poll asking students to rank the significance of different reading activities.

Descriptive statistics in the form of percentages were utilized to examine the study findings from the graph above. Student tasks consisted of reading newspapers, magazines, and books, as well as watching computer-themed comedies and documentaries. The students were given a list of reading assignments and asked to prioritize them.

Students rated each item's significance on a five-point Likert scale: five being "very important," four being "important," three being "moderate," two being "low," and one being "not significant." Those who participated in the survey are shown in the above graph. Over half (48%) of respondents said that reading academic content was the most important reading task.

The fact that no students said they didn't have to read their notes indicates a trend toward less leisurely reading among college students. A further 44% of respondents responded that they considered reading manuals was a vital component of their job tasks. The results of this study confirm Khokaew's (2012) argument that university students place a high priority on reading academic materials.

Magazine reading was considered the worst. The poor mark may be related to the fact that magazine content does not count toward the graded exam result for children who take them. Students at the university level don't have a lot of time to dedicate to subjects that don't count toward their grade for the semester.

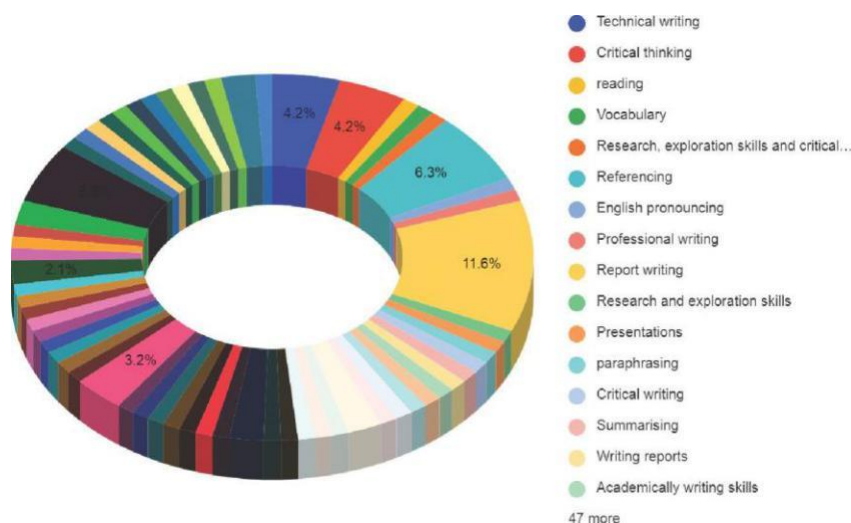


FIGURE 4 | Technical writing skills acquired by students.



FIGURE 5 | Word cloud frequency effects of technical writing skills.

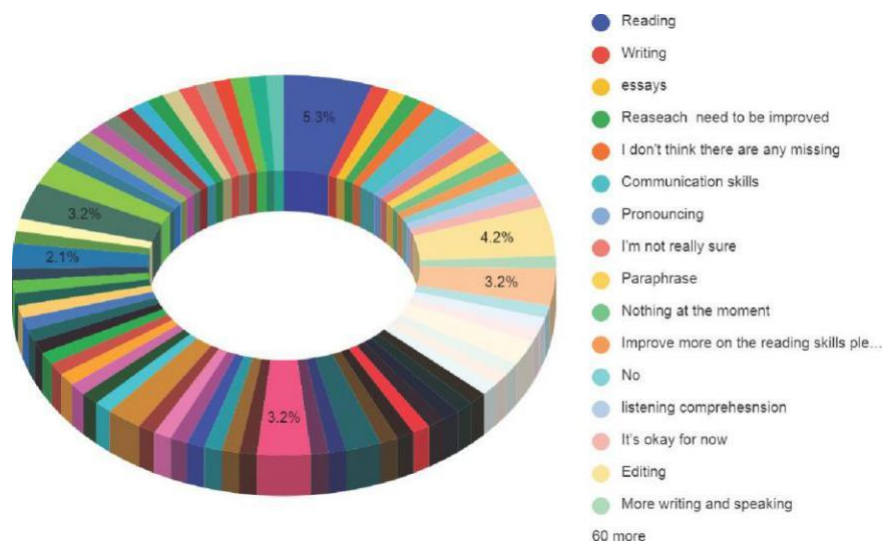


FIGURE 6 | Students' suggestions on missing skills.

Writing skills of students according to importance

The following information was gathered from the questionnaire and analyzed using descriptive statistics to determine the significance of writing abilities in the eyes of the students.

This section examines the graph above, which depicts statistics on writing assignments. The data is analyzed using percentages for descriptive statistics. Respondents said that exam writing was their top priority, with 59% of the students rating it thus.

Following this, 56% of students rated writing assignments as important as writing exams, with only a 2% difference in importance. In the four tasks graded by students, only

the '1-Not significant' ranking received zero percent of the votes. This indicates that pupils are unable to function in their academic performance at the institution unless they are familiar with writing duties. Students who had to write exams and assignments received higher grades than those who had to take notes in class and write field reports.

According to the students' ranking of the relevance of speaking tasks

The following information was gleaned from the survey and analyzed using descriptive statistics to see how seriously the students took the speaking tasks they were given.

With a group average of 45% for each of the four speaking tasks assessed, "very important" was shown to be the most important evaluation. There is a great demand for students to speak up during class debates, which they see as a "very important" task. The insignificant rating received a total of 0 votes.

It's possible that students saw debate speaking assignments as a necessity that helped them learn. On the question of oral presentations, 52% and 42% of students rated them favorably, respectively. One more thing that each of these roles have in common is the order in which they rank in importance.

The students' speaking evaluations were based on their respective 28% results from these two activities. In terms of "great importance," the conference interaction speaking assignment received the lowest score (34%). These findings may be due to the fact that those who participated were still students rather than recent graduates who have already begun their careers in the workforce. This role might be especially difficult for young college grads because of their lack of experience.

Students rate the importance of listening abilities

Descriptive statistical analysis was used to establish how important students thought their listening talents were based on the following data:

Students were polled on how they felt listening to lectures, taking notes, questions, and powerpoint presentations all ranked in terms of significance. Studying from lectures was shown to be the most important kind of listening (58%). On average, just 39% of respondents said they enjoyed seeing PowerPoint presentations.

Overall, 51% of you voted that it's important to take notes and listen to what other people are saying. It's possible that the higher grade awarded to the listening to lectures job is due to the students' want to learn.

Following taking an EAP course, how did their English skills change?

According to the data shown in the graph below, students who took EAP at NUST saw an improvement in their English skills.

Based on the data collected, about 99% of students who took the EAP course reported feeling more confident in their command of the English language after completing it. There were only 1.1% of those polled who were in agreement (No). To put it another way, they were largely satisfied, despite the fact that they had specified several linguistic areas where they felt they needed to improve.

Demands of students on the improvement of the EAP course

Below is a list of cloud word frequencies based on questionnaire data and descriptive statistics: This question's data is best presented and analyzed using word frequency cloud effects. As indicated, frequently used words predominate in clouds over less frequent ones (Fareed et al., 2016). Descriptive statistics were used to analyze the data. The report's conclusions and analysis of the cloud of words it contains illustrate the results.

The most commonly mentioned words in which fluency in English is desirable are writing (10.5%), giving presentations (6.3%), doing research (5.2%), and speaking (4.2%). One explanation for the emphasis on the ability to write may be that academic writing serves as an effective means for conveying knowledge gained in a certain subject of study (15). To read and understand an academic instruction, a pupil who is unable to write will find it challenging.

Students' considerations of the EST skills they want to be emphasized

English for science and technology (EST) students filled out a questionnaire in order to determine what language areas they would like to see more emphasis on if the course were to be implemented, as shown in [Figure 13](#). Detailed discussion of the study's outcomes follows.

Language areas that should be emphasized while introducing the EST

Students were invited to think about this issue. To perform their academic and professional responsibilities, STEM students and professionals use English for Science and Technology (EST) as the language of instruction and communication (16). Computer scientists will find it useful in their studies and careers.

Five options were presented to students, and they chose English technical terminology, with a score of (54) 56.8%, as the most valuable language skill. It can be suggested that related academic tasks influenced students' choices. The lowest response of 3 (3.2%) indicates that the students have agreed to the insertion of the EST course into their curriculum.

Observe that technical words and scientific vocabulary are inseparably linked. When asked whether the EST course should emphasise scientific vocabulary, 42 (42.2%) of the students said "yes." According to the replies, the EST course at NUST is a popular option.

However, 40 (42.1%) and 32 (33.7%) of the respondents favored reading and writing on scientific topics. As a

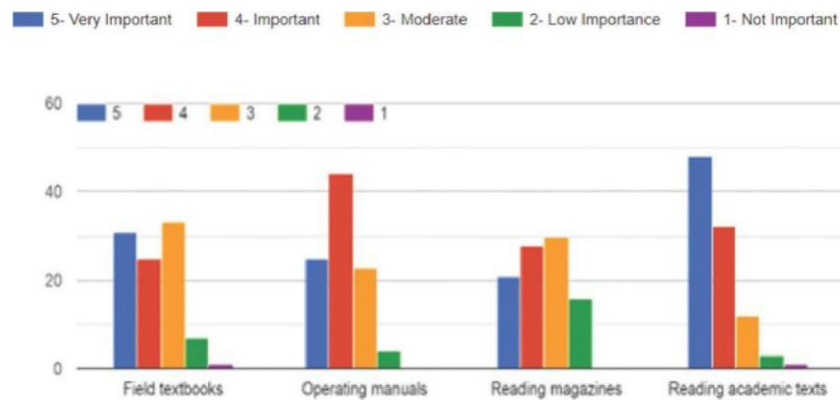


FIGURE 7 | Rating of students' reading tasks.

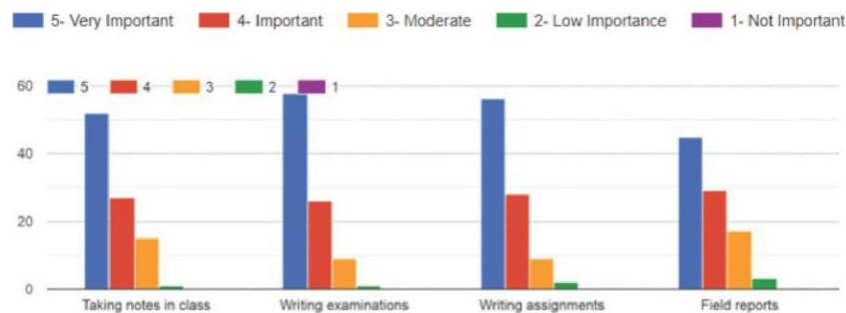


FIGURE 8 | Students' writing skills rating.

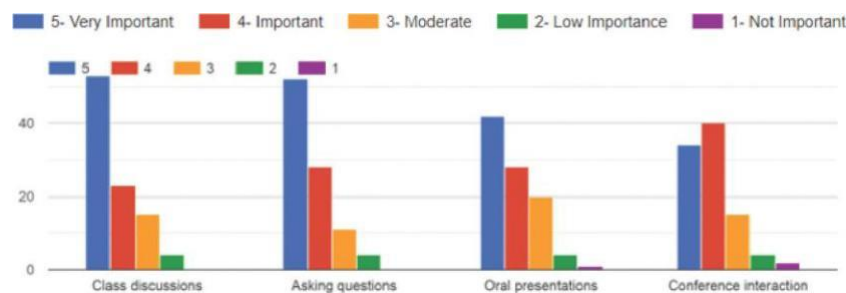


FIGURE 9 | Rating of students' speaking tasks.

result of the comments, it is clear that NUST students want to take EST.

Discussions

Students' current knowledge is used to supplement the practitioner's research in needs analysis. You have the option of using existing documentation or administering a performance competency test to do the evaluation. Using English-language essays that students had written, this study evaluated their current level of expertise in computer science. There was a paucity of essay competency writing skills found in the study. English literary instruction in Namibian schools should be mandated, according to the current research findings, which are in agreement with those of

Haimbodi and Woldemariam (2). English or other Namibian languages might help the language student improve their reading and writing abilities.

It is surprising that the Namibian educational system and the creators of the English language curriculum have not yet recognized the importance of teaching English literature at all levels of schooling. Students in grades 8–11 who are taking English as a foreign language are given a basic grounding in the language's literary perspective, along with instruction in grammar and reading comprehension. One may argue that a student has failed if he or she is not ready for the world after high school.

The designers of English curricula assume that high school students have a solid grasp of the English language and hence disregard teaching points like technical vocabulary and spelling. In order to support or precisely develop a

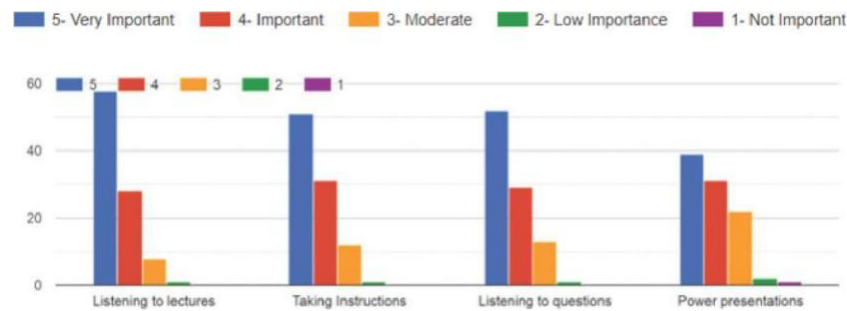


FIGURE 10 | Rating of students' listening skills.

scientific point, students seeking science degrees are expected to use specialized scientific terminology in their academic writing (17). According to the research, the students' absence of technical jargon in their papers suggests they may have difficulties as professionals in the information technology (IT) industry.

It was also mentioned that there seem to be a lot of typos. Incorrect spelling may change the meaning of a sentence. The research suggests that to enhance the spelling skills of Computer Science students, spelling tests and exercises be included in English language courses. In a similar study, the inclusion of technical jargon in computer science courses was recommended as an additional way to help students improve their proficiency (18). That's exactly what we found in this study.

According to the results, this is because NUST is an international institution that attracts professors from all over the globe. Student communication with non-Arab teachers or engineers was difficult for students in Saudi Arabia, according to Fadel and Rajab (19). This is due to the fact that Arabic-speaking professors frequently departed from the English medium of instruction to provide additional explanations in Arabic.

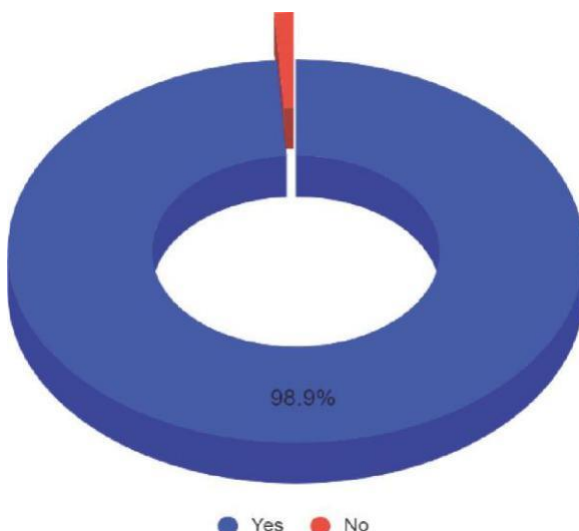


FIGURE 11 | Improvement of English skills after EAP course.

When instructors and students are conversant in the same language, such as Arabic, the practice of codeswitching might take place. Namibian university students, on the other hand, come from a variety of ethnic, linguistic, and cultural backgrounds, making this situation unique. There are over 30 different languages spoken in Namibia, making it a multicultural country (20). Consequently, instructors and lecturers use English as the sole language of instruction in a formal setting.

The value of each of the four language abilities provided to students in this study varies based on the language user's needs. Reading, writing, speaking, and listening are all examples of these skills. There is less enthusiasm for language abilities that aren't directly related to the semester grade, according to the results of a survey administered to students. Less importance was placed on communication skills such as speaking and listening than on writing and reading abilities. It turns out, according to the results of the research, that the English language skills given at NUST fall short of the standards set by the industry. The results of the present study disagree with what Mognhode and Woldemariam (9) found out about the English proficiency requirements of business students.

Students feel that English for Science and Technology (EST) may better equip them for a future in the information technology business, even if they have gained some fundamental language skills.

Conclusions

It was found that among the four writing competencies indicated by NUST computer science students, there are certain difficulties. 'A student's abilities can be broken down into four categories: technical proficiency, essay topic, grammatical accuracy, and overall communication effectiveness, or fluency. Students' technical writing abilities were the least positively evaluated, with 49% receiving fair and 23% receiving bad.

In general, students exhibited a poor grasp of technical terminology. This indicates that they were unable to accurately express themselves in the language of science since they were unfamiliar with the discipline's usage of



FIGURE 12 | Preferences of pupils as shown via a frequency cloud of words.

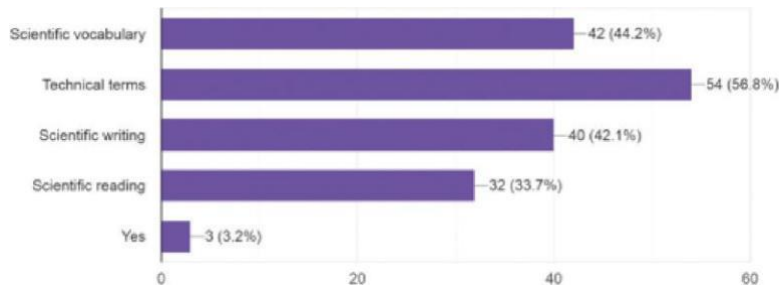


FIGURE 13 |

technical jargon (21). Their technical argument would have been stronger if they had attempted to employ some more difficult technical terms.

Overall, they received good and excellent grades in terms of the content of their essays, their linguistic accuracy, and their ability to communicate effectively. As a group, the students clearly struggled with the language accuracy competence ability, as seen by their frequent misspellings and frequent failure to use the right form of the present continuous tense that ends in the suffix -ing. Subject– verb agreement is also missing, as evidenced by the analysis of this text.

Students' current and future academic performance is negatively impacted by these existing issues. As students in this research were shown to have significant skill gaps in English, they would be unable to successfully perform many academic and future occupational responsibilities requiring proficiency in the language. Knowledge of current scientific jargon and technology writings is still in demand in the IT business.

Using English in higher education is not meeting the needs of employers and the workplace (7). This study's findings support Mungongi's findings. EAP was found to be insufficient to meet various work-related, linguistic literacy, and competence needs in Namibia, according to him. As a result, there is a discrepancy between what the students believe they need and what they actually require in the target context (9).

Mismatch between academic and professional variants

As a result of its dominance in the IT industry, English is now used for everything from product labels to user manuals and even audio guides. Most languages in the world are translated using English as a starting point. As part of their education, IT students should learn the language of science and technology in its entirety before they graduate.

Both students and IT professionals were asked about the relevance of English language expertise in relation to a set of similar language-related skills in separate questionnaires. Reading, writing, listening, and speaking were just a few of the many topics that were covered. Reading and writing were deemed to be the most valuable of the four linguistic abilities analyzed by the survey's respondents.

The IT specialists all agreed that the ability to communicate effectively in writing and speech about a variety of professional topics was essential. This research suggests that there is a chasm between the academic and professional realms of the IT industry. This is consistent with the findings of previous research by Mognhede and Woldemariam (9) that found a disparity between students' and working professionals' perceptions of their perceived requirements.

Individuals' perceptions of a task's difficulty are shaped by their education and work history. Daily chores like academic writing, listening to lectures, and presenting in front of the class usually receive high marks from the students who must complete them. Tasks that don't count toward their semester grade are the ones that get the worst grades.

Extent of English language demands

Participants were asked to assess how important they felt it was to be able to communicate effectively in English in their day-to-day lives. According to current data, the ability to communicate in English is in great demand. Findings revealed that the ability to read and write was the most sought-after skill.

The student's speaking and listening abilities were weaker. In contrast, IT professionals rated strong verbal and written communication skills as more important for career advancement. Tesema and Woldemariam (10) agreed that language skills are more or less valuable depending on the position being sought.

Recommendations for the current study

The findings of this investigation suggest the following:

1. Regular spelling exams should be a component of every IT student's curriculum in order to hone their English language skills. The demand gap is reduced as a result of this.
2. Student's vocabulary can be improved by using genre-specific English literature in language education, such as science fiction and fantasy novels and magazines. Professional magazines are useful for vocabulary and learning materials.
3. Regular needs analysis investigations between academic and professional settings are essential for preserving language use.

4. An English course for science and technology tailored to the needs of IT students. People attending scientific conferences somewhere in the world no longer have to deal with literate scientists.
5. Academic language pertaining to the sciences should be used in the classroom by language teachers and lecturers working with student groups made up primarily of science majors.
6. To help IT students learn specialized terminology more rapidly, it is recommended to create a natural language processing tool like ADIS.
7. To bridge the skills gap, certain employers of IT graduates may require the services of an ESP practitioner to train their staff on-site in English.
8. Students and graduates in the field of information technology may gain from the work done in university language labs to develop enhanced linguistic abilities.
9. Employers can pay for computer applications that help their employees improve their writing and language skills. Tools like Ginger, Whitesmoke, Hemingway's Correction, Grammarly, and Correct English are examples of this type of software.

Future research is encouraged

1. A study of English language needs in the fields of tourism, nursing, or agriculture could use a nativist, interactionist, or learning theory approach; a pre- and post-test could be used to examine English language needs in a group of students; and inferential statistics could be used to analyze the results.
2. Krashen's language acquisition model can be used to study students' linguistic transition from high school to university.
3. Computational strategies that help students learn English as a second language can be explored.

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