

The Need for a Course in Academic writing: The Perceptions of Undergraduate Engineering Students

Kakkireni Nagaraju

ABSTRACT

Academic writing epitomizes the language of scholarship which helps one to gain eligibility for higher education. The quality of students' written work determines their scholarship and acceptance in academia. Students who arrive at the university face the challenge of adjusting to the academic writing demands of their chosen field. They usually face unfamiliar writing tasks in their studies, which they find quite difficult. There is a dearth of literature addressing the academic writing needs of students in India. Though the teaching of academic writing has been practised internationally for several years, many universities in India have refrained from explicitly incorporating academic writing skills. Hence, this study attempts to explore the significance of a course in academic writing for undergraduate engineering students.

Keywords: Academic writing; needs analysis; undergraduate engineering students.

Introduction

Academic writing refers to the kind of writing that fulfils a purpose of education in a college or a university. It helps one to gain eligibility for higher education. Many research studies reveal that the academic success of the students pursuing undergraduate and postgraduate courses depends largely on their academic writing competence. Students who come to the university face academic writing demands in their chosen field. They usually find the writing tasks in their studies unfamiliar and they find it difficult to cope with them. In the wake of the enormous growth in science and technology, imparting academic writing skills to engineering students has become the need of the hour.

The present study is different from most of the studies in incorporating the views of the

students, who are the real users of the course book. The study takes into account the perceptions of undergraduate engineering students of Jawaharlal Nehru Technological University (JNTU), one of the premier technological universities in India, with the help of a questionnaire focusing on the academic writing demands of the course and the need for a course in academic writing.

Technical Education in India

Technical education began in India in 1874 in the form of survey schools. It started with certificate programmes and progressed to diplomas, and then to undergraduate courses in the second half of the 19th century. The eighties and nineties of the 19th century witnessed the establishment of a large number of polytechnic and engineering programmes. The fifties of the 20th century

saw the emergence of postgraduate courses. The advent of information and communication technologies increased the demand for engineering education and resulted in the expansion of engineering colleges in India. At present, there are more than ten thousand engineering and technological institutes in India.

The shift in higher education from being elitist to mass education has brought several new challenges. The amount of writing done in these courses as well as the demands made on writing skills by employers has increased. As a result, the students are exposed to substantial writing skills for which they depend on regular explicit instruction, guidance, and feedback. These issues demonstrate a need for swift and significant changes in provision for writing in higher education and highlight the requirement for a shift in both pedagogy and practical methods (Haggis, 2006).

Academic writing is given much emphasis in many countries like South Africa, Australia, and some parts of Europe. The United States has given utmost importance to this form of writing, making it a pre-requisite course in its university curricula since the late 19th century. The Dearing report of the United Kingdom highlighted the need for a radical change in attitudes to teaching in order to cope with the new challenges facing the higher education sector. Accordingly, the United Kingdom has also recognized the importance of good academic language competence among the university students.

In Asia, a few countries like China, Japan, and Singapore have started giving importance

to academic writing. Though India produces lakhs of professionals every year who serve in different parts of the world, the academic writing course in use is not being implemented properly.

Needs Analysis

‘Need’ is an umbrella term that incorporates many aspects of the teaching-learning process. It takes into account various issues like the learners’ goals, backgrounds, skills, their language preferences, proficiencies, etc. Needs are often seen as a gap between current and target needs. In terms of the employment profile of technical graduates, they need to be trained to write project proposals and reports. Besides this as a preparation to achieving the goal, they should also be given adequate training in making notes, representing information graphically, and stating findings using statistical tools.

Literature Review

The importance of learning academic writing in science and technology for the students of higher education has long been recognized. It teaches students how to think critically and objectively while conveying complex ideas in a well-structured and concise format. Many studies found that academic writing is one of the most desired skills at university, as the assessment of students takes place through writing. Academic writing fulfils a crucial function in the context of higher education. Students have to meet the expectations of their teachers in relation to academic writing skills, as writing is the most common medium used to assess students’ grasp of the content of their courses (Bickmore-Brand, 1998).

The difficulty of acquiring academic writing

competence in a second language (L2) is even greater because an L2 writer has to grapple with a wide range of issues, among which are L2 proficiency and cross-cultural differences (Davis, 1994; Leki, 1996). The students entering the university need to develop academic writing competence as writing at university is very different from the style of writing taught at school (Mullins et al., 1995).

Gonobcsik-Williams's (2006) survey of faculty across many universities in the UK indicated that they expected students to show a substantial improvement in writing by the time they graduated. Nesi and Gardner's study (2006) in the UK of the faculty across disciplines reported their finding that writing at undergraduate level should progress towards greater similarity to professional journal articles, especially on the assignments in academic writing genres. "Science seeks to generate knowledge that is objective and goes beyond an individual researcher's opinions or preferences, and that is grounded in systematically obtained data" (Hempel, 1965).

Ganobcsik-Williams's survey highlighted that "almost 90% of staff felt that it was essential to teach writing skills to university students." Maintaining standards of academic writing among the students has implications for the teaching-learning process in higher education. Braine has observed that the audiences for science and engineering writing tasks are very often outside the classroom, which makes the learning of these tasks more challenging. Jackson et al., in their investigation of undergraduate science tasks at a South African university found that the

students were not adequately getting exposed to writing assignments in the content courses that could help them in learning academic writing skills.

Nesi & Gardner (2006) gathered the views of faculty members in 20 departments across three universities in the United Kingdom about undergraduate student writing and writing tasks in various disciplines. They noticed that the types of assignments that are given in science, engineering, and other disciplines are "essays, reports, laboratory reports, project reports, research projects, dissertations, group projects, posters, website evaluation, problem sheets, case studies, reflective writing, critical evaluation, and marketing plans or proposals." This largely tallies with the needs we have identified.

Purpose Statement and Research Question

The purpose of this study was to explore the views of the students about the importance of academic writing and the need for such a course in their undergraduate engineering programme. The Bachelor of Technology (B. Tech.) course offered by the Jawaharlal Nehru Technological University, Hyderabad (JNTUH) and its affiliated colleges has been selected for this study due to its popularity among the student community. The university has more than two hundred engineering colleges affiliated to it, from which one lakh students graduate every year. The undergraduate engineering students are supposed to write many academic writing tasks like essays and reports. They need to write mini and major projects as part of fulfilling the requirements of the course in their penultimate and final years of study. This is a challenging task for the students as

they have not been adequately trained to write such reports.

Research Questions

1. Do the students joining undergraduate engineering courses necessarily possess academic writing competence?
2. Do the undergraduate engineering courses demand good academic writing competence from the students to complete the course successfully?
3. Do the undergraduate engineering students of JNTUH and its affiliated colleges need a course in academic writing?

Method

The study aimed to investigate the academic writing problems and needs of the students, to identify the academic writing demands of the undergraduate engineering course, and to examine the views and suggestions of various stakeholders on the proposed academic writing course. A questionnaire was used to elicit the views of the students.

Participants and Data Collection

Any teaching-learning process has to give more emphasis to students than to the other stakeholders. Therefore, the views of the students are important in taking academic decisions that directly or indirectly influence their performance in their academic and professional life. To ascertain this, a questionnaire with 10 questions to gather their views on their writing needs was administered. The questionnaires were distributed to 100 undergraduate engineering students studying in various colleges

affiliated to JNTUH. They were given sufficient time to provide their responses.

The student questionnaire had four categories: (i) students' competence in academic writing and their school teachers' contribution; (ii) importance, nature and frequency of academic writing, (iii) academic writing requirements and feedback; and (iv) the relevance of the course and suggestions. The return rate of the questionnaires was hundred percent as the teachers from all the colleges helped in administering the tool.

The first category of questions aimed at gathering general information on various aspects of student writing with the help of questions 1, 4, and 6. The second category of questions, 2, 3, and 5, explored the importance and the nature of academic writing in their undergraduate engineering course. The third category, questions 7 and 8, aimed at gathering information on the students' awareness of their teachers' academic writing requirements and the feedback given by teachers. The last category, questions 9 and 10, gathered their views on the proposed academic writing course.

Limitations

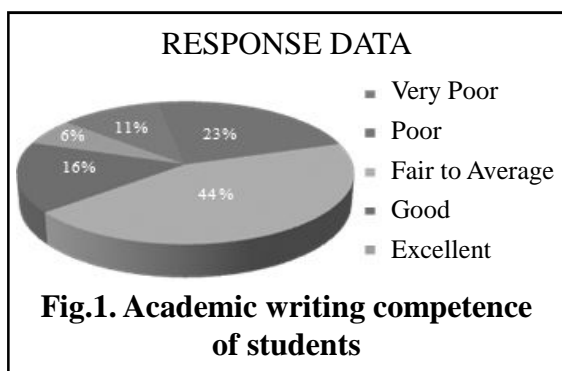
The study is limited to exploring the views of undergraduate engineering students studying in Jawaharlal Nehru Technological University, Hyderabad and its affiliated colleges. Academic writing skills are chosen as they play a very important role in a student's success at various levels. They help the students complete the course successfully to pursue higher studies, to contribute to their knowledge base in science, and to excel in professional careers.

The undergraduate engineering course has been selected for the present study because of its popularity among the student community. More than half of the graduate professionals produced every year in Telangana state are from engineering backgrounds. This university was selected for the study as more than two hundred engineering colleges from different parts of the state are affiliated to this university.

Analysis and Interpretation of Data

1. Students' Academic Writing Competence and School Teachers' Contribution

a. Academic Writing Competence



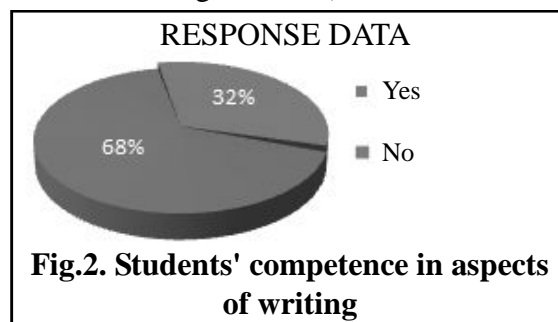
The first question was a warm-up question aimed at identifying the general academic writing skills of the students in English. The students were asked to rate how good they were at academic writing competence in English on a five-point scale. Forty-four students chose the option 'fair to average'. Eleven and twenty-three students felt that they were 'very poor' and 'poor' at academic writing respectively. The option 'good' was marked by 16 students, whereas only 6 students felt that they were 'excellent'.

b. School Teachers' Contribution to Students' Writing at University

The second question was a general question about the opinion of the students regarding the contribution of their school teachers in preparing them adequately for their writing challenges. Only 32 students felt that their teachers at school prepared them adequately for their writing challenges in English at university, whereas 68 students felt that they were not prepared by their teachers at school for their university writing demands.

c. Competence in Various Aspects of Writing

The students were asked to identify various aspects of writing that they usually find difficult in the process of writing. In order to find out the problems faced by students at different stages of writing, they were asked to indicate their competence in those areas. The competence levels were graded on a scale of 0 to 5 (5=Excellent; 4=Good; 3=Average; 2=Below average; 1=Poor).



The first part of the question was about planning writing, which was sub-divided into generating ideas, identifying main and sub-points, and developing the argument. The second part was sub-divided into finding sources of information, analyzing and presenting data and graphic representation of text. The third part (writing it up) was sub-divided into organizing the text, using appropriate vocabulary, and effective use of

connecting devices. The last part (grammar and mechanics) dealt with punctuation, writing grammatically correct sentences, and the use of tenses.

The first part (planning writing) was found to be problematic to the students in terms of organizing the ideas and developing an argument, as many students ticked the option 'average' for these two aspects; 67 and 71 students indicated that organizing the ideas and developing arguments were the two areas in which they experienced difficulty respectively. Identifying main and sub-points, on the other hand, was found to be easy for a majority of the students; 68 students ticked

'good' for this aspect of writing.

Sixty-four students felt that graphic representation of texts was less challenging among the three aspects of writing given. Fifty-seven students marked finding sources of information as 'average' and 66 students felt they were poor in analysing and presenting data.

Fifty-five and forty-seven students considered themselves to be good in organising paragraphs and using connective devices respectively. However, using appropriate vocabulary was rated as 'poor'. This is an area of concern as the students need to use a variety of vocabulary for acceptance and success in academic contexts (See **Table 1**).

Table 1. Students' Competence in Various Aspects of Academic Writing

Planning	Poor	Below Average	Average	Good	Excellent
Generating & Organising ideas	5	62	16	11	06
Identifying main and sub-points	9	37	41	09	04
Developing argument	11	53	27	06	03
Investigating the question					
Finding sources of information	16	35	37	10	02
Analysing and presenting data	08	46	27	12	07
Graphic representation of text	16	34	29	15	06
Writing up					
Organizing paragraphs	02	13	51	21	13
Using appropriate vocabulary	24	47	16	09	07
Effective use of connecting devices	05	33	27	22	13
Grammar and mechanics					
Punctuation	21	43	24	08	04
Writing grammaticality correct sentences	16	41	29	09	05
The use of tenses	21	49	17	10	03

The last part of the question (grammar and mechanics) was again an area of concern among the students, as students tend to give more importance to the content than the language. The students were found to be ‘poor’ in writing grammatically correct sentences and in the use of tenses, whereas they felt that their knowledge of punctuation was ‘average’.

The students surveyed seemed to have problems in planning writing. As expressed by the teachers, many students indicated that organizing their ideas and developing an argument are two factors in which they experience difficulty. Identifying main and sub-points is not so challenging compared to the other two aspects of writing for many of the students. The students have stated that, once the points are identified, it is not so difficult for them to differentiate between main points and the sub-points.

Graphic representation of texts was found to be less challenging compared to the other two factors. This was also found by the teachers. The students are exposed to information transfer skill at their school and +2 levels, which makes them feel comfortable in this area, whereas finding sources of information and analyzing the data are not relatively new but the exposure of the students to these areas of writing is inadequate.

In respect of writing up, there was a difference between English teachers and the students on the latter’s skill of organising paragraphs. The teachers felt that the students were not good in this area of writing, whereas the students felt that they were quite good. The other two aspects under this category were using appropriate vocabulary and use of connective devices. The students felt that they did not have problems

with the use of connective devices, but as found by their English teachers, they were not good at the appropriate use of vocabulary. Use of vocabulary poses difficulty to them as they are not competent in this aspect of writing.

Grammar and mechanics are areas of concern to the students as pointed out by English teachers. Though punctuation, writing grammatically correct sentences, and the use of tenses are not new to the students; most of them felt that they were average in these areas. One of the general assumptions is that the technical teachers overlook these aspects of writing while evaluating student writing.

2. Importance, Nature and Frequency of Academic Writing

a. Frequency of Academic Writing Tasks

This question (Q. 6) is about the frequency of writing tasks the students experience as part of their undergraduate engineering course. Seventy-two students stated that they were supposed to write very often, 23 students felt that they often encountered academic writing tasks during their course, and only 5 students felt that they rarely needed to write.

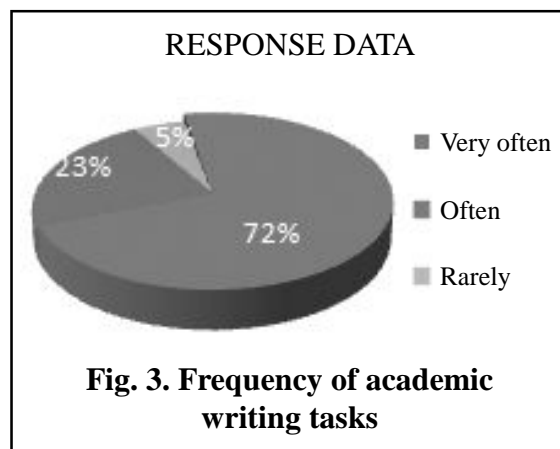


Fig. 3. Frequency of academic writing tasks

b. Role of Academic Writing Skills in Successful Completion of Course

The next general question was about the students' view of the importance of academic writing skills for the successful completion of their undergraduate engineering course. The response of the students to this question was almost unanimous, as 87 of them believed that a good knowledge of academic writing skills was very important for the successful completion of the undergraduate engineering course.

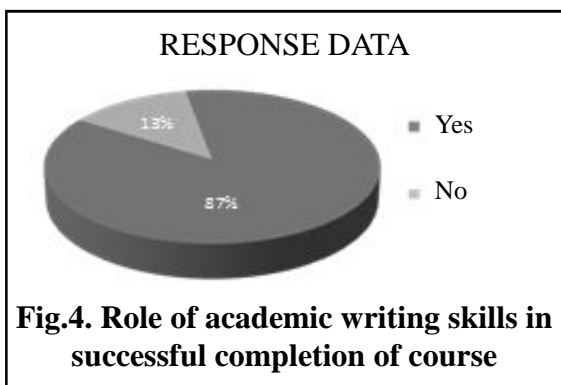


Fig.4. Role of academic writing skills in successful completion of course

c. Nature of Writing at Undergraduate Engineering Level

This question was about the perceptions of the undergraduate engineering students, whether the writing at undergraduate engineering level was different from the writing that they had been exposed to before entering the university. The students' awareness about the writing tasks they had till their intermediate and at the undergraduate level were taken into consideration. Sixty-nine students believed that the writing at engineering level was not the same as their writing at school and intermediate levels. They felt that writing at the undergraduate engineering level was comprehensive in

terms of quality and quantity. Only 34 students felt that the nature of writing at the undergraduate level was the same as writing at school and +2 levels.

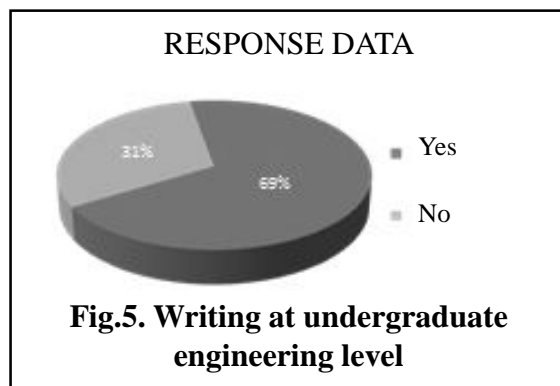


Fig.5. Writing at undergraduate engineering level

3. Academic Writing Requirements and Feedback

a. Awareness of Academic Writing Requirements

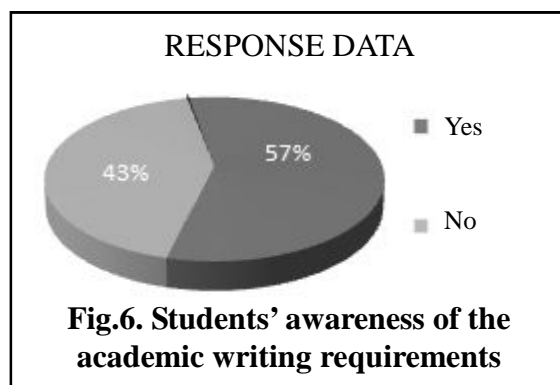


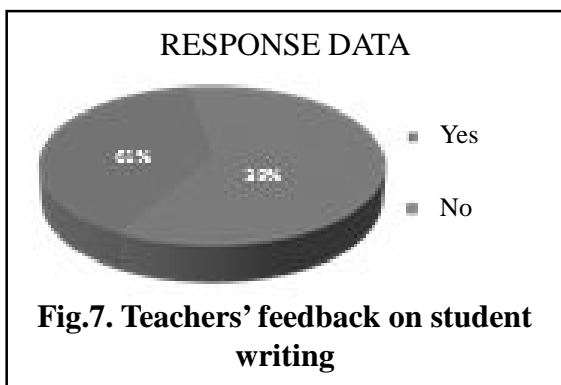
Fig.6. Students' awareness of the academic writing requirements

The students were asked whether they were aware of the academic writing requirements of their programme, as this awareness on the part of the students was very important in fulfilling the academic writing requirements successfully. Very often there exists a communication gap between the students and the teachers regarding the academic requirements. The teachers do not always clearly communicate to the students about

these requirements. This gap could be filled by the teachers by making the students aware of what is expected of them in terms of academic writing.

Fifty-seven students responded that they were not aware of the academic writing requirements of their programme; the remaining 43 students felt that they were aware of their academic writing requirements to be essential.

b. Feedback on Student Writing



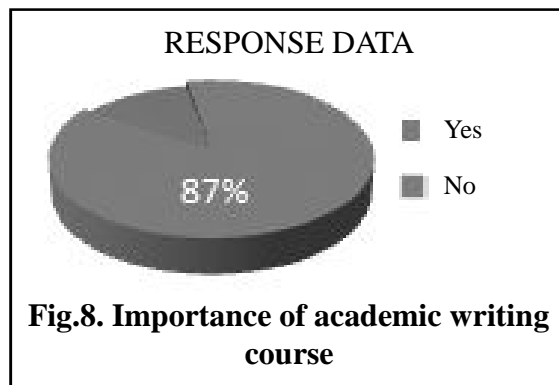
The next question was about feedback, which is one of the important factors that are not given due importance by the technical teachers in general. Literature on student writing emphasizes the role of feedback in fine-tuning the writing skills of the students. Effective feedback by the teachers on student writing has the potential to bridge the gap between the expectations of the teachers and the students in terms of academic writing requirements.

In response to the question whether the teachers comment on their writing, 60 students said that their teachers did not usually give feedback on their writing by evaluating and commenting; 39 students

responded that they generally received feedback on their writing by the teachers.

4. Relevance of the Proposed Course and Suggestions

a. Need for a Course in Academic Writing



This question was aimed at knowing the students' opinion on the need for a course in academic writing in the first year of their four-year undergraduate engineering course. Since the target group is the students, it was felt that their views are important in the designing of the proposed writing course. The students unanimously expressed their view that a course in academic writing would immensely benefit them by helping them in successfully accomplishing the writing requirements of the course; 87 students welcomed the proposal for a course in academic writing.

b. Writing Tasks to be Included in the Course

This question was asked to identify the academic writing needs of the students. The students were asked to mark the academic writing tasks that they wanted to be included in the proposed writing course. The list included many writing tasks that are usually

set in the context of undergraduate engineering education. Apart from the tasks mentioned, the students were also given an option ('others'), where they could include anything that was not specified in the list.

This question, which was a common question in both the teacher and the student questionnaires, was felt to be important, as the inputs given by the student community would be useful in identifying the writing tasks that are to be included in the proposed course. The students ticked all the writing tasks that were given in the tabular format, starting from an essay to a wide variety of writing tasks like research articles.

The students' preference for writing tasks like essays and laboratory reports was nearly cent percent. This is true as essays and laboratory

reports constitute a major part of their writing throughout their four-year undergraduate course. They are followed by project reports, technical reports, presentations, letters, etc. Their preference for research articles, case studies, and thesis writing was low, but these are also important.

Eighty-nine students preferred essays, 91 laboratory reports, 78 technical reports, and 81 project reports. Research articles did not find much response from the students, as only 31 of them ticked the option. Conference papers, presentations, and letters got good responses as 47, 59 and 62 students felt that they needed these writing tasks in the proposed academic writing course. The other writing tasks selected were memos by 44 students, case studies by 34, and thesis writing by 17 students.

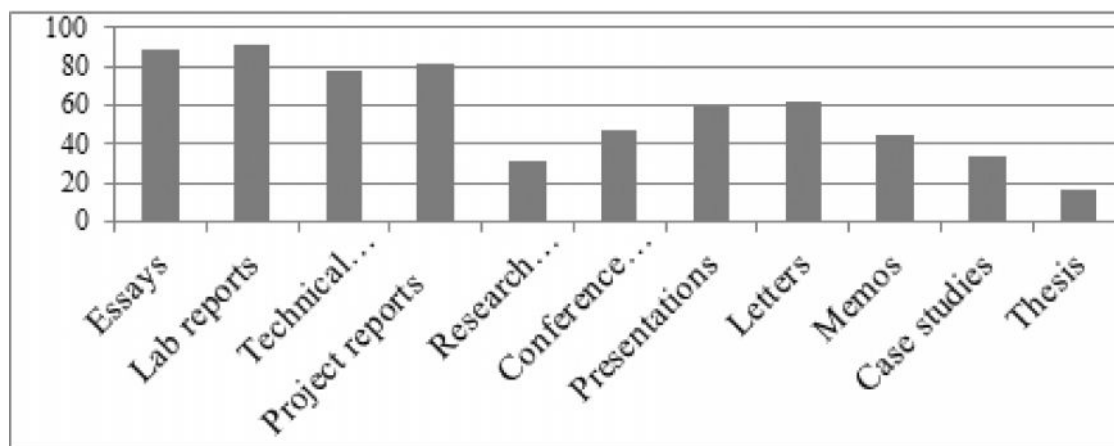


Fig.9. Writing tasks for inclusion in the course

Findings

The students' responses mainly focused on the importance of and difficulties in acquiring academic writing skills, the role of their school teachers in preparing them for

university writing demands, their awareness of academic writing requirements and teachers' feedback, and finally, their views on the proposed academic writing course and suggestions.

a. Students' Academic Writing Competence and School Teachers' Contribution

According to most of the students, good academic writing skills are important for the successful completion of their studies. The students encounter various problems in their academic writing, right from the stage of planning to the final draft. The school, according to the majority of the students, has played a limited role in preparing them for the writing demands of the university. In response to the question, whether the nature of writing at undergraduate engineering level is different from the writing that they have been exposed to in their schools, the students felt that demands of writing at school were very different in nature. Undergraduate engineering course demands a wide variety of writing tasks that form a part of the course ranging from an academic essay to project reports.

b. Importance, Nature and Frequency of Academic Writing

The questions that were asked under this category received positive responses from the students in respect of the proposed course in academic writing. The students have responded that good academic writing skills are very important in successful completion of the undergraduate engineering course. According to them, the nature of writing at undergraduate level is different from the kind of writing they were exposed to in their pre-university education. The students have also said that they need to write a variety of academic writing tasks during their undergraduate engineering course.

c. Academic Writing Requirements and Feedback

In response to their awareness of academic writing requirements, many of the students seem to have different opinions. The students are not clearly aware of the academic writing requirements. This communication gap between the students and the teachers is also contributing to the students' problems in academic writing. The teachers need to provide feedback regularly on the written texts produced by the students. Students have their own attitudes and perceptions about the feedback they receive on their writing.

Learners are always to be treated as active participants who view all comments about their work as valuable, useful, and helpful for improving their writing (Hyland, 2006). Studies carried out in the area of students' perceptions and preferences of the kinds of feedback have demonstrated that students possess very strong views about the types and amount of feedback offered by their teachers (Ferris, 1995).

d. Relevance of the Proposed Course and Suggestions

Almost all the students expressed the view that a course in academic writing would definitely help them to cope with the academic writing demands of the undergraduate course. The students' responses to the questionnaire have given valuable information on various aspects of writing. A majority of the students welcomed the proposed course in academic writing.

The study on students' perceptions and beliefs has revealed that knowing students'

perceptions and beliefs can play a crucial role in developing the right course to meet their needs. The questionnaire used to survey the academic writing competence of the students has also served an additional purpose. Apart from collecting information on academic writing, it has also been useful in raising the students' awareness about specific issues in academic literacy and writing. The completion of this questionnaire is, therefore, considered to be important in establishing a relationship with the students, which will help in communicating to them that their needs and expectations are given due consideration in designing a writing course for them.

Conclusion

A majority of the students have felt that they are either poor or average in their academic writing competence. It is clearly evident from the students' response that academic writing is very important to them. Most of the students have also favoured the need for a course in academic writing. They feel that the introduction of a course in academic writing for the undergraduate engineering students will equip them with academic writing skills.

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Dr. Kakkireni Nagaraju, Associate Professor of English & Head, Department of English, Aurora Engineering College, Hyderabad, India. Email: naastra@gmail.com

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