

English For Informatics Students: A Needs Analysis

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Abstract :

This study aims at finding out the Informatics students' needs of English in one of the universities in Palopo. It focuses on investigating which English skills and language elements of English are crucial for the students. Moreover, another question arisen here is what type of syllabus suitable for the students. To answer these issues, a survey research was conducted by using an adopted questionnaire to gather data from 33 Informatics students and 20 Informatics lecturers. The results of this study reveal that listening and reading are the most crucial skills for the students to help them understand learning sources. Furthermore, the topics and the materials discussed in the texts should be related to IT, so the students can be familiar with the terms used in their major. Speaking and writing skills also needed by the students but merely the basic ones because English is not used as the language instruction in their classroom and the students are not required to write their assignments and their final project in English.

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Introduction

Industrial revolution is an era where technology has a crucial role in society. In this era, technology is utilized to ease the works of human in all sectors of life, including education, health, agriculture, and economic. Therefore, people are required to catch up with the development of technology to make their works more effective and easier, as well as to be not left behind in society. As people who learn the development of technology and even try to develop the current technology, Informatics students are the ones who crucially need to be always aware with the mostly current development in technology sector. To do this, it is important for the students to have comprehension on language which is used world widely to gain the current information of technology development, such as English. However, aspects about which language skills and language elements to teach to these students are still problematic.

Various studies investigating the Informatics and Technology students' needs of English have been carried out in diverse contexts, but the results of those studies are different each other. Studies conducted by Diana and Mansur (2018) and Nimasari (2018) found that productive skills (speaking and writing) are more crucial than receptive skills (listening and reading) for the students majoring Information, Communication and Technology (ICT) and Information Engineering. Diana and Mansur (2018) uncovered that ICT students need English to communicate their ideas in assignments and to write their final project, as well as to do presentation in their final project exam. Meanwhile, Nimasari (2018) found that the Informatics Engineering students in one of the universities in Ponorogo perceived speaking skill as the most needed one to learn in their English class because this skill is the most difficult one for them. Based on these three studies, it is indicated that students majoring ICT and Informatics Engineering in several universities perceive language productive skills are more significant than receptive skills.

Furthermore, an interesting finding about the needs of speaking and writing skills is presented by Chen, Chang & Chang (2016). It is found that the alumni who have been in job and the students have different perspective of their needs of English. The alumni said that they need English for oral communication in their workplaces, while the students stated that writing is the most significant one for them because they need it to do their assignment during their studies. This finding indicates that the needs of English might be diverse in different contexts depend on the situation in which way English is used.

Different from the studies above, a study conducted by Lee (2016) found that the students perceived listening as the skill that they need the most. Even though the study revealed that writing skill is also needed by the students, the percentage shows that only 17% or 16 out of 95 students chose writing as the most necessary one. This number is much lower than those who chose listening as the most needed one, namely 27% or 26 students. Unfortunately, the reason why the students chose listening as the most needed one was not discussed in the study, while the reason why the students need writing skill is due to future employment purposes.

Apart from the discussion of which skills are needed by students, another interesting issue related to what to teach to the students is the topics deliberated in the materials. The study conducted by

Nimasari (2018) found the importance of bringing context to the topics discussed in the classroom. This result of this study uncovered that the students preferred to discuss about topics related to Informatics Engineering for Programming. It indicates that the students want to learn how to use English in their major. Moreover, another study discussed about this issue was also deliberated by Sultan, Afsar & Abbas (2019). The results of the study suggested that the topics discussed in English units for Engineering students, especially the readings and the vocabularies. Even, Sultan, Afsar & Abbas recommended the English teachers to consult the materials that would be discussed with the Engineering Department members.

The results of the previous studies above indicate the importance of conducting needs analysis to find out the focus of the teaching and learning process in English units. The studies above show how the students' needs of English in different contexts might be diverse each other depend on to what purpose the students need it. Unfortunately, no one of the studies above gather the perceptions of the academic staff or the teachers regarding the students' needs of English. As stated by Lee (2016), teacher is one of the parties that should be asked about their students' needs because it is believed that the ones who know the ability and the needs of the students are the teachers. Therefore, based on the considerations above, this study aims at investigating the Informatics students' needs of English not only based on the perceptions of the students, but also perceptions of the teachers.

Method

This research is a survey research that aims at gathering data from a high number of participants to be able to get general picture of the Informatics Engineering students' needs of English. A hundred and fifty of the third-year students were invited to participate, but merely thirty-three students were willing to take part. Furthermore, to hear the academic staff perceptions, twenty teachers participated in this study, covering five teachers teaching English and fifteen teachers teaching units related to Informatics Engineering. To gather data from the participants, an adopted questionnaire (by Briana, 2019) was used. The questionnaire contained closed-ended questions and one open-ended question. The questionnaire was made in google form to ease the spread of the questionnaire to the participants and to ease the participants to fill in. The analysis of the data gathered was done by using Microsoft Excel. It was chosen by considering the type of analysis needed which was simple and did not need a more sophisticated application.

Results

The results of statistical analysis show that both students and teachers perceive that almost all activities of English skills are crucial to learn by the students. The details of these results are presented below

1. Listening skill

There are seven activities of listening skill are provided in the questionnaire. Almost all these activities are perceived important for the IT students to learn. The data are displayed in the following table:

Note:

I = Very Unimportant

II = Unimportant
 III = Not Sure
 IV = Important
 V = Very Important

Table 1. Teachers' and students' responses on activities covered in listening skill

Teachers' Responses (%)					Activities	Students' Responses (%)				
I	II	III	IV	V		I	II	III	IV	V
0	5	25	45	25	Listening to small group discussions	3	0	9.1	42.4	45.5
0	10	25	45	20	Listening to lectures	0	3	21.2	27.3	48.5
5	10	35	40	10	Listening to large group discussions or debates	3	6.1	18.2	42.4	30.3
0	5	15	50	30	Taking notes	0	9.1	6.1	33.3	51.5
0	0	20	60	20	Understanding lengthy spoken descriptions	3	12.1	21.2	27.3	36.4
0	0	15	45	40	Understanding spoken instructions	0	0	21.2	39.4	39.4
0	5	5	55	35	Understanding informal language	0	0	15.2	27.3	57.6

Data in the table above show the responses of the teachers and the students toward various activities presenting listening ability. The two parties have similar points of view regarding which activities that should be able to do by the students. In general, all these activities are perceived important by the students and the teachers. However, there are some activities which are more crucial than other activities. The responses show that the activities of *taking notes*, *understanding informal language*, *long description*, and *instruction* are perceived crucial by more than 80% of the participants. It might be because these activities are sometimes done by the students to understand learning sources which are delivered in English. Meanwhile other activities which are perceived important by less number of participants are *listening to small group discussion*, *lectures*, and *large group discussions*. It might be due to the less use of English in the classroom; the IT students do not use English as their language instructions in the classroom, but in English classes.

2. Reading skill

Table 2. Teachers' and students' responses on activities of reading skill

Teachers' Responses (%)					Activities	Students' Responses (%)				
I	II	III	IV	V		I	II	III	IV	V
0	0	5	50	45	Understanding the main point of the text	0	0	3	30.3	66.7
0	5	20	55	20	Reading a text quickly in order to establish a general idea of the content	3	12.1	24.2	27.3	33.3
0	0	0	70	30	Reading a text slowly in order to understand the details of the text	0	0	15.2	30.3	54.5
0	0	5	50	45	Looking through a text quickly in order to locate specific information	0	3	12.1	27.3	57.6
0	0	0	40	60	Identifying the meaning of unknown words in a text	0	0	3	18.2	78.8
0	5	30	25	40	Understanding text organization	0	0	12.1	33.3	54.5
0	0	5	60	35	Understanding specialist vocabulary in a text	0	0	9.1	33.3	57.6
0	35	15	50	0	Understanding a writer's attitude	9.1	3	30.3	30.3	27.3
0	5	30	45	20	Summarizing factual information	3	3	36.4	24.2	33.3
0	10	35	45	10	Reading quickly	3	12.1	12.1	36.4	36.4
0	5	50	40	5	Reading critically	6.1	3	36.4	33.3	21.2
5	15	35	35	10	Reading for author's viewpoint	9.1	12.1	18.2	30.3	30.3

The table above shows the perceptions of the teachers and the students regarding activities presenting reading skill. Alike the data in the previous table, the teachers and the students have similar responses on which activities are necessary for the students to learn. Eighty-four to a hundred percent of the participants (teachers and students) perceive *understanding the main point of the text, catching detail and specific information*, as well as *understanding specialist terms used in the text* are necessary to learn by the students. The first and the second activities are general, but the third one is specified into the terms used in IT. This picture is captured by seeing the teachers' additional response in the questionnaire saying that it is better for the students to learn specific terms used in programming, applications, and websites. It indicates that the teachers expect that the texts discussed should be related to IT which contain various terms associated to IT.

3. Speaking skill

Table 3. Teachers' and students' responses on activities of speaking skill

Teachers' Responses (%)					Activities	Students' Responses (%)				
I	II	III	IV	V		I	II	III	IV	V
0	5	30	15	50	Giving oral presentations	3	0	18.2	36.4	42.4
0	0	5	40	55	Pronouncing words correctly	0	0	9.1	15.2	75.8
0	5	35	50	10	Asking for clarifications	0	3	21.2	48.5	27.3
0	10	40	40	10	Giving formal speeches/ presentations	3	0	33.3	36.4	27.3
0	15	25	35	25	Participating effectively in discussions	0	0	18.2	51.5	30.3
0	5	40	40	15	Communicating effectively with peers in small group discussions, collaborative projects, or out- of-class study groups	0	3	21.2	51.5	24.2
0	10	10	60	20	Describing objects or procedures	0	6.1	18.2	45.4	30.3
0	10	40	25	25	Formulating coherent arguments	0	6.1	24.2	51.5	18.2
0	10	10	40	40	Pronouncing words, phrases, and sentences with proper intonation and stress patterns	0	3	6.1	24.4	66.7
0	15	35	35	15	Communicating effectively with superiors	0	6.1	36.4	27.3	30.3
0	10	20	40	30	Using English fluently	0	0	3	39.4	57.6
0	15	20	45	20	Participating in interviews	0	0	12.1	30.3	57.6
0	20	35	40	5	Participating in meetings	3	3	30.3	42.4	21.2

The data in table 3 shows that the teachers and the students have similar perspectives in some aspects. High percentages of the participants are shown through their perspectives in choosing which English activities that the students should be able to do. Both the teachers (95%) and the students (91%) suggest that "*pronouncing words correctly, describing objects or procedures, pronouncing words, phrases, and sentences with proper intonation and stress pattern*" are crucial. Looking closely at these activities, it is indicated that both the activities needed by the students are the basic skills of English speaking, not the advanced skill.

Beside of the activities mentioned above, most of the students also think that the activities of “giving oral presentations, participating effectively in discussions, using English fluently, participating in interviews” are necessary. It is implied that the students think that they not only need to learn basic skills of English speaking, but also further skills that require them to do more efforts. The teachers do not have the same opinion might be because they think that these activities are not specially required by the students majoring IT.

4. Writing skill

Table 4. Teachers’ and students’ responses on activities of writing skill

Teachers’ Responses (%)					Activities	Students’ Responses (%)				
I	II	III	IV	V		I	II	III	IV	V
0	5	15	30	50	Using correct punctuation and spelling	0	0	6.1	27.3	66.7
0	5	25	45	25	Structuring sentences	0	0	21.2	21.2	57.6
0	5	10	55	30	Using appropriate vocabulary	0	0	6.1	21.2	72.2
0	5	25	35	35	Organizing paragraphs	0	0	12.1	39.4	48.5
0	10	5	45	40	Expressing ideas properly	0	3	9.1	42.4	45.5
0	10	5	55	30	Developing ideas	0	6.1	12.1	48.5	33.3
0	10	20	50	20	Expressing what you want to say clearly	3	9.1	15.2	27.3	45.5
0	10	10	40	40	Adopting appropriate tone and style	3	0	9.1	30.3	57.6
0	5	20	35	40	Evaluating and revising your writing	0	0	0	36.4	63.6
0	15	20	40	25	Paraphrasing texts	0	3	24.2	42.4	30.3
0	5	45	30	20	Lecture notetaking	0	3	48.5	21.2	27.3
0	15	30	5	50	Writing an article	0	0	45.5	24.2	30.3
0	15	20	45	20	Producing a creative writing	3	0	30.3	18.2	48.5
0	5	40	30	25	Writing case studies	6.1	6.1	42.4	21.2	24.2
0	5	25	50	20	Describing objects or procedures	6.1	9.1	27.3	30.3	27.3
0	15	25	40	20	Writing introductions and conclusions	3	12.1	42.4	21.2	21.2
5	10	20	30	35	Writing references and citations	3	12.1	45.5	18.2	21.2
0	10	25	50	15	Formulating coherent arguments	1	21.2	24.2	36.4	15.2
0	10	30	40	20	Summarizing factual information	0	12.1	27.3	39.4	21.2
0	5	25	45	25	Synthesizing information from more than one source	3	9.1	30.3	21.2	36.4

The table above shows some similarities and differences between the opinions of the students and the teachers regarding which activities resembling English writing skill are crucial for the IT students. Both teachers and students (about 80% to 94%) think that it is important for the students to use correct punctuation, spelling, and appropriate vocabulary; to develop and express

ideas properly; to adopt appropriate tone and style. These activities are basic in English writing and do not focus on sentences building that requires further comprehension. The activities that ask for more complicated tasks are not perceived as crucial by the teachers might be because the IT students do not have many assignments that should be written in English. They are usually asked to write in English merely in English subjects which are taught at the second and the fifth semesters. They do not need to always use English in completing their assignments on other subjects. However, different from the teachers, 80% to 90% students perceive other activities that ask for more works are also essential, such as structuring sentences; organizing paragraphs; expressing ideas clearly; evaluating and revising self-writing. These activities are usually needed by students who are required to write their assignments in English, such as the students majoring English or English Teaching.

5. Viewing skill

Table 5. Teachers' and students' responses on activities of viewing skill

Teachers' Responses (%)					Activities	Students' Responses (%)				
I	II	III	IV	V		I	II	III	IV	V
0	0	5	25	70	Viewing websites	0	0	6.1	30.3	63.6
0	0	20	40	40	Watching the news	0	0	15.2	33.3	51.5
0	5	20	40	35	Watching commercials	0	0	18.2	42.4	39.4
0	5	15	35	45	Evaluating and sharing online videos	0	0	15.2	42.4	42.4
0	5	15	25	55	Watching documentaries	3	0	9.1	33.3	54.5
0	0	10	25	65	Viewing pictures, tables, maps, and charts	0	0	12.1	39.4	48.5

The table above shows data telling that both the teachers and the students perceive all activities related to *viewing skill* are important for IT students. 75% to 90% of the participants think that the IT students need to master these activities. It might be because these activities are related to IT students' assignments who usually do these in the process of completing their assignments. Therefore, these activities should be focused in the English subject taught to the students.

In general, the data described in this section show several important findings of this research. First, the activities resembling listening skill which are needed by the students are those that can help the students to understand learning sources. Second, the activities resembling reading skill necessary for the students are the activities related to understanding texts connected to IT, particularly the IT specific terms used in texts discussed. Third, the speaking activities which should be able to do by the students are the basic ones because English is not used as the language instruction in the classroom. Forth, the writing activities which are necessary for the students are also the basic ones since they are not required to write their assignments in English, but in English classes. Fifth, All the viewing activities are perceived crucial for the IT students because they are required to do those activities in completing their assignments.

Discussion

The findings of this research reveal an important point, namely the activities that some certain activities listed in each skill sections are more crucial compared to other activities. It is because the activities are general (for all people), not for certain majors. It is believed that the participants have considered which activities are crucially needed by the IT students in the university studied

here. It is shown from their responses saying that the students need to comprehend English terms used in Informatics, particularly in *application*, *programme*, and *website*. This finding is in line with the study conducted by Nimasari (2018) that discussed the importance of bringing context to the topics discussed in English classes for IT students, namely the topics related to Informatics. Therefore, the themes of the topics discussed in the classroom should be relevant with the students' major.

Comparing the data presented in this study to some previous studies investigating the same issue, it is revealed that most preceding studies predominantly only discussed about which language skill(s) is necessary for the students; they did not discuss in detail what activities resembling each skill that should be able to do by the students. For instance, the study conducted by Nimasari (2018) asked the students to identify which skill should be emphasized more in the classroom. The study revealed that speaking is the most necessary one. However, it is not clear which activity(ies) of speaking that the students need to learn. The similar case is also found in a research conducted by Diana and Mansur (2018) which identified speaking and writing skills as the most important ones for the IT students in one of the universities in Makassar. Different from Nimasari, Diana and Mansur justified that the students identified productive skills as the crucial ones because they need these skills to write their final project and to deliver the presentation of the project.

Relating the findings of this study and Diana and Mansur's study, it is denoted that the students' needs in one institution might be different from the students' needs in other institutions although they are in the same major. The difference is due to the diverse requirements of the students' assignments. The students in the institution investigated by Diana and Mansur are required to use English in writing and presenting the report of their final project. Meanwhile, the students investigated in this study are not required to do the same; they are asked to use Bahasa in their final project report as well as in their presentation. During their study in the institution investigated in this research, IT students merely use English in English classes. This situation also takes place in one of universities in Ponorogo where English is only used in English subjects (Nimasari, 2018). This difference affects the needs of the students. The students in the institution studied by Diana and Mansur need to learn advanced level of English, while the students in the institution studied in this research and the students in the university studied by Nimasari (2018) need the basic ones because they do not have to apply their English ability in other subjects.

The most similar research with this study was conducted in two areas in Philippine by Briana and Mutia (2019). The study successfully captured which skill is the most required one by IT students in two areas. The questionnaire used in investigating the issue is the same with the questionnaire used in this study. Nevertheless, the results of their study were delivered in a general way. The study merely showed that the instruction perceives listening as the most important one, while the students perceive that speaking is the crucial one. The study did not show which activities of listening and speaking skills are crucially needed by the students to learn.

Based on the description above, several important points are captured. First, the English needs of IT students might be different depends on the skills required to complete their assignments. Second, clear description of the students' needs is necessary to know what activities that the students should be able to do to help them completing their studies. Third, it is important to relate the topics and the materials discussed with the students' major, so the students can be familiar with the terms frequently used in their major.

Conclusion

Based on the explanation above, it is concluded that the English needs of the students during their studies might vary depends on the abilities required to complete assignments. The results of this study reveal that the IT students in the institution investigated need to do listening and reading

activities to help them understand learning sources. Furthermore, the topics and the materials discussed in the texts should be related to IT, so the students can be familiar with the terms used in their major. The speaking and writing activities which are needed by the IT students are the basic ones because English is not used as the language instruction in the classroom and the students are not required to write their assignments and their final project in English. Regarding viewing skill, it is uncovered that all activities resembling this skill are needed by IT students because they are frequently required to do such activities in the process of completing their assignments. Importantly, based on the discussion at the previous section, it is suggested for those who want to conduct research regarding the students' needs of English skills to clearly investigate what kinds of activities of each skill are necessary for the students. Thus, the findings of the research can show which activities that should be focused in the learning processes.

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