



**ENGLISH FOR INFORMATION TECHNOLOGY: A NEEDS
ANALYSIS OF MASTER'S STUDENTS AT TURIN
POLYTECHNIC UNIVERSITY IN TASHKENT**

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ABSTRACT

Needs Analysis is a core stage in English for Specific Purposes (ESP) course design since it assists in identifying learners' language requirements and contributes to the development of instructional materials. This research work explored the English language needs of Information Technology (IT) master's students at Turin Polytechnic University in Tashkent and formulated an ESP syllabus on the basement of the findings. A triangulated research design was implemented to ameliorate the validity and reliability of the results. Data collection was conducted through semi-structured interviews with students and ESP Instructors, employer consultations, classroom observations, questionnaires, and analysis of International English proficiency test scores: IELTS, TOEFL, and CEFR results. The participants comprised of 20 master's degree students specializing in different IT-related fields. Findings revealed that students encountered challenges in professional communication, presentations, technical discussions, and intercultural interactions despite possessing intermediate to upper-intermediate proficiency levels. ESP syllabus was developed incorporating authentic materials, task-based activities, and communicative approaches in order to better prepare students for academic and workplace demands.

**АНГЛИЙСКИЙ ЯЗЫК ДЛЯ ИНФОРМАЦИОННЫХ ТЕХНОЛОГИЙ:
АНАЛИЗ ПОТРЕБНОСТЕЙ МАГИСТРАНТОВ ТУРИНСКОГО
ПОЛИТЕХНИЧЕСКОГО УНИВЕРСИТЕТА В ТАШКЕНТЕ**

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KEYWORDS

Анализ потребностей,
английский язык для
специальных целей
(ESP),

Профессионально-
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информационные
технологии,
разработка учебных
программ,
профессиональная
коммуникация.

Анализ потребностей является ключевым этапом разработки курсов английского языка для специальных целей (ESP), поскольку он помогает определить языковые потребности обучающихся и способствует созданию соответствующих учебных материалов. Данное исследование было направлено на изучение потребностей в английском языке магистрантов направления информационных технологий (IT) в Туринский Политехнический Университет в Ташкенте и разработку учебной программы: Профессионально-ориентированный английский язык на основе полученных результатов. Для повышения валидности и надежности результатов был использован триангуляционный исследовательский дизайн. Сбор данных осуществлялся посредством полуструктурированных интервью со студентами и преподавателями ESP, консультаций с работодателем, наблюдений за учебными занятиями, анкетирования, а также анализа результатов международных экзаменов по английскому языку: IELTS, TOEFL и CEFR. В исследовании приняли участие 20 магистрантов, специализирующихся в различных областях информационных технологий. Результаты показали, что, несмотря на уровень владения английским языком от среднего до выше среднего, студенты испытывают трудности в профессиональной коммуникации, проведении презентаций, обсуждении технических вопросов и межкультурном взаимодействии. На основе выявленных потребностей был разработан учебная программа, включающий аутентичные материалы, задания, основанные на выполнении коммуникативных задач, а также коммуникативные методы обучения, направленные на более эффективную подготовку студентов к академической и профессиональной деятельности.

INTRODUCTION

The ultimate purpose of conducting this needs analysis was to create opportunities for the students to transform their current General English

Language knowledge to the Information Technology field and be able to employ this specific knowledge in their future career. In addition, appropriate ESP course syllabus was developed which



demonstrated their needs. "Current concept of needs analysis" by Dudley-Evans and St John (1998) was selected in order to set objectives for this research study. The preliminary objectives of needs assessment are outlined below:

- To gather professional data about the students: tasks and activities that learners utilize in the learning process

- To collect personal information about trainees: learning experience, cultural part, attitudes, reasons for learning English language

- To collect English language information about the participants: strengths and challenges in the learning process, language proficiency level

- To identify subjects' lacks

- To gather data about language learning information: Effective strategies/techniques that are utilized in the learning process

- To identify communicative needs of the learners

The participants were selected from Turin Polytechnic University in Tashkent. Research study comprises 20 subjects of Information Technology faculty who study for a master's degree. The age of the participants varies between 24 - 40 years old. There are 3 females and 17 males. The students are from Uzbek, Russian, and Korean backgrounds. English language is taught as a foreign language and they are prepared for the IELTS, TOEFL and CEFR exams, since university admission requirements have proficiency certificate parts. To collect concise data about their education system, integrated IT subjects, course syllabuses and curriculums, the role of English language in students' future life, perceptions of the

trainees and their expectations, it was decided to conduct discussions with an employer and employees. Then semi-structured interviews from ESP specialists were also employed since their knowledge and experience are considered to be essential in this research work.

The selected trainees had extra English classes. For this reason, the researcher utilized this opportunity in order to observe students and created a special observation rubric. Several students were in the General English course. Valuable information was gathered by observing students. This could give precise data about participants which helped researchers to design the questions for semi-structured interviews with ESP teachers. Zoom conferences were organized in order to take semi-structured interviews from each subject. Some participants had challenges in keeping eye-contact in the interviews. However, students were not forced to keep an eye-contact since it was considered a cultural part. The data which was collected from Observation and Semi-structured interviews were used in making the items for questionnaires. Google forms app was incorporated in the survey. The level of the participants was checked with the help of international proficiency test certificates, as they had been supposed to provide IELTS, TOEFL or CEFR certificates to enroll for their master's degree.

LITERATURE REVIEW

Needs analysis is considered as a core element of English for Specific Purposes (ESP) course design as it enables educators to examine learners'



target language requirements and formulate correct pedagogical instructions that meets specific and professional needs. According to Basturkmen (2024), needs analysis provides a systematic process for collecting information about learners' current abilities, target situations, and learning preferences. Contemporary ESP research accentuates that needs analysis should be viewed as a continuous process rather than a one-time activity, allowing course designers to adjust curricula to evolving educational and workplace demands. One of the most influential frameworks for ESP needs analysis was proposed by Dudley-Evans and St John (1998). Their model incorporates target situation analysis, present situation analysis, learning needs analysis, and environmental analysis, providing a comprehensive understanding of learners' linguistic and professional requirements. More recent studies emphasize a multidimensional approach that gathers information from multiple stakeholders, including learners, instructors, employers, and industry representatives (Serafini et al., 2023). This approach enhances the validity and reliability of findings by capturing different perspectives on language use in professional contexts.

The importance of needs analysis has become particularly evident in Information Technology (IT) education. As English operates as the dominant language of software development, technical documentation, and international collaboration, IT professionals are expected to demonstrate strong communicative competence alongside technical

expertise (Rahman & Singh, 2023). Research has revealed that IT specialists frequently engage in activities such as writing emails, preparing technical reports, participating in virtual meetings, delivering presentations, and communicating with international clients (Alshumaimeri & Almohaisen, 2024). Consequently, ESP courses for IT students should address both receptive and productive language skills while emphasizing industry-specific terminology and workplace communication.

Researchers also indicate the importance of employing multiple data collection methods during needs analysis. Questionnaires, interviews, classroom observations, and proficiency tests such as IELTS, TOEFL, and CEFR-based assessments provide comprehensive information about learners' current abilities and target language needs (Long, 2024). Furthermore, the results of needs analysis play a significant role in syllabus design. Modern ESP curricula increasingly incorporate authentic materials, task-based learning, and communicative approaches that reflect real-world professional situations (Hyland, 2023). Authentic resources, including technical manuals, software documentation, and project reports, enhance learner motivation and facilitate the transfer of classroom learning to workplace contexts (Belcher, 2022). Therefore, comprehensive needs analysis remains essential for developing effective ESP programs that prepare IT students for academic success and professional communication in global environments.



METHODOLOGY

A triangular approach was selected as the most appropriate one due to several reasons. Firstly, the course organizers need a clear picture of learners' needs by data collection from both parties, namely employees and employers to be able to compare them (Cowling, 2007). Besides, multiple sources and methods such as discussion with a client, semi-structured discussions with ESP teachers, open-ended questionnaires created with the help of Google forms, and IELTS, TOEFL, CEFR proficiency certificates enable to increase the credibility of the course and the quality of collected data (Long, 2005). Yet, having too many data sources may confuse the syllabus process, and to be able to filter inaccuracies in the work a triangular approach has been selected. As Richards (2011) stated this approach might give more concise data in the study.

The outlined below research instruments were used as data sources in the study:

Data collection tool 1: A discussion with a client

As Turin University is the client who needs its graduate students to level up their English for specific purposes, they are responsible for funding. Considering the "opportunity cost" (Swales, 1989) and the expectations of the organization, it is hoped to have detailed information about the kind of syllabus to be designed further.

Data collection tool 2: Semi-structured discussion with ESP instructors

The experience and viewpoints of ESP specialists in conducting needs

analysis and designing ESP course syllabus is crucial since they could give precise information about potential learning problems, students' challenges and their subjective needs based on teaching experiences (Cowling, 2006). For this reason, semi-structured interviews were employed among ESP instructors in order to get beneficial insights.

Data collection tool 3: Observation

This research method is considered as participatory study since the researcher is immersed in the learning process of the participants. There are two types of this data collection method: Structured and Unstructured. The research tool is employed by utilizing specific variables and according to the present timetable in systematic observation. On the other hand, if the research tool is conducted in free and open mode, it is considered as unstructured observation. Precise information might be gathered with the help of this data collection method in natural settings and when the respondents are not willing to answer (Basturkmen, 2010). This research study selected structured observation.

Data collection tool 4: Questionnaires through Google form

Questionnaires are widely utilized applicable tools, especially in such quarantine periods where research participants are unable to attend the university frequently. This data collection technique is considered as easy to prepare and can be employed with a huge number of participants. Data that is collected with the help of this instrument is quite convenient to chart and analyze (Motteram, 2011).



Additionally, clear information might be obtained about disparate trainees' problems at once, namely challenges in speaking, utilization of language, learning styles, activities of interest, attitudes, and belief systems of the students (Richards, 2011). Questionnaires consist of structured and unstructured items. Subjects select one answer from suggested responses in structured questions. On the other hand, they are free to write their own answers in unstructured items which are also called as open-ended questions. The combination of these two kinds of items are utilized in designing the questionnaires.

Data collection tool 5: Interviews from the students

This type of research instrument is selected since it can give an opportunity for the researchers to elicit non-verbal data which cannot be obtained with the help of questionnaires. In addition, it helps to explore possible issues thoroughly (Richards, 2011). Online semi-structured interviews are selected and employed before designing questionnaires since researchers' preliminary objective was to collect adequate information about participants' issues and design the questionnaire according to gathered results.

Data collection tool 6: English proficiency tests (IELTS, TOEFL, CEFR)

International standardized tests are specifically designed for non-native English speakers to check their language proficiency level for immigrational and educational purposes. Both receptive and productive skills of the learners are assessed. International tests were proved for validity and reliability by

experts. Thus, international students take high stakes annually around the world for different reasons (Alhija, 2007). The graduate students of Turin university are required to submit one of the International tests certificates which can demonstrate their language proficiency and students are trained accordingly. For this reason, standardized tests are selected in order to check the level of the participants which can be a basement for the researchers in developing ESP course syllabus.

RESEARCH FINDINGS & DISCUSSION

The research was started with a background discussion with the employer, specifically the rector Turin Polytechnic University in Tashkent, because he has had the information about the organization and employees which could contribute to the course efficiency. The discussion took place in a formal condition which was recorded and scrapped. According to the results of the discussion, the organization needs to prepare the graduate students for IT companies who collaborate with foreign investors. Even though participants have been asked to submit proficiency test results with minimum upper-intermediate level (IELTS 6.0), they may have some regress in communication with the clients in their current workplaces. Besides, the university awards international IT specialist degrees which strictly require the students to be fluent in English for Information Technology purposes and be recognized globally. The main purpose of organizing ESP courses for them is to be appropriate to the quality of education

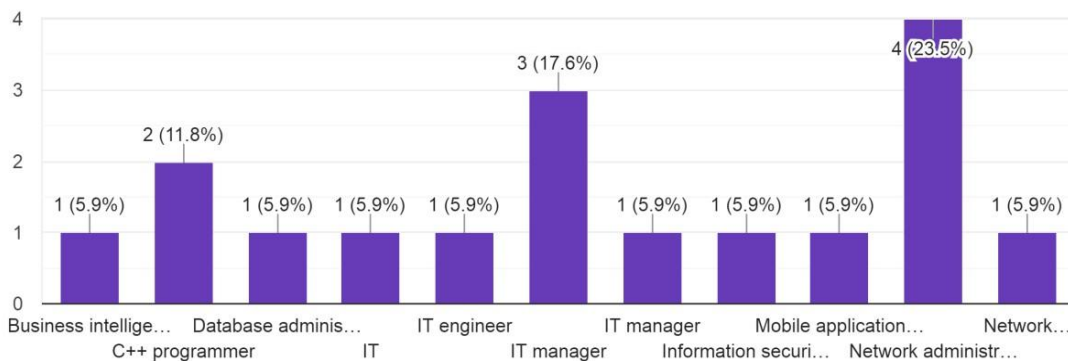


and keep the reputation being among top 1000 universities of the world rank. The rector was interested in the process and advised to collaborate with Foreign languages department of the university in case of any help passing all responsibility of the course over to the specialists who would work in course design.

As for semi-structured discussion with 3 ESP instructors, they were receptive and eager to collaborate enough providing useful feedback which was essential for the course designer. Additionally, being provided a Google questionnaire results from the participants, ESP instructors shared personal experience in EITP teaching and

What is your specialty ?

17 responses



(b) English ability of the participants: they ranged from intermediate to upper intermediate level with similar overall 6.0 from IELTS proficiency test. The copies of their IELTS have been collected and attached to the internal document set for confidentiality purposes. As for the length of language learning, the students have had an

the list of coursebooks which may be useful. The data gathered from this discussion is as follows:

(a) The target group varies in nine specializations including network administrators, IT managers, C++ programmers, Information security specialist, a mobile application developer, IT engineer, Business Intelligence developer and IT and Database administrator (see Figure 1). This information requires the course designer to include the topic-related content that unites all of them in the course helping them to find something in common.

Figure 1

experience which started from lyceum and school times. Considering their working experiences in the IT sphere which is between one and ten years (see Figure 2), they highlighted the role of English in their career as one of the most dominant and highly-prioritized one (see Figures 3, 4).

Figure 2

How long have you been working in IT field?

17 responses

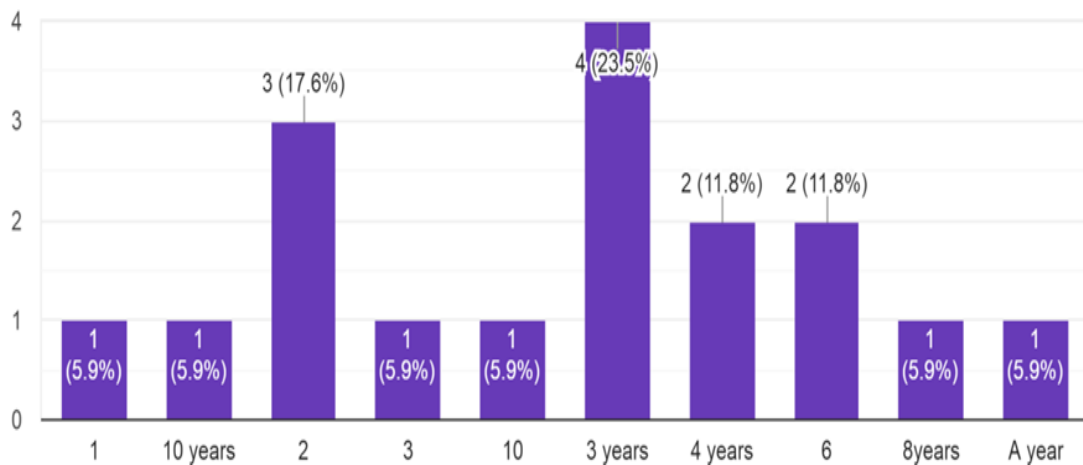


Figure 3

What languages do you use in working process?

17 responses

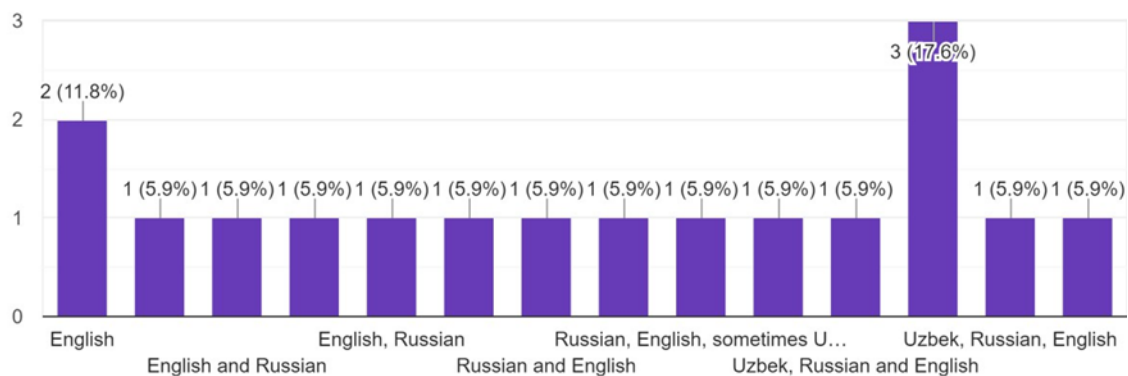
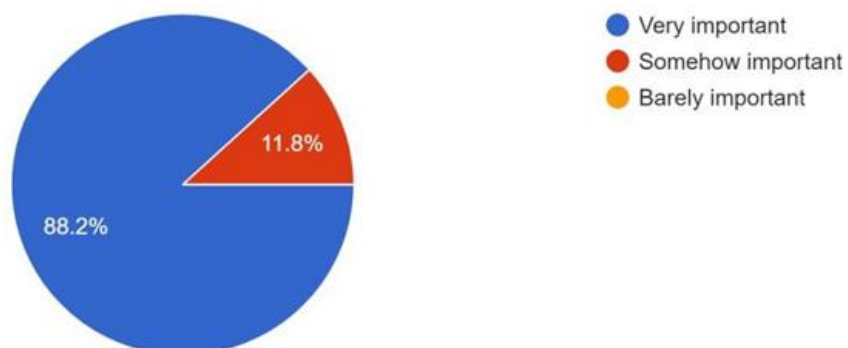


Figure 4

What is role of English in your career?

17 responses



(c) Although they have mastered intermediate and upper - intermediate level of English, they mentioned the frequency of challenges which occur in

using target language in written real-life work conditions (see Figure 5). This happens especially dealing with clients' inquiries in case of system problems.

How often do you face challenges in understanding content of your work which is written in English?

17 responses

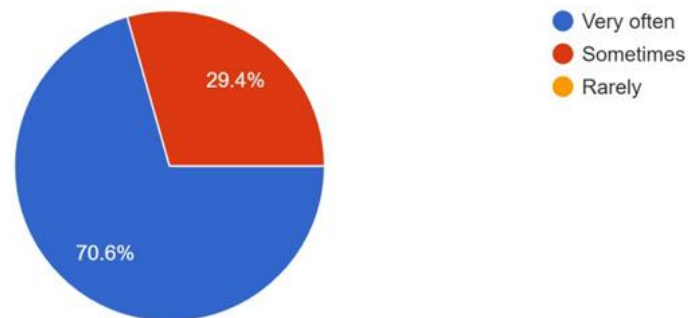


Figure 5

(d) As regards for the target students` future needs, all four skills were selected as the most important one (see Figure 6). This is because most IT specialists have to use English for reading the content, writing the codes of

Which skills are the most important for your job?

17 responses

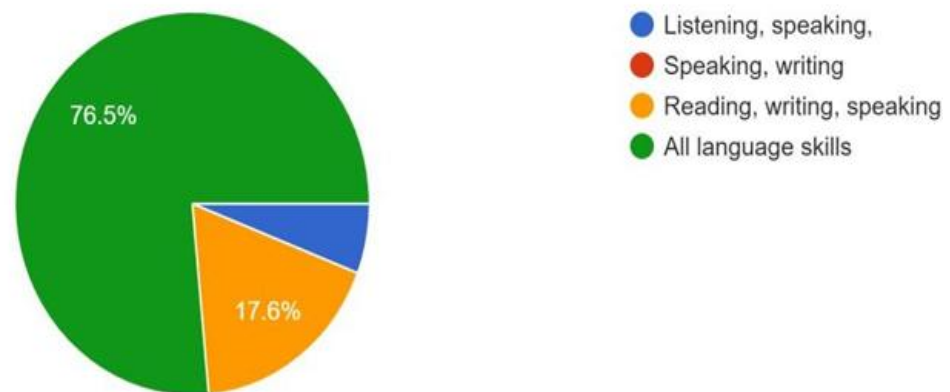


Figure 6

Besides, they prioritized the terminology status in the course with presentation skills in target language, because in an informal discussion they

various programmers, listening to the complaints from the clients concerning technical issues and speaking skills while interacting with them and giving the directions on the phone and face-to-face meetings.

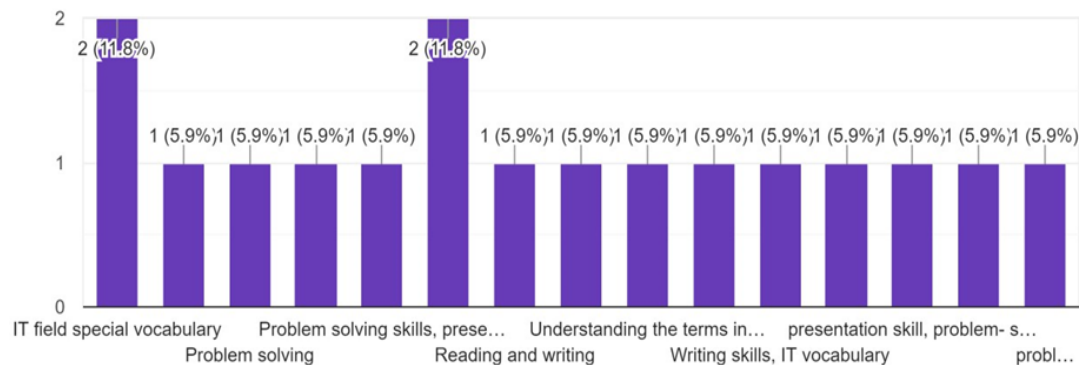
admitted the practice of written English may occur more, whereas public speaking and problem-solving skills may lag behind (see Figure 7).

Figure 7



What other skills do you need to develop regarding learning English?

17 responses



As for the interview with the participants, their stances as learners provided in an informal occasion were important in considering the sensitivity of the issue. They all were in-service learners who are able to advocate for themselves and be open with their needs (Long, 2005). While being questioned, they were comfortable with open-ended questions discussing their own weaknesses and strengths in target language in work-occasions. Moreover, they were unaware of what kind of topics could be included in their course being limited with only terminology.

Majority described how they felt in instances of contact with foreign clients, which turned into negative experience at times (Richterich, 1973). Especially the moments in which they felt uncomfortable handling the cultural aspects of interaction in technical problems with angry clients, because in Uzbek culture, people keep mutual respect even in problematic situations.

CONCLUSION

The detailed process of NA research has contributed to having a fruitful collaboration among parties and resulted in syllabus design which was accepted by the client. All necessary materials, course books and manuals for the teachers were

selected with the main emphasis on authenticity to boost all language skills (Hilliard, 2014). Besides, the instructors were encouraged to incorporate pragmatic norms within the teaching process and cultural aspect guidelines and pointers have been included in manuals (Isihara and Cohen, 2010).

Considering the language skills and learning styles of the participants, in order to develop team working and negotiation skills, a variety of differentiation activities which support CLT, task-based and project-based approaches were included in the syllabus. This will enable the instructor to create the atmosphere of freedom in which the learners are welcomed to improve communicative skills dealing with peers (Korsko, 2004). Additionally, in the material design process, Nunan's (1988) six principles were used so that the learners could apply learnt information not only in the classroom, but also beyond it. As the finalizing point, considering the necessity of topic-related vocabulary, it was decided to teach new words through noticing in a new context (Newton, 2001).

As regards for methods deployment, the syllabus is based on Post-Methods era framework by



Kumaravadivelu (2003) having the features of CLT, task-based and project-based approaches to expand learning opportunities at the same time accommodating learner needs.

To conclude, the NA process served to fulfill the conditions organized by Turin University to provide adequate ESP training which would be useful for their Information technology workings.

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