

Hackathon in Differentiated English for Specific Purposes Instruction of Information Technology Students

Oksana Synekop 

Department of English for Specific Purposes. National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute”, 37 Beresteyskiy Avenue, Kyiv, 03056, Ukraine

* Correspondence: oksana.synekop@gmail.com

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Abstract

The current study aims to check the effectiveness of differentiated English for Specific Purposes (ESP) instruction using the hackathon. This study used the mixed research method. The participants of the study were 24 Information Technology (IT) students of the Physics and Technology Institute of National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” who voluntarily took part in the study in 2022-2023. They were divided into two experimental groups and differentiated according to the social roles and the level of English language proficiency. Sensory, interactive and graphic scaffolding as the temporary assistance was integrated in the educational process. As shown by the results of the experimental learning, the second group, where the IT students performed auxiliary roles and the duration of scaffolding use was defined by both students and teachers, demonstrated significantly better results than the first group, where the IT students performed auxiliary roles and the duration of scaffolding use was defined by IT students only. Scaffolding should be regulated by both the teacher and the students. It was concluded that the use of hackathon with a focus on learners’ differentiation helps to diversify ESP learning at technical university and facilitates the development of professional communicative skills (speaking and writing) as well as other soft and hard skills.

Keywords: differentiated English for Specific Purposes instruction; IT students; hackathon; scaffolding; foreign language communication competence in speaking and writing.

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1. Introduction

With the rapid digitalization throughout the world, teachers at technical universities need to search for effective ways of training highly qualified specialists in the field of information technologies (IT). To meet the contemporary professional requirements, IT specialists should have adequate professional knowledge and skills, the ability to adapt to constantly updating IT sphere, to predict and analyze the decisions based on the modeling of information processes, to find solutions in non-standard situations, to think independently and creatively. Additionally, to be a successful IT specialist it is important to have a high level of foreign languages communication competence for satisfying professional needs.

To achieve a positive effect in English for Specific Purposes (ESP) learning, teachers may use different approaches, one of the most effective of which is the differentiation of students with the creation of conditions for communication taking into account the specifics of the real professional environment in the IT field.

2. Literature review

2.1. Differentiated instruction in ESP learning

Understanding the methods and approaches used in the IT sphere can be beneficial in teaching English for Specific Purposes (ESP) through communicative situations, projects, simulations, and other interactive techniques. One of the approaches used by IT companies for software development is differentiation. For a more full comprehension of possibilities for using this approach in teaching ESP to IT students, it is important to mention the key attributes of an individual which were identified by specialists in the IT field as those that should be taken into account when applying differentiation in creating new software. One of them is intrinsic motivation. Curtis (1991), for example, studied the intrinsic motivation of programmers to understand how a machine or a system works. He found out that “some people are simply more motivated to learn about things, such as how systems operate” and argued that “this may contribute to why breadth of experience is a better predictor of performance than length of experience” (Curtis, 1991, p. 148). Matturro, Raschetti, and Fontan (2015) outlined some valued skills of

members of software development teams, among which are leadership and communication skills, interpersonal skills, teamwork, analytic, problem-solving skills, commitment, responsibility, eagerness to learn, motivation (Matturro, Raschetti, and Fontan, 2015). They emphasized that “besides technical knowledge and experience, the so called “soft skills” of team members are also an important factor in software engineering projects” (Matturro, Raschetti, Fontan, 2015, p. 101). Sadowski and Zimmermann (2019) determine four lenses of productivity in software development. They argue that “individual developers, teams, organizations, and markets are so idiosyncratic that each may need its own unique measures of performance that capture a valid notion of their work output (productivity, speed, product quality, actual versus plan, etc.)” (Sadowski and Zimmermann, 2019, p. 53). Therefore, researchers believe that taking into account the individual features of IT specialists can increase their productivity and improve the quality of software development. Moreover, there is a need to develop hard and soft skills both in specialism disciplines and ESP classes at university.

The individual features of future IT specialists necessary for their professional activity can be developed in ESP classes through learning communication as their main soft skill. Communication in a foreign language in a professional context requires the activation of rather complex patterns and mechanisms of individual perception, processing, understanding, and exchange of oral and written information in the process of interaction between interlocutors. This means that language learners make individual style preferences “by using familiar strategies related to their learning styles” (Oxford, 1992, p. 42). Multidimensionality of students’ learning style relies on motivational (Apter, 2000; Nikolaeva, Synekop, 2020a), cognitive (Oxford, 2003; Synekop, 2018; Felder, Silverman, 1988; Goodarzi, Mirhashemi, 2013), regulation (Goodarzi, Mirhashemi, 2013; Synekop, 2020), social (Oxford, 2003; Guild, 2001; Nikolaeva, Synekop, 2020b) and biological (Oxford, 2003) aspects. When teaching foreign language communication skills to IT students it is particularly important to consider the motivational, cognitive, social, and regulation aspects (Synekop, 2023). The social aspect was particularly relevant for the differentiation of IT students according to their learning style, since in our study they were engaged in diverse social roles (behaviors, norms, rights, and obligations) in communicative situations in ESP classes.

Another type of differentiation is based on students’ language proficiency level which is a key factor of successful communication in a foreign language. Since the required level of applicants’

language proficiency for entering the university is B1, IT bachelor degree students predominantly have B1 (intermediate level) or B2 (upper intermediate level) according to the Common European Framework of Reference for Languages (CEFR, 2018). Higher foreign language proficiency levels of students foster the development of their communication competence in the professional context.

Differentiation in ESP instruction of IT students is based on Vygotsky's (2012) psychological concept of the "zone of proximal development" which is defined as the difference between the levels of complexity of communicative tasks that a student is able to do autonomously depending on his/her language proficiency level, and the tasks that a student can do if he/she receives certain help / support / scaffolding (in course of time the student will be able to do these tasks independently). With a focus on students' unique psychological characteristics, the mentioned concept promotes continuous development of English language skills and abilities for IT students throughout the educational process, from diagnosing their current level of foreign language proficiency and identifying their zone of proximal development to achieving the strategic goal of a higher level of foreign language proficiency. Thus, differentiated instruction as an effective tool for developing the language communication competence in ESP classes relies both on students' English language proficiency level, and on stimulating students' individual potential through the adaptation of teaching and learning to individual psychological features and needs of participants (Synekop, 2023).

Understanding how differentiated instruction can be realized in ESP learning is important, as ESP teachers use real business problems of the IT field in the educational process to create professional communicative environment which fosters the development of students' hard (professional) and soft skills, motivates them to learn through professional and communicative experience. The main task of ESP teachers is to "bring an expertise in communicative practices to the subject skills and knowledge of those working in particular target areas" (Hyland, 2022, p. 213). At the same time "learners need to acquire a specific literacy competence together with the knowledge and tradecraft of their professions, so subject knowledge becomes the context for learning language" (Hyland, 2022, p. 213). The focus on real business problems allows for the practical application of knowledge, enabling students to address their specific needs through authentic communicative situations. This approach not only exposes students to a wide variety of

language but also fosters their sense of responsibility for their own learning (Lytovchenko, Lavrysh, Lukianenko and Ogienko, 2020).

2.2. Hackathon concept

The term “hackathon” as a project activity that reflects the features of work in the IT field needs clarification. It is composed of the words “hacking” and “marathon” and implies an intense, uninterrupted, period of programming (Komssi, Pichlis, Raatikainen, Kindstrom, Jarvinen, 2015, p. 60). According to Calco and Veeck (2015), a hackathon is “an event where computer programmers, developers, and designers collaborate intensively in teams, at a specified venue, under tight timelines, with the aim of solving complex software-related problems or producing innovative technologies” (Calco and Veeck, 2015: 67). Additionally, hackathons effectively address the need to transform an idea into something concrete and demonstrable in a very short period of time (Calco, Veeck, 2015, p. 67).

Overall, these studies raise a number of important issues:

- Is differentiation important for the development of IT specialists’ hard and soft skills?
- What kinds of differentiation are singled out in ESP teaching?
- How can differentiated instruction be realized in ESP courses?
- What kind of projects is called a hackathon in the IT sphere?

However, far too little attention has been paid in literature to the possibilities of the use of hackathon in differentiated ESP instruction of IT students at technical university. To address the gap in the knowledge, we undertook our research with the aim of gaining a comprehensive understanding of the topic.

3. The Aim of the Study

Thus, the aim of this study is to analyze the efficiency of differentiated ESP instruction using the hackathon method.

4. Methods

4.1. Research design

The current study used the mixed research methodology. The quantitative research method was employed to determine the effectiveness of the methodology of differentiated ESP instruction using the hackathon. Qualitative research method was used to analyze the data received during the experimental learning and define the recommendations for the organization of hackathon in differentiated ESP instruction.

4.2. Research participants

The study was held at National Technical University of Ukraine “Igor Sikorsky Kyiv Polytechnic Institute” in 2022-2023 and involved 24 students of the Physics and Technology Institute. Participation in the study was voluntary, and participants were informed that they could withdraw at any time without facing any consequences or penalties.

4.3. Research instruments and procedures

The research involved three stages.

Initially, two experimental groups of IT students were formed randomly. In the first experimental group (EG-1) the duration of using scaffolding was defined by the students, in the second experimental group (EG-2) it was defined by the students and the teachers. At this stage the students were offered a pre-test for defining their English language proficiency level as low, average or high.

The pre-test consisted of two parts: oral and written. The oral part included a speaking production task, in which the students had to present professional information and express their opinion on a suggested topic, and a speaking interaction task in which professional situations were suggested for active discussion. The written part implied writing a research report. The maximum score for the test was 60.

The speaking production (total 20 points) was evaluated based on the following criteria: text content and organization, phonetic accuracy, use of a range of grammar and vocabulary, stylistic

correctness, fluency. The criteria set for speaking interaction evaluation (total 20 points) included: relevance to the ESP situation, phonetic accuracy, use of a range of grammar and vocabulary accuracy, stylistic correctness, fluency, interactivity. The criteria for the writing task evaluation (total 20 points) were: the quality of content, organization and cohesion, language accuracy, length of the text.

The Low Level of English language proficiency (3-8 scores) in speaking and writing meant that the student's answer was limited in content, used only basic grammar and vocabulary, contained frequent mistakes (pronunciation, grammatical, vocabulary, stylistic), lacked fluency, interactivity, proper organization and length of the text.

The Medium Level of English language proficiency (9-14 scores) in speaking and writing meant that the student's response demonstrated generally effective content, sufficient range of grammar and vocabulary, contained some mistakes (pronunciation, grammatical, vocabulary, stylistic), was characterized by adequate organization of the text, adequate fluency and interactivity, sufficient length of the text.

The High Level of foreign language proficiency (15-20 scores) in speaking and writing meant that the response of an IT student presented very effective content, a wide range of grammar and vocabulary, contained very few mistakes (pronunciation, grammatical, vocabulary, stylistic), was characterized by high-level organization of the text, appropriate fluency and interactivity, sufficient length of the text.

At the second stage, differentiated ESP instruction using the hackathon method was provided. At the pre-hackathon stage, IT students were focused on the meaning of the word "hackathon", its stages, different ideas related to the phenomenon of hackathon. The grammar and lexical exercises were differentiated according to the students' level of English language proficiency (foreign language proficiency levels of IT students could vary predominantly from B1 to B2 according to Common European Framework of Reference for Languages (CEFR, 2018). The students in each group defined the aim and a final product and then were divided into two sub-groups according to their interests.

In the hackathon team, IT students performed different roles. Based on Belbin's questionnaire (1981; 2010), the dominant and auxiliary roles of students were determined. As stated by Belbin (1981; 2010), a person is able to perform more than one team role. Dominant roles are those which are preferable, leading and widely used by IT students. Auxiliary roles are considered as a reserve potential of IT students. In order to expand the range of social roles of IT students and at the same time develop the relevant skills, they were offered to perform only auxiliary roles. Thus, all students were in equal conditions. According to Belbin (1981; 2010), the team roles are: a manager who co-ordinates, organizes the working process, plans strategically, delegates tasks; an analyst who analyzes information from different perspectives, solves analytical problems; a designer who develops, tests, implements ideas and writes reports.

Performing dominant roles does not require scaffolding that is defined as "a special kind of help that assists learners in moving toward new skills, concepts, or levels of understanding" (Gibbons, 2015, p. 16) and "the temporary assistance by which a teacher helps a learner know how to do something so that the learner will later be able to complete a similar task alone" (Gibbons, 2015, p. 16). On the contrary, auxiliary roles require usage of scaffolding. Different types of scaffolding were suggested by ESP teachers and IT students: first of all, sensory scaffolding (different videos about the stages in a hackathon, recommendations how to win a hackathon, hackathon roles, required skills to participate in a hackathon, information on how to write a report) which is necessary for understanding how the hackathon works and what the requirements to writing reports are; secondly, interactive scaffolding (work in pairs and small groups) – for planning, synthesizing information, developing soft skills (speaking interaction and production skills, listening skills, leadership and teamwork skills, flexibility and reliability, time-management and problem-solving skills), thirdly, graphic scaffolding (tables with key words, phrases, graphs with a set of steps for solving some tasks) – for seeing the dynamics of generated ideas.

After distributing the roles, a prototype was discussed and created (a portrait of an average user of the final software product: his / her purpose for using the product, education, motivation, skills, expectations, geographical location, as well as channels, technologies and browsers he / she uses).

At the hackathon stage, the software product developing, software product testing and bug fixing were realized. These tasks were done under control of teachers of IT disciplines. Then the students wrote a report and created a final presentation. The software product was assessed according to technical criteria (functionality, control, security, support, testability) by the students and IT specialty teachers. The research report was assessed by IT students and ESP teachers according to the following criteria: content, organization, language. Additionally, the team work was assessed by ESP teachers and students according to the contribution of each student.

At the third stage, the post-test was suggested which involved speaking production, speaking interaction and written report tasks. The assessment criteria were the same as those for the pre-test. The level of students' English language proficiency was defined.

4.4. Data analysis

The results of the experimental learning were processed automatically using Fisher's coefficient. The received data was compared and interpreted.

5. Results

In order to define the effectiveness of using the hackathon in conditions of the differentiated ESP instruction, we defined the IT students' level of speaking and writing skills as low, average and high according to the above mentioned criteria. The obtained results showed that at the beginning of the experimental learning the levels of speaking (production and interaction) and writing skills in both experimental groups were almost the same. After the experimental learning, significantly better results were demonstrated in EG-2, where the IT students performed auxiliary roles and the duration of scaffolding use was defined by both students and teachers, than in EG-1, where IT students performed auxiliary roles and the duration of scaffolding use was defined by students only.

According to the results of the post-testing (See Table 2), in EG-2 only 1 (8%) student showed a low level of speaking interaction competence, while in EG-1 the number of such students was 50% higher (7 (58%) students). The same 50% difference between these two groups was revealed

in the number of students who demonstrated a low level of speaking production competence (2 (17%) students in EG-2 vs 8 (67%) students in EG-1). As for the number of students with a low level of writing proficiency, the gap between the groups was slightly less pronounced, but still considerable (1 (8%) student in EG-2 vs 6 (50%) students in EG-1).

The medium level proficiency in speaking interaction was achieved by 5 students (42%) in EG-2, which was more than twice the number of those who achieved it in EG-1, where only 2 students (17%) reached this level. The number of students with the medium level in speaking production was also considerably higher in EG-2 (6 (50%) students) than in EG-1 (1 (8%) student). However, the number of students attaining a medium level in writing was identical in both groups, with 3 students (25%) in each.

A high level of speaking interaction competence was demonstrated by twice as many individuals in EG-2 (6 (50%)) compared to EG-1 (3 (25%)). In speaking production, however, a high level competence was achieved by approximately the same number of students in both groups – 3 (25%) in EG-1 and 4 (33%) in EG-2. A significant difference was observed between the two groups in the number of students with a high level of writing competence – 8 students (67%) in EG-2 compared to 3 students (25%) in EG-1, which indicates that the proportion of them in EG-2 was nearly three times higher.

Table 1 The levels of English language proficiency of IT students.

| Number of IT students in experimental groups | Pre-test | | | Post-test | | |
|--|----------|---------|----------|-----------|---------|---------|
| | High | Medium | Low | High | Medium | Low |
| Speaking Interaction | | | | | | |
| EG-1 | 1 (8%) | 3 (25%) | 8 (67%) | 3 (25%) | 2 (17%) | 7 (58%) |
| EG-2 | 2 (17%) | 3 (25%) | 7 (58%) | 6 (50%) | 5 (42%) | 1 (8%) |
| Speaking Production | | | | | | |
| EG-1 | 1 (8%) | 2 (17%) | 9 (75%) | 3 (25%) | 1 (8%) | 8 (67%) |
| EG-2 | 0 (0%) | 2 (17%) | 10 (83%) | 4 (33%) | 6 (50%) | 2 (17%) |
| Writing | | | | | | |
| EG-1 | 2 (17%) | 3 (25%) | 7 (58%) | 3 (25%) | 3 (25%) | 6 (50%) |
| EG-2 | 1 (8%) | 5 (42%) | 6 (50%) | 8 (67%) | 3 (25%) | 1 (8%) |

The Fisher Criterion (Psychological methods and tests, 2023) was applied for defining which group of IT students demonstrated a higher result in the development of speaking and writing skills. The following hypotheses were formulated:

H_0 : the percentage of IT students who increased their level of English language proficiency (speaking interaction, speaking production and writing skills) in EG-2 is not significantly bigger than in EG-1, as evidenced by the obtained results.

H_1 : the percentage of IT students who increased their level of English language proficiency (speaking interaction, speaking production and writing skills) in EG-2 is significantly bigger than in EG-1, as evidenced by the obtained results.

The IT students who achieved high and medium levels of English language proficiency were considered to have gained an “effect” during the experimental learning and the IT students who acquired a low level of English language proficiency were considered to have not achieved an “effect” during the experiment.

The Fisher formula (Psychological methods and tests, 2023)

$$\varphi^*_{emp.} = (\varphi_1 - \varphi_2) \cdot \sqrt{\frac{n_1 \cdot n_2}{n_1 + n_2}} \quad (1)$$

made it possible to obtain $\varphi^*_{emp.}$ that showed the degree of effectiveness in speaking interaction, where $\varphi_1 = 91.7\%$, $\varphi_2 = 41.7\%$, $n_1 = 12$ and $n_2 = 12$ (number of IT students in EG-1 and EG-2). See Table 2. Using the software (Psychological methods and tests, 2023), we calculated the formula automatically and obtained $\varphi^*_{emp.} = 2.82$. The effectiveness of speaking production was represented by the value of $\varphi^*_{emp.} = 2.62$ (where $\varphi_1 = 83.3\%$ and $\varphi_2 = 33.3\%$ (See Table 2)) and the effectiveness of writing – by the value of $\varphi^*_{emp.} = 2.41$ (where $\varphi_1 = 91.7\%$ and $\varphi_2 = 50\%$).

Table 2 The degree of effectiveness of learning outcomes in experimental groups.

| Experimental groups | “Effect” in learning | “No effect” in learning | Total |
|-----------------------------|---------------------------|---------------------------|-----------|
| | Number of IT students (%) | Number of IT students (%) | |
| Speaking Interaction | | | |
| EG-1 | 5 (41.7%) | 7 (58.3%) | 12 (100%) |
| EG-2 | 11 (91.7%) | 1 (8.3%) | 12 (100%) |
| Speaking Production | | | |
| EG-1 | 4 (33.3%) | 8 (66.7%) | 12 (100%) |

| | | | |
|----------------|------------|-----------|-----------|
| EG-2 | 10 (83.3%) | 2 (16.7%) | 12 (100%) |
| Writing | | | |
| EG-1 | 6 (50%) | 6 (50%) | 12 (100%) |
| EG-2 | 11 (91.7%) | 1 (8.3%) | 12 (100%) |

The received values of $\varphi^*_{emp.} = 2.82$ for speaking interaction, $\varphi^*_{emp.} = 2.62$ for speaking production and $\varphi^*_{emp.} = 2.41$ for writing are greater than 2.31. Thus, 2.82, 2.62 and 2.41 are in the significance zone, according to Fisher (Psychological methods and tests, 2023). So, only hypothesis H_1 is true, which means that the percentage of IT students who increased the level of English language proficiency (speaking interaction, speaking production, writing skills) in EG-2 was significantly bigger than in EG-1. Thus the learning results in the group where the students performed auxiliary roles and the duration of scaffolding use was defined by the students and the teachers (EG-2) were better than in the group where the students performed auxiliary roles and the duration of scaffolding use was defined by the students only (EG-1).

6. Discussion

The results of our study devoted to the implementation of hackathon method in differentiated ESP teaching of IT students have shown a positive dynamics.

The hackathon allowed ESP teacher to create conditions close to real professional environment which promote IT students' practical experience while developing new software. IT students had an opportunity to develop job-specific skills (hard skills) including analytical and designing skills, frontend and backend development skills, project management skills, testing skills and technical writing skills. The development of these skills was guided by a teacher of the IT discipline. The ESP teacher's priority was the development of language communication skills and soft skills in the professional context.

The role of the IT specialty teacher in ESP classes is important. Collaboration between an ESP teacher and an IT specialty teacher can involve not only "the specialist acting as a consultant, assisting the ESP teacher to select authentic texts and tasks", but also his collaboration "directly with ESP teacher, either in a team-teaching relationship or through a linked course which runs

parallel with the ESP course” (Hyland, 2022, p. 213). ESP teachers and IT specialty teachers have different teaching aims since they teach different subjects, but have a common strategic goal – the development of students’ professional competence. It means that they are parts of a whole, where each gives significant contribution to the achievement of this goal. The tandem of an ESP teacher and an IT specialty teacher is effective, if their participation is balanced, if teachers work collaboratively and understand that they cannot get effective results alone. Additionally, the collaboration of an ESP teacher “with both students and subject specialists is desirable, if not essential” (Hyland, 2022, p. 213). Incorporating hackathons in the educational process indicates that students acquire their language skills, computer programming and soft skills simultaneously (Mhlongo, Oyetade, & Zuva, 2020).

As the hackathon is a special event realized through teamwork, it is important to pay attention to communication as a soft skill which is developed by means of the English language. Success of the hackathon depends significantly on the development of communication skills because they create a bridge between all the participants of the hackathon team without conflicts, tension, and misunderstandings. Speaking interaction skills are necessary for the effective sharing of information in a team, listening to each other, receiving and providing quality feedback. Speaking production skills are used for presenting information and writing reports.

Simultaneously with the development of communication skills, students enhanced their leadership and teamwork skills, flexibility and reliability, time-management and critical skills. When performing different auxiliary roles in teams, IT students gained experience of problem-solving and cooperative learning, experimented and learned to adapt their behavior to certain roles, broadened their interaction patterns (pairs, small groups), developed and improved their communication skills in the IT field” (Nikolaeva & Synekop, 2020b; Chugai & Svyrydova, 2022).

Differentiation of the social roles helps IT students to perceive and accumulate different patterns of behavior and then combine them in the hackathon. Using scaffolding during the differentiated ESP instruction allows IT students with different individual potential to expand the range of skills through performing various social roles and gradually increase their English language proficiency level with the aim of solving professional communicative tasks in similar to real professional communicative environment. Sensory, interactive and graphic scaffolding should

be organically combined in the educational process and created by both ESP teacher and IT students.

As shown by the results of the experimental learning, the second group, where the IT students performed auxiliary roles and the duration of scaffolding use was defined by both students and teachers, demonstrated significantly better results than the first group, where the IT students performed auxiliary roles and the duration of scaffolding use was defined by IT students only. This can be explained by the fact that some IT students used scaffolding for a too short period of time and then neglected it, which did not allow them to develop the appropriate skills. So scaffolding use regulated by both the teacher and the student affects the strength of IT students' professional communicative skills formation.

Thus, according to Lara and Lockwood (2016), participating in a hackathon helps students improve their soft skills such as project and time-management, interpersonal communication, motivation strategies, and dealing with unexpected issues (2016, p. 490); increase "responsibility towards the completion of the task" (Jaleniauskiene, Leščinskij, Jucevičienė, 2019, p. 323). Also Li and Johnson (2015) emphasize that the hackathon is able to foster learning, harness a spirit of collaboration, and develop a network of engaged individuals who can respond to challenges yet to come (p. 1004). Therefore, on the basis of a hackathon, students' soft and hard skills should be formed in parallel and practiced experientially.

7. Limitations

The scope of this study was limited in terms of the sample size and the research instruments. The research participants consist of only 24 students from the Physics and Technology Institute at the National Technical University of Ukraine "Igor Sikorsky Kyiv Polytechnic Institute". The limited sample size may not fully represent the diverse population of IT students, and the results may not be generalizable to a larger population. The research instruments, such as the pre-test and post-test for English language proficiency, may not capture the full complexity of students' language skills. Relying on a limited set of evaluation criteria may overlook certain aspects of language proficiency. Overall, while the study's mixed research methodology and hackathon-based

differentiated ESP instruction offer valuable insights, these limitations should be taken into account when considering the implications of the findings of this research for broader educational practices.

8. Conclusions

The research showed that the hackathon event allows ESP teachers to create a professional communicative environment as a foundation for enhancing soft and hard skills. Differentiation of IT students according to their learning style with a focus on social roles and the English language proficiency level facilitates the development of speaking (production and interaction) and writing skills. Scaffolding as the temporary assistance that provides differentiation should be created and guided by both the teacher and the students. ESP teachers and IT specialty teachers have distinct teaching objectives due to their respective subject matters, yet they share a shared strategic objective, which is fostering the growth of students' professional abilities. The partnership between an ESP teacher and an IT specialty teacher holds great strength when their involvement in the educational process is well-balanced. Collaborating and recognizing that effective results cannot be achieved in isolation, they utilize the power of teamwork.

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