Technology-Enhanced Task-Based Language Teaching toward Their Self-Directed Language Learning: ESP Learners’ Views

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Abstract
Utilising technologies to enable language learners to accept authentic and communicative assignments is proliferating, but its effect on their self-directed language learning (SDLL) needs to be investigated. To this end, the present study aimed to investigate English for specific purpose (ESP) learners’ views on using technology-enhanced task-based language teaching (TBLT) toward their self-directed language learning. A mixed-method approach with a sequential explanatory design with 103 nursing students as research participants. This study used two research instruments: the Likert scale and an open-ended questionnaire. Descriptive statistics, Path analysis, and thematic analysis were employed to analyse the data. The findings from quantitative data revealed that students’ learning needs and utilising skills of SDLL categories have a strong influence on English mastery after receiving technology-enhanced TBLT. Consequently, ESP students must also improve process planning and use skills. They should be encouraged to schedule more consistent English lessons in and out of class. Meanwhile, the qualitative data disclose that technology-enhanced TBLT assists the learners in improving their language learning, i.e., planning process, completing tasks, and

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internal attributions. ESP students expressed their concerns and reported some challenges in applying language skills during speaking activities. This study implies that ESP lecturers can adopt various ways to assist ESP students in mastering English language goals through technology-enhanced TBLT.

**Keywords:** English for specific purposes, ESP learners, self-directed language learning, technology-enhanced TBLT.

1. **INTRODUCTION**

The practice of teaching English has experienced considerable changes due to the impact of the Covid-19 pandemic by utilising technologies such as internet sources, live online meetings, and learning management systems to well organise the materials. This condition has also affected English instruction, where language teachers must innovate to produce effective and dynamic online learning projects that allow students to continue developing their language skills (Yi & Jang, 2020). The integration of technology and digitalisation of learning has made learning English more effective, practical, and varied with technology (Karademir et al., 2021).

In language teaching related to English for Specific Purposes (ESP), this technology can improve the receptive skills of language learners from online learning resources and facilitate them to demonstrate their productive language skills well (Alizadeh, 2018). However, ESP learning by integrating technology still encounters several obstacles in practice. The obstacles include the difficulty of managing an online classroom effectively, controlling students during the e-learning process, and the low level of student participation in learning (Mulyadi et al., 2020). Another challenge related to ESP instruction is that many ESP lecturers lack knowledge of the specific subject of ESP learners’ discipline and hence cannot share ideas contributing to the desired learning outcomes (Asfihana, 2013).

To cope with the aforementioned obstacles, implementing Task-Based Language Teaching (TBLT) has become an ideal language teaching technique to facilitate students’ English learning engagements and motivation. Numerous scholars have asserted that TBLT is the ideal pedagogical technique for language teaching and learning because it enables students to effectively learn language through authentic communicative tasks (Chen, 2021; Ellis, 2017; Li et al., 2016). Currently, learning technologies like online learning sources and media provide a natural and authentic substrate for successfully implementing the methodological principles of TBLT. In contrast, TBLT provides a pedagogical and rational framework for technology uptake and use (Tavakoli et al., 2019).

Various studies show that integrating TBLT and learning technologies effectively empowers students to master English. As evidence, Technology-enhanced TBLT is effective in improving students’ motivation for reading comprehension (Tavakoli et al., 2019), enhancing ESP learners’ content knowledge and English skills (Tsai, 2015), and fostering EFL learners’ writing proficiency (Wang, 2022). In addition, technology-enhanced TBLT refers to the use of technology and online resources in the mastery of English so that language learners’ self-directed language learning (SDLL) will develop and become more robust. Their SDLL leads them to
practice language skills independently, administer them to identify learning requirements, make goals, determine learning resources, and self-assess their learning results (Lai, 2015; Lai et al., 2017; Moradi, 2018). However, their perceptions of SDLLe after receiving Technology-enhanced TBLT have been rarely investigated. Therefore, the present study investigates ESP learners’ views on implementing Technology-enhanced TBLT toward their SDLLe. The following three research questions were addressed in greater detail in this study.

1. How do ESP learners perceive technology-enhanced TBLT toward their SDLLe?
2. To what extent do correlations exist among students’ SDLLe categories (learning needs, utilising skills, enduring challenges, self-efficacy in learning, planning the process, completing tasks, evaluating the process, internal attribution) after experiencing technology-enhanced TBLT?
3. How do students perceive the benefits and drawbacks of technology-enhanced language instruction on their SDLLe?

2. LITERATURE REVIEW

2.1 Self-Directed Language Learning

Adult learners may expect to be more independent and, therefore, more inclined to engage in self-directed learning than younger learners (Haidari et al., 2019). However, the challenges of this learning can only be achieved if the learners have self-awareness, abilities, and strategies and accept responsibility for their learning (Churchill et al., 2016). In this case, students must have a supportive environment, sufficient time, and authentic context to actively and confidently build shared knowledge with peers, take responsibility for their learning, and become independent learners.

Students who reported having little experience playing were more inclined to have low to moderate levels of self-direction. In contrast, more advanced players reported intermediate to high levels of self-direction. SDLLe is becoming increasingly required in today’s society with widely accessing to online learning resources, as students require the ability to process and assimilate knowledge independently and can study more autonomously (Suh et al., 2015). Cultural expectations were found to play an essential role in determining if students desire to be self-directed learners. The quality of the teacher-student relationship and communication were both found to be important determinants of successful collaboration. These findings suggest that the theoretical application of the SDLLe model could provide teachers with a means to assess and discern their adult students’ learning needs (Leahy & Smith, 2021).

2.2 Technology-Enhanced TBLT

Technology-enhanced TBLTs that are carried out based on the principles of Task-based Language Teaching (TBLT) have demonstrated effectiveness in fostering student-centred learning to increase students’ English communication (Wu et al., 2016). Additionally, these tasks can help them become more motivated to participate in language acquisition (Aliasin et al., 2019). The integration of TBLT and technology in language learning tasks is believed to have great potential in language teaching (Lai
Additionally, studies on task-based learning in ESP learning demonstrate the benefits of interactive learning (Tsai, 2015) and empower students to become more self-sufficient in their English learning (Mulyadi & Prasetyanti, 2016). Thus, emphasising technology-based tasks will likely foster independence and high enthusiasm in ESP learners while improving their English language skills.

2.3 English for Specific Purposes (ESP)

English for specific purposes (ESP) is an approach to the process of learning English that is closely related to the needs of participants (Aliakbari & Boghayeri, 2014; Donesch-jezo, 2012). It typically refers to imparting English language instruction, emphasising specific vocabulary and skills that university students need. Students’ linguistic and communicative needs must be met by ESP instruction focusing on the environment in which they use English upon joining the workforce.

3. METHODS

3.1 Participants

This research was carried out at the Undergraduate Nursing Program of a private university in Central Java, Indonesia. The participants in this study were 103 out of 150 undergraduate nursing students with whom the survey was shared. There were 80 females and 23 males aged between 19 and 22. According to Longman’s TOEFL diagnostical test, their English level was 30%, including intermediate proficiency, and 70% with elementary proficiency.

3.2 Instruments and Data Analysis

A mixed-methods approach with a sequential explanatory design was employed to gather qualitative and quantitative data, so the results were used to comprehend a study issue (Creswell, 2009). Utilising this methodology, the quantitative data with a Likert scale questionnaire as a research instrument were employed to find out the study’s significant findings. Meanwhile, qualitative data were collected during this time to enhance the quantitative data based on participant debriefing.

First, the Likert scale questionnaire was employed using a self-directed language learning (SDLL) questionnaire modified from a self-directed language inventory (Suh et al., 2015). It is a procedure whereby individuals take the initiative, with or without assistance from others, to diagnose their learning requirements, formulate learning goals, locate learning materials, select and use suitable learning strategies, and assess the results of their efforts. This SDLL questionnaire involves eight categories. They comprise learning needs, utilising skills, enduring challenges, self-efficacy in learning, planning the process, completing tasks, evaluating the process, and internal attribution. After pilot testing, this questionnaire was statistically validated.

The Likert scale findings were examined and analysed using descriptive statistics with SPSS 21, including means and standard deviation. The typical value ranges between 1 and 2.5, suggesting a low level of ESP learners’ SDLL, 2.6–3.5, a
medium level, and 3.6–5, indicating a high level. Once the descriptive analysis was completed, the data were evaluated using Path analysis utilising AMOS 23. This Path analysis was conducted as a form of multiple regression to determine whether a multivariate set of observable variables fit a hypothesised model to examine the causal relationships among categories (Kline, 2016). In the present study, the categories of the SDLL questionnaire comprising learning needs, utilising skills, enduring challenges, self-efficacy in learning, planning the process, completing tasks, evaluating the process, and internal attribution were analysed with path analysis. Subsequently, the results of this analysis were analysed to determine the strength of the relationship among variables based on the Interpretation criteria of correlation coefficient results (Sugiyono, 2019), i.e., very high correlation (r = .800 - 1.000), high correlation (r = .600 - .799), medium correlation (r = 0.400 - 0.599), low correlation (r = .200 - 0.399), and very low correlation (r = .000 - .199).

Second, at the same time, the open-ended questionnaire was also distributed to 103 ESP learners. It was conducted to examine data on the benefits and limitations of technology-assisted English learning tasks employed in online or blended learning environments. Two experts initially validated the questions for an open-ended survey. Thematic analysis was undertaken based on the responses to open-ended questions in which the first author utilised the NVIVO 12 program to classify the categories according to their content. Moreover, the first and second authors examined whether or not all assigned categories were apposite. They also securitised the themes’ results and assured coding reliability (Boyatzis, 1998). Subsequently, the data that were tabulated and categorised were presented in diagrams.

3.3 Procedure

These instruments were initially tried on a small scale with 30 ESP students in one private university to determine their validity and reliability. Its reliability was found to be between 0.84 and 0.96. Expert validation conducted by two experienced ESP lecturers was also employed to examine the questionnaires’ content and appearance regarding linguistic use and materials.

The questionnaires were sent to all participants, who were informed that their responses would be kept anonymous and utilised solely for the current study, which included informed consent forms. All efforts have been made to preserve anonymity, which is the goal of the poll. The survey results are automatically anonymised and aggregated in a way that makes it impossible to identify specific respondents or attribute specific responses to a specific respondent. The online questionnaires were created using Microsoft Forms and required 16 to 23 minutes; participants were given fourteen days to complete the surveys carefully.

4. RESULTS AND DISCUSSION

4.1 Students’ Perceptions of Self-Directed Language Learning toward Technology-Enhanced TBLT

Descriptive statistics using SPSS 21 was employed to analyse the results of the SDLL questionnaire. These results can be seen in Table 1.
Table 1. Students’ perceptions of SDLL toward technology-enhanced TBLT.

<table>
<thead>
<tr>
<th>Category</th>
<th>Code (path analysis)</th>
<th>Self-directed Language Learning Statements</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Needs</td>
<td>C1Q1</td>
<td>ESP learners want to continue learning English as long as possible, both online and offline learning context.</td>
<td>4.42</td>
<td>0.65</td>
</tr>
<tr>
<td></td>
<td>C1Q2</td>
<td>ESP learners have an inquiring mind for knowledge in mastering English.</td>
<td>4.43</td>
<td>0.60</td>
</tr>
<tr>
<td></td>
<td>C1Q3</td>
<td>ESP learners try their best to learn English, especially in English for Specific Purposes (ESP) of Nursing.</td>
<td>4.35</td>
<td>0.59</td>
</tr>
<tr>
<td></td>
<td>C1Q4</td>
<td>Speaking in English is one of the language skills that they like in the learning process.</td>
<td>2.87</td>
<td>0.82</td>
</tr>
<tr>
<td></td>
<td>C1Q5</td>
<td>ESP learners are more enthusiastic about attending English class even though there is no attendance requirement for these courses.</td>
<td>4.01</td>
<td>0.76</td>
</tr>
<tr>
<td>Utilising Skills</td>
<td>C2Q1</td>
<td>ESP learners can understand even the most difficult things that are being discussed in the English class.</td>
<td>3.45</td>
<td>0.97</td>
</tr>
<tr>
<td></td>
<td>C2Q2</td>
<td>ESP learners are good at English tests.</td>
<td>2.99</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>C2Q3</td>
<td>ESP learners can learn English knowledge and skills quickly.</td>
<td>3.16</td>
<td>0.83</td>
</tr>
<tr>
<td></td>
<td>C2Q4</td>
<td>ESP learners try to understand the grammar when reading English texts even though the lecturer does not tell them.</td>
<td>3.77</td>
<td>0.74</td>
</tr>
<tr>
<td>Enduring Challenges</td>
<td>C3Q1</td>
<td>ESP learners try to learn English no matter how busy they are.</td>
<td>3.62</td>
<td>0.76</td>
</tr>
<tr>
<td></td>
<td>C3Q2</td>
<td>ESP learners can stay up all night to enhance their English skills.</td>
<td>3.10</td>
<td>0.77</td>
</tr>
<tr>
<td></td>
<td>C3Q3</td>
<td>ESP learners are determined to learn to communicate in English effectively.</td>
<td>4.10</td>
<td>0.72</td>
</tr>
<tr>
<td></td>
<td>C3Q4</td>
<td>ESP learners want to be the best learner in the best English class.</td>
<td>3.71</td>
<td>0.85</td>
</tr>
<tr>
<td></td>
<td>C3Q5</td>
<td>ESP learners always ask their teacher for clarification when an idea is unclear.</td>
<td>3.52</td>
<td>0.74</td>
</tr>
<tr>
<td></td>
<td>C3Q6</td>
<td>ESP learners purposively use English that they have learned for communication. (e.g., speaking, writing).</td>
<td>3.75</td>
<td>0.79</td>
</tr>
<tr>
<td></td>
<td>C3Q7</td>
<td>When ESP learners find familiar words, they ask others what it means.</td>
<td>4.14</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>C3Q8</td>
<td>When ESP learners find unfamiliar words, they look them up in the dictionary or on the internet.</td>
<td>4.46</td>
<td>0.61</td>
</tr>
<tr>
<td>Self-Efficacy in Learning</td>
<td>C4Q1</td>
<td>ESP learners are satisfied with their performance in utilising learning technologies-based language tasks to learn English.</td>
<td>3.96</td>
<td>0.66</td>
</tr>
<tr>
<td></td>
<td>C4Q2</td>
<td>ESP learners are satisfied with their “English reading comprehension” performance after receiving technology-enhanced language learning tasks.</td>
<td>3.87</td>
<td>0.68</td>
</tr>
<tr>
<td></td>
<td>C4Q3</td>
<td>ESP learners are satisfied with their “English listening comprehension” performance after receiving technology-enhanced language learning tasks.</td>
<td>3.61</td>
<td>0.80</td>
</tr>
<tr>
<td></td>
<td>C4Q4</td>
<td>ESP learners are satisfied with their “English speaking ability” performance after receiving technology-enhanced language learning tasks.</td>
<td>3.69</td>
<td>0.74</td>
</tr>
<tr>
<td></td>
<td>C4Q5</td>
<td>After receiving technology-enhanced language learning tasks, ESP learners are satisfied with their “English writing ability” performance.</td>
<td>3.71</td>
<td>0.77</td>
</tr>
</tbody>
</table>
According to the ‘learning needs’ category of self-directed language learning students (see Table 1), two categories received high scores. The highest one indicates that ESP learners possessed an enquiring approach toward knowledge when acquiring English. Additionally, they desired to continue learning English for as long as possible, whether online or in a traditional classroom setting. Meanwhile, speaking English was considered the lowest category across all categories. Indeed, speaking is a critical kind of communication while working for an international firm or institution that interacts globally. Therefore, ESP teachers should encourage students to spend more time and effort preparing to enhance their speaking performance. It includes researching interesting topics, looking for high-quality materials, and practising delivery (Zhang et al., 2020).

The second category is related to the self-directed language learning of ESP learners in terms of ‘utilising skills’. Participating in mastering ESP through technology-enhanced task-based instruction, students believed that they had practised understanding the grammar when reading texts even though their lecturer did not ask them. The previous study supports this finding that a more efficient and effective reading comprehension motivation can help students better understand the context in which grammar is used (Karimi & Dastgoshadeh, 2018). Thus, grammar is not merely a rote formula but is critical in assisting students in comprehending the text during the reading process. So, the point of autonomy of students’ independence is that they begin to understand grammar when they learn English by practising reading. Meanwhile,
they tend to be lower than other aspects in this category in the testing aspect. This aspect should be anticipated in teaching ESP because language testing can improve teaching practices and delivery methods to target different student proficiency levels and establish minimum language proficiency standards for undergraduate students (Becker et al., 2017).

Table 1 shows that of the eight aspects in the ‘enduring challenges category’, the highest category of students’ perceptions said they tend to look for vocabulary they do not know from a dictionary or online internet. Then, the significant aspect refers to the statement ‘ESP learners ask questions about the vocabulary they did not understand to friends’ who better understand English. This finding is relevant to previous research that, considering the strategies evaluated by the study participants, Iranian EFL teachers and students should prioritise the form of vocabulary items because they are regarded as critical for word discovery (Amiryousefi, 2015). In contrast, the lowest aspect of this category is their lack of motivation to learn more to improve their English skills. This happened because there are some limitations to effective language practices in the online learning context.

There are five aspects of ‘self-efficacy’ in the learning category that ESP students perceive. From these aspects, ESP lecturers were satisfied with their performance in utilising learning technologies-based language tasks to learn English. Meanwhile, the lowest aspect shows that English listening comprehension is still a problematic language skill even though technology-based tasks have been integrated. This data corroborates the previous finding. Most students attributed their problems with listening to their perceived lack of listening aptitude and challenges with listening comprehension (Elfiona et al., 2019; Graham, 2006; Serraj, 2014). Thus, ESP teachers should pay attention to the issue of how learners listen and their attitudes about listening skill practice to resolve it.

ESP learners’ perspectives on the ‘planning process category’ show that they can formulate their own English study plan. However, their study plan before the classroom is included in the low category before studying in the class, in which they may not know or forget what material will be taught. The report from the previous study suggested that the teachers in each class assign different tasks to different students based on their abilities and work to ensure that each student has their home study plan (Dai & Lin, 2020).

In the ‘completing tasks’ category, students strongly believe ESP learners always complete technology-enhanced English assignments and tasks on time. This is a good point of the utilisation of technology-enhanced language instruction. Additionally, students believe completing English linked with learning technology is essential in the ‘evaluating the process’ category. Surprisingly, good achievement refers to the category of ‘Internal attribution’ related to characteristics of a person’s behaviour that originate with the individual. These characteristics are viewed as high scores with an average of above 4.

As shown by Figure 1, students already had learning needs, completed English learning assignments, and had a high internal attribution for mastering English. However, data on utilising skills remains low since ESP students struggle with comprehending and practising English. Therefore, English language instruction must lead to the development of communicative language skills. To wit, the practice of speaking and dialoguing in a work setting with a sufficient vocabulary. These findings are commensurate with the study that The specialised vocabulary taught in class must
be used in ESP contexts such as reading, writing, speaking, and casual media requiring learners to communicate in English (Sabieh, 2018).

Furthermore, ESP students must also strengthen their process planning abilities and remaining utilisation skills. They should be motivated to create more consistent English lesson plans within and outside the classroom. ESP teachers must emphasise the importance of pre-learning material preparation.

The results of Path Analysis in Figure 2 show that the model scheme related to SDLL categories of ESP students mostly fit the data finding with the good category. It was evident with ($c = 902.669, \ p = 0.000, \ df = 532$, Comparative Fit Index (CFI) = 0.831, Chi-square of Minimum Discrepancy Test (CMIN) = 1.697, The root mean square error of approximation (RMSEA) = 0.083). According to the model, SDLL categories comprising the category of Learning Needs (-0.09), Utilising Skills (-0.40), and Planning the Process (0.01) statistically do not influence Internal Attribution (self-directed language learning) with standardised path coefficients. Meanwhile, Enduring Challenge (0.28), Self-Efficacy Learning (0.18), Completing Task (0.11), and Evaluating the Process (0.76) categories statistically affect Internal Attribution with standardised path coefficients. All path coefficients and correlation coefficients are significant at the 0.05 level.

In Figure 2, it can be seen that the categories of ESP students’ SDLL that have a very high correlation are Utilising Skills with Enduring Challenges ($r = .87$), Learning Needs with Enduring Challenges ($r = .81$), and Enduring Challenges with Evaluating the Process ($r = .82$). Meanwhile, other SDLL categories are categorised as a high correlation. They include Learning Needs with Evaluating the Process ($0.74$), Completing Task with Evaluating the Process ($0.72$), Enduring Challenges with Completing Task ($0.75$), Utilising Skills with Planning the Process ($0.73$), Utilising Skills with Self-Efficacy Learning ($0.72$), Enduring Challenge with Self-Efficacy Learning ($0.76$), and Enduring Challenge with Planning the Process ($0.72$). We can deduce from the results of path analysis that all ESP students’ SDLL categories have been influenced significantly after they have experienced English Instruction that
Teachnology-enhanced TBLT has been implemented. The previous study supports this finding that it is necessary to consider the function and capabilities of technology in language learning because of its capacity to aid the effective tasks of the language learning process (Canals & Mor, 2023).

**Figure 2.** Path Analysis results of ESP learners’ SDLL categories after receiving technology-enhanced TBLT.

### 4.2 Factors that Motivate ESP Learners More Consistent in SDLL Via Technology Enhanced TBLT

Factors that motivate ESP learners to be more consistent in SDLL via Technology Enhanced TBLT were investigated based on students’ perceptions in responding to an open-ended questionnaire. Figure 3 demonstrates the results of the thematic analysis of the results.
Figure 3. Factors that can motivate ESP learners more consistent in SDLL through technology-enhanced TBLT.

As shown in Figure 3, the following factors may encourage ESP learners to be more consistent in their self-directed language learning through technology-enhanced TBLT. The two most important factors are internal motivation through online learning resources such as YouTube and their future career goals of working for an international company or hospital. The presence of online learning or technology-enhanced language learning can aid learners’ commitment to enhancing their learning accomplishment by increasing their level of learning autonomy and social interaction in language learning (Lee, 2016). Apart from that, being in the category of presentations with a probability of less than 20% promotes their independence in learning English, especially with the advent of learning technology, online learning media, and learning management systems, which should also be critiqued in this instance. One of the reasons they might develop greater independence in enhancing their English skills is the lecturers’ instructional approaches. Thus, this becomes material for ESP lecturers to continue developing their teaching methods, motivating or directing students to study more independently to improve their English language skills.

4.3 Challenges ESP Learners Encountered in SDLL via Technology Enhanced TBLT

The results of an open-ended questionnaire related to challenges in SDLL through technology-enhanced TBLT were interpreted based on thematic analysis and presented in Figure 4.

ESP students’ difficulties in developing their English learning independence can be categorised into five categories, as seen in Figure 4. They believe that the major obstacles in the online learning context are a lack of motivation and focus. This finding is also supported by (Yates et al., 2021) that this lack of motivation was attributed to contextual factors such as family obligations, such as caring for siblings or assisting around the house or farm; distractions such as Netflix or online purchases; lack of availability of educator or peer assistance; a lack of extrinsic consequences; and a lack of difference between school and home. Additionally, they perceived a scarcity of
opportunities for speaking practices. Furthermore, internet issues remain a significant impediment to technology-enhanced language task-based learning, which remains relatively large. However, the smallest percentage of difficulties ESP students encounter is a lack of English practice using ESP materials. Surprisingly, in utilising technology-enhanced language instruction, learning engagement was still challenging to improve students’ self-directed learning. This finding is relevant to the previous study that undergraduate students in South Korea perceived that utilising learning technologies did not enhance their learning engagement (Yates et al., 2021).

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limited use of English practices related to ESP context</td>
<td>5%</td>
</tr>
<tr>
<td>Low English proficiency in communicating using ESP terms</td>
<td>10%</td>
</tr>
<tr>
<td>Lack of teachers’ explanation</td>
<td>13%</td>
</tr>
<tr>
<td>Lack of Engagement via Learning Management System</td>
<td>16%</td>
</tr>
<tr>
<td>Internet problems</td>
<td>18%</td>
</tr>
<tr>
<td>A shortage of chances to speaking practice</td>
<td>19%</td>
</tr>
<tr>
<td>Lack of motivation and focus in the online learning context</td>
<td>19%</td>
</tr>
</tbody>
</table>

**Figure 4.** Challenges in SDLL through technology-enhanced TBLT.

5. **CONCLUSION**

This study investigated learners’ perceptions of self-directed language learning and discerned their experiences for successful practice and challenges through technology-enhanced tasks-based language instruction. The highest one shows that ESP learners were enthusiastic when learning English in the ‘learning needs’ category. They also wanted to keep learning English online or in a traditional classroom. Speaking English was the lowest category of all. The ‘utilising skills’ category shows that even though their lecturer did not ask them, students claimed they had mastered understanding grammar when reading texts by participating in the classroom. The highest group of students’ perceptions reported that they tend to look up unfamiliar words in a dictionary or online in the ‘enduring challenges category’. ESP students’ perceived ‘self-efficacy’ in the learning category refers to ESP lecturers being pleased with their success in using technology to study English. In addition, ESP learners also positively perceive their planning process, completing tasks, and internal attributions during technology-enhanced task-based language learning instructions.

Some critical issues should be considered in which utilising skills remains low since ESP students struggle with comprehending and practising English. Therefore, English language instruction must lead to the development of communicative language skills. Besides, ESP students must also improve their process planning and remaining utilisation capabilities. English lesson plans should be more consistent both within and outside the classroom. Preparation of pre-learning materials is essential for ESP teachers.
The open-ended survey data also demonstrated benefits and challenges during technology-enhanced TBLT toward their SDLL. The following elements may encourage ESP learners to self-direct language acquisition through technology-enhanced TBLT, including internal motivation through online learning resources. This instruction also helps ESP lecturers enhance their teaching methods by encouraging students to study independently to improve their English language skills. They feel the main challenges in online learning are motivation and focus. They also saw a lack of possibilities for speaking practice. Furthermore, internet connection problems continue to be a substantial barrier to technology-enhanced language task-based learning. The most common problem ESP students face is a lack of practice using ESP materials.

This study has several drawbacks; the study was done in the context of learning a foreign language, with over 70 per cent of participants remaining at the beginner level in English. Student population characteristics could potentially bring bias to the results. Further investigation is expected to focus on the research participants of ESP learners with comparable English language proficiency from beginner, intermediate, and advanced levels to obtain a more accurate generalisation of the findings.

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