

The Efficacy of Inquiry-Based Instruction on Students' English Proficiency

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Abstract

Proficiency in English is essential for academic achievement globally, particularly for university students, as it allows them to articulate their thoughts effectively and acquire knowledge effortlessly. Consequently, several English teachers aim to enhance student English proficiency through using various innovative teaching approaches. This study aimed to examine the effect of inquiry-based instruction (IBI) on the English proficiency of Turkish university students in both productive and receptive skills. This research was designed as a quasi-experimental study, utilising two intact English courses from the department of English language teaching. One class was the control group and learnt through the traditional teaching method (TTM), while the other class was the experimental group and learnt through inquiry-based instruction (IBI). Pre- and post-English proficiency tests were conducted to evaluate the impact of IBI on students' English performance. The results demonstrated significant improvements in the productive skills of the experimental group; however, the receptive skills, especially listening, revealed no progress, as the functional language (use of English) was not enhanced. The results of this study underscore the necessity of integrating blended IBI with targeted skills instruction and deliberate modifications to enhance receptive skills. Further research is needed to reconceptualise the modified IBI framework when targeting receptive skills.

Keywords: English language teaching; innovative teaching approaches; traditional teaching method; productive skills; receptive skills

Introduction

English has emerged as a dominant global language, serving to promote communication among individuals from different cultural and linguistic backgrounds. Moreover,

scientific research collaborations, international conferences, and journal articles predominantly use English as their primary language (Kawakibi & Indrawan, 2024). Consequently, “Non-English-speaking countries acquire proficiency in English” to maintain competitiveness on a global scale (Collins, 2010, p. 97). Accordingly, proficiency in the English language becomes the foremost criterion at many universities worldwide to guarantee that students can converse and interact proficiently with their foreign counterparts. In Turkey, for example, students must pass a proficiency examination to be admitted to universities; those who do not succeed are expected to complete a successful year at an English preparatory school before commencing their university studies (Çelik & Bayraktar Çepni, 2020)

Despite this emphasis on admitting students proficient primarily in English, first-year university students encounter many linguistic challenges. Several students are anxious about speaking English in front of their peers due to their lack of confidence. Students experience challenges with their pronunciation and grammatical structures because they do not have sufficient vocabulary to facilitate their English speaking skills (Fatkhriyah, 2019). Furthermore, a significant number of students experience difficulties with their writing skills, including poor punctuation and spelling (Alfaki, 2015), insufficient practice, misguidance, disorganised ideas, a lack of coherence between sentences, and a limited vocabulary to express their opinions (Wale & Bogale, 2021).

Alongside those obstacles in productive skills, many students encounter difficulties in receptive skills. Students have challenges with reading comprehension due to deficiencies in inferential reading skills, a restricted vocabulary, and a lack of metacognitive reading strategies (Alshehri & Zhang, 2022; Grabe & Stoller, 2019; Kim, 2023) that is, syntactic parsing and semantic association, and assessed how syntactic and semantic network knowledge differentially predicted two types of text comprehension (literal vs. inferential). Metacognition refers to the awareness of one's comprehension of the text during reading, and a lack of metacognitive strategies indicates a limited ability to plan, monitor, and evaluate one's reading (Pressley, 2002). Additionally, during listening practice, students face challenges understanding fast speakers with diverse accents. In response to these challenges, it is essential to engage students in a communicative language approach that emphasises active rather than passive learning. This can be achieved through inquiry-based instruction (IBI), which increases students' engagement and interests with their course content (Radulović et al., 2023).

IBI assists students in enhancing their English proficiency in reading, writing, speaking, and listening (Farruxjon et al., 2024), as it can bolster their speaking skills by enhancing their confidence and decreasing their anxiety or reluctance to speak in front of their peers (Fatkhriyah, 2019). IBI can help students improve their vocabulary and autonomous skills by encouraging them to be more involved in their lessons and discuss meanings with their classmates, which helps them understand important words and subjects better, making it easier for them to grasp listening topics. IBI enhances student engagement in writing tasks by enabling students to explore concepts and develop

their ideas using various resources (Wale & Bishaw, 2020; Wale & Bogale, 2021). In this scenario, students might eliminate their writing deficiencies and improve their essays on coherence, accuracy, grammar, and cohesion through IBI. Furthermore, IBI can assist students in improving their reading comprehension through posing questions that stimulate their curiosity about the reading topics (Hendriarto et al., 2021).

Despite the aforementioned effects of IBI in improving students' English proficiency, its implementation is restricted in English-language classrooms (Fatkhrayah, 2019) compared to its use in science and mathematics (Ermawati et al., 2017; Khalil & Gunduz, 2023). The majority of studies conducted in English classes focus on assessing IBI's impact on students' skills separately, including reading (see Alshammari, 2022; Ermawati et al., 2017; Oktarani, 2015), speaking (Fatkhrayah, 2019), writing (Ahmed, 2022; Nabhan, 2017; Wale & Bogale, 2021), and listening (Nafiaturrahmah & Sartika, 2024). Extensive research examining the overall impact of IBI on students' English proficiency remains scarce. Alameddine and Ahwal (2016) were the only researchers who conducted a study looking at how IBI affects the English skills of 22 tenth-grade students in literature classes in Lebanon, and their results showed that IBI positively impacted the students' English proficiency. Furthermore, there are no studies that investigate whether IBI as a pedagogical approach can equally affect productive and receptive skills.

Thus, this study aims to fill the gap in the existing literature by implementing IBI in English language classes, specifically within the ELT department, to examine its effect on university-level students' English language proficiency and examine its effects on productive and receptive skills by addressing the following research questions:

1. Is there a statistically significant difference in English proficiency between students instructed through IBI and those taught through traditional teaching methods (TTM)?
2. Is there a statistically significant difference between experimental and control groups in their productive and receptive skills?

Hypothesis

There is a statistically significant difference between students instructed through IBI and those taught through TTM in terms of their English proficiency, productive and receptive skills.

Literature review

IBI is an inquiry-based learning instruction that facilitates student learning by encouraging the formulation of questions or issues rather than providing knowledge effortlessly (Wale & Bogale, 2021). IBI exceeds the process of posing questions and delivering answers. Through IBI, students investigate topics or issues independently, rather than depending on their teachers to find answers (Tavanapour & Chalak, 2021). In the IBI process, students undertake research and inquiry to obtain knowledge and information regarding a certain subject. As a result, students are not obligated to

memorise facts or rely solely on tests to solidify their knowledge; instead, they can improve their research, critical thinking, and reflective skills. All these fundamental skills facilitate academic achievements, personal aspirations, and social relationships (Alameddine & Ahwal, 2016).

Inquiry-based instruction framework

The idea of inquiry dates back to Socrates, who developed it as a discursive approach centered on the interchange of questions and responses to foster critical thinking (Ekiz, 2021). IBI is grounded in cognitive and constructive theories that focus on student-centered learning. Cognitivism impacts IBI, thus highlighting the active process of constructing students' knowledge by linking their new information to their pre-existing cognitive structures. Constructivists assert that students actively create meaning not by receiving knowledge through transmission but by engaging proactively in IBI (Bruner, 1961). Piaget, Vygotsky, and Bruner contended that learners need to solidify their knowledge through active engagement with others and the exchange of experience, rather than passively acquiring information, which is precisely what IBI aims to accomplish.

A thorough review of the literature revealed several versions of the modern IBI model. In 1987, a cohort of eight scientists from the Biological Sciences Curriculum Study (BSCS) developed the 5E model for IBI. It was introduced in 1990, and the 5E teaching paradigm is frequently utilised in the scientific domain. Bruce and Wasser (1996) describe the IBI cycle as consisting of four phases: challenging the concept, examining, discussing, and reflecting. In 2002, Bruce and Bishop expanded the IBI cycle into five distinct phases: ask, investigate, create, discuss, and reflect. In 2003, Eisenkraft augmented the 5E model to create a 7E model, incorporating two further stages: elicit and extend. The seven stages were: elicit, engage, explore, explain, elaborate, evaluate, and extend. In 2004, Alberta expanded the IBI model, originally conceived in 1990, into seven phases: planning, retrieving, processing, creating, sharing, evaluating, and reflecting. In 2015, Pedaste and colleagues created a model for IBI that has four primary stages: orientation, conceptualisation, investigation, and conclusion, with two substages (discussion and reflection) that can be overlapped between the stages. BSCS developed the 5E educational approach in 2023 and named it Anchored Inquiry Learning (AIL). BSCS developed a series of lessons titled the Anchor lesson, Investigate lesson, Synthesis lesson, Gap analysis lesson, and Culminating Task lesson.

The present study reconceptualises the framework of IBI established by Pedaste and colleagues (2015) to align with the English language skills—productive and receptive—in the ELT context. As previously indicated, the framework proposed by Pedaste and colleagues (2015) has four main stages: orientation, conceptualisation, research, and conclusion, along with two additional substages, discussion and reflection. The current study incorporated the stages of their framework, adding two new ones. The main stages of our model are: orientation, conceptualisation, research, discussion,

and presentation. Reflection and feedback are substages that intersect with the main stages of the model, as shown in Figure 1. The presentation stage was incorporated to enhance productive skills, whereas the feedback was designed within the modified framework to assist students in enhancing their productive and receptive skills, which require improvement of comprehension, coherence, and accuracy.

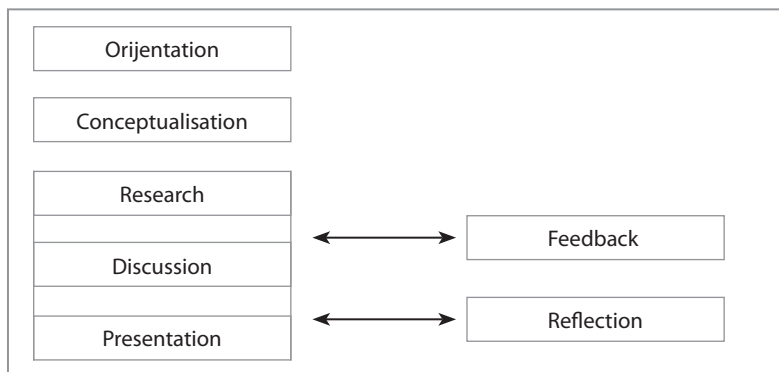


Figure 1. Framework of the current study

IBI and receptive skills

Several studies in the Indonesian context demonstrate that IBI helps students to improve their reading comprehension (Ermawati et al., 2017; Oktarani, 2015; Saputri, 2018). The results of the action research conducted by Oktarani (2015) indicated that IBI promotes engagement among 32 secondary school students. Ermawati and colleagues (2017) confirmed in their quasi-experimental study with 40 students that IBI enhanced the engagement of university-level students in the experimental group and increased the development of their teamwork skills. The Saputri (2018) study asserted that IBI assists 40 university-level students in the English department in achieving higher scores on their reading midterm and final exams. In a different context, Alshammari (2022) reported that the results of pre- and post-reading tests in Saudi Arabia revealed that students' post-test scores exceeded their pre-test scores, indicating proficiency in metacognitive reading skills, including identifying the main idea, describing, analysing, and inferring it. His results proved that IBI improves students' metacognitive reading skills, rather than the overall reading comprehension. The results of the reviewed research cannot be generalised due to its limited sample size, which does not represent all students in Indonesia or Saudi Arabia. Additionally, the results of Oktarani's (2015) and Saputri's (2018) research lacked experimental study designs; therefore, it is difficult to determine if students' reading comprehension improvement is attributable to IBI or other variables. Thus, further research needs to be carried out in different contexts, including large and small sample sizes, to confirm or contradict those results regarding IBI with ELT students for reading skills.

The literature also indicates that two studies were conducted to examine the impact of IBI on students' listening comprehension in Indonesia (Kurnia, 2016; Nafiaturrachmah

& Sartika, 2024). Kurnia's (2016) research revealed that IBI with information and communication technology (ICT), specifically English music from YouTube, improved engagement and concentration among seventh-grade students during listening classes. His study lacks empirical evidence for demonstrating the actual enhancements in students' listening proficiency, making it challenging to ascertain whether students' improvements and engagement result from the implementation of IBI or the use of ICT in the classroom. Conversely, the study by Nafiaturrahmah and Sartika (2024) presents solid evidence that IBI enhanced students' listening skills through using an experimental research methodology with senior high school students. Their study demonstrated that IBI enhanced students' engagement and investigation of their listening skills. Considering these two studies, IBI has the potential to enhance students' listening comprehension and engagement; however, further rigorous and contextually diverse research is necessary to substantiate the effects of IBI on listening comprehension.

IBI and productive skills

Four studies in the Indonesian context investigated the effect of IBI on students' L2 speaking skills (Fatkhriyah, 2019; Irawan et al., 2019; Irham & Jayanti, 2020; Kurniawati, 2022). Fatkhriyah (2019) conducted an action research study with tenth-grade students in a science classroom. The results of the two research cycles indicated a significant enhancement in students' speaking skills. Although the study reported that students have positive attitudes towards IBI, the generalisation of this result is difficult due to the absence of a declared sample size in the published paper. In the same year, Irawan and colleagues (2019) carried out a quasi-experimental study at a high school with a group of 30 second-grade students, applying IBI throughout three meetings. Despite the potential inadequacy of three meetings for evaluating the benefits of IBI, the speaking evaluations revealed significant enhancements in students' speaking skills, particularly in grammar, vocabulary, fluency, and pronunciation. Likewise, the results of Irham and Jayanti's (2020) most students at intensive English (IE) action research demonstrated that the implementation of IBI improved students' speaking skills in their second language.

Kurniawati's (2022) interviews and surveys with 21 Indonesian university students indicated that IBI enhanced their speaking skills and motivation during speaking sessions. The results showed the potential effects of IBI on improving students' speaking skills. However, it is difficult to determine whether the IBI necessitates long-term or short-term engagement to observe its significant effect on students' speaking performances since the reviewed studies (Irham & Jayanti, 2020; Kurniawati, 2022) most students at intensive English (IE) did not indicate the duration of the IBI implementation. Therefore, further research is required to thoroughly determine the duration needed for IBI to influence students' speaking skills and to ascertain whether similar research conducted in settings beyond Indonesia could provide similar outcomes.

The literature also revealed that IBI has a substantial impact on students' writing skills (Ahmed, 2022; Erviona et al., 2023; Mendrofa, 2022; Nabhan, 2017; Wale & Bogale, 2021). For instance, Nabhan's (2017) results in the Lebanese context indicated that 124 upper-intermediate students in two private French institutions enhanced their writing skills with IBI more markedly than those subjected to TTM. However, the results of pre-post-tests, observations, questionnaires, blogs, and student portfolios indicated a substantial enhancement in students' vocabulary, structure, and coherence. The interaction of variables between ongoing assessment and IBI hinders the determination of its actual effects. Wale and Bogale (2021) proved in their study that the post-writing tests of 62 pharmacy students in an Ethiopian university exposed to IBI for eight weeks surpassed those of their peers who were not in IBI classes. Additionally, the results of focus group interviews and reflective journals confirmed the potentiality of IBI in enhancing students' academic writing skills, including topic sentences, structure, grammar, coherence, and vocabulary. Another quasi-experimental study in Egypt, carried out by Ahmed (2022) with one group of students, revealed that IBI enhanced the writing performance of 40 first-year EFL students and fostered their independence and collaboration skills. Nonetheless, his study lacks empirical evidence to validate that the students' improvements are related to IBI rather than other variables.

In the Indonesian context, Mendrofa's (2022) action research demonstrated that the narrative composition abilities of 18 students at a high school improved markedly over two cycles after the implementation of IBI. Similarly, Erviona and colleagues (2023) found that using an inquiry-based STEM instruction significantly improved the writing skills of high school students who had six lessons compared to those who learnt them through TTM. However, the study concludes that students in the experimental group demonstrated greater engagement and creativity during their sessions than those in the control group. The integration of IBI and the STEM approach raises questions about whether the reported results are driven by IBI or the STEM approach.

Despite the reported results that highlighted the great effects of IBI on improving students' English skills – reading, writing, listening, and speaking – most of the reviewed studies did not examine the effects of IBI on the English skills holistically to ascertain its applicability across them. Additionally, most of the reviewed studies failed to disclose the duration required for implementing IBI to achieve the observed improvements in students' English skills.

Methodology

Research design

This is a pilot study for a larger-scale dissertation that employed a quasi-quantitative experimental research design (Campbell & Stanley, 2015; Creswell & Creswell, 2018) to examine the effects of IBI on ELT students' English proficiency using pre-posttests. This design was chosen due to the infeasibility of choosing random participants for

classroom-based research (Creswell, 2014). The purpose of this pilot study is to assess the feasibility and impact of the instructional instrument rather than generalisability prior to wider implementation of IBI (Creswell, 2014).

Participants

The sample for this study was obtained via purposive sampling using two intact classes, which is methodologically acceptable in classroom-based research (Creswell & Creswell, 2018; Palinkas et al., 2015), targeting undergraduates in their first year at the English Language Teaching (ELT) Department of a university in North Cyprus. The students were accepted at the university after passing the university proficiency exam to ensure that all the students at least have the same English level. The study was conducted over ten weeks during the spring term of the 2022–2023 academic year within the compulsory course titled Integrated Language Skills II. This course normally had two groups of ELT students and four groups of translation and literature students. We opted to include the ELT groups exclusively in our study. Their program advisor randomly assigned fifty-five ELT students into two groups (A & B). Hence, we selected randomly group A, which comprised 28 students, as the control group that received non-IBI instruction; however, only 23 students who completed the pre- and post-tests were included in the control group. Group B, including 27 students, was the experimental group; however, five students were eliminated for failing to complete both tests, resulting in 22 students being included in the experimental group. Both groups were taught by the first researcher of this study.

Data collection tools

To achieve the objectives of this study and address the research questions, we used pre- and post-English proficiency tests to gather data. Each test was parallel and comprised five sections (see appendices A & B in online supplementary material): reading, use of English, listening, writing, and speaking. We adopted this test from Cambridge Assessment English with certain modifications, except for the writing section, which we designed. Students were assessed on the written component in one day for approximately 70 minutes, while the following day was dedicated to evaluating their speaking performance individually, with each student allocated 10 minutes for the speaking test.

The first two sections of the tests pertained to reading and the use of English. The original sections of the Cambridge test comprised five components; however, we opted to use only two which align with the test purpose due to time constraints: one for reading and one for English usage. In addition, we designed an extra question for English use. The third section was dedicated to listening skills. The original exam had four parts, but we only used one due to time constraints.

The fourth section pertained to L2 writing. We developed the entire section, which included a pair of parallel L2 writing tests for pre- and post-tests, as well as

a component for in-text citations. The tests were meticulously designed to evaluate students' academic writing proficiency and were evaluated by two experts in English language education. The test was modified based on the experts' feedback. Two raters evaluated the tests based on the criteria we created for appropriately evaluating the students' essays.

The last section of the test assessed speaking proficiency. For this component, we opted to utilise two pictures as a pre-speaking test and two as a post-speaking test from the Cambridge Assessment English main test, while formulating several relevant questions regarding the pictures. We recorded the students' voices after obtaining their consent for subsequent evaluation in the grading process. Afterward, the first researcher and the English teacher evaluated the students' verbal utterances based on their coherence, structure, and word choice, using the criteria we established for assessing speaking performance.

IBI procedure

After receiving ethical approval from the Education Science Ethics Committee, Near East University (NEU/ES/2022/937), participants were asked to sign a consent form before collecting any data. Then a pre-proficiency test was distributed. Both classes followed the same curriculum, which was based on the Cambridge Academic English (Hewings et al., 2012) C1 level. The book was divided into ten units. Every unit included exercises in reading, speaking, vocabulary, grammar, and writing, as well as warm-up and discussion activities. The same topics were covered in both groups, but the control group was taught through lecturing, and TTM was used. The lecturing method placed greater emphasis on the role of the lecturer, with students completing assignments mainly in response to direct instruction. The instructions for the experimental group were delivered via IBI. In this research, the materials were designed in a way that facilitates the primary principles of IBI through the use of questioning, constructing prior knowledge, searching, collecting information, answering, explaining, and presenting the answers, and reflecting on the learning.

Specifically, this pilot study made use of the seven steps that make up the IBI cycle: orientation, conceptualisation, research, discussion, presentation, reflection, and feedback. During the orientation, students were introduced to the topic to assess their prior knowledge. Following this, enquiries regarding the subject were posed and distributed throughout the groups. During the research phase, students used the internet to gather data for the questions. During this part of the process, the lecturer's role is to help students find the answers to the questions by directing them to relevant resources and giving them constructive feedback. The next step was for the students to discuss their results and exchange information with their group members. To reach a conclusion, they had to arrange their responses in a logical way and reflect on what they had learnt. In the presentation stage, the lecturer randomly picked some students from each group to present their answers in front of the class with the help of their group mates and provided them with class feedback to reflect on their answers.

For example, during a lesson focused on teaching complex conjunctions, the control group listened to the teacher's explanations regarding the meanings and functions of conjunctions, subsequently completing a 'fill in the gap' exercise in their books. In contrast, the experimental group was provided with a reading text to introduce the complex conjunctions during the orientation phase. During the conceptualisation phase, the students in small groups were asked to underline all sentences containing complex conjunctions and determine their meanings. Following that, they investigated complex conjunctions, their meanings, and their uses with the teacher's guidance, using academic websites throughout the research phase. Then, they engaged in discussions with their group members and wrote their examples during the discussion phase. The teacher listened to their discussions and occasionally offered constructive feedback to facilitate reflection on their responses. During the presentation phase, the students wrote their examples on the board and explained the meanings and uses of conjunctions. The teacher's role was to provide feedback when needed, and she posed Concept Checking Questions (CCQs) to the class to ascertain their comprehension and enable them to reflect on their learning. The same procedure was implemented with other lessons and skills.

The implementation of IBI was used for ten weeks, with two sessions each week. Each session lasted about 100 minutes. After finishing the implementation of the IBI, the students were asked to write reflective essays that summarised what they had learnt through the IBI.

Data analysis

Data analysis was conducted via IBM SPSS Statistics version 23. Descriptive statistics were conducted for the primary dependent variable (English proficiency) and every subsequent dependent variable (speaking, reading, writing, listening, and use of English) for both pre- and post-tests. Given the presence of multiple dependent variables, a MANOVA (Field, 2024; Tabachnick & Fidell, 2019) was conducted prior to the primary analysis to determine if statistically significant differences existed among the groups concerning their English proficiency across the four skills before our intervention. Consequently, normal distribution and all assumptions for MANOVA were assessed for the pre-tests. A two-way mixed design ANOVA was used to analyse the main effects and interaction effects on performance over time across the two groups (Gravetter & Wallnau, 2017). All assumptions and normality tests were conducted to meet the criteria for Mixed Design ANOVA. Finally, the effect size was computed using partial eta squared (η^2), adhering to Cohen's (1988) criteria for small ($\eta^2 = .01$), medium ($\eta^2 = .06$), and large ($\eta^2 = .14$) effects.

Validity and reliability

Two experts in the English language teaching department assessed the proficiency test of this study before distributing it to the participants to validate its content.

Modifications were implemented in the writing and speaking parts, involving the rewording of some questions, and agreement was reached on all selected questions for the receptive skills. Two trained raters rated the students' writing and speaking tests based on the established criteria. Therefore, an inter-rater reliability test was conducted to establish reliability for the productive skills, using the intraclass correlation coefficient (ICC) via SPSS. The results demonstrated high reliability in accordance with Cicchetti's (1994) criteria for the writing exam (ICC = .811, $p < .001$) and the speaking test (ICC = .804, $p < .001$).

Results

Descriptive statistics were initially performed to determine the means for both groups concerning the pretest results. Table 1 presents the mean and standard deviation for the primary dependent variable and its sub-dependent variables.

Table 1

Descriptive statistics for pre-tests

	Groups	N	Mean	Std. Deviation
Pre-proficiency Test Overall	Experimental Group	20	27.5500	6.85546
	Control Group	23	26.1304	6.66950
Pre-reading Test	Experimental Group	20	2.2500	1.37171
	Control Group	23	1.9565	1.26053
Pre-listening Test	Experimental Group	20	1.8500	1.03999
	Control Group	23	1.9565	1.26053
Pre-writing Test	Experimental Group	20	6.7000	1.78001
	Control Group	23	6.7826	2.44868
Pre-speaking Test	Experimental Group	20	9.0500	2.79991
	Control Group	23	9.0435	2.36409
Pre-use Test	Experimental Group	20	7.7000	2.77394
	Control Group	23	6.3913	3.18718

Prior to conducting the MANOVA analysis for pretest results, the data were analysed for MANOVA assumptions; no outliers were detected, and the normal distribution of all dependent variables using the Shapiro-Wilk test was found to be met ($p > 0.05$). Box's Test of Equality of Covariance was also satisfactory ($p > 0.05$), revealing that the homogeneity assumption of covariance matrices was met. Therefore, the data were considered appropriate for MANOVA.

The MANOVA revealed that there was no statistically significant difference in students' English proficiency between the two groups ($p = 0.576, > 0.05$) prior to the implementation of our intervention, as shown in Table 2.

Table 2
Multivariate test results for the pre-tests

Effect	Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared	Observed Power ^c
Groups Wilks' Lambda	0.905	0.773 ^b	5.000	37.000	0.576	0.095	0.246

Is there a statistically significant difference in English proficiency between students instructed through IBI and those taught through traditional teaching methods?

To answer our main research question, descriptive statistics were computed to determine the means of both groups for their post-test results before performing the mixed design ANOVA. Table 3 presents the mean and standard deviation for each dependent variable.

Table 3
Descriptive statistics of post-tests

	Groups	N	Mean	Std. Deviation
Post-proficiency Test Overall	Experimental Group	20	43.7500	6.43898
	Control Group	23	35.0870	5.78331
Post-reading Test	Experimental Group	20	3.3000	1.08094
	Control Group	23	2.2174	1.08530
Post-listening Test	Experimental Group	20	2.9000	1.02084
	Control Group	23	2.7391	1.21421
Post-writing Test	Experimental Group	20	13.7500	2.51050
	Control Group	23	10.7391	2.54447
Post-speaking Test	Experimental Group	20	14.3000	3.18053
	Control Group	23	12.0435	2.47677
Post-use Test	Experimental Group	20	9.5500	2.21181
	Control Group	23	7.3478	2.40471

All assumptions for mixed-design ANOVA were met, no outliers were detected, and all dependent variables for post-tests were normally distributed ($p > 0.05$). Box's test of equality of covariance yielded a result ($p > 0.05$), revealing the homogeneity assumption of covariance matrices.

The mixed-design ANOVA test shows that there are statistically significant differences in English language proficiency between the groups from the pre-test to the post-test results, since p was less than 0.05 ($p = 0.000$), as shown in Table 4. This confirms the research hypothesis. The effect size is approximately 50 %, indicating that the experimental group demonstrated considerable improvements over time compared to the control group, with a mean of 43.7500 for the experimental group and a mean of 35.0870 for the control group.

Table 4
Tests of within-subjects effects

Source	Measure: MEASURE_1	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power ^a
Time* Groups	Sphericity Assumed	280.643	1	280.643	41.829	0.000	0.505	1.000

Figure 2 demonstrates that the mean of the experimental group consistently exceeded that of the control group throughout time, signifying a substantial improvement in the experimental group compared to the control group.

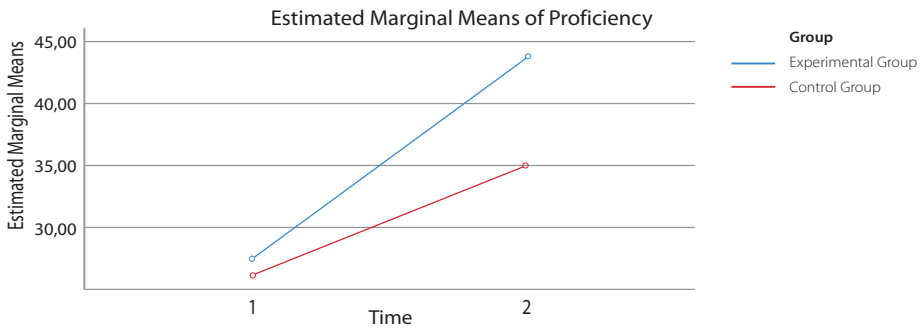


Figure 2. Groups' means of English proficiency

Is there a statistically significant difference between experimental and control groups in their productive and receptive skills?

Table 5 presents the results of the second research question, which investigated whether there is a statistically significant difference in students' English skills between the groups over time. The results indicate that there are statistically significant differences between the groups in reading, writing, and speaking skills, with p-values of <0.05: reading ($p = 0.021$, effect size = 12 %), writing ($p = 0.000$, effect size = 40 %), and speaking ($p = 0.000$, effect size=44 %). This confirms the research hypothesis for the productive skills and leads to the rejection of the null hypothesis. Conversely, there were no statistically significant differences between the groups in listening skills and use of English, as the p-values were > 0.05, confirming the acceptance of the null hypothesis for the receptive skills, particularly for listening skills.

Table 5
The differences in skills between the groups

Source	Measure	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power ^a	
Time* Groups	Reading	Sphericity Assumed	3.331	1	3.331	5.764	0.021	0.123	0.650
	Listening	Sphericity Assumed	0.382	1	0.382	0.345	0.560	0.008	0.088

Source	Measure	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared	Observed Power ^a
Time* Groups	Writing	Sphericity Assumed	51.186	1	51.186	27.631	0.000	0.403
	Speaking	Sphericity Assumed	25.888	1	25.888	32.559	0.000	0.443
	Use of English	Sphericity Assumed	4.270	1	4.270	1.791	0.188	0.042

Figure 3 illustrates that the mean values for reading, writing, and speaking skills were higher in the experimental group compared to the control group throughout the duration of the intervention.

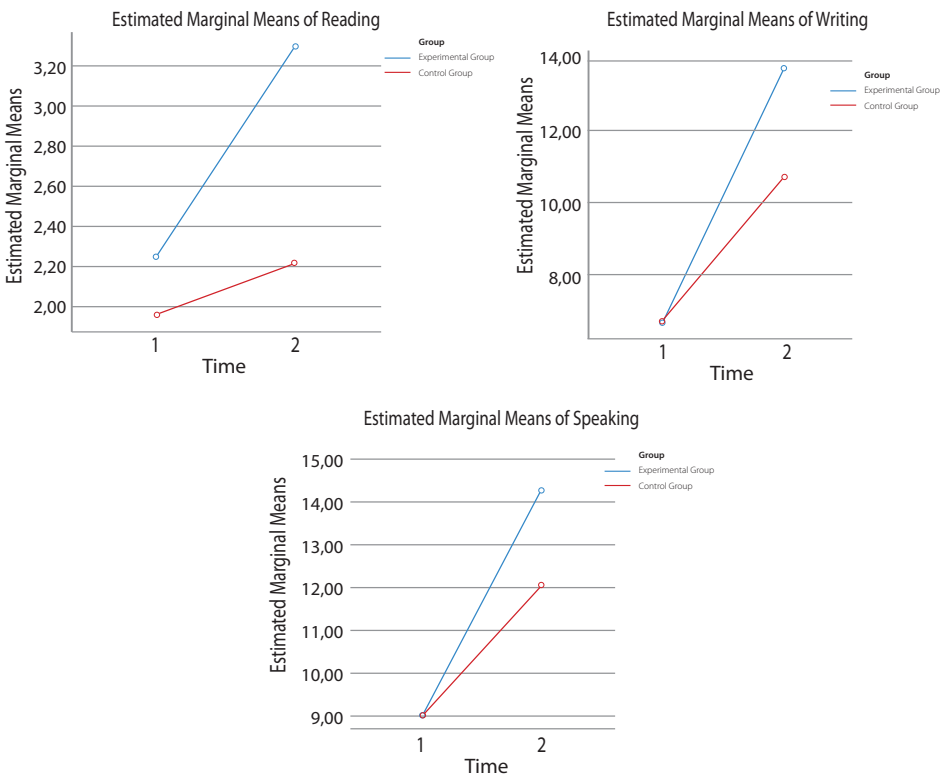


Figure 3. The mean differences in skills between the groups

Discussion and conclusion

The results indicated that IBI has different impacts on English language skills. While the results of this study confirm the assumption that IBI strengthens students' English proficiency (Alameddine & Ahwal, 2016), speaking skills (Fatkhriyah, 2019; Irawan et al., 2019; Irham & Jayanti, 2020; Kurniawati, 2022), and writing performance (Nabhan, 2017; Tikruni, 2019; Ahmed, 2022; Erviona et al., 2023), the modest improvements in

students' reading and the lack of progress in their listening skills and function language (grammar) contradict the literature's claim regarding the substantial impacts of IBI on listening comprehension (Kurnia, 2016; Nafiaturrehman & Sartika, 2024) and reading skills (Ermawati et al., 2017; Oktarani, 2015; Saputri, 2018).

Theoretically, the results of this study expand the understanding of IBI within the ELT context as skill-sensitive, working effectively for productive language development in sociocultural and interactionist environments rather than as a uniform educational approach. These results may stem from the inherent characteristics of IBI, which promote communicative opportunities for students to use English through hypothesis formulation, inquiry, and discussion. This study theoretically enhances the field of education by reconceptualising IBI within the ELT context and demonstrating that, as a pedagogical approach, it functions variably across English language skills, requiring supplementary scaffolding for receptive skills. The results suggest the necessity of using an extra technique or method with IBI when targeting receptive skills – reading and listening skills – as IBI alone may prove insufficient for scaffolding input. This conviction clarifies Kurnia's (2016) research, wherein he used IBI and ICT to improve students' listening skills.

The modified framework of this study can function as a resource for ELT practitioners, given the limited availability of IBI resources and sample lesson plans that facilitate the seamless integration of IBI into ELT sessions. The framework, while intended to improve both productive and receptive skills, demonstrated greater efficacy in fostering students' productive skills over their receptive skills. Additional research is recommended to reframe it when dealing with receptive skills.

Despite the significant contribution of this study, several limitations should be acknowledged, including the reduction of test components due to time restrictions and a small purposive sample that restricts generalisability. Consequently, further studies might investigate the application of IBI to improve listening and reading skills in ELT across diverse situations, using larger sample sizes and extended intervention durations. Furthermore, qualitative data collection tools can provide a more thorough insight into students' perspectives regarding the implementation of IBI in their classrooms.

List of Abbreviations

IBI: Inquiry- Based Instruction

TTM: Traditional Teaching Method

ELT: English Language Teaching

H0: Null Hypothesis

H1: Alternative Hypothesis

BSCS: Biological Sciences Curriculum Study

AIL: Anchored Inquiry Learning

ICT: information and communication technology

Acknowledgements

We would like to thank all the students who participated in this research; without their help, we would not have conducted the whole study. Additionally, we would like to thank the English teachers' raters and experts who helped us validate our results.

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

The datasets used and/or analysed during the current study are available from the corresponding author on reasonable request.

The authors received no financial support for the research, authorship, and/or publication of this article.

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Učinkovitost istraživački utemeljene nastave u stjecanju znanja engleskoga jezika među studentima

Sažetak

Poznavanje engleskoga jezika ključno je za akademski uspjeh na globalnoj razini, osobito za studente jer im omogućuje učinkovito izražavanje vlastitih ideja i lakše usvajanje znanja. Stoga brojni nastavnici engleskoga jezika nastoje unaprijediti jezičnu kompetenciju studenata primjenom različitih inovativnih nastavnih pristupa. Cilj ovoga istraživanja bio je ispitati učinak istraživački utemeljene nastave (Inquiry-Based Instruction – IBI) na znanje engleskoga jezika turskih studenata, s naglaskom na produktivne i receptivne jezične vještine. Istraživanje je provedeno kao kvaziekperimentalno te su u njemu sudjelovale dvije postojeće skupine studenata na kolegiju Engleski jezik u okviru studija nastavničkog smjera engleskoga jezika. Jedna skupina činila je kontrolnu skupinu i učila je primjenom tradicionalne nastavne metode (TTM), dok je druga eksperimentalna skupina učila primjenom istraživački utemeljene nastave (IBI). Za procjenu učinka IBI-ja na jezične kompetencije studenata provedena su pretestiranja i posttestiranja znanja engleskoga jezika. Rezultati su pokazali značajno poboljšanje produktivnih vještina u eksperimentalnoj skupini, dok receptivne vještine, osobito slušanje, nisu pokazale napredak, a funkcionalna uporaba jezika nije bila unaprijeđena. Rezultati ovoga istraživanja upućuju na potrebu integracije istraživački utemeljene nastave s ciljanom poukom pojedinih jezičnih vještina te na potrebu za prilagodbom nastavnoga pristupa kako bi se unaprijedile receptivne vještine. Daljnja istraživanja potrebna su za redefiniranje prilagođenoga modela IBI-ja u kontekstu razvoja receptivnih vještina.

Ključne riječi: poučavanje engleskoga jezika; inovativni nastavni pristupi; tradicionalna nastavna metoda; produktivne vještine; receptivne vještine

Uvod

Engleski jezik postao je dominantan globalni jezik koji omogućuje komunikaciju među pojedincima iz različitih kulturnih i jezičnih sredina. Nadalje, znanstvena istraživanja, međunarodne konferencije i znanstveni časopisi uglavnom koriste engleski kao primarni jezik (Kawakibi i Indrawan, 2024). Slijedom toga, „zemlje u kojima

engleski nije materinski jezik nastoje postići visoku razinu znanja engleskog jezika” kako bi ostale konkurentne na globalnoj razini (Collins, 2010, str. 97). Sukladno tome, poznavanje engleskoga jezika postaje ključni kriterij na mnogim sveučilištima diljem svijeta kako bi se osiguralo da studenti mogu učinkovito komunicirati i surađivati s međunarodnim kolegama. Primjerice, u Turskoj studenti moraju položiti ispit znanja iz engleskoga jezika kako bi se upisali na sveučilište. Oni koji u tome ne uspiju, dužni su završiti jednogodišnji pripremni program prije početka studija (Çelik i Bayraktar Çepni, 2020).

Unatoč naglasku na upisu studenata s odgovarajućim znanjem engleskoga jezika, studenti prve godine sveučilišta suočavaju se s brojnim jezičnim poteškoćama. Mnogi studenti osjećaju nelagodu pri govoru na engleskome jeziku pred svojim kolegama zbog nedostatka samopouzdanja. Također imaju poteškoće s izgovorom i gramatičkim strukturama jer im nedostaje vokabular potreban za razvoj govornih vještina (Fatkhriyah, 2019). Nadalje, velik broj studenata suočava se s poteškoćama u pisanju, uključujući nepravilnu interpunkciju i pravopis (Alfaki, 2015), nedostatak vježbe, neadekvatno usmjeravanje, neorganizirane ideje, nedostatak kohezije između rečenica te ograničen vokabular za izražavanje mišljenja (Wale i Bogale, 2021).

Uz poteškoće u produktivnim vještinama, studenti se suočavaju i s izazovima u receptivnim vještinama. Problemi u razumijevanju pročitana proizlaze iz slabije razvijenih inferencijalnih vještina, ograničenoga vokabulara i nedostatka metakognitivnih strategija čitanja (Alshehri i Zhang, 2022; Grabe i Stoller, 2019; Kim, 2023). Metakognicija se odnosi na svjesnost vlastitoga razumijevanja teksta tijekom čitanja, dok nedostatak metakognitivnih strategija upućuje na ograničenu sposobnost planiranja, praćenja i vrednovanja vlastitoga čitanja (Pressley, 2002). Osim toga, tijekom vježbanja slušanja studenti imaju poteškoća u razumijevanju brzoga govora i različitih naglasaka. Kao odgovor na ove izazove potrebno je uključiti studente u komunikacijski pristup poučavanju jezika koji naglašava aktivno, a ne pasivno učenje. Takav pristup može se ostvariti primjenom istraživački utemeljene nastave (Inquiry-Based Instruction – IBI), koja povećava angažiranost i interes studenata za sadržaj učenja (Radulović i sur., 2023).

Istraživački utemeljena nastava pomaže studentima u unaprjeđenju znanja engleskoga jezika u području čitanja, pisanja, govora i slušanja (Farruxjon i sur., 2024). Ona može unaprijediti govorne vještine povećanjem samopouzdanja i smanjenjem anksioznosti ili nelagode pri govoru pred drugima (Fatkhriyah, 2019). Također doprinosi razvoju vokabulara i autonomije studenata potičući njihovu aktivnu uključenost u nastavu i raspravu o značenjima, što olakšava razumijevanje ključnih pojmova i sadržaja te poboljšava razumijevanje slušanoga teksta. Nadalje, IBI povećava angažman studenata u pisanju omogućujući im istraživanje koncepata i razvoj ideja korištenjem različitih izvora (Wale i Bishaw, 2020; Wale i Bogale, 2021). Tako studenti mogu prevladati poteškoće u pisanju i unaprijediti koherentnost, točnost, gramatičku ispravnost i povezanost svojih tekstova. Osim toga, IBI može poboljšati razumijevanje pročitana poticanjem znatizelje postavljanjem pitanja o tekstu (Hendriarto i sur., 2021).

Unatoč navedenim prednostima IBI-ja u unaprjeđenju znanja engleskoga jezika, njegova primjena u nastavi engleskoga jezika još uvijek je ograničena (Fatkhriyah, 2019), osobito u usporedbi s njegovom primjenom u prirodoslovnim i matematičkim predmetima (Ermawati i sur., 2017; Khalil i Gunduz, 2023). Većina istraživanja u nastavi engleskoga jezika usmjerena je na ispitivanje utjecaja IBI-ja na pojedinačne jezične vještine, poput čitanja (npr. Alshammari, 2022; Ermawati i sur., 2017; Oktarani, 2015), govora (Fatkhriyah, 2019), pisanja (Ahmed, 2022; Nabhan, 2017; Wale i Bogale, 2021) i slušanja (Nafiaturrahmah i Sartika, 2024). Istraživanja koja ispituju ukupni utjecaj IBI-ja na cjelokupno znanje engleskoga jezika i dalje su rijetka. Alameddine i Ahwal (2016) jedini su istraživači koji su proučavali utjecaj IBI-ja na znanje engleskoga jezika učenika desetoga razreda u Libanonu, pri čemu su rezultati pokazali pozitivan učinak. Nadalje, ne postoje istraživanja koja ispituju može li IBI, kao pedagoški pristup, jednako utjecati na produktivne i receptivne vještine.

Stoga ovo istraživanje ima za cilj popuniti navedenu prazninu u literaturi primjenom IBI-ja u nastavi engleskoga jezika, posebno u okviru studija nastavničkoga smjera engleskoga jezika, kako bi se ispitao njegov učinak na jezičnu kompetenciju studenata na sveučilišnoj razini, s posebnim naglaskom na produktivne i receptivne vještine, sljedećim istraživačkim pitanjima:

1. Postoji li statistički značajna razlika u znanju engleskoga jezika između studenata poučavanih primjenom IBI-ja i onih poučavanih tradicionalnom nastavnom metodom (TTM)?
2. Postoji li statistički značajna razlika između eksperimentalne i kontrolne skupine u produktivnim i receptivnim vještinama?

Hipoteza

Postoji statistički značajna razlika između studenata poučavanih primjenom istraživački utemeljene nastave (IBI) i onih poučavanih tradicionalnom nastavnom metodom (TTM) u pogledu njihove jezične kompetencije u engleskome jeziku, uključujući produktivne i receptivne vještine.

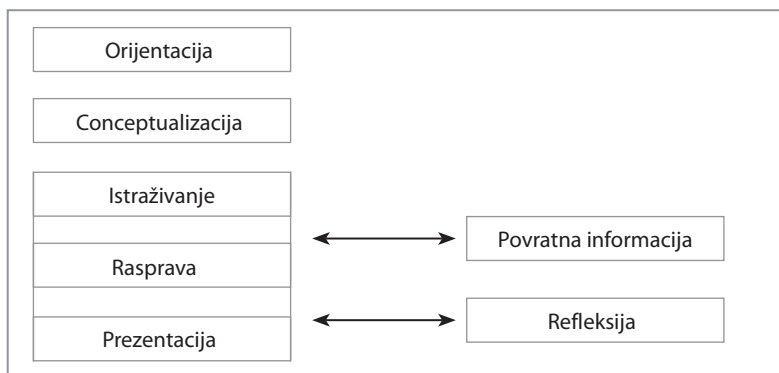
Pregled literature

Istraživački utemeljena nastava (IBI) predstavlja pristup poučavanju koji potiče učenje studenata postavljanjem pitanja ili problema, umjesto jednostavnoga prenošenja znanja (Wale i Bogale, 2021). IBI nadilazi sam proces postavljanja pitanja i davanja odgovora. Studenti ovim pristupom samostalno istražuju teme ili probleme, umjesto da se oslanjaju na nastavnike kao primarni izvor odgovora (Tavanapour i Chalak, 2021). Tijekom IBI procesa studenti provode istraživanja i upite kako bi stekli znanje i informacije o određenoj temi. Kao rezultat toga, studenti nisu ograničeni na memoriranje činjenica ili oslanjanje isključivo na testove kako bi učvrstili svoje znanje, već razvijaju istraživačke, kritičke i refleksivne vještine. Sve navedene vještine doprinose akademskom uspjehu, osobnom razvoju i društvenim odnosima (Alameddine i Ahwal, 2016).

Okvir istraživački utemeljene nastave

Ideja istraživanja potječe još od Sokrata koji ju je razvio kao diskurzivni pristup temeljen na razmjeni pitanja i odgovora s ciljem poticanja kritičkoga mišljenja (Ekiz, 2021). IBI se temelji na kognitivnim i konstruktivističkim teorijama koje naglašavaju učenje usmjereno na studenta. Kognitivizam utječe na IBI ističući aktivan proces izgradnje znanja povezivanjem novih informacija s postojećim kognitivnim strukturama učenika. Konstruktivisti smatraju da studenti aktivno konstruiraju značenje ne pasivnim primanjem znanja, već aktivnim sudjelovanjem u procesu učenja (Bruner, 1961). Piaget, Vygotsky i Bruner naglašavali su da učenici učvršćuju svoje znanje u aktivnoj interakciji s drugima i razmjenom iskustava, a upravo to nastoji postići IBI.

Detaljan pregled literature ukazuje na postojanje više modela suvremenoga IBI pristupa. Godine 1987. skupina znanstvenika iz organizacije Biological Sciences Curriculum Study (BSCS) razvila je 5E model, koji je kasnije uveden 1990. godine i često se primjenjuje u prirodoslovnim područjima. Bruce i Wasser (1996) opisuju IBI ciklus kao proces koji uključuje četiri faze: izazivanje koncepta, istraživanje, raspravu i refleksiju. Godine 2002. Bruce i Bishop proširuju ovaj model na pet faza: postavljanje pitanja, istraživanje, stvaranje, raspravu i refleksiju. Eisenkraft (2003) dodatno proširuje 5E model u 7E model dodavanjem dviju faza (*elicitation* i *extension*), čime nastaje sedam faza: *elicit*, *engage*, *explore*, *explain*, *elaborate*, *evaluate* i *extend*. Godine 2004. Alberta proširuje model na sedam faza: planiranje, prikupljanje informacija, obradu, stvaranje, dijeljenje, vrednovanje i refleksiju. Pedaste i sur. (2015) razvijaju model s četiri glavne faze: orijentacija, konceptualizacija, istraživanje i zaključivanje, uz dvije dodatne podfaze (rasprava i refleksija) koje se mogu preklapati s glavnim fazama. Najnovije, BSCS (2023) razvija pristup pod nazivom Anchored Inquiry Learning (AIL), koji uključuje niz nastavnih faza poput uvodne lekcije, istraživačke lekcije, sinteze, analize nedostataka i završnoga zadatka.



Slika 1. Konceptualni okvir istraživanja

U ovome istraživanju rekonceptualizira se okvir IBI-ja koji su predložili Pedaste i sur. (2015) kako bi se prilagodio poučavanju engleskoga jezika, s naglaskom

na produktivne i receptivne vještine. Navedeni okvir uključuje četiri glavne faze: orijentaciju, konceptualizaciju, istraživanje i zaključivanje, uz dvije dodatne podfaze: raspravu i refleksiju. U ovome istraživanju navedeni model je proširen dodavanjem novih faza. Glavne faze predloženoga modela su: orijentacija, konceptualizacija, istraživanje, rasprava i prezentacija, dok su refleksija i povratna informacija integrirane kao podfaze koje se preklapaju s glavnim fazama modela, kako je prikazano na Slici 1. Faza prezentacije uvedena je radi unaprjeđenja produktivnih vještina, dok je povratna informacija uključena kako bi se poboljšale i produktivne i receptivne vještine, posebno u pogledu razumijevanja, koherentnosti i točnosti.

IBI i receptivne vještine

Brojna istraživanja u indonezijskom kontekstu pokazuju da istraživački utemeljena nastava (IBI) pomaže studentima u poboljšanju razumijevanja pročitanoga (Ermawati i sur., 2017; Oktarani, 2015; Saputri, 2018). Rezultati akcijskoga istraživanja koje je proveo Oktarani (2015) ukazuju na to da IBI povećava angažiranost 32 učenika srednje škole. Ermawati i sur. (2017) u kvaziekperimentalnom istraživanju provedenom na uzorku od 40 studenata potvrđuju da IBI povećava angažiranost studenata u eksperimentalnoj skupini te potiče razvoj njihovih timskih vještina. Istraživanje Saputri (2018) pokazalo je da IBI pomaže 40 studenata na studiju engleskoga jezika u postizanju boljih rezultata na kolokvijima i završnim ispitima iz čitanja. U drugačijemu kontekstu, Alshammari (2022) izvještava da su rezultati predtestiranja i posttestiranja u Saudijskoj Arabiji pokazali kako su rezultati posttesta viši od rezultata predtesta, što upućuje na napredak u metakognitivnim strategijama čitanja, uključujući prepoznavanje glavne ideje, opisivanje, analizu i zaključivanje. Njegovi rezultati ukazuju na to da IBI poboljšava metakognitivne vještine čitanja, ali ne nužno i ukupno razumijevanje pročitanoga. Rezultati navedenih istraživanja ne mogu se u potpunosti generalizirati zbog ograničenoga uzorka koji ne predstavlja sve studente u Indoneziji ili Saudijskoj Arabiji. Također, u istraživanjima Oktarani (2015) i Saputri (2018) nije korišten eksperimentalni istraživački dizajn, što otežava utvrđivanje je li poboljšanje razumijevanja čitanja rezultat primjene IBI-ja ili drugih varijabli. Stoga su potrebna dodatna istraživanja u različitim kontekstima, s većim i manjim uzorcima, kako bi se potvrdili ili osporili rezultati o utjecaju IBI-ja na vještine čitanja među studentima u području poučavanja engleskoga jezika.

Literatura također pokazuje da su provedena dva istraživanja koja su ispitivala utjecaj IBI-ja na razumijevanje slušanoga u Indoneziji (Kurnia, 2016; Nafiaturrehmah i Sartika, 2024). Istraživanje Kurnije (2016) pokazalo je da je primjena IBI-ja uz korištenje informacijsko-komunikacijske tehnologije (ICT), posebice engleske glazbe s platforme YouTube, povećala angažiranost i koncentraciju učenika sedmoga razreda tijekom nastave slušanja. Međutim, to istraživanje ne pruža dovoljno empirijskih dokaza o stvarnome poboljšanju slušnih vještina, što otežava utvrđivanje proizlazi li ono iz primjene IBI-ja ili iz korištenja ICT-a. S druge strane, istraživanje Nafiaturrehmah i Sartika (2024) pruža snažne dokaze o učinkovitosti IBI-ja u unaprjeđenju vještine slušanja primjenom

eksperimentalnoga istraživačkog dizajna provedenoga na učenicima srednjih škola. Njihovi rezultati pokazuju da IBI povećava angažiranost učenika i potiče istraživački pristup u razvoju slušnih vještina. Uzimajući u obzir navedena istraživanja, IBI ima potencijal unaprijediti razumijevanje slušanoga i angažiranost učenika. Međutim, potrebna su dodatna metodološki rigorozna i kontekstualno raznolika istraživanja kako bi se pouzdano potvrdili učinci IBI-ja na razumijevanje slušanoga sadržaja.

IBI i produktivne vještine

Četiri istraživanja u indonezijskom kontekstu ispitivala su utjecaj istraživački utemeljene nastave (IBI) na govorne vještine studenata na drugom jeziku (Fatkhriyah, 2019; Irawan i sur., 2019; Irham i Jayanti, 2020; Kurniawati, 2022). Fatkhriyah (2019) provela je akcijsko istraživanje s učenicima desetoga razreda u prirodoslovnom razredu. Rezultati dvaju istraživačkih ciklusa pokazali su značajno poboljšanje govornih vještina učenika. Iako je istraživanje ukazalo na pozitivne stavove učenika prema IBI-ju, generalizacija tih nalaza otežana je zbog nedostatka jasno definiranoga uzorka u objavljenom radu. Iste godine, Irawan i sur. (2019) proveli su kvaziekperimentalno istraživanje u srednjoj školi na uzorku od 30 učenika drugoga razreda, primjenjujući IBI tijekom triju nastavnih susreta. Unatoč mogućoj nedostatnosti tako kratkoga razdoblja za procjenu učinaka IBI-ja, rezultati govorne evaluacije pokazali su značajno poboljšanje govornih vještina učenika, osobito u gramatici, vokabularu, fluentnosti i izgovoru. Slično tome, rezultati akcijskoga istraživanja Irham i Jayanti (2020) pokazali su da primjena IBI-ja poboljšava govorne vještine učenika na drugome jeziku.

Intervjui i ankete koje je provela Kurniawati (2022) na uzorku od 21 studenta u Indoneziji pokazali su da IBI unaprjeđuje njihove govorne vještine i motivaciju tijekom nastave govora. Rezultati ukazuju na potencijal IBI-ja u unaprjeđenju govornih vještina studenata. Međutim, teško je utvrditi zahtijeva li IBI dugoročnu ili kratkoročnu primjenu kako bi se uočio njegov značajan učinak na govorne performanse, budući da pregledana istraživanja (Irham i Jayanti, 2020; Kurniawati, 2022) ne navode trajanje njegove primjene. Stoga su potrebna daljnja istraživanja kako bi se precizno utvrdilo optimalno trajanje primjene IBI-ja te ispitalo mogu li istraživanja provedena izvan indonezijskoga konteksta dati slične rezultate.

Literatura također pokazuje da IBI ima značajan utjecaj na razvoj vještina pisanja (Ahmed, 2022; Erviona i sur., 2023; Mendrofa, 2022; Nabhan, 2017; Wale i Bogale, 2021). Primjerice, rezultati istraživanja Nabhan (2017) u libanonskom kontekstu pokazali su da je 124 studenata višega srednjeg stupnja u dvjema privatnim francuskim institucijama značajnije unaprijedilo svoje vještine pisanja primjenom IBI-ja u odnosu na studente poučavane tradicionalnom nastavnom metodom. Rezultati predtestiranja i posttestiranja, opažanja, upitnika, blogova i studentskih portfelja ukazali su na značajno poboljšanje vokabulara, strukture i koherentnosti. Međutim, međudjelovanje varijabli kontinuiranoga vrednovanja i IBI-ja otežava utvrđivanje njegovih stvarnih učinaka. Wale i Bogale (2021) u svojem su istraživanju pokazali da su rezultati

završnih testova pisanja 62 studenta farmacije u etiopskom sveučilištu, koji su osam tjedana bili izloženi IBI-ju, bili bolji od rezultata njihovih kolega koji nisu sudjelovali u IBI nastavi. Nadalje, rezultati fokusnih grupnih intervjuva i refleksivnih dnevnika potvrdili su potencijal IBI-ja u unaprjeđenju akademskoga pisanja, uključujući razvoj tematskih rečenica, strukture, gramatike, koherentnosti i vokabulara. Drugo kvaziekperimentalno istraživanje koje je proveo Ahmed (2022) u Egiptu, na jednoj skupini studenata, pokazalo je da IBI poboljšava pisane performanse 40 studenata prve godine te potiče njihovu samostalnost i suradničke vještine. Međutim, njegovo istraživanje ne pruža dovoljno empirijskih dokaza koji bi potvrdili da su poboljšanja rezultat isključivo primjene IBI-ja, a ne drugih varijabli.

U indonezijskom kontekstu, akcijsko istraživanje Mendrofa (2022) pokazalo je da su se sposobnosti pisanja narativnih tekstova kod 18 učenika srednje škole značajno poboljšale tijekom dvaju ciklusa nakon primjene IBI-ja. Slično tome, Erviona i sur. (2023) utvrdili su da primjena istraživački utemeljene STEM nastave značajno poboljšava vještine pisanja učenika srednje škole nakon šest nastavnih jedinica u usporedbi s učenicima poučavanima tradicionalnom metodom. Međutim, studija također ističe da su učenici u eksperimentalnoj skupini pokazali veću angažiranost i kreativnost, što otvara pitanje proizlaze li rezultati iz primjene IBI-ja ili STEM pristupa.

Unatoč navedenim rezultatima koji ukazuju na značajan utjecaj IBI-ja na unaprjeđenje jezičnih vještina — čitanja, pisanja, slušanja i govora — većina pregledanih istraživanja nije ispitivala učinke IBI-ja na jezične vještine na holistički način kako bi se utvrdila njegova primjenjivost na sve vještine. Također, većina istraživanja ne navodi trajanje potrebno za primjenu IBI-ja kako bi se postigla uočena poboljšanja u jezičnim vještinama studenata.

Metodologija

Istraživački dizajn

Ovo istraživanje predstavlja pokusnu studiju za opsežniju doktorsku disertaciju te je provedeno primjenom kvaziekperimentalnog kvantitativnoga istraživačkog dizajna (Campbell i Stanley, 2015; Creswell i Creswell, 2018) s ciljem ispitivanja učinaka istraživački utemeljene nastave (IBI) na znanje engleskoga jezika studenata studija poučavanja engleskoga jezika (ELT), korištenjem pretestiranja i posttestiranja. Ovaj dizajn odabran je zbog nemogućnosti slučajnoga odabira sudionika u istraživanjima koja se provode u učioničkom okružju (Creswell, 2014). Cilj ove pokusne studije bio je procijeniti izvedivost i učinak primijenjenoga nastavnog instrumenta, a ne generalizaciju rezultata, prije šire primjene IBI-ja (Creswell, 2014).

Sudionici

Uzorak istraživanja odabran je namjernim uzorkovanjem korištenjem dviju postojećih skupina, što je metodološki prihvatljivo u istraživanjima u učioničkom okružju (Creswell i Creswell, 2018; Palinkas i sur., 2015). Istraživanje je obuhvatilo

studente prve godine prijediplomskoga studija na Odsjeku za poučavanje engleskoga jezika (ELT) na sveučilištu u Sjevernom Cipru. Studenti su upisani na sveučilište nakon položenoga prijemnog ispita iz engleskoga jezika, čime je osigurano da svi sudionici imaju približno jednaku razinu znanja engleskoga jezika. Istraživanje je provedeno tijekom deset tjedana u proljetnom semestru akademske godine 2022./2023., u okviru obveznoga kolegija *Integrirane jezične vještine II*.

Ovaj kolegij obično uključuje dvije skupine studenata ELT-a te četiri skupine studenata prevođenja i književnosti, no u ovome istraživanju uključene su isključivo ELT skupine. Savjetnik studijskoga programa nasumično je rasporedio 55 studenata ELT-a u dvije skupine (A i B). Nasumično je odabrana skupina A, koja je uključivala 28 studenata, kao kontrolna skupina koja je bila poučavana bez primjene IBI-ja; međutim, u konačnu analizu uključena su 23 studenta koji su pristupili i predtestiranju i posttestiranju. Skupina B, koja je uključivala 27 studenata, činila je eksperimentalnu skupinu; međutim, pet studenata isključeno je iz analize jer nisu sudjelovali u obama testiranjima, pa je konačan broj sudionika u eksperimentalnoj skupini iznosio 22. Obje skupine poučavao je prvi autor ovoga teksta.

Instrumenti za prikupljanje podataka

Kako bi se ostvarili ciljevi istraživanja i odgovorilo na istraživačka pitanja, za prikupljanje podataka korišteni su predtestovi i posttestovi znanja engleskoga jezika. Svaki test bio je paralelan i sastojao se od pet dijelova (vidi Priloge A i B u *online* dodatnim materijalima): čitanje, uporaba jezika, slušanje, pisanje i govor. Test je preuzet iz sustava Cambridge Assessment English uz određene prilagodbe, osim dijela za pisanje koji je posebno osmišljen za potrebe ovoga istraživanja. Studenti su pisani dio testa rješavali u jednome danu u trajanju od približno 70 minuta, dok je sljedeći dan bio posvećen individualnoj procjeni govornih vještina, pri čemu je svakom studentu bilo dodijeljeno 10 minuta za usmeni dio ispita.

Prva dva dijela testa odnosila su se na čitanje i uporabu jezika. Izvorni Cambridge test sastojao se od pet komponenti, no zbog vremenskih ograničenja korištene su samo dvije koje su bile u skladu s ciljem istraživanja: jedna za čitanje i jedna za uporabu jezika. Dodatno je osmišljeno još jedno pitanje za dio koji se odnosi na uporabu jezika. Treći dio testa bio je namijenjen procjeni vještina slušanja. Izvorni test sadržavao je četiri dijela, no zbog vremenskih ograničenja korišten je samo jedan.

Četvrti dio testa odnosio se na pisanje na stranome jeziku. Ovaj dio u potpunosti je razvijen za potrebe istraživanja te je uključivao dva paralelna testa za predtestiranje i posttestiranje, kao i zadatak koji uključuje citiranje u tekstu. Testovi su pažljivo osmišljeni kako bi procijenili akademske vještine pisanja studenata te su ga evaluirala dva stručnjaka iz područja poučavanja engleskoga jezika. Na temelju njihovih povratnih informacija test je dodatno unaprijeđen. Procjenu pisanih radova provela su dva ocjenjivača koristeći kriterije razvijene za objektivnu evaluaciju studentskih eseja.

Posljednji dio testa bio je usmjeren na procjenu govornih vještina. U tu svrhu korištene su dvije slike za predtest i dvije za posttest preuzete iz glavnoga Cambridgeova testa,

uz dodatno osmišljena pitanja povezana s prikazanim sadržajem. Glasovi studenata snimani su uz njihov pristanak kako bi se omogućila naknadna evaluacija. Nakon toga, prvi istraživač i nastavnik engleskoga jezika procjenjivali su govorne odgovore studenata na temelju koherentnosti, strukture i izbora riječi, koristeći unaprijed definirane kriterije za procjenu govorne izvedbe.

Postupak primjene IBI-ja

Nakon dobivanja etičkoga odobrenja od Etičkog povjerenstva za obrazovne znanosti Sveučilišta Near East (NEU/ES/2022/937), sudionici su prije prikupljanja podataka potpisali informirani pristanak. Nakon toga proveden je predtest znanja engleskoga jezika. Obje skupine slijedile su isti kurikulum temeljen na udžbeniku *Cambridge Academic English* (Hewings i sur., 2012) na razini C1. Udžbenik je bio podijeljen u deset cjelina, a svaka je obuhvaćala aktivnosti iz čitanja, govora, vokabulara, gramatike i pisanja, kao i uvodne i diskusijske aktivnosti. Iste teme obrađivane su u objema skupinama, no kontrolna skupina poučavana je predavačkom metodom uz primjenu tradicionalne nastavne metode (TTM). Ovaj pristup naglašava ulogu nastavnika, pri čemu studenti izvršavaju zadatke uglavnom kao odgovor na izravne upute. U eksperimentalnoj skupini nastava je provedena primjenom istraživački utemeljene nastave (IBI). Nastavni materijali osmišljeni su tako da podržavaju temeljna načela IBI-ja postavljanjem pitanja, aktiviranjem prethodnoga znanja, istraživanjem, prikupljanjem informacija, odgovaranjem, objašnjavanjem, prezentiranjem rezultata i refleksijom o učenju.

Ova pokusna studija temeljila se na sedam faza IBI ciklusa: orijentacija, konceptualizacija, istraživanje, rasprava, prezentacija, refleksija i povratna informacija. U fazi orijentacije studenti su upoznati s temom kako bi se procijenilo njihovo prethodno znanje. Nakon toga postavljena su pitanja vezana uz temu te su raspoređena među skupinama. U fazi istraživanja studenti su koristili internet kako bi prikupili podatke potrebne za odgovaranje na postavljena pitanja, dok je uloga nastavnika bila usmjeravati ih prema relevantnim izvorima i pružati konstruktivnu povratnu informaciju. U sljedećoj fazi studenti su raspravljali o svojim nalazima i razmjenjivali informacije unutar skupina. Kako bi došli do zaključaka, morali su organizirati svoje odgovore na logičan način i reflektirati o onome što su naučili. U fazi prezentacije nastavnik je nasumično odabirao studente iz svake skupine da predstavljaju svoje odgovore pred razredom uz pomoć članova svoje skupine, nakon čega je pružena povratna informacija na razini razreda.

Primjerice, tijekom nastavne jedinice usmjerene na poučavanje složenih veznika, studenti u kontrolnoj skupini slušali su nastavnikova objašnjenja o značenju i funkciji veznika te su zatim rješavali zadatke tipa „popuni praznine” iz udžbenika. Nasuprot tome, studenti u eksperimentalnoj skupini dobili su tekst za čitanje kojim su se upoznali sa složenim veznicima u fazi orijentacije. U fazi konceptualizacije studenti su u manjim skupinama podcrtavali rečenice koje sadrže složene veznike i određivali njihova značenja. Nakon toga su, uz podršku nastavnika, istraživali značenja i uporabu

veznika koristeći akademske izvore tijekom faze istraživanja. Zatim su raspravljali unutar svojih skupina i izrađivali vlastite primjere u fazi rasprave. Nastavnik je pratio njihove rasprave i povremeno pružao konstruktivnu povratnu informaciju kako bi potaknuo refleksiju. U fazi prezentacije studenti su zapisivali svoje primjere na ploču i objašnjavali njihovu uporabu. Nastavnik je pružao povratnu informaciju te postavljao pitanja za provjeru razumijevanja (CCQ) kako bi se osiguralo razumijevanje i potaknula refleksija. Isti postupak primjenjivan je i u drugim nastavnim jedinicama i za druge jezične vještine.

Primjena IBI-ja trajala je deset tjedana, uz dvije nastavne jedinice tjedno, pri čemu je svaka trajala približno 100 minuta. Nakon završetka provedbe IBI-ja studenti su zamoljeni da napišu refleksivne eseje u kojima su saželi što su naučili tijekom nastave.

Analiza podataka

Analiza podataka provedena je pomoću programa IBM SPSS Statistics verzija 23. Deskriptivna statistika izračunata je za glavnu zavisnu varijablu (znanje engleskoga jezika) te za svaku pojedinačnu zavisnu varijablu (govor, čitanje, pisanje, slušanje i uporaba jezika) za predtestove i posttestove. S obzirom na postojanje više zavisnih varijabli, prije glavne analize provedena je MANOVA (Field, 2024; Tabachnick i Fidell, 2019) kako bi se utvrdilo postoje li statistički značajne razlike između skupina u pogledu znanja engleskoga jezika primjenom četiriju jezičnih vještina prije provedbe intervencije. U skladu s time, za predtestove provjerene su normalnost distribucije i sve pretpostavke potrebne za primjenu MANOVA analize.

Za analizu glavnih učinaka i interakcijskih učinaka tijekom vremena između dviju skupina korištena je dvosmjerna mješovita ANOVA (Gravetter i Wallnau, 2017). Sve pretpostavke i testovi normalnosti provedeni su kako bi se zadovoljili kriteriji za primjenu mješovitoga dizajna ANOVA. Na kraju je izračunata veličina učinka pomoću parcijalnoga eta kvadrata (η^2), u skladu s Cohenovim (1988) kriterijima za male ($\eta^2 = ,01$), srednje ($\eta^2 = ,06$) i velike ($\eta^2 = ,14$) učinke.

Valjanost i pouzdanost

Dva stručnjaka iz područja poučavanja engleskoga jezika procijenila su test znanja korišten u ovome istraživanju prije njegove primjene kako bi se osigurala njegova sadržajna valjanost. Na temelju njihovih prijedloga izvršene su određene izmjene u dijelovima za pisanje i govor, uključujući preformuliranje pojedinih pitanja, dok je za receptivne vještine postignut konsenzus o odabranim zadacima.

Dva educirana ocjenjivača procjenjivala su studentske radove iz pisanja i govora prema unaprijed definiranim kriterijima. Kako bi se utvrdila pouzdanost procjenjivanja produktivnih vještina, provedena je analiza međusuglasnosti ocjenjivača korištenjem intraklasnoga koeficijenta korelacije (ICC) u programu SPSS. Rezultati su pokazali visoku razinu pouzdanosti prema kriterijima Cicchetti (1994) za test pisanja (ICC = ,811, $p < .001$) i test govora (ICC = ,804, $p < .001$).

Rezultati

Deskriptivna statistika najprije je provedena kako bi se utvrdile srednje vrijednosti za obje skupine u predtestu. Tablica 1 prikazuje srednju vrijednost i standardnu devijaciju za glavnu zavisnu varijablu i njezine podvarijable.

Tablica 1

Prije provođenja MANOVA analize za rezultate predtesta, podatci su analizirani kako bi se provjerile pretpostavke za primjenu MANOVA analize. Nisu utvrđene izdvojene vrijednosti, a normalnost distribucije svih zavisnih varijabli potvrđena je Shapiro-Wilkovim testom ($p > 0,05$). Boxov test jednakosti kovarijanci također je bio zadovoljavajući ($p > 0,05$), što ukazuje na to da je pretpostavka homogenosti kovarijacijskih matrica zadovoljena. Stoga su podatci smatrani prikladnima za primjenu MANOVA analize.

Rezultati MANOVA analize pokazali su da ne postoji statistički značajna razlika u znanju engleskoga jezika između dviju skupina prije provedbe intervencije ($p = 0,576$), što je prikazano u Tablici 2.

Tablica 2

Postoji li statistički značajna razlika u znanju engleskoga jezika između studenata poučavanih primjenom IBI-ja i onih poučavanih tradicionalnom nastavnom metodom?

Da bi se odgovorilo na glavno istraživačko pitanje, izračunata je deskriptivna statistika kako bi se utvrdile srednje vrijednosti za obje skupine u posttestu prije provođenja mješovite ANOVA analize. Tablica 3 prikazuje srednju vrijednost i standardnu devijaciju za svaku zavisnu varijablu.

Tablica 3

Sve pretpostavke za mješovitu ANOVA analizu bile su zadovoljene; nisu utvrđene izdvojene vrijednosti, a sve zavisne varijable u posttestovima bile su normalno distribuirane ($p > 0,05$). Boxov test jednakosti kovarijanci također je bio zadovoljavajući ($p > 0,05$), što potvrđuje da je pretpostavka homogenosti kovarijacijskih matrica ispunjena.

Rezultati mješovite ANOVA analize pokazuju da postoje statistički značajne razlike u znanju engleskoga jezika između skupina od predtesta do posttesta budući da je vrijednost p manja od 0,05 ($p = 0,000$), što je prikazano u Tablici 4. Time se potvrđuje istraživačka hipoteza. Veličina učinka iznosi približno 50 %, što ukazuje na značajno poboljšanje eksperimentalne skupine tijekom vremena u usporedbi s kontrolnom skupinom, pri čemu srednja vrijednost iznosi 43,7500 za eksperimentalnu skupinu i 35,0870 za kontrolnu skupinu.

Tablica 4

Slika 2 prikazuje da su srednje vrijednosti eksperimentalne skupine tijekom vremena bile veće od vrijednosti kontrolne skupine, što ukazuje na značajno poboljšanje eksperimentalne skupine u usporedbi s kontrolnom skupinom.

Slika 2.

Postoji li statistički značajna razlika između eksperimentalne i kontrolne skupine u produktivnim i receptivnim vještinama?

Tablica 5 prikazuje rezultate drugoga istraživačkog pitanja, kojim se ispitalo postoji li statistički značajna razlika u jezičnim vještinama studenata između skupina tijekom vremena. Rezultati pokazuju da postoje statistički značajne razlike između skupina u vještinama čitanja, pisanja i govora, pri čemu su p-vrijednosti manje od 0,05: čitanje ($p = ,021$, veličina učinka = 12 %), pisanje ($p = ,000$, veličina učinka = 40 %) i govor ($p = ,000$, veličina učinka = 44 %). Time se potvrđuje istraživačka hipoteza za produktivne vještine i odbacuje nulta hipoteza.

S druge strane, nisu utvrđene statistički značajne razlike između skupina u vještinama slušanja i uporabe jezika jer su p-vrijednosti veće od 0,05, što potvrđuje prihvaćanje nulte hipoteze za receptivne vještine, osobito za vještinu slušanja.

Tablica 5

Slika 3 prikazuje da su srednje vrijednosti vještina čitanja, pisanja i govora bile veće u eksperimentalnoj skupini u usporedbi s kontrolnom skupinom tijekom trajanja intervencije.

Slika 3.

Diskusija i zaključak

Rezultati ovoga istraživanja pokazali su da istraživački utemeljena nastava (IBI) ima različite učinke na jezične vještine u engleskome jeziku. Dok rezultati potvrđuju pretpostavku da IBI unaprjeđuje znanje engleskoga jezika (Alameddine i Ahwal, 2016), govorne vještine (Fatkhriyah, 2019; Irawan i sur., 2019; Irham i Jayanti, 2020; Kurniawati, 2022) te pisane performanse (Nabhan, 2017; Tikruni, 2019; Ahmed, 2022; Erviona i sur., 2023), skromna poboljšanja u čitanju te izostanak napretka u slušnim vještinama i funkcionalnoj uporabi jezika (gramatici) proturječe tvrdnjama iz literature o značajnim učincima IBI-ja na razumijevanje slušanoga sadržaja (Kurnia, 2016; Nafiaturrahmah i Sartika, 2024) i vještine čitanja (Ermawati i sur., 2017; Oktarani, 2015; Saputri, 2018).

S teorijskoga stajališta, rezultati ovoga istraživanja proširuju razumijevanje IBI-ja u kontekstu poučavanja engleskoga jezika (ELT) kao pristupa osjetljivoga na različite jezične vještine, koji je učinkovitiji za razvoj produktivnih vještina u sociokulturnim i interakcionističkim okružjima nego kao jedinstveni obrazovni model. Ovi rezultati mogu se objasniti inherentnim obilježjima IBI-ja, koji potiče komunikacijske prilike za uporabu engleskoga jezika formuliranjem hipoteza, istraživanjem i raspravom. Ovo

istraživanje doprinosi teorijskom razvoju obrazovanja rekonceptualizacijom IBI-ja u ELT kontekstu te pokazuje da se, kao pedagoški pristup, različito odražava na pojedine jezične vještine, pri čemu su za receptivne vještine potrebne dodatne potpore u učenju.

Rezultati ukazuju na potrebu primjene dodatnih metoda ili tehnika uz IBI kada se razvijaju receptivne vještine — čitanje i slušanje — budući da sam IBI možda nije dovoljan za adekvatno usmjeravanje jezične izloženosti. Ovaj zaključak dodatno pojašnjava rezultate istraživanja Kurnije (2016), u kojem su IBI i informacijsko-komunikacijska tehnologija (ICT) kombinirani kako bi se unaprijedile slušne vještine studenata.

Modificirani okvir ovoga istraživanja može poslužiti kao koristan alat nastavnicima engleskoga jezika, s obzirom na ograničenu dostupnost IBI materijala i primjera nastavnih planova koji omogućuju njegovu učinkovitu primjenu u nastavi. Iako je okvir osmišljen s ciljem unaprjeđenja i produktivnih i receptivnih vještina, rezultati pokazuju veću učinkovitost u razvoju produktivnih vještina. Stoga se preporučuju daljnja istraživanja radi njegove prilagodbe u kontekstu razvoja receptivnih vještina.

Unatoč značajnom doprinosu ovoga istraživanja, potrebno je istaknuti određena ograničenja, uključujući smanjenje broja testnih zadataka zbog vremenskih ograničenja te mali uzorak odabran namjernim uzorkovanjem, što ograničava mogućnost generalizacije rezultata. Buduća istraživanja trebala bi ispitati primjenu IBI-ja u unaprjeđenju slušanja i čitanja u različitim kontekstima, uz veće uzorke i dulje trajanje intervencije. Također, korištenje kvalitativnih metoda prikupljanja podataka može pružiti dublji uvid u percepcije studenata o primjeni IBI-ja u nastavi.

Popis kratica

IBI: Istraživački utemeljena nastava

TTM: Tradicionalna nastavna metoda

ELT: Poučavanje engleskog jezika

H0: Nulta hipoteza

H1: Alternativna hipoteza

BSCS: Biological Sciences Curriculum Study

AIL: Anchored Inquiry Learning

ICT: Informacijsko-komunikacijska tehnologija

Napomena

Zahvaljujemo svim studentima koji su sudjelovali u ovome istraživanju, bez njihove pomoći ne bismo mogli provesti cijelo istraživanje. Također zahvaljujemo nastavnicima engleskoga jezika, ocjenjivačima i stručnjacima koji su doprinijeli validaciji rezultata.

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