



Implementing Differentiated Instruction in EFL Teaching: A Methodological Approach for Non-Linguistic University Students in Kazakhstan

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ABSTRACT

In the context of modern higher education, teaching English as a Foreign Language (EFL) to students in non-linguistic disciplines presents distinct challenges due to wide variations in learners' proficiency levels, motivation, and academic goals. This study explores the implementation and effectiveness of Differentiated Instruction (DI) in EFL teaching among undergraduate students enrolled in the Information Systems program at Sh. Ualikhanov University in Kazakhstan. Grounded in constructivist and sociocultural learning theories, the research employed an experimental mixed-methods design. The experimental group received DI-based instruction, including tiered tasks, flexible grouping, and choice-based learning, while the control group followed traditional instructional methods. Quantitative results demonstrated statistically significant improvements in the experimental group's language proficiency across all four skills, with particularly strong gains in speaking and writing, compared to the control group. Qualitative data from student reflections and teacher observations indicated increased motivation, confidence, and classroom engagement. The findings further suggest that DI promotes inclusive learning by accommodating diverse proficiency levels, aligning instructional content with students' professional interests, and reducing language anxiety. The study concludes that DI is both feasible and effective in resource-constrained higher education contexts, contributing to academic equity and the development of professional language competence. Implications for teacher training and curriculum design are discussed.

KEYWORDS

Differentiated Instruction; EFL; professional English; inclusive pedagogy; higher education; tiered tasks; language proficiency.

INTRODUCTION

In the context of the Information Age, the teaching of English as a Foreign Language (EFL) is undergoing a profound transformation. Rapid technological development, the expansion of digital communication platforms, and the global role of English as a lingua franca have fundamentally reshaped how languages are learned and used. EFL instruction is no longer limited to the mastery of grammatical structures or isolated linguistic knowledge; rather, it increasingly emphasizes communicative competence, intercultural awareness, and the ability to function effectively in digital and multilingual environments. As a result, EFL learners are expected to develop not only language proficiency but also critical thinking, adaptability, and collaborative skills essential for meaningful communication in academic, professional, and virtual contexts (Fullan, 2013; Yeleussiz, 2024; Yeleussiz & Qanay, 2025).

One of the key implications of these developments is the need to redesign pedagogical practices to accommodate learner diversity (Rudik et al., 2025). Traditional teaching methods, which often presume uniformity in students' prior knowledge and learning styles, are increasingly inadequate. Research shows that contemporary classrooms consist of learners who differ not only in cognitive abilities and background knowledge but also in cultural and linguistic profiles, thereby challenging one-size-fits-all instructional models (Ismagulova et al., 2025; Vidaschi Ozzola, 2025). In many educational contexts, including Kazakhstan, heterogeneous classrooms comprising students with varying levels of academic preparedness, interests, and cognitive styles necessitate differentiated instructional strategies to address diverse learning needs and promote inclusive participation (Kupchyk & Litvinchuk, 2020; Zhunussova & Ryspayeva, 2025). Addressing this diversity requires flexible pedagogical approaches capable of responding to a broad spectrum of learner characteristics within a single instructional environment.

Differentiated Instruction (DI) offers a research-informed framework for addressing this challenge. As a pedagogical approach, DI involves the systematic adaptation of instructional elements—including content, learning processes, student outputs, and classroom environments—based on continuous assessment of learners' readiness, interests, and learning profiles (Sousa & Tomlinson, 2018). Importantly, DI does not entail lowering academic expectations; rather, it provides multiple pathways through which students can achieve shared learning objectives. Numerous studies in school settings have demonstrated that DI enhances both student achievement and motivation, particularly when learners are encouraged to take ownership of their learning (Parsons et al., 2013). Despite its documented effectiveness in primary and secondary education, the application of DI in higher education remains limited and underexplored. Existing systematic reviews and meta-analyses largely focus on school-level contexts, emphasizing gains in academic achievement while also noting the scarcity of empirical evidence from tertiary education (Deunk et al., 2018). Consequently, the use of DI principles in university instruction—especially within non-linguistic programs and EFL courses—remains underrepresented in the literature. This research gap is particularly salient in contexts such as

Kazakhstan, where English is increasingly viewed not merely as an academic subject but as a professional competence essential for global engagement, career mobility, and access to scientific knowledge (Deci & Ryan, 2000; Imankulova et al., 2025; Kuzembayeva et al., 2025).

These challenges are particularly evident in non-linguistic university programs, where EFL is often taught to highly heterogeneous student cohorts using standardized, textbook-driven curricula. Within Kazakhstani higher education, EFL courses are expected to address both general academic requirements and profession-oriented communication needs, despite substantial variation in students' language proficiency, motivation, and prior learning experiences. Conventional instructional practices, however, rarely accommodate such diversity, and standard EFL materials are seldom designed with differentiation as a guiding principle. As a result, there is a clear need for empirically grounded research that explores not only the effectiveness of DI in higher education EFL contexts, but also practical approaches for implementing DI through the adaptation of existing teaching materials. Moreover, it is essential to examine how such implementation influences academic outcomes and the development of profession-oriented communicative skills. Addressing this gap is critical for advancing DI research beyond theoretical advocacy toward context-sensitive and implementable pedagogical models. In response to these unresolved issues, the present study investigates the application of DI in an EFL course for non-linguistic university students in Kazakhstan. Specifically, it examines the feasibility of adapting standard EFL materials for differentiated use, the impact of DI on students' academic performance and motivation, and the extent to which DI-based strategies support the development of profession-oriented communicative competence in English.

Despite substantial evidence supporting DI in pre-tertiary education, its pedagogical application and empirical examination in higher education remain limited and fragmented. Recent systematic reviews of DI in university contexts point to a sparse and uneven body of research, with relatively few studies addressing implementation challenges, measurable learner outcomes, and context-sensitive strategies across disciplines (Suwarno & Suprayogi, 2024). This gap is particularly consequential in EFL courses within non-linguistic programs, where pronounced learner variability, profession-oriented language demands, and complex communicative tasks necessitate differentiated pedagogical approaches. In Kazakhstan and similar higher education systems, English is increasingly regarded not merely as an academic subject but as a professional competence essential for international engagement, career mobility, and access to contemporary scientific knowledge, highlighting the urgent need for rigorous research into the role of DI in tertiary language education (Gerfanova et al., 2025).

In response to the growing demand for English language instruction that is both academically rigorous and inclusive, this study examines the implementation of a DI-based methodological framework in an EFL context. The research focuses on undergraduate students enrolled in the Information Systems program at Sh. Ualikhanov University in Kazakhstan is a cohort characterized by considerable variation in English proficiency, motivation, and prior

exposure to English learning environments. The study explores whether differentiated instructional strategies can bridge the gap between students' existing linguistic competencies and the academic and professional communication skills required in their field. The investigation is guided by the following research questions:

1. To what extent can DI principles be implemented through the adaptation of standard EFL teaching materials used in Kazakhstani universities?
2. How does the application of DI affect students' academic performance and motivation in English language learning within a non-linguistic program?
3. What effect do DI-based strategies have on the development of students' profession-oriented communicative skills in English in a non-linguistic academic context?

The methodological framework of the study integrated tiered assignments, flexible grouping, learning contracts, and choice-based activities. These techniques were designed to correspond to students' varying proficiency levels and to provide appropriate scaffolding for both foundational and advanced learners. Over two academic semesters, students engaged in a sequence of differentiated lessons delivered through a blended learning model that incorporated digital tools and formative assessment practices. By examining the outcomes of this intervention in terms of linguistic development and learner engagement, the study contributes to the expanding literature on differentiated pedagogy in higher education. More importantly, it demonstrates how DI can be effectively adapted for English language teaching in non-linguistic disciplines, supporting more equitable and effective learning environments in Kazakhstan and comparable educational contexts.

THEORETICAL FRAMEWORK

Differentiated Instruction and Academic Performance

Differentiated Instruction (DI) is founded on the premise that learners within any classroom vary in their levels of readiness, interests, and learning profiles. Instead of employing uniform instructional practices, DI advocates the deliberate adaptation of content, instructional processes, assessment products, and learning environments to accommodate learner diversity (Tomlinson, 2004). Within this framework, academic achievement is viewed as a function of the alignment between instruction and students' current levels of competence and cognitive development. This perspective closely corresponds with constructivist learning theory and Vygotsky's (1978) concept of the Zone of Proximal Development (ZPD), which asserts that learning is most effective when tasks are positioned slightly above learners' independent performance levels and supported through appropriate scaffolding. In a DI-oriented classroom, tiered assignments and scaffolded activities operationalize this principle by enabling students at varying proficiency levels to pursue shared learning objectives through tasks of differing complexity (Tomlinson & Imbeau, 2010).

From this theoretical perspective, assessing changes in language proficiency through pre- and post-intervention measures is methodologically justified, as DI is expected to promote

academic growth by reducing cognitive overload for lower-proficiency learners while simultaneously extending learning opportunities for more advanced students.

Differentiated Instruction and Learner Motivation

Beyond cognitive outcomes, DI is closely linked to the affective and motivational dimensions of learning. According to Self-Determination Theory (Ryan & Deci, 2000), sustained motivation emerges when learners experience autonomy, competence, and relatedness within the learning environment. DI addresses these psychological needs by providing meaningful choices, appropriately challenging tasks, and opportunities for collaborative learning. Sousa and Tomlinson (2018) note that DI enhances learner motivation by aligning instructional demands with students' readiness levels and personal interests, thereby increasing engagement and persistence. Choice-based activities, flexible grouping, and formative feedback enable learners to perceive learning as both attainable and personally meaningful. Within this framework, motivation is not treated as a secondary outcome but as a theoretically grounded construct influenced by instructional design. Accordingly, the use of motivation questionnaires and qualitative reflections is theoretically justified as a means of examining how DI supports learners' affective engagement and self-perceived competence in EFL contexts.

Differentiated Instruction and Profession-Oriented Communicative Skills in EFL

In English as a Foreign Language (EFL) context, particularly within non-linguistic university programs, communicative competence extends beyond general language proficiency to encompass profession-oriented communication skills. DI supports the development of these skills by enabling learners to engage with discipline-relevant content and communicative tasks aligned with their academic and professional goals. Tomlinson's model identifies interest as a key dimension of differentiation, suggesting that instruction is more effective when learning materials reflect students' disciplinary orientations (Tomlinson, 2014). In EFL settings, this may involve the use of profession-specific texts, task-based speaking activities, and varied output formats, such as presentations, reports, and problem-based discussions. Differentiation of both process and product allows learners to demonstrate communicative competence through multiple modalities, consistent with the principles of communicative and task-based language teaching. These theoretical foundations justify the analysis of speaking and writing performance tasks, as well as qualitative data from reflective journals, as valid indicators of students' development of profession-oriented communicative competence.

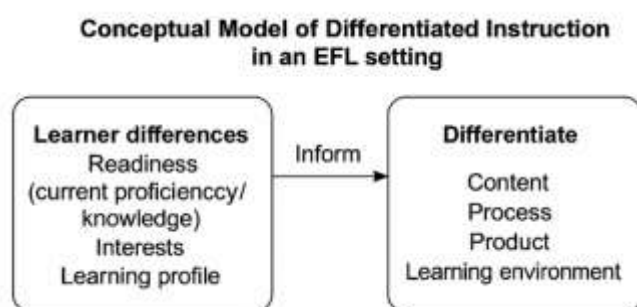
Differentiated Instruction as a Dynamic and Responsive Framework

Differentiated instruction is best conceptualized not as a fixed set of techniques but as a flexible and responsive pedagogical framework grounded in ongoing formative assessment (Hall et al., 2003). Continuous assessment enables instructors to adjust instructional strategies, regroup learners, and refine task complexity in response to students' evolving needs. The learning environment itself is also subject to differentiation, encompassing both physical and psychological dimensions. By fostering a supportive and inclusive classroom climate—through flexible grouping, peer collaboration, and reduced performance anxiety—DI creates conditions

that promote academic growth and communicative risk-taking, which is particularly important in EFL contexts. Taken together, these theoretical perspectives provide a coherent foundation for the present study. They justify the selection of outcome variables—language proficiency, motivation, and profession-oriented communicative skills—and support the use of both quantitative and qualitative analytical approaches to examine the effects of DI in a higher education EFL setting. These theoretical assumptions are synthesized in the conceptual model of DI in an EFL context (Figure 1). The model conceptualizes learner differences—readiness, interests, and learning profiles—as diagnostic inputs that guide differentiation across four instructional dimensions: content, process, product, and learning environment. Continuous assessment mediates this relationship, reinforcing the iterative and dynamic nature of differentiation.

Figure 1.

Conceptual model of Differentiated Instruction in an EFL setting



The differentiated instruction (DI) model in an EFL context illustrates the pedagogical logic underlying the instructional decisions examined in this study. The model conceptualizes learner differences—specifically readiness (current language proficiency and background knowledge), interests, and learning profiles—as the primary diagnostic inputs for instructional planning. These learner characteristics inform teachers’ differentiation across four interrelated instructional dimensions: content, process, product, and the learning environment. By explicitly linking learner variability to targeted instructional adaptations, the model clarifies how DI operates as a systematic and responsive framework rather than a collection of ad hoc strategies. Importantly, the model emphasizes the iterative nature of differentiation in EFL settings, whereby continuous assessment of learners’ linguistic development informs and refines instructional decisions over time. Within the scope of this study, Figure 1 functions as the analytical framework guiding both the design of differentiated EFL tasks and the interpretation of instructional practices, thereby operationalizing DI in a higher education language-learning context.

METHODS

Research Design

This study employed a mixed-methods quasi-experimental research design that integrated quantitative and qualitative approaches to examine the effectiveness of DI in an EFL course for non-linguistic university students. A quasi-experimental design was chosen because the intact nature of existing academic groups made random assignment impractical. The intervention was implemented over two academic semesters (32 weeks) and involved a comparison between a control group receiving traditional teacher-centered instruction and an experimental group exposed to differentiated instruction.

Research Group / Participants

A non-probability convenience sampling method was employed. Participants were drawn from intact second-year student groups enrolled in the Information Systems program, as random sampling was not feasible due to institutional and curricular constraints inherent in the quasi-experimental design. The sample consisted of 60 second-year undergraduate students from a non-linguistic faculty at Sh. Ualikhanov University, divided into an experimental group ($n = 30$) and a control group ($n = 30$). Prior to the intervention, all participants completed a diagnostic English proficiency test aligned with CEFR descriptors, which confirmed that the two groups were comparable in overall proficiency (A2–B1 range). Participation in the study was voluntary, and informed consent was obtained from all students. To ensure ethical compliance, participants were informed of the research objectives and assured that their data would remain confidential.

Data collection tools

Multiple data collection instruments were employed to ensure triangulation. English language proficiency was measured through pre- and post-tests assessing the four skills of reading, listening, writing, and speaking. The tests were aligned with CEFR standards and adapted to the disciplinary context of Information Technology. Profession-oriented communicative skills were operationalized through discipline-specific speaking and writing tasks, including oral presentations, role-plays, and written reports relevant to Information Systems contexts. Performance was evaluated using analytic rubrics that focused on task relevance, clarity of message, appropriate use of professional vocabulary, and overall communicative effectiveness.

A structured questionnaire based on self-determination theory was administered before and after the intervention to measure changes in students' motivation toward EFL learning. The motivation instrument comprised six items rated on a 5-point Likert scale (1 = strongly disagree, 5 = strongly agree) and targeted three motivational dimensions: learner autonomy, perceived competence, and relatedness. Prior to data collection, the items were reviewed and piloted to ensure clarity, relevance, and content validity within the study context. In addition, ongoing progress was monitored through weekly quizzes, short written assignments, oral performance checklists, and online activities conducted via Moodle and Google Classroom. Qualitative data were collected using open-ended questionnaires, student reflective journals, and teacher

observation logs to capture students' perceptions, engagement levels, and responses to differentiated instruction.

The instructional phase comprised two parallel conditions implemented by the same instructor to control for teacher-related variables. Students in the control group received traditional teacher-centered instruction characterized by whole-class teaching aligned with a fixed syllabus, uniform tasks and assignments regardless of proficiency level, an emphasis on grammar explanation and textbook-based exercises, teacher-led questioning, limited learner choice in task format or content, and reliance on summative assessment as the primary evaluation method. Lessons typically followed a presentation–practice–production (PPP) structure, with minimal adaptation to individual learner differences. In contrast, the experimental group was taught using DI principles guided by learner readiness, interests, and learning profiles. Key DI strategies included tiered tasks designed at three levels of linguistic complexity (basic, intermediate, and advanced), all aligned with the same learning objectives. For instance, when developing technical reading skills, lower-proficiency students worked with glossed texts and guided questions, whereas higher-proficiency students analyzed authentic IT documentation and synthesized key concepts. Students were also offered choice in output formats (e.g., oral presentations, written reports, infographics, or video explanations) to demonstrate mastery, supporting autonomy and preference-based learning. Instruction alternated between individual, pair, and small-group work based on task demands and proficiency levels. CLIL-informed scaffolding strategies—such as vocabulary banks, sentence frames, visual aids, and guided feedback—were systematically incorporated. To ensure instructional consistency, the same instructor taught both groups. The instructor was purposively selected based on prior experience teaching EFL in non-linguistic programs, thereby minimizing variability attributable to teaching style or expertise.

Data Analysis Techniques

Quantitative data were analyzed using SPSS. Descriptive statistics were calculated for all test scores, and paired-sample *t*-tests were conducted to identify statistically significant differences between pre- and post-test results within and between groups. Qualitative data from reflective journals, open-ended responses, and teacher observation logs were analyzed using thematic content analysis. Emergent themes related to motivation, engagement, perceived task difficulty, and instructional effectiveness were identified and interpreted to complement the quantitative findings. The outcome measures employed in the study—post-test language proficiency scores and qualitative reflections—correspond to the conceptual model's intended outcomes of enhanced engagement and language development. Quantitative and qualitative findings were interpreted through the lens of this model, with Figure 1 serving not only as a visual representation of DI but also as an analytical framework guiding both the implementation and evaluation of the intervention. Qualitative results helped explain the quantitative effects of DI on students' academic performance, motivation, and profession-oriented communicative skills. In the quantitative phase, the study examined measurable variables, including English

language proficiency (reading, listening, writing, and speaking scores) and learner motivation (survey scale scores). In the qualitative phase, analysis focused on narrative themes related to learner engagement, perceived instructional relevance, confidence in professional communication, and experiences with differentiated tasks. These qualitative insights were used to contextualize and elucidate the observed quantitative trends.

FINDINGS

The impact of DI was assessed by comparing English language proficiency scores between the control and experimental groups before and after the intervention. Table 1 presents the mean scores and standard deviations for both groups on the pre-test and post-test assessments.

Table 1.

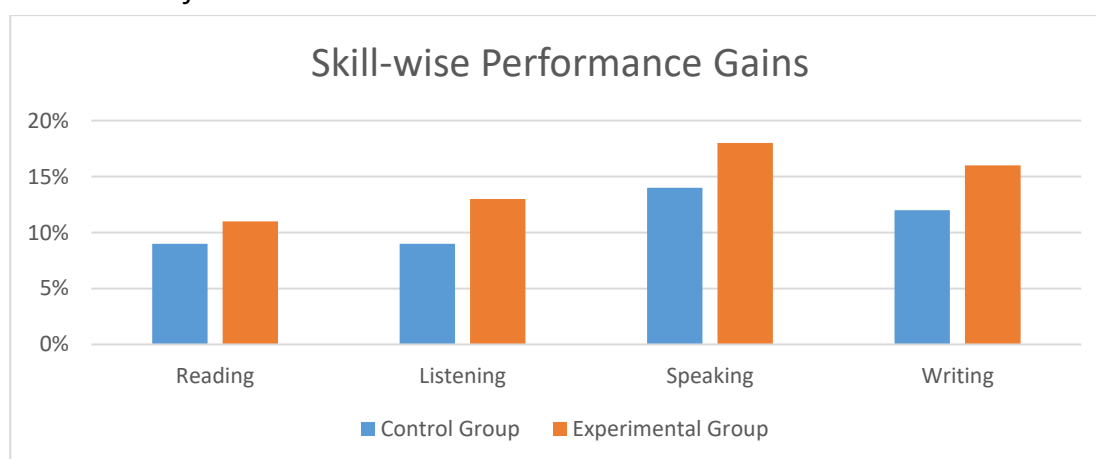
Comparison of English Proficiency Scores (Pre-test and Post-test)

Group	Pre-test Mean (SD)	Post-test Mean (SD)	Gain Score	<i>p</i> -value
Experimental	58.4 (6.2)	75.7 (5.9)	+17.3	$p < .001$
Control	59.1 (6.5)	65.2 (6.1)	+6.1	$p < .05$

The independent-samples *t*-test indicated that the experimental group's post-test scores were significantly higher than those of the control group ($t(58) = 7.12, p < .001$), suggesting that DI-based instruction had a stronger effect on language proficiency development. Further subskill analysis (reading, listening, writing, and speaking) revealed that students in the experimental group exhibited more balanced and consistent improvement across all areas. In contrast, the control group demonstrated uneven progress, with only modest gains, primarily in reading and grammar-focused tasks.

Figure 2.

Skill-wise Performance Gains



The most substantial gains in the experimental group were observed in speaking (+18%) and writing (+16%), which were emphasized through CLIL-based instruction and task-based learning techniques. Listening skills also improved markedly, particularly through the use of

interactive digital tools and scaffolded assignments. These instructional approaches enabled learners to engage more deeply with authentic language input, enhance confidence, and internalize linguistic structures through contextualized practice. The chart titled *Skill-wise Performance Gains* illustrates the comparative improvement percentages across four language skills—reading, listening, speaking, and writing—for the control group and the experimental group. The vertical axis represents percentage improvement, while the horizontal axis displays the language skills, highlighting the consistently higher gains achieved by the experimental group across all skill areas.

Reading: The experimental group showed an improvement of approximately 11%, slightly exceeding the control group's 9%. This modest gain likely reflects increased engagement with subject-specific texts aligned with students' professional interests.

Listening: Although both groups began from comparable baseline levels, the experimental group achieved a 13% improvement, compared to 9% in the control group. This difference suggests that the use of multimedia resources and interactive listening activities played a significant role in enhancing listening comprehension.

Speaking: This category showed the greatest improvement, with the experimental group recording an 18% gain compared to 14% in the control group. The strong emphasis on oral communication through task-based learning activities, such as presentations, role plays, and real-life simulations, likely contributed to this outcome.

Writing: The experimental group improved by 16%, while the control group showed a 12% gain. This result indicates that personalized writing tasks and peer-review practices effectively supported the development of structured and contextually appropriate written communication.

Overall, the experimental group outperformed the control group across all four language skills, underscoring the effectiveness of DI strategies—particularly those integrating language learning with content-based and communicative tasks. The consistent improvement observed across all skill areas supports the pedagogical value of tailoring instruction to learners' interests, readiness levels, and preferred learning modalities. The findings indicate that DI principles can be partially implemented using standard EFL textbooks; however, meaningful differentiation required systematic task adaptation rather than direct reliance on textbook materials. While reading and speaking activities allowed greater flexibility for differentiation, grammar-focused and linear textbook exercises constrained the scope of DI. This suggests that standard materials are more effective as a structural foundation than as fully differentiation-ready resources. Beyond gains in language performance, the experimental group demonstrated substantially higher increases in motivation, as measured by a six-item Likert-scale survey administered before and after the intervention (see Table 2). Clear differences between the control and experimental groups were observed. Students' motivation was assessed using a 5-point Likert scale through items such as: "I enjoy learning English," "I feel confident using English in class," "English is important for my career," "I am motivated to improve my English skills outside of

class,” “I like lessons that include tasks related to my field,” and “I feel that my English lessons help me achieve my goals.”

Table 2.

Motivational Survey Results (Selected Items)

(5-point Likert scale: 1 = Strongly Disagree; 5 = Strongly Agree)

Statement	Control Change	Group Experimental Change	Group
“I enjoy learning English.”	+0.4	+1.3	
“I feel confident using English in class.”	+0.2	+1.1	
“English is important for my career.”	+0.3	+0.9	
“I am motivated to improve my English skills outside of class.”	+0.2	+1.0	
“I like when lessons include tasks related to my field.”	+0.1	+1.2	
“I feel that my English lessons help me achieve my goals.”	+0.3	+1.0	

The item “I am motivated to improve my English skills outside of class” showed an increase of +1.0 in the experimental group, compared with only +0.2 in the control group. This finding suggests that the DI model fostered higher levels of intrinsic motivation, encouraging students to pursue learning opportunities beyond the classroom. Informal interviews further indicated that several students in the experimental group independently engaged in activities such as watching English-language videos, reading professional articles, or practicing with language-learning applications—behaviors that were rarely reported among control group participants. Similarly, the item “I like when lessons include tasks related to my field” revealed one of the largest group differences, with a minimal increase of +0.1 in the control group compared to a substantial +1.2 in the experimental group. This result highlights the motivational impact of interest-based differentiation, particularly when instructional tasks align with students’ academic and career orientations. For example, engineering students worked with vocabulary drawn from technical manuals, while business-oriented students practiced email writing and negotiation role-plays. These tailored activities not only enhanced language proficiency but also helped students recognize the practical relevance of English for their future professional careers, reinforcing instrumental motivation.

The item “I feel that my English lessons help me achieve my goals” also demonstrated a strong increase in the experimental group (+1.0), compared with a modest change in the control group (+0.3). This pattern reflects a heightened sense of purpose and perceived efficacy among students exposed to differentiated instruction. When language learning was experienced as meaningful and aligned with personal goals—whether academic, professional, or

communicative—students displayed greater engagement and persistence. Collectively, these findings support the theoretical framework of Self-Determination Theory (Deci & Ryan, 1985), which posits that autonomy, competence, and relatedness are fundamental to sustained motivation. DI addressed these needs in several ways. First, autonomy was supported by allowing students to choose topics, assignment formats, and modes of expression (e.g., visual presentations, written reports, or dialogues), thereby enhancing their sense of control. Second, competence was fostered by aligning instructional tasks with students' readiness levels, ensuring that activities were appropriately challenging yet attainable. Finally, relatedness was strengthened through collaborative projects and discipline-specific content, which helped students feel more connected to their peers and to the learning material.

Table 3.

Overall Motivation Scores (Pre- and Post-Test)

Group	Pre-test M (SD)	Post-test M (SD)	t	P
Experimental	21.6 (2.31)	26.8 (2.14)	9.02	< .001
Control	21.9 (2.45)	22.3 (2.57)	2.11	< .05

Total motivation scores were calculated for each participant by summing the six Likert-scale items (range: 6–30). An independent-samples t-test was conducted to compare post-intervention motivation levels between the control and experimental. The experimental group demonstrated significantly higher overall motivation ($M = 26.8$, $SD = 2.14$) compared to the control group ($M = 22.3$, $SD = 2.57$), $t(58) = 7.41$, $p < .001$.

Within-group paired-sample t-tests also indicated a statistically significant increase in motivation in the experimental group from pre-test ($M = 21.6$, $SD = 2.31$) to post-test ($M = 26.8$, $SD = 2.14$), $t(29) = 9.02$, $p < .001$. The control group showed only a modest but statistically smaller increase from pre-test ($M = 21.9$, $SD = 2.45$) to post-test ($M = 22.3$, $SD = 2.57$), $t(29) = 2.11$, $p < .05$. These findings confirm that differentiated instruction had a statistically significant effect on students' motivational levels

In contrast, students in the control group—who were taught through uniform, textbook-centered instruction—reported substantially less improvement in motivational indicators. Their engagement remained largely passive, with limited self-reported interest or independent learning activity. This disparity reinforces the conclusion that traditional instructional approaches, while effective for some learners, are insufficient for engaging heterogeneous classrooms. Overall, the heightened motivation observed in the experimental group underscores the transformative potential of DI not only for improving academic performance but also for fostering a positive, autonomous, and purposeful learner mindset, which is essential for sustained academic and professional success in language education. Analysis of student reflective journals and open-ended questionnaire responses further revealed consistent

patterns related to emotional engagement, confidence, and perceived relevance of English learning. For instance, one student reflected, “I used to be afraid of speaking in front of others. But now, with these role-play activities and my teacher’s support, I feel more natural speaking English.”

To enhance the reliability of the qualitative findings, data were independently coded by two raters: the course instructor and an external EFL researcher with expertise in qualitative analysis. An initial coding scheme was developed deductively based on the conceptual framework, encompassing learner readiness, interest, engagement, and emotional response. Teacher observation logs corroborated these findings, documenting higher participation rates, reduced classroom anxiety, and more frequent peer interaction in the experimental group. These patterns were especially evident during speaking tasks and collaborative activities, where students demonstrated a greater willingness to initiate communication and provide support to peers.

Overall, the qualitative findings indicate that students in the DI setting experienced heightened emotional and instrumental engagement. Opportunities to select relevant topics, work at appropriate levels of challenge, and participate in varied task formats fostered more positive attitudes toward English learning. Many students also reported an increased willingness to use English beyond the classroom, including engaging with English-language digital tools, consuming profession-related media, and participating in informal peer communication. Reflective comments further reinforced these patterns, with several learners emphasizing that task variety, autonomy, and alignment with their academic and professional trajectories made English learning more meaningful. As one student observed, “For the first time, I felt that English belonged to my world; it was not just the textbook.” These qualitative insights complement the quantitative results and strengthen the evidence for the motivational and affective impact of differentiated instruction. Taken together, the findings provide strong empirical support for integrating DI strategies in EFL classrooms, particularly within non-linguistic university programs where learner heterogeneity in proficiency, motivation, and professional orientation is pronounced.

Taken together, the quantitative and qualitative findings demonstrate a complementary relationship. While statistical analyses confirm significant gains in language proficiency and motivation, the qualitative evidence elucidates how differentiated tasks, learner choice, and scaffolded support contributed to these improvements. This reciprocal integration strengthens the validity of the results and is consistent with the explanatory mixed-methods design adopted in the study.

DISCUSSION

The findings of this study indicate that DI significantly enhances EFL learning outcomes among non-linguistic university students in Kazakhstan. By addressing learner readiness, interests, and learning profiles, the DI-based intervention produced stronger gains in language proficiency and

higher levels of learner engagement than traditional teacher-centered instruction. Quantitative results demonstrated statistically significant improvements in overall English proficiency in the experimental group, with particularly notable gains in speaking and writing skills. These outcomes suggest that differentiated, task-based activities—such as tiered assignments and profession-oriented communicative tasks—are especially effective in supporting productive language use in tertiary EFL contexts. The findings are consistent with prior research in higher education, which shows that differentiation enhances learning when instructional demands are aligned with students' current proficiency levels (Ismail & Al-Allaq, 2019).

The results further show that DI benefits learners across the full proficiency spectrum. Lower-proficiency students advanced through scaffolded tasks, while higher-proficiency learners demonstrated deeper engagement through analytically demanding and creative assignments. This finding reinforces previous evidence that DI functions as an equity-oriented pedagogical approach rather than a remedial strategy aimed solely at lower-achieving students (Anderson & Chen, 2023; Sousa & Tomlinson, 2018). Beyond academic performance, DI exerted a substantial impact on learner motivation and affective engagement. Both survey results and qualitative data revealed increased confidence, reduced language anxiety—particularly in speaking—and a greater willingness to use English beyond the classroom. These outcomes align with Self-Determination Theory, as the intervention supported autonomy through choice-based tasks, competence through appropriately challenging activities, and relatedness through collaborative learning experiences (Deci & Ryan, 1985).

The observed reduction in speaking anxiety is particularly relevant for non-linguistic EFL contexts, where students often view English as a secondary or purely instrumental subject. Scaffolded speaking tasks and flexible grouping fostered a supportive learning environment that encouraged communicative risk-taking and the gradual development of confidence, corroborating findings from previous higher education EFL research (Ismail & Al-Allaq, 2019). A key contribution of this study is its demonstration of the applicability of DI in profession-oriented EFL settings. By aligning instructional tasks with students' academic disciplines, DI enhanced the perceived relevance of English learning and strengthened instrumental motivation. Students' reflections further suggest that discipline-specific materials helped bridge the gap between classroom instruction and real-world academic or professional communication, a challenge frequently identified in non-linguistic university programs (Richards & Rodgers, 2014).

The integration of blended learning tools further supported differentiation by allowing flexible pacing and timely feedback without increasing instructional complexity. Rather than serving as the central focus of the intervention, digital tools functioned as enablers of differentiated processes, reinforcing previous findings that technology can enhance—but not replace—pedagogical differentiation when applied strategically (Subban et al., 2024). The results also underscore the importance of teacher preparedness in accurately diagnosing learner needs and implementing differentiated strategies effectively. Although the study

demonstrates the feasibility of DI in a resource-constrained higher education context, its scope is limited to a single institution and academic discipline. Future research should replicate the study across multiple universities and explore the long-term effects of DI on language retention and profession-oriented communication skills.

In sum, this study provides empirical evidence that DI enhances both linguistic and motivational outcomes in higher education EFL settings. By addressing the cognitive, motivational, and affective dimensions of learning, DI offers a coherent and effective pedagogical approach for non-linguistic university programs characterized by high levels of learner heterogeneity.

CONCLUSION

In summary, this study demonstrates that DI represents a powerful, equitable, and scalable pedagogical approach in higher education EFL contexts. The findings confirm that systematically aligning instruction with learners' readiness, interests, and learning profiles enhances both academic performance and learner engagement in non-linguistic university programs. DI was effective not only in supporting lower-proficiency learners through targeted scaffolding but also in extending learning opportunities for more advanced students, thereby addressing learner variability without lowering academic standards. The results further indicate that DI fosters positive learning environments by promoting motivation, confidence, and willingness to engage in profession-oriented communication in English. When combined with formative assessment and flexible instructional design, differentiation enables students to develop language competence alongside transferable skills such as autonomy, collaboration, and reflective learning.

Despite existing institutional and logistical constraints, the study indicates that DI can be sustainably implemented through the thoughtful integration of blended learning tools and deliberate instructional planning. From an institutional perspective, embedding differentiation principles into curriculum design, teacher preparation, and assessment practices may substantially enhance the effectiveness of EFL instruction in diverse higher education contexts. Overall, DI offers a viable means of reconciling academic rigor with inclusivity in university-level EFL education, equipping students with both professional language competence and the adaptive skills necessary for participation in an increasingly complex global environment.

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