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# A COMPARATIVE ANALYSIS OF PASSIVE VOICE USAGE IN INFORMATIVE TEXTS PRODUCED BY TURKISH LANGUAGE LEARNERS, NATIVE SPEAKERS, AND AI TOOLS

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**ABSTRACT**

In the field of language teaching, studies drawing on learner output are of considerable importance alongside research on language teaching methods and techniques. In recent years, the number of studies examining the linguistic outputs of artificial intelligence tools has also been increasing. Comparing learner outputs with those produced by AI tools is significant both for identifying the role of AI in language teaching and for describing the similarities and differences between AI-generated texts and those produced by native speakers. This qualitative study compares informational texts produced by advanced-level Turkish learners who completed the Turkish preparatory program at DEDAM, informational texts written by undergraduate students in the Department of Linguistics, and informational texts generated by artificial intelligence, with respect to the use of passive voice constructions. The topic assigned for the informational texts was "The Positive and Negative Effects of Artificial Intelligence on Our Lives." This study aimed to determine the rate of passive voice use in informational texts written by native speakers of Turkish and learners of Turkish as a foreign language, and to compare these rates with passive voice use in AI-generated texts. The findings indicate that the passive voice rate is 17.51% in AI-generated texts and 21.22% in texts produced by native speakers of Turkish, suggesting that the two groups exhibit comparable rates of passive voice use. However, among learners of Turkish as a foreign language, this rate remains at 7.12%. Although an increase in passive voice use was observed following academic Turkish courses, the increase was found to be statistically non-significant. In this regard, it can be concluded that additional instructional support regarding the use of passive constructions in informational texts is needed within academic Turkish language programs.

**Keywords:** Informational text, passive voice, teaching Turkish as a foreign language, writing, artificial intelligence outputs.

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## 1. INTRODUCTION

Language teaching is realized through the development of linguistic skills. These skills — receptive skills (listening and reading) and productive skills (speaking and writing) — determine the frameworks of instruction. In the development of productive skills, knowledge of discourse features is required for speaking, while knowledge of text genre characteristics is essential for writing. The purpose and context of production impose certain stylistic boundaries on both discourse and text. In speaking, the interlocutor, setting, timing, and nature of the content situate language use within particular frameworks. The same applies to writing, where the type of text being produced is shaped within certain linguistic frameworks, including lexical choices, grammatical structures, and textual organization. Research and studies have been conducted on how these topics can be taught to language learners.

In the field of language teaching, studies drawing on learner output are of considerable importance alongside research on language teaching methods and techniques. In recent years, the number of studies examining the linguistic outputs of artificial intelligence tools has been increasing. Comparing learner outputs with those of AI applications is significant both for identifying the role of AI tools in language teaching and for describing the similarities and differences between AI-generated texts and those produced by native speakers.

Examining text production processes among learners of Turkish as a foreign language also provides valuable insights into skill development. There are various groups among Turkish language learners, one of which consists of students who will pursue undergraduate education in Turkey. These students frequently encounter informational texts throughout their Turkish language learning and academic study processes. The sources they read, the assignments they prepare, and the reports they produce all fall within the genre of informational texts. Today, AI is increasingly becoming a tool used in instructional settings for text production in both first and foreign languages. The genre competence of these tools in producing Turkish texts and their similarity to native speaker output are growing steadily. Departing from this observation, the starting point of this study is to examine how passive voice — one of the grammatical frameworks characteristic of Turkish informational texts — is used in the informational text production of learners of Turkish as a foreign language, native speakers of Turkish, and AI tools.

This qualitative study compares informational texts produced by advanced-level Turkish learners who completed the Turkish preparatory program at DEDAM, informational texts written by undergraduate students in the Department of Linguistics, and informational texts generated by artificial intelligence, with respect to the use of passive constructions. The topic assigned for the informational texts was "The Positive and Negative Effects of Artificial Intelligence on Our Lives." Although passive voice use is the focal point of the analysis, all voice, mood, and tense suffixes in predicates, as well as converb, participle, and nominalizing morphemes in subordinate clauses, were also examined and described in terms of their frequency in order to arrive at the findings.

The aim of this study is to determine the rate of passive voice use in informational texts produced by native speakers of Turkish and learners of Turkish as a foreign language, and to compare these rates with passive voice use in AI-generated texts. In this context, the following research questions were addressed and the findings were discussed:

- What is the rate of passive voice use in informational texts produced by advanced-level Turkish learners who have completed a Turkish preparatory program?

- What is the rate of passive voice use in informational texts produced by native Turkish-speaking undergraduate students in the Department of Linguistics?
- What is the rate of passive voice use in informational texts generated by AI tools?
- What similarities and differences are observed when comparing the predicate structures selected by native speakers of Turkish, learners of Turkish as a foreign language, and AI tools in informational text production?

## 2. CONCEPTUAL FRAMEWORK

### 2.1 Informational Texts

In both first language and foreign language teaching, learners' genre expectations play a critical role in reading and comprehension processes. As with other text types, teaching the structural features of informational texts contributes to the development of students' reading and writing skills. As a text type that fundamentally aims to convey information based on facts pertaining to natural or social life, informational texts differ from narrative texts in that they are written for the purpose of informing or explaining, and encompass a wide variety of materials written to provide information — including books, articles, brochures, and digital content such as websites (Duke, 2004).

Brinker and Ausborn-Brinker (1997: 133) regard textual function as the primary criterion for classifying text types, and accordingly identify five categories: informational texts, appellative texts, obligational texts, contact-establishing texts, and declarative texts (cited in Konukman, 2012: 22). According to the researchers, the primary purpose of informational texts is to provide the reader with information on a specific topic, and content is of paramount importance in such texts. A text may address its subject matter in an objective manner or through a subjective language that incorporates the author's personal perspective; however, in both cases the main objective is to provide information on a given topic. In sum, the essence of informational texts is the sharing of knowledge, and whether the text is objective or subjective does not alter its communicative function.

### 2.2 Passive Voice Use

Structural features of language also play a significant role in achieving objective expression. The relationship between passive voice use and objective expression in language is an important research topic in the fields of linguistics and communication. The passive construction refers to a grammatical structure in which the subject of a sentence occupies a position as the recipient of the action rather than its agent. This construction plays a significant role in achieving objectivity of expression. Objective expression is a mode of communication that is grounded in facts rather than personal interpretation or emotional judgment. The relationship between these two concepts is of critical importance in ensuring objectivity in language use and communication.

The passive construction functions as a vehicle for objective expression. Particularly in informational texts, the use of passive sentences minimizes the author's subjective views and emotional judgments, thereby enabling the reader to evaluate the text from a more objective standpoint. Aksan and Mersinli (2017), in their study investigating the effectiveness of suffix sequences in determining text type, found that passive voice use is more frequent in informational texts than in fictional texts. The passive construction, employed to achieve objective expression, also facilitates the reader's interpretation of the information presented in the text (Balcı & Gökçe, 2022).

The frequent use of impersonal passive forms in Turkish academic texts reduces transitivity and agency, allowing readers to focus on the main proposition of the text, while also serving to reinforce the validity of the author's claims (Emeksiz, 2015). According to the researcher, passive constructions are traditionally recognized as a defining feature of scientific texts, functioning as a grammatical means of creating an impersonal style that conveys an "objective" perspective in discourse. Accordingly, the frequent use of passive sentences is regarded as a reflection of a strategy employed by authors to avoid a subjective stance. One of the underlying reasons for this is that the passive construction inherently involves a process of reducing transitivity and agency, thereby allowing authors to conceal themselves as agents, direct the reader's attention to the subject matter itself, and — it is further argued — enhance the validity of what is "claimed" or "done."

Emeksiz (2015) identifies the following functions of passive constructions in Turkish research writing: referring to a section of the study; directing the reader to a part of the text; making a claim; and presenting an estimate or recommendation. When the source of information is a person other than the author, passivization is used to cite a current study or to convey a generalized assumption or common knowledge (Emeksiz, 2015: 18–19).

## 3. METHOD

A corpus was compiled from informational texts produced by advanced-level Turkish learners who had completed the Turkish preparatory program at DEDAM, informational texts written by undergraduate students in the Department of Linguistics, and informational texts generated by artificial intelligence. Using the document analysis method, the frequencies of tense, mood, and voice suffixes used in main and subordinate clauses, as well as suffixes forming converb, participle, and nominal subordinate clauses, were described. While evaluating passive voice use, the frequencies of other morphemes selected were also identified.

A total of 99 writing samples were collected, consisting of:

- 35 writing samples from advanced-level Turkish learners who had completed the Turkish preparatory program at DEDAM
- 24 writing samples from learners who had subsequently completed academic Turkish courses following the preparatory program at DEDAM
- 35 writing samples from undergraduate students in the Department of Linguistics
- 5 writing samples from AI tools

All participants were given the following prompt: *"Could you write a text of at least 200 words in Turkish on the topic of 'The Positive and Negative Effects of Artificial Intelligence on Our Lives'?"* The same prompt was also used to generate texts from AI tools.

The number of participants across the groups is unequal. Since the study was conducted with all accessible participants within a single academic year, equal group sizes could not be achieved.

### 3.1 AI Tools Used as Data Sources

The number of AI tools used for both general purposes and specifically for text generation is growing. In addition to tools capable of producing informational texts, there are tools described as generating more specialized types of texts. AI tools such as Jasper and Rytr — which are reported to produce

content such as blog posts, content summaries, marketing strategies, company descriptions, and YouTube video descriptions — were excluded from the study. Tools requiring paid subscriptions were likewise excluded. The tools selected for this study were those with high usage frequency and the capacity to generate informational texts in Turkish: OpenAI GPT-3.5 (https://chatgpt.com), Scite (https://scite.ai/), Smodin, Eskritor, and Google Gemini.

**1. ChatGPT-3.5** — https://chatgpt.com/

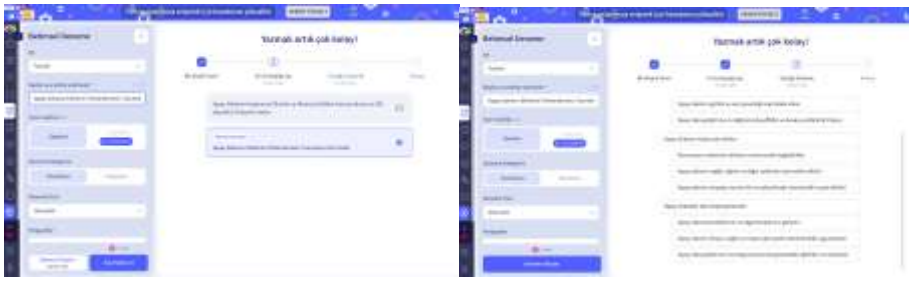
This is an AI tool that generates output in response to questions entered in a conversational format. The tool has a chat interface, and previous conversations are stored when users log in with an account. A GPT-4 version is also available. Although the primary purpose of ChatGPT-3.5 is not text generation per se, it is capable of producing written texts in response to prompts.

**2. Scite** — https://scite.ai/

Text can be generated by entering a question into the message box on the main page. However, this tool is not fully adapted to Turkish; although Turkish can be selected as the language, some instructions and interface elements are still displayed in English. It is capable of appending references to the generated informational text and offers export options in RIS, BibTeX, and CSV formats. Users are also provided with options to expand or condense the generated text, though these interface instructions remain in English.

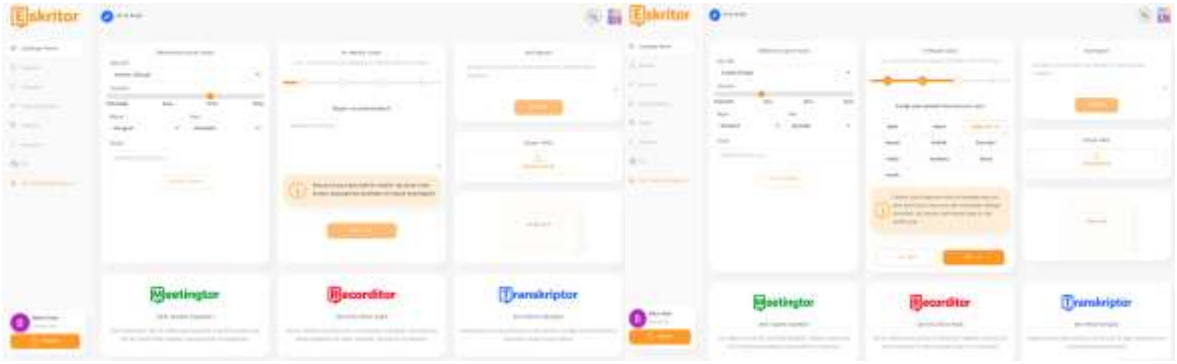
**3. Smodin** — https://app.smodin.io/tr/yazar/makale

This tool offers options for language selection, title, keywords, and essay category, and generates text in sequential stages. It first proposes a title and then presents an outline for the content. Upon approval of the outline, it produces a complete text with a heading. The tool also allows for reorganization of the generated text; however, some steps are presented in English rather than Turkish.



**4. Eskritor** — https://editor.eskritor.com/

This tool poses detailed questions prior to text generation, including sections with multiple-choice or short-answer fields regarding text length, topic, and title. Once the topic is determined, the tool presents a tone selection prompt — *"How should it sound? Choose your tone"* — with options such as simple, formal, analytical, and informative. Following this stage, a table of contents is presented, and the text is subsequently generated. Some interface elements appear in English. The tool also offers additional features such as rewriting and paragraph generation.



**5. Gemini**

Gemini is an AI model developed by Google. Available as a standalone application, it opens with the prompt *"Hello, how can I help you today?"* Although its primary purpose is not exclusively text generation, it can be prompted to produce written texts through targeted questions.

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### 3.2 Data Analysis Procedure

All texts collected from participants were first evaluated for suitability for inclusion in the study. Texts that lacked textual characteristics, were not appropriate to the expected proficiency level, lacked semantic coherence, or were organized as bullet-point lists were excluded. A total of 99 texts were thus included in the analysis. The predicates of the sentences in the collected texts were first described according to whether they were nominal or verbal. Since the primary objective was to determine the rate of passive voice use, subordinate clause verbs functioning as nouns, adjectives, and adverbs within sentences were also examined and listed with respect to their voice properties. Sentences with nominal predicates were not included in the quantitative data, as they do not exhibit voice properties; however, any subordinate clauses contained within such sentences were included in the findings.

The predicates in the sentences were described within the framework of the categories presented in Table 1, based on the morphemes they employed.

Table 1. Categories and Subcategories Used in the Analysis of Sentence Predicates

| **Voice** | | | | | | **Verb / Copula** | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| **ad tümcesi** | **etken** | **edilgen** | **dönüşlü** | **oldurgan** | **ettirgen** | **ana** | **ortaç** | **ulaç** | **ad** | **koşul** |

In order to determine whether the changes in passive voice use before and after academic Turkish instruction among the foreign learner participants were statistically significant, an Independent Samples T-Test was conducted using SPSS 24, given that group sizes were unequal and participants were anonymous.

## 4. FINDINGS

The findings of the study are organized under the following headings in accordance with the research questions: findings from AI-generated texts, findings from foreign learner outputs, findings from foreign learner outputs following academic Turkish instruction, and findings from native Turkish-speaking student outputs. The outputs of the participant groups were also examined comparatively, and these findings are presented under a separate heading.

### 4.1 Findings from AI-Generated Texts

An examination of the AI-generated texts reveals that the total number of sentences across the five AI tools was 123. The findings obtained from AI-generated texts are presented in Table 2.

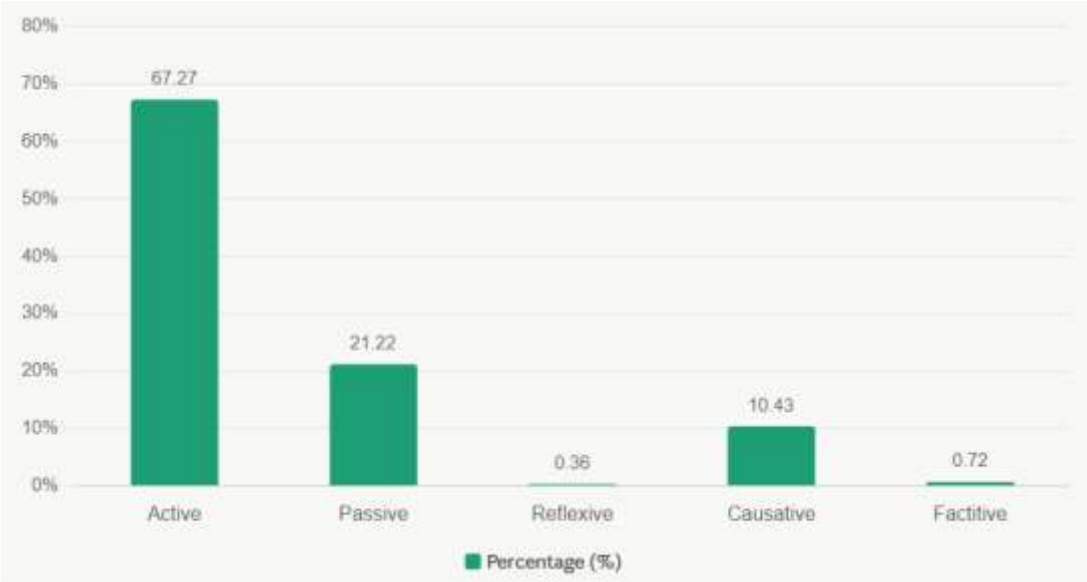
Table 2. Clause and Subordinate Clause Properties of AI-Generated Texts

| **Main Clauses** | **Total Subordinate Clauses** | | | | |
|---|---|---|---|---|---|
| 123 | 181 | | | | |
| **Nominal Clause** | **Verbal Clause** | **Participle** | **Converb** | **Nominal** | **Conditional** |
| 16 | 107 | 31 | 47 | 93 | 0 |

As shown in Table 2, of the 123 sentences in the AI-generated texts, 16 are nominal clauses and cannot be analyzed with respect to voice properties. Accordingly, the 107 verbal predicates in the main clauses of verbal sentences were included in the analysis.

Of the verbs used in AI-generated texts, 31 appear in participle clauses (adjectival subordinate clauses), 47 in converb clauses (adverbial subordinate clauses), and 93 in nominal subordinate clauses, yielding a total of 171 subordinate clauses. A total of 278 verbs from main and subordinate clauses in the AI-generated texts were analyzed. The voice properties of these 278 verbs are presented in Figure 1.

Figure 1. Voice Properties of Verbs in AI-Generated Texts



In the main clause predicates of AI-generated texts, the active voice was found at a rate of 67.27%, the passive voice at 21.22%, and the causative voice at 10.43%. The reflexive and permissive causative voices appeared at considerably low rates of 0.36% and 0.72%, respectively.

### 4.2 Findings from Foreign Learner Outputs

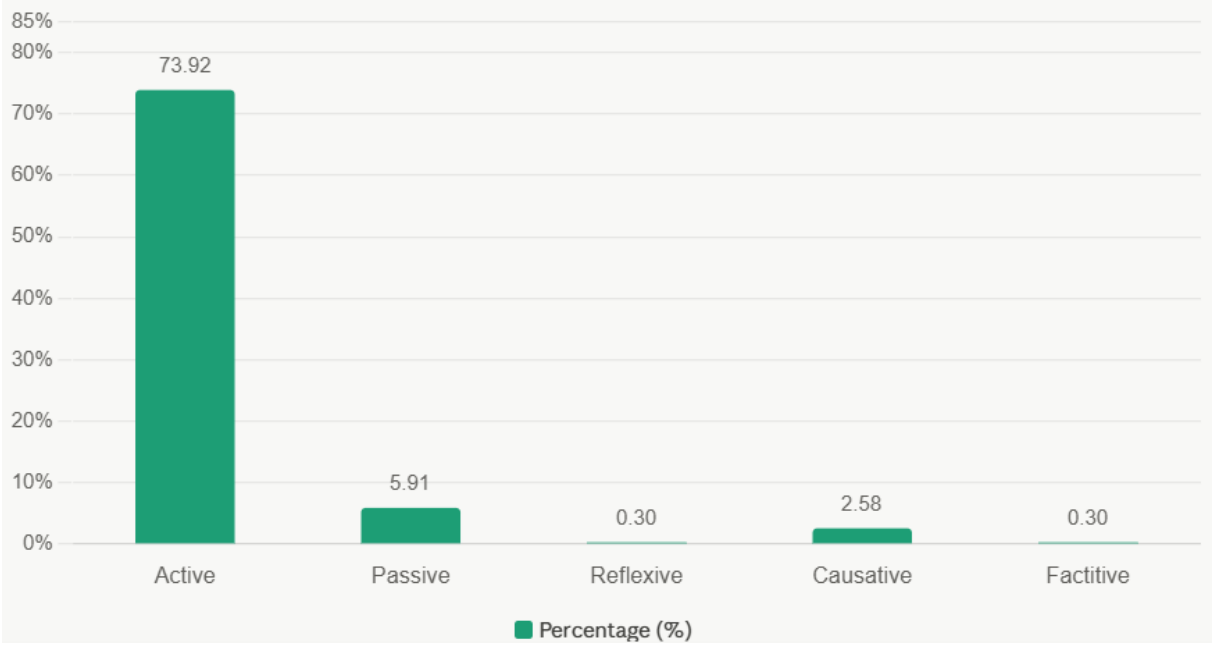
According to the findings from foreign learner outputs, participants produced a total of 836 main clauses. Since 224 of these were nominal clauses, they were excluded from the analysis; a total of 612 main clause verbal predicates and 483 subordinate clauses contained within these sentences were included. Details regarding the main and subordinate clauses in foreign learner outputs are presented in Table 3.

Table 3. Clause and Subordinate Clause Properties in Foreign Learner Outputs

| **Main Clauses** | **Total Subordinate Clauses** | | | | |
|---|---|---|---|---|---|
| 836 | 483 | | | | |
| **Nominal Clause** | **Verbal Clause** | **Participle** | **Converb** | **Nominal** | **Conditional** |
| 224 | 612 | 169 | 169 | 183 | 40 |

Of the 836 main clauses, 224 were nominal clauses and 612 were verbal clauses. Among the 483 subordinate clauses, 169 were participle clauses, 169 were converb clauses, 183 were nominal subordinate clauses, and 40 were conditional clauses. The voice properties of verbs used by foreign learners in verbal clauses are presented in Figure 2.

Figure 2. Voice Properties of Verbs in Outputs of Learners of Turkish as a Foreign Language




Accordingly, in the verbal clauses produced by foreign learners, the active voice was found at a rate of 73.92%, the passive voice at 5.91%, and the causative voice at 2.58%. Both the reflexive and permissive causative voices appeared at a rate of 0.30%, indicating comparatively low usage.

### 4.3 Findings from Foreign Learner Outputs Following Academic Turkish Instruction

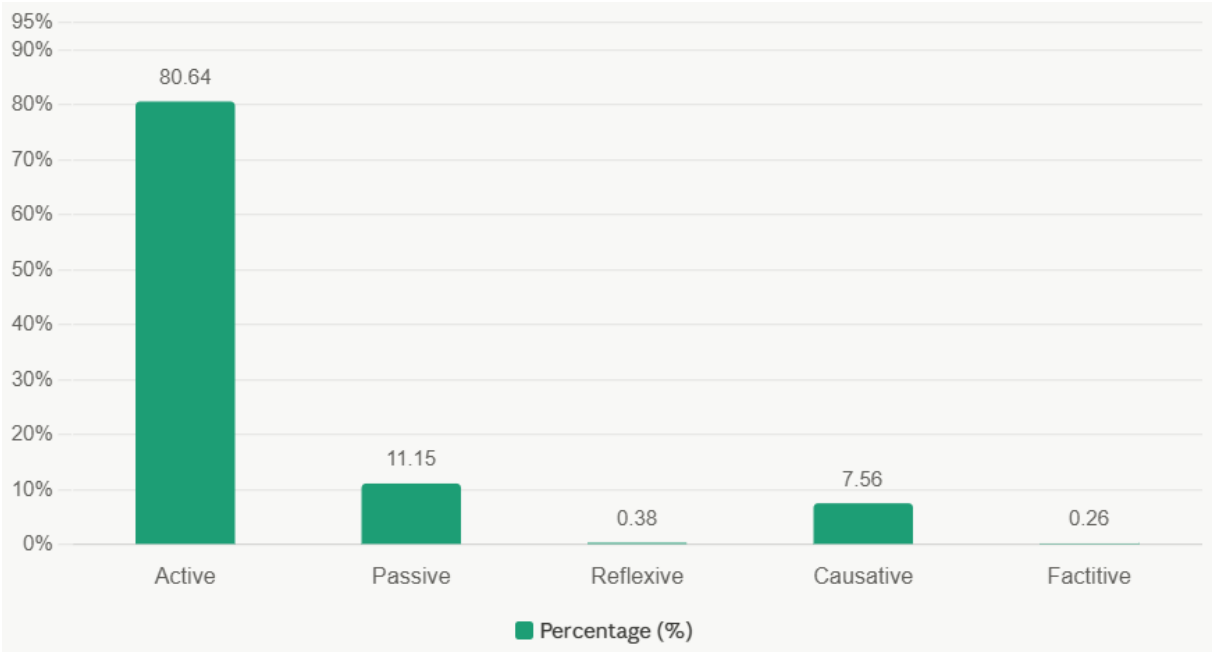
Table 4 presents the main and subordinate clause properties found in the informational texts produced by learners of Turkish as a foreign language following academic Turkish instruction.

Table 4. Clause and Subordinate Clause Properties in Foreign Learner Outputs Following Academic Turkish Instruction

| **Main Clauses** | **Total Subordinate Clauses** | | | | |
|---|---|---|---|---|---|
| 868 | 393 | | | | |
| **Nominal Clause** | **Verbal Clause** | **Participle** | **Converb** | **Nominal** | **Conditional** |
| 88 | 780 | 103 | 127 | 146 | 17 |

The total number of main clauses produced by foreign learners following academic Turkish instruction was 868, of which 780 verbal clauses were included in the analysis. Among the 393 subordinate clauses identified, 103 were participle clauses, 127 were converb clauses, 146 were nominal subordinate clauses, and 17 were conditional clauses. The voice properties of verbs used by these learners following academic Turkish instruction are presented in Figure 3.

Figure 3. Voice Properties of Verbs in Foreign Learner Outputs Following Academic Turkish Instruction




In the texts produced by foreign learners following academic Turkish instruction, the active voice appeared in main clause predicates at a rate of 80.64%, the passive voice at 11.15%, and the causative voice at 7.56%. The reflexive voice was found at 0.38%, while the permissive causative appeared at a considerably low rate of 0.26%.

An Independent Samples T-Test was conducted in SPSS 24 to determine whether there was a statistically significant difference in passive voice use among foreign learners following academic Turkish instruction. The test results are presented in Figure 4.

Figure 4. Change in Passive Voice Use Rate Following Academic Turkish Instruction

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Significance | | | | 95% Confidence Interval of the Difference |
| | | F | Sig. | t | df | One-Sided p | Two-Sided p | Mean Difference | Std. Error Difference | Lower | Upper |
| freans | Equal variances assumed | ,664 | ,419 | -1,658 | 57 | ,051 | ,103 | -1,31071 | ,79054 | -2,89375 | ,27232 |
| | Equal variances not assumed | | | -1,582 | 41,253 | ,061 | ,121 | -1,31071 | ,82833 | -2,98324 | ,36181 |

According to the results of the Independent Samples T-Test, the variances of the two groups are unequal. The t-value is negative (−1.582) and the p-value is 0.061. Since the p-value exceeds 0.05, no statistically significant difference was found between the means of the two groups. It can therefore be concluded that no meaningful change in the rate of passive voice use in informational texts was observed following academic Turkish instruction.

### 4.4 Findings from Native Turkish-Speaking Student Outputs

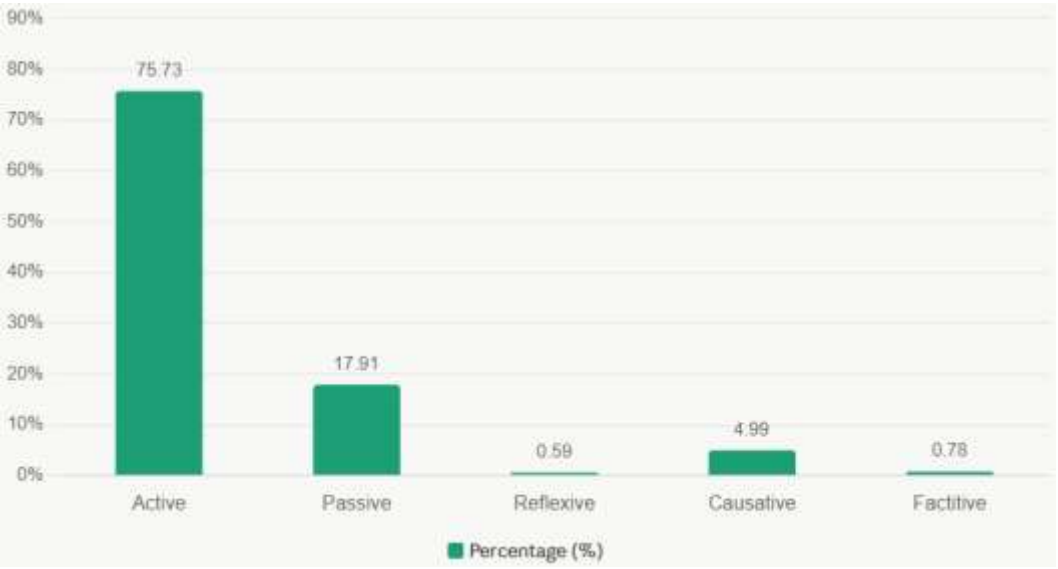
Table 5 presents the main and subordinate clause properties found in the informational texts produced by native Turkish-speaking students.

Table 5. Clause and Subordinate Clause Properties in Native Turkish-Speaking Student Outputs

| **Main Clauses** | **Total Subordinate Clauses** | | | | |
|---|---|---|---|---|---|
| 1135 | 408 | | | | |
| **Nominal Clause** | **Verbal Clause** | **Participle** | **Converb** | **Nominal** | **Conditional** |
| 113 | 1022 | 253 | 162 | 242 | 33 |

The total number of main clauses in native Turkish-speaking student texts was 1,135, while the total number of subordinate clauses was 408. Of the main clauses, 1,022 verbal clauses were included in the analysis. Among the subordinate clauses, 253 were participle clauses, 162 were converb clauses, 242 were nominal subordinate clauses, and 33 were conditional clauses. The voice properties of verbs in native speaker outputs are presented in Figure 5.

Figure 5. Voice Properties of Verbs in Native Turkish-Speaking Student Outputs

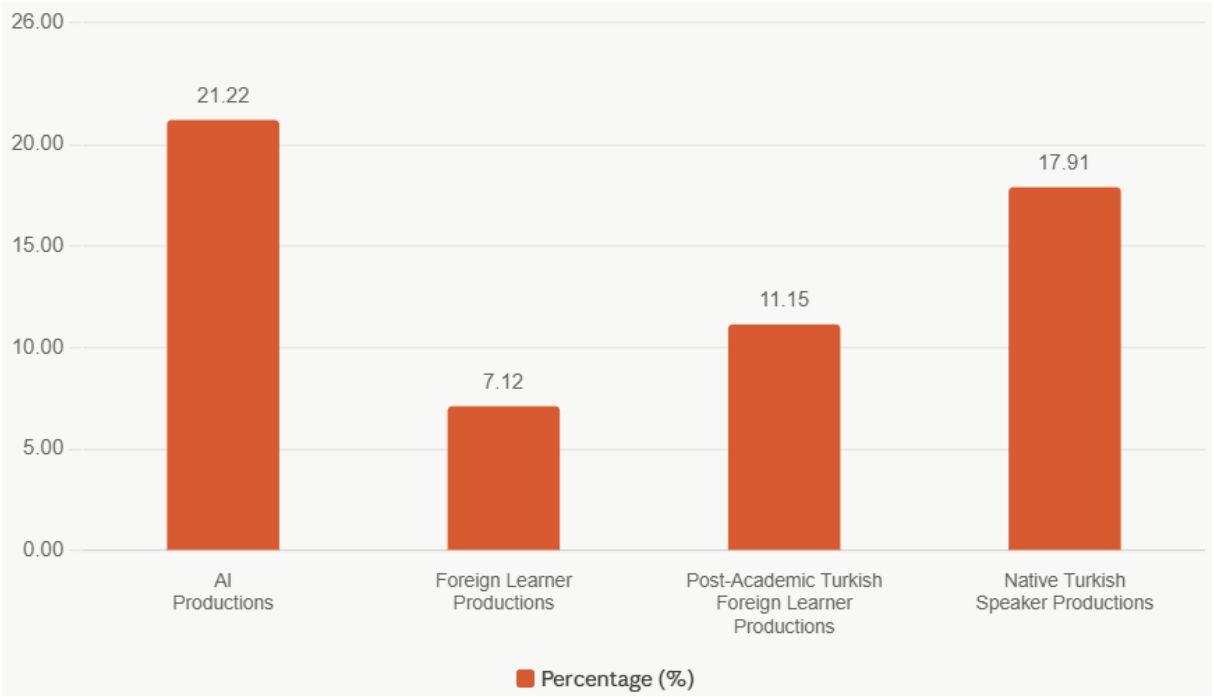


In the informational texts produced by native Turkish-speaking students, the active voice appeared at a rate of 75.73% and the passive voice at 17.91%. The reflexive, causative, and permissive causative voices were found at rates of 0.59%, 4.99%, and 0.78%, respectively.

### 4.5 Comparative Analysis of Passive Voice Use Across All Participants

A comparison of passive voice use across participant groups yields the findings presented in Figure 6.

*Figure 6. Rate of Passive Voice Use in Texts Across All Participants*

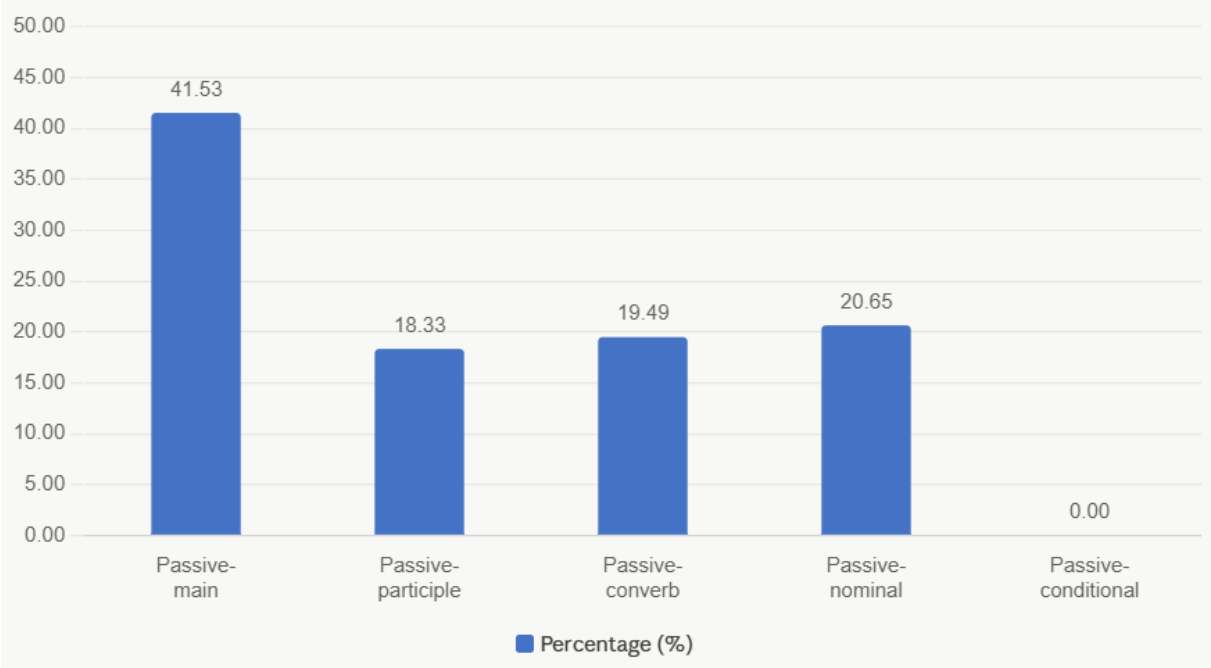



The rate of passive voice use relative to total verb use was 21.22% in AI-generated texts, 7.12% in foreign learner outputs, 11.15% in foreign learner outputs following academic Turkish instruction, and 17.91% in native Turkish-speaking student outputs. The passive voice rates observed in native speaker and AI-generated texts are relatively close to one another. This convergence can primarily be attributed to the fact that native speakers constitute the data source underlying AI outputs.

### 4.6 Distributional Properties of Passive Voice Use Across Clause Types

Figure 7 illustrates the clause types in which passive verbs appear in AI-generated texts.

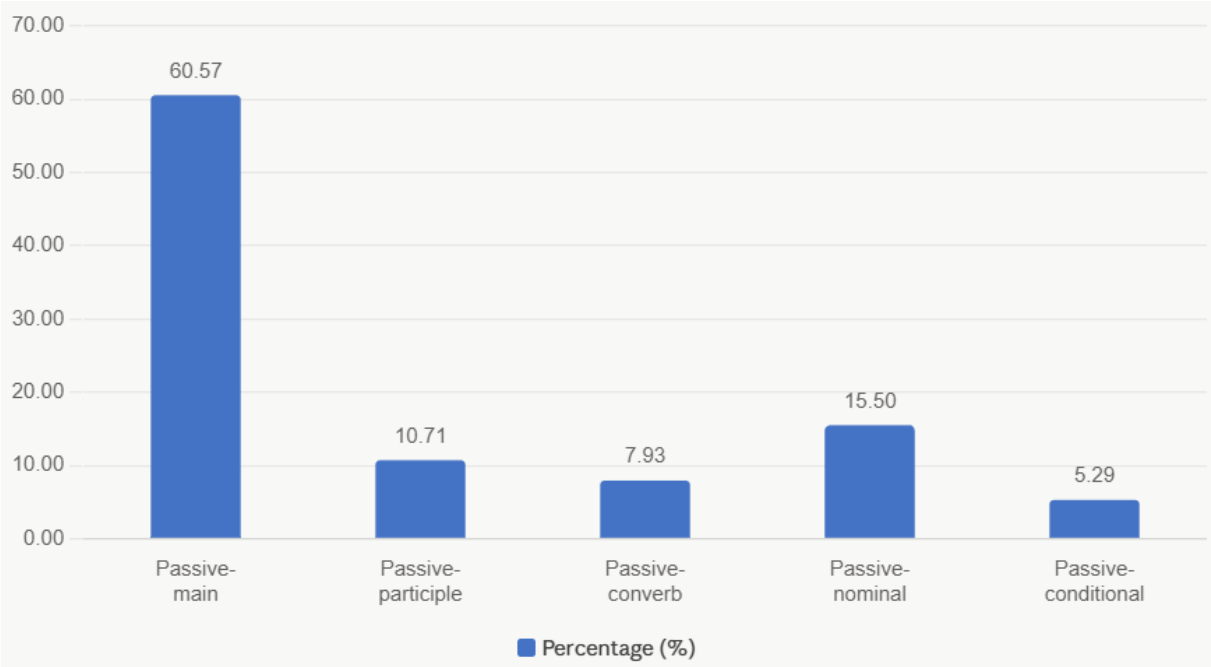
Figure 7. Clause Types in Which Passive Constructions Occur in AI-Generated Texts




According to Figure 7, passive voice in AI-generated texts appears in main clauses at a rate of 41.53%. Passive use in participle clauses stands at 18.33%, in converb clauses at 19.49%, and in nominal subordinate clauses at 20.65%. Notably, no passive voice use was found in conditional clauses in AI-generated texts.

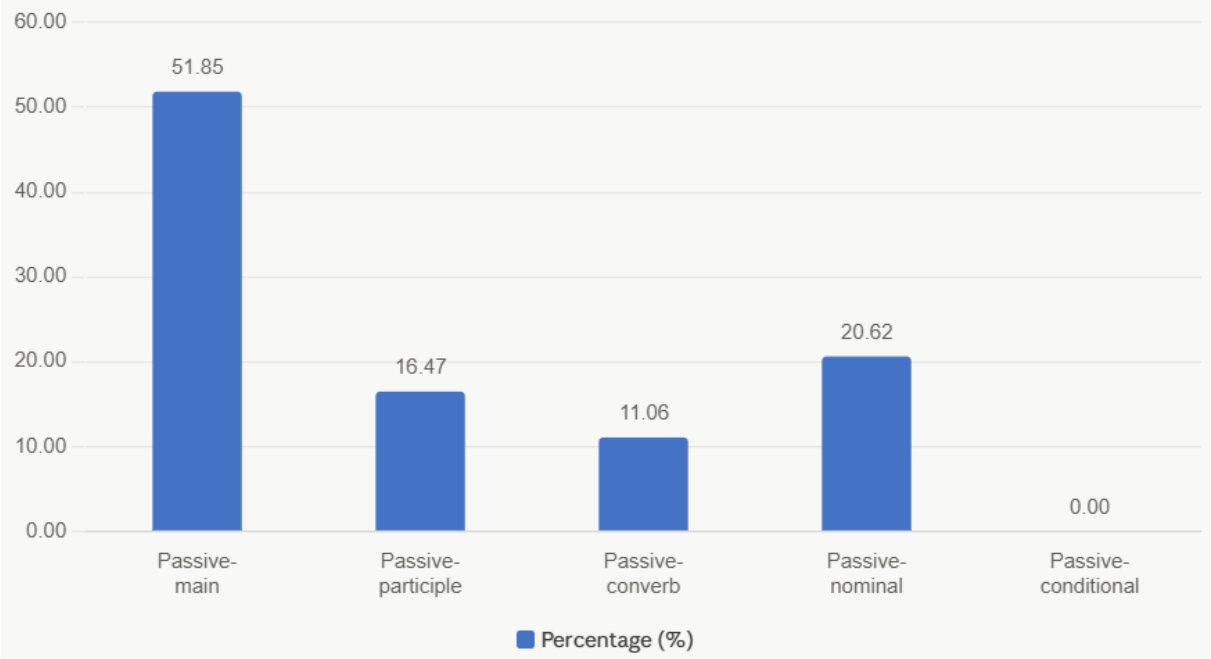
Passive voice use in the outputs of learners of Turkish as a foreign language is presented in Figure 8.

Figure 8. Passive Voice Use in Outputs of Learners of Turkish as a Foreign Language




In the outputs of foreign language learners, passive voice use was distributed as follows: 60.57% in main clauses, 10.71% in participle subordinate clauses, 7.93% in converb subordinate clauses, 15.50% in nominal subordinate clauses, and 5.29% in conditional clauses.

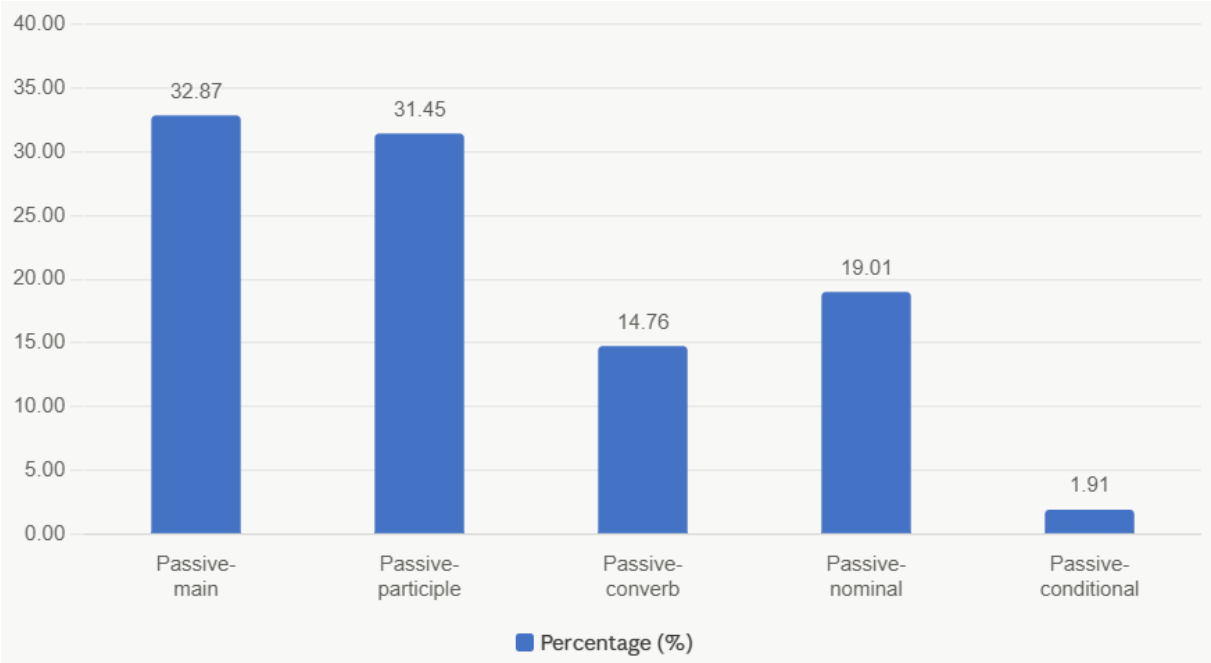
Figure 9. Passive Voice Use in Post-Academic Turkish Outputs of Learners of Turkish as a Foreign Language




As shown in Figure 9, passive voice use in the post-academic Turkish outputs of foreign language learners was as follows: 51.85% in main clauses, 16.47% in participle subordinate clauses, 11.06% in converb subordinate clauses, 0.62% in nominal subordinate clauses, and 5.29% in conditional clauses.

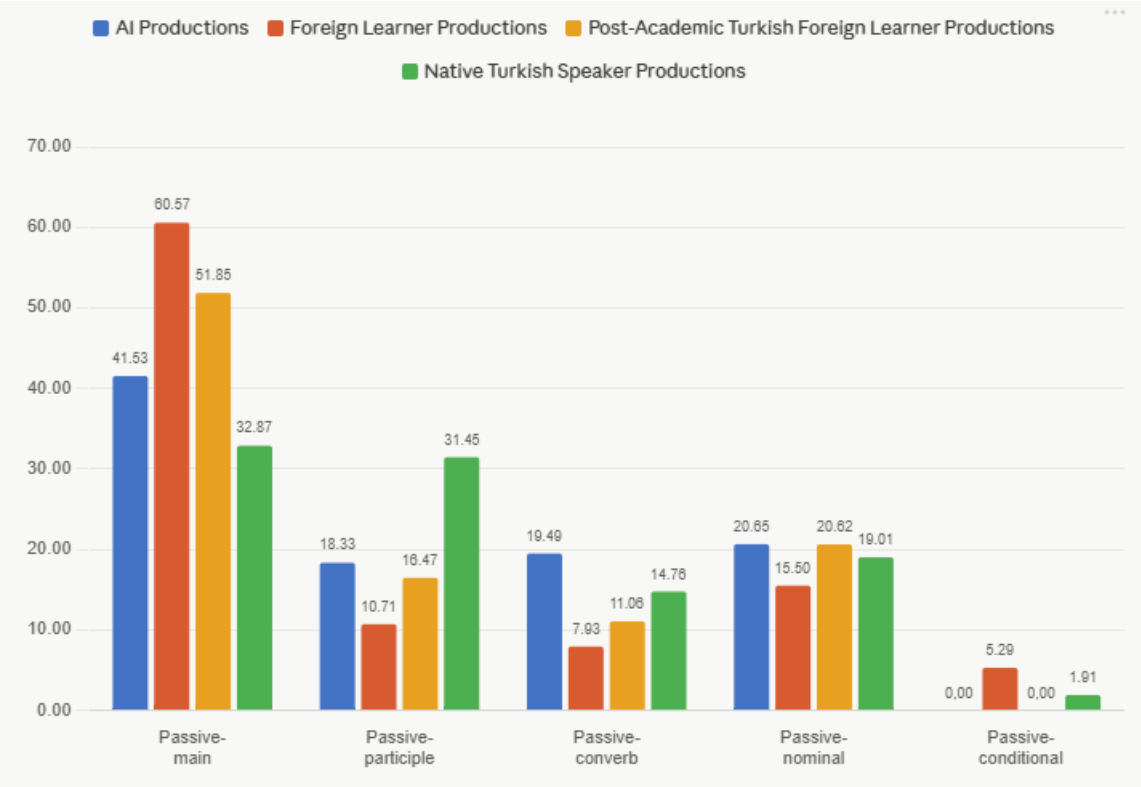
Figure 10 presents passive voice use in native Turkish-speaking student outputs.

Figure 10. Passive Voice Use in Native Turkish-Speaking Student Outputs




In the informational texts produced by native Turkish-speaking students, passive voice use was distributed as follows: 32.87% in main clauses, 31.45% in participle clauses, 14.76% in converb clauses, 19.01% in nominal subordinate clauses, and 1.91% in conditional clauses.

Figure 11. Passive Voice Use Across All Participant Outputs




The findings presented in Figure 11 indicate that all participant groups tend to use passive voice predominantly in main clause predicates. Native Turkish-speaking students, however, show a notably higher rate of passive use in participle clauses compared to other structures.

### 4.7 Key Findings and Comparisons

#### 4.7.1 Clause and Subordinate Clause Structures

In terms of text length and grammatical complexity, native Turkish-speaking students produced the highest total number of main clauses (1,135), followed by foreign learners following academic Turkish instruction (868), foreign learners prior to such instruction (836), and AI-generated texts (123). Regarding subordinate clause use, foreign learners ranked first (483), followed by native Turkish-speaking students (408), post-academic Turkish foreign learners (393), and AI tools (171).

#### 4.7.2 Voice Properties and Passive Voice Use

The active voice was the most frequently used voice across all groups, appearing at its highest rate in post-academic Turkish foreign learner outputs (80.64%). Marked differences were observed in passive voice use rates: AI-generated texts (21.22%) and native Turkish-speaking student outputs (17.91%) exhibited the highest rates, suggesting that both groups tend to adopt an objective tone consistent with academic discourse conventions. The passive voice rate among foreign learners (7.12%) increased to 11.15% following academic Turkish instruction; however, this increase was not found to be statistically significant according to the Independent Samples T-Test ($p > 0.05$). Causative voice use was highest in AI-generated texts (10.43%), while reflexive and permissive causative voices remained at low rates across all groups.

#### 4.7.3 Positional Distribution of Passive Voice Within Clause Structures

All participant groups tended to use passive voice primarily in main clause predicates. Native Turkish-speaking students, however, demonstrated a greater propensity for complex grammatical use within subordinate clause structures, employing passive voice at a notably higher rate in participle clauses (31.45%) compared to other structures. In contrast, no passive voice use was found in conditional clauses in AI-generated texts. Among other groups, passive voice use in main clauses was highest among foreign learners (60.57%).

### 4.8 Discussion of Findings in Light of Language Teaching

#### 4.8.1 Passive Voice Use in First and Target Language Contexts

The proximity between the passive voice rate of native Turkish-speaking students (17.91%) and that of AI-generated texts (21.22%) indicates that this construction is a natural and expected feature of informational and academic text genres.

The passive voice rate among foreign learners (7.12%) falls considerably below the rate considered natural in academic contexts. This suggests that learners of Turkish as a foreign language have not yet sufficiently internalized this academic/formal construction, or that they tend to avoid its use.

#### 4.8.2 Effects and Limitations of Academic Turkish Instruction

Academic Turkish instruction raised the passive voice rate among foreign learners from 7.12% to 11.15%. While this increase indicates that instruction enhanced learners' awareness of the construction, the fact that it was not statistically significant ($p > 0.05$) suggests that instruction alone is insufficient to bring passive voice use to target language levels, or that the acquisition of such complex structures requires more sustained and in-depth engagement over time.

#### 4.8.3 Structural Complexity and Fluency

The fact that native Turkish-speaking students use passive voice not only in main clauses but also at a high rate in participle subordinate clauses (31.45%) reflects their superiority in terms of linguistic fluency and grammatical complexity. The tendency of foreign learners to use passive voice predominantly in main clause predicates (60.57%) can be interpreted as an indication that they remain confined to simpler, more basic sentence structures, avoid using passive voice in complex subordinate clause constructions, or encounter difficulty in accurately constructing such forms. This finding suggests that in language teaching, passive voice instruction should not be limited to the main clause level but should extend to subordinate clause structures — particularly those involving participles, converbs, and nominals. Greater awareness-raising activities focusing on these forms are needed in language courses.

### 4.9 Interpretation from an AI Production Perspective

#### 4.9.1 AI Alignment with Genre Knowledge

The high rate of passive voice use in AI-generated texts (21.22%) demonstrates that AI language models have successfully learned and applied the linguistic features — objectivity and formality — characteristic of academic and informational text genres. This reflects the extent to which the grammatical patterns acquired by AI models from large datasets align with "well-written" exemplars of the target genre.

#### 4.9.2 Production Limitations

The complete absence of passive voice in conditional clauses in AI-generated texts may stem from insufficient training data containing passive constructions in conditional clause contexts. This may

constitute a limitation indicating that AI fails to capture the flexibility and diversity of natural language use by native speakers in certain specific grammatical contexts.

The notably high rate of causative voice use in AI-generated texts (10.43%) — higher than that of native-speaking students (4.99%) — may suggest that AI frequently encodes cause-and-effect or causation relations in its texts.

In conclusion, the findings demonstrate that passive voice is a distinguishing feature of academic and informational texts, and that language instruction should target not only the frequency of passive voice use but also its complex deployment within subordinate clause structures. AI, while exhibiting the linguistic features characteristic of the target genre in its text production, may deviate from the range of native speaker usage in certain specific and complex structural contexts, such as conditional clauses.

## 5. DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Providing learners with knowledge of the textual structural features of different text genres plays a significant role in the development of their reading and writing skills in foreign language teaching. In this regard, the outputs of native Turkish-speaking students offer valuable data for comparative analysis across specific text genres. In addition to native speaker productions, examining the outputs of AI tools — which have been increasingly employed in recent years, particularly in the area of material development in foreign language teaching — from a textual properties perspective provides researchers with a broader data spectrum and offers guidance within the scope of text genre instruction in teaching Turkish as a foreign language. In this context, determining the frequency of passive voice use — as well as that of numerous other grammatical structures — in informational texts will yield pedagogically applicable insights into the discourse patterns of text genres.

According to the findings of this study, which aimed to determine the rate of passive voice use in informational texts produced by native speakers of Turkish and learners of Turkish as a foreign language, and to compare these rates with passive voice use in AI-generated texts, the passive voice rate is 17.51% in AI-generated texts and 21.22% in texts produced by native speakers of Turkish. The passive voice rates in native speaker and AI-generated outputs appear to be parallel. However, among learners of Turkish as a foreign language, this rate remains at 7.12%. Although an increase was observed following academic Turkish courses, this increase was found to be statistically non-significant. In this regard, it can be concluded that academic Turkish programs require additional instructional support concerning the use of grammatical structures in informational texts. The results obtained in this study are consistent with those of prior research reporting low rates of passive voice use in the academic writing of university students whose first language is Indonesian learning English as a foreign language (Yannuar et al., 2014), as well as in English texts produced by learners whose native languages include German, Finnish, Chinese, Greek, Hungarian, and French (Keatinge & Keßler, 2009).

Oflaz-Köleci and Çetin (2024: 52), working under the assumption that subjectivity in the texts of learners of Turkish as a foreign language is frequently presented as "objective subjectivity," compiled a corpus of 65 informational texts collected on three different topics. Their findings reveal that only 3 passive sentences were used across 1,666 sentences — a pattern interpreted in that study as indicating that learners of Turkish as a foreign language may be avoiding passive voice use. The findings of the aforementioned study and those of the present study are consistent with one another.

In informational texts, expression can be achieved through either objective or subjective means. However, upon re-examination of the research findings, the rate of passive voice use — as a manifestation of objective expression — appears considerably low in texts produced by learners of Turkish as a foreign language both before and after academic Turkish instruction. This low rate becomes even more pronounced when compared with AI-generated texts and native speaker outputs. Given that this finding is consistent with the results of prior studies by Yannuar et al. (2014), Keatinge and Keßler (2009), and Oflaz-Köleci and Çetin (2024), it highlights the necessity of incorporating, within the scope of text genre instruction in advanced and academic Turkish programs for learners of Turkish as a foreign language, dedicated activities focusing on the use of grammatical tools such as passive voice and nominalization within the framework of subjective and objective expression.

Furthermore, the parallel between AI-generated and native speaker outputs leads to the interpretation that AI tools can be utilized by teachers in the design of instructional materials for language teaching, and can also be recommended to learners of Turkish as a foreign language as a reference resource. AI tools that are capable of self-improvement and learning are being employed in education, as in many other fields. In a study compiling perspectives from the literature on the place of AI tools in education, İşler and Kılıç (2021) report that AI tools enhance academic achievement and provide opportunities for personalized learning. They emphasize that AI tools offer immediate feedback, thereby enabling students to self-correct. Noting that AI can be used both by teachers in classroom settings and by students for independent self-directed learning, İşler and Kılıç (2021) further suggest that AI will lead to changes in pedagogical methods. Mutlu (2025) observes that while human creativity is shaped by consciousness, emotional depth, and social interaction, AI is a system capable of producing originality and innovation primarily through algorithmic processes and data analysis. Viewed within this framework, AI can offer students well-constructed model texts produced through the combination of various algorithms, particularly in the context of academic writing. However, this raises the question of whether the same holds true for other text genres, and warrants further evaluation. In other words, whether AI tools — which provide strong models for informational text production and outline generation through systematic processes — can equally serve as good models for the production of other text types must be assessed separately. Güler et al. (2025), in a study classifying AI tools that can be used in the academic writing process, introduced numerous tools and emphasized that while AI tools are proficient at text generation, content and factual accuracy require verification. Within this evaluative framework, students should be advised to check the factual accuracy of informational texts generated by AI tools.

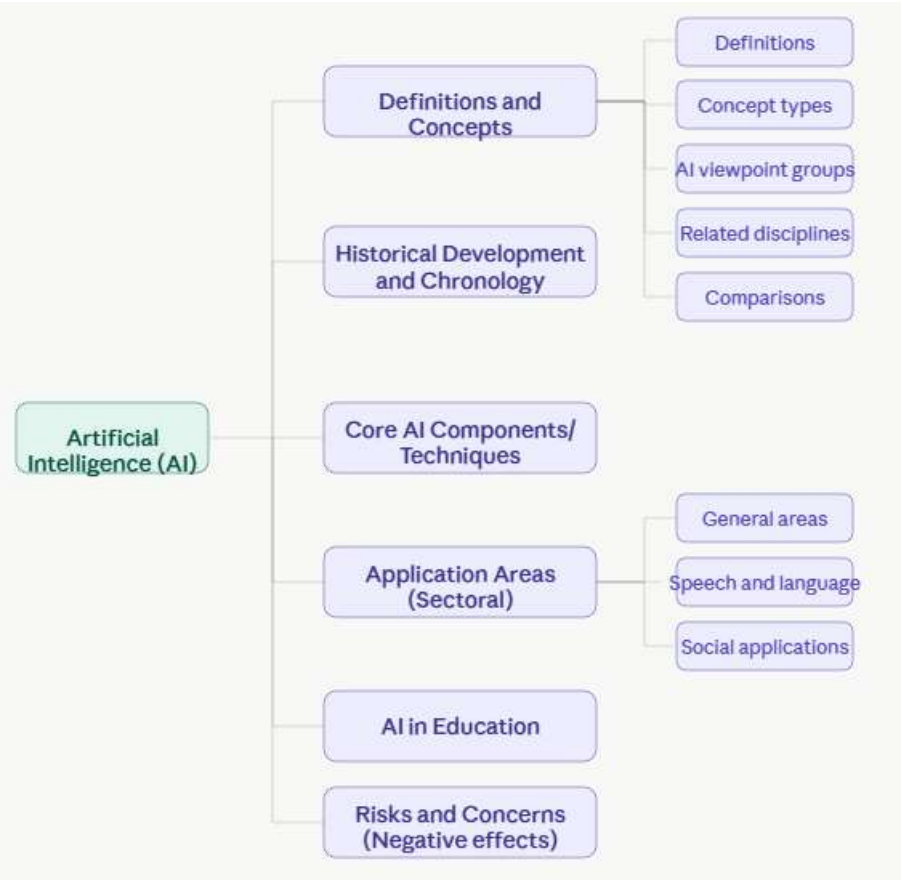
The primary objective of this study is not to provide recommendations for language teaching. However, the parallel between AI-generated outputs and those of native speakers has made it possible to develop several pedagogically relevant suggestions.

### 5.1 Recommendations for the Use of AI in Informational Text Writing in Foreign Language Teaching

**1.** Since AI tools can serve as guides for students, they can be incorporated into language courses — particularly in informational text writing activities. AI tools that provide outlines for organizing content in informational text writing are available. For instance, when topic-related sources are uploaded to NotebookLM (https://www.notebooklm.google), the tool can generate an outline for text production. Creating an outline before beginning to write will facilitate the writing process for students. To provide an illustrative example, six topic-related sources were uploaded to an AI tool and the following prompt was submitted: *"Based on these sources, could you create an outline for me to*

*write an informational text on 'The Positive and Negative Effects of Artificial Intelligence on Our Lives'?"* The AI tool then produced the outline presented in Figure 12, which includes subheadings within each main heading.

Figure 12. Informational Text Outline Generated by an AI Tool




**2.** Learners of Turkish as a foreign language can be directed toward AI tools to help them notice the linguistic features of different text genres. Students can prompt different AI tools to produce texts of different genres on the same topic and then evaluate the similarities and differences between the resulting texts. The example below presents texts generated by ChatGPT on the same topic in two different genres.

Table 6. Example Texts

| ***Informational Text*** | ***Everyday Conversational Language*** |
|---|---|
| *Yapay Zekânın Hayatımıza Olumlu ve Olumsuz Etkileri*<br><br>*Yapay zekâ (YZ), günümüzde hızla gelişen teknolojiler arasında en dikkat çekici olanlardan biridir. Sağlık, eğitim, ulaşım, iletişim ve sanayi gibi birçok alanda kullanılan yapay zekâ, insan yaşamını kolaylaştıran önemli yenilikler sunmaktadır. Örneğin, tıp alanında hastalıkların erken teşhisinde kullanılan yapay zekâ sistemleri, tedavi* | *Yapay Zekânın Hayatımıza Olumlu ve Olumsuz Etkileri*<br><br>*Yapay zekâ artık hayatımızın her yerinde karşımıza çıkıyor. Telefonlarımızda, arabalarımızda, hatta internetten yaptığımız alışverişlerde bile yapay zekâdan faydalanıyoruz. Bu teknoloji birçok alanda işleri kolaylaştırıyor. Mesela hastanelerde yapay zekâ sayesinde hastalıklar daha erken fark edilebiliyor, eğitimde öğrenciler kendi hızlarına göre öğrenebiliyor, fabrikalarda üretim daha hızlı* |

| | |
|---|---|
| *süreçlerini hızlandırmakta ve hata payını azaltmaktadır. Eğitimde ise kişiye özel öğrenme yöntemleri geliştirilerek öğrencilerin başarı oranları artırılmaktadır.*<br><br>*Bununla birlikte, yapay zekânın bazı olumsuz etkileri de bulunmaktadır. Özellikle iş dünyasında otomasyonun artması, bazı mesleklerin ortadan kalkmasına ve işsizlik oranlarının yükselmesine yol açabilmektedir. Ayrıca, kişisel verilerin yapay zekâ sistemleri tarafından işlenmesi, gizlilik ve güvenlik konularında endişelere neden olmaktadır. Yapay zekânın etik sınırlarının belirlenmemesi de kötüye kullanım riskini artırmaktadır.*<br><br>*Sonuç olarak, yapay zekâ doğru ve sorumlu bir şekilde kullanıldığında insanlığın yararına büyük katkılar sağlayabilir. Ancak, olası risklerin farkında olmak ve gerekli önlemleri almak, bu teknolojinin sürdürülebilir bir biçimde gelişmesi için büyük önem taşımaktadır* | *ve hatasız yapılabiliyor.*<br><br>*Ama tabii her şeyin olduğu gibi bunun da bazı olumsuz tarafları var. Özellikle makinelerin bazı işleri insanların yerine yapması, bazı mesleklerin yavaş yavaş ortadan kalkmasına neden oluyor. Bu da işsizlik gibi sorunları beraberinde getirebiliyor. Bir de gizlilik konusu var; yapay zekâ sistemleri çok fazla veri topladığı için kişisel bilgilerimizin ne kadar güvende olduğu bazen belirsiz olabiliyor.*<br><br>*Kısacası, yapay zekâ doğru kullanıldığında gerçekten hayatı kolaylaştırıyor. Ama kontrolsüz ya da yanlış kullanılırsa ciddi sıkıntılar da yaratabilir. Bu yüzden teknolojiyi kullanırken dikkatli olmak ve onu insanlığın yararına yönlendirmek çok önemli.* |

When asked about the differences between the two texts, the AI tool is also capable of providing explanations in the structured format shown below. This feature can be regarded as a tool for raising learner awareness in individual study contexts.

Table 7. Informational Text vs. Everyday Conversational Language — Comparison Table

| ***Feature*** | ***Informational Text (Formal Register)*** | ***Everyday Conversational Language (Informal Register)*** | ***Explanation*** |
|---|---|---|---|
| ***Vocabulary*** | *"Yapay zekâ sistemleri, etik sınırlar, sürdürülebilir gelişme"* | *"Yapay zekâ, bazı işleri makineler yapıyor, dikkatli olmak lazım"* | *Informational texts use more academic and abstract vocabulary; everyday language favors simple words accessible to all.* |
| ***Sentence structure*** | *"Yapay zekânın etik sınırlarının belirlenmemesi de kötüye kullanım riskini artırmaktadır."* | *"Yapay zekâ doğru kullanılmazsa kötüye gidebilir."* | *Informational texts contain long, complete sentences; everyday language uses short, flowing sentences.* |

| | | | |
|---|---|---|---|
| ***Tone*** | *Tarafsız ve nesnel bir anlatım vardır.* | *Daha içten, konuşma havasında bir anlatım vardır.* | *Informational texts aim to convey information; everyday language has a conversational feel.* |
| ***Connectives*** | *"Bununla birlikte, ayrıca, ancak, sonuç olarak"* | *"Ama, mesela, tabii, yani"* | *Informational texts use academic connectives; everyday language employs more natural transitions.* |
| ***Purpose*** | *Okuyucuyu bilgilendirmek, konuyu derinlemesine açıklamak* | *Konuyu sade bir şekilde anlatmak, kolay anlaşılmasını sağlamak* | *Everyday language prioritizes comprehensibility and informality over information delivery.* |
| ***Context of use*** | *Okul ödevleri, makaleler, resmi raporlar* | *Sohbetler, sunumlar, videolu anlatımlar* | *Each register is more appropriate in different contexts.* |

**3.** In addition to generating texts, AI tools are also capable of preparing skill-development activities. For instance, when Gemini is given the following prompt — *"I want to improve myself in writing informational texts. Could you suggest a writing activity for the B1 level?"* — it produces the writing activity proposal below, along with supporting information.

**Topic:** The Benefits of Public Transportation for Cities and People

**Objective:** To write a coherent informational text of 120–150 words on the given topic, using the specified structures and expressions.

**SECTION 1: Required Information**

| Criterion | Details | Structures to Be Checked |
|---|---|---|
| Target Word Count | 120–150 words | 1. Transitional and sequencing connectives |
| Text Structure | Title, Introduction, Body (Benefits), Conclusion | 2. Cause-and-effect expressions |
| Target Proficiency Level | B1 (Independent User) | 3. The *-mElİ* (necessity/obligation) mood |

**SECTION 2: Main Ideas and Benefits**

Use the following main ideas to construct the body section of your text:

1. **Environmental benefit:** Fewer private vehicles → Less air pollution
2. **Traffic benefit:** Reduces urban traffic → Less time loss and stress
3. **Economic benefit:** More affordable for individuals → Less expenditure on fuel

**SECTION 3: Linguistic Patterns to Be Used**

Use each of the following patterns at least once to make your text fluent, cohesive, and appropriate to the B1 level.

| **Purpose** | **Pattern / Expression** | **Example** |
|---|---|---|
| Sequencing (Body) | *Firstly / Moreover / Finally* | Firstly, it contributes to the environment. |
| Cause and effect | *Because / Therefore* | …we don't drive, because the metro is faster. |
| Necessity / Recommendation (Conclusion) | *we should use / it must be* | We should all prefer public transportation. |
| Adding information | *Both ... and ...* | It is both affordable and practical. |

**SECTION 4: Writing Space**

**TITLE:** _____

*(You may write your text here. The text must comply with the guidelines set out in the three sections above.)*

Following activities of this kind — which support students in carrying out independent writing practice — AI tools can also provide revision suggestions. Activities of the same type can likewise be prepared for other language skills.

Teachers may also consult AI tools when developing instructional materials for all language skills during the material preparation process.

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