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Advancing Local Knowledge

for a Brighter and Sustainable Future



Edited by

Osman GÜLTEKİN and Çağdan UYAR

STARSCHOLARS NETWORK

Advancing Local Knowledge for a Brighter and Sustainable Future

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This volume is presented by the UNESCO Chair on Cultural Diplomacy, Governance, and Education, building on the rich intellectual exchange fostered during the STAR Global Conference 2025 in Istanbul, Türkiye. Hosted by Istanbul Aydın University and the STAR Scholars Network, the conference brought together a diverse and dynamic international community of scholars, researchers, and cultural leaders.

With over 200 submissions from 43 countries, the conference featured more than 150 presentations, 19 panels, 10 workshops, and five distinguished keynote speakers. Under the theme "Advancing Local Knowledge for a Brighter and Sustainable Future," the event created a truly global platform for interdisciplinary dialogue across education, sustainability, cultural studies, communication, technology, and leadership.

Under the theme "Advancing Local Knowledge for a Brighter and Sustainable Future," this conference emphasizes a crucial yet often overlooked dimension of knowledge production: the value of local knowledge and its visibility within global academic discourse. While locally grounded knowledge may represent some of the most meaningful and contextually rich insights in the world, its impact remains limited if it does not circulate beyond its immediate context. Knowledge that remains confined to local boundaries risks being underutilized, regardless of its intrinsic significance. Recognizing this, the conference has intentionally embraced a multilingual and interdisciplinary framework, aiming to bridge the gap between local production and global dissemination. By providing an inclusive platform that transcends linguistic and disciplinary barriers, the event seeks to amplify diverse scholarly voices and ensure broader accessibility to knowledge. The present volume reflects this commitment, bringing together the full texts of the papers presented at the conference and thereby contributing to the wider circulation and recognition of locally rooted yet globally relevant scholarship.

As the UNESCO Chair on Cultural Diplomacy, Governance, and Education, we are honored to contribute to this collective scholarly endeavor and to support initiatives that foster intercultural dialogue, knowledge exchange, and sustainable development through academic collaboration.

We wish to express our sincere gratitude to the STAR Scholars Network President Prof. Dr. Uttam Gaulee and Prof. Dr. Krishna Bista for their leadership and vision in convening this global gathering. We extend our appreciation to the conference academic coordinator Prof. Dr. Shyam Sharma, organizers, conveners, and leadership team, as well as to all keynote speakers, panel chairs, and workshop facilitators for their invaluable intellectual contributions.

Our deepest thanks go to the members of the scientific and organizing committees, whose dedication ensured the academic rigor and success of both the conference and this publication. We are equally grateful to all presenters and participants from around the world, whose research, insights, and engagement—both in-person and virtually—constitute the foundation of this volume.

We also acknowledge with appreciation the efforts of the organizing team, volunteers, and the staff of Istanbul Aydin University, whose professionalism and commitment enabled the successful implementation of the conference in a hybrid format. Special thanks are due to all technical teams and collaborators who supported both the virtual and on-site components.

Beyond its academic scope, the conference provided participants with an opportunity to experience Türkiye's rich cultural heritage through workshops, city tours, and cultural activities, fostering meaningful intercultural exchange. These experiences further reinforced the spirit of cultural diplomacy that lies at the heart of this initiative.

Finally, we extend our gratitude to all contributors to this book. This volume stands as a testament to the shared commitment of the global academic community to advancing knowledge, strengthening international collaboration, and promoting a more inclusive and sustainable future.

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Yılmaz Büyükkutlu

English as Foreign Language Instructors' Perceptions of and Attitudes Towards Teaching World Englishes and Cultures in Higher Education in Türkiye

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ABSTRACT

The global spread of English has resulted in a variety of its use in spoken and written forms across countries all over the world. Considering the status of English users around the world, with non-native speakers outnumbering native speakers, EFL teachers' awareness of and attitudes towards World Englishes and culture play a significant role in preparing learners of English to be competent language users for the globalized world. *World Englishes* refers to the diverse varieties of English that have emerged as the language has spread across different regions of the world. This study explores EFL instructors' perceptions of and attitudes towards teaching World Englishes and culture in higher education in Türkiye. The participants consisted of 100 English language instructors working in preparatory schools of universities in Türkiye. Quantitative data were collected via a questionnaire, and qualitative data via a semi-structured interview. Findings showed that the instructors mostly had positive attitudes towards the inclusion of WEs and cultures in the curriculum. The questionnaire results showed the importance given to the development of intercultural communicative competence for learners, and the instructors' willingness to incorporate varieties of English in their courses. However, the results also showed the lack of necessary resources and support for in-service teachers to be prepared for exposing learners to different Englishes and cultures. Pedagogical implications of the study highlight the need for more inclusive language education materials, improved teacher training programs, and greater involvement of stakeholders to support positive attitudes and successful integration of World Englishes and culture.

Keywords: World Englishes, varieties of English, culture, intercultural communicative competence

INTRODUCTION

The global spread of English has resulted in a variety of its use in spoken and written forms across countries all over the world. The rapidly changing sociolinguistic profile and glossography of English (i.e. the historical-structural and functional aspects of the global spread, status, role, and entrenchment of the language, Nayar, 1994, p.1) are both qualitatively and quantitatively unprecedented (Paradowski, 2008).

The scope of *World Englishes* has long been discussed in relation to other relevant terms such as 'Global English', 'International English', since all these terms have mutually shed light on the diverse nature of English used by everyone around the world for different purposes. Considering this status of English users globally, with non-native speakers outnumbering native speakers, EFL teachers' awareness of and attitudes towards World Englishes and cultures play a significant role in language education. The spread of English language in Türkiye, which belongs to the Expanding Circle countries in Kachruvian terms (1985), has been both planned and unplanned for various reasons ranging from the purpose of modernization as a society to keeping up with advancements in technology, business, trade, media, and education in the global arena. These purposes have led to reconsideration of the effectiveness of language education, which can prepare EFL learners to use language appropriately, meaningfully, flexibly, and strategically, depending on the setting where the backgrounds of language users and purposes are subject to change.

Researching EFL instructors' knowledge and practices of varieties of Englishes and cultures associated with it is crucial, as they shape learning environments that promote a pluricentric view of English and its diverse cultural representations. Consequently, this study aims to explore EFL instructors' perceptions of and attitudes towards teaching World Englishes and culture where English language is a performance variety and functions as a medium of instruction and serves for instrumental purposes. Besides, the emerging need to connect in a global zone has necessitated further research on how to incorporate culture into socio-culturally diverse environments. Accordingly, the following research questions were addressed:

1. What are EFL instructors' perceptions of World Englishes and culture in higher education in Türkiye?

2. What are EFL instructors' attitudes towards the inclusion of World Englishes and culture in teaching English as a foreign language in Türkiye?

LITERATURE REVIEW

Kachru's Three Concentric Circles

As the basis of the study, the Kachruvian paradigm represents varieties of English in Three Concentric Circles of World Englishes (Kachru, 1992) emerged with the rising status of the global spread of English. The Three Circles model aimed at presenting three main areas of English use across the world: the types of spread of English, the patterns of acquisition and the functional domains (Bolton, 2006).

A pictorial representation of the Three Circles Model is shown below (Kachru, 1985).

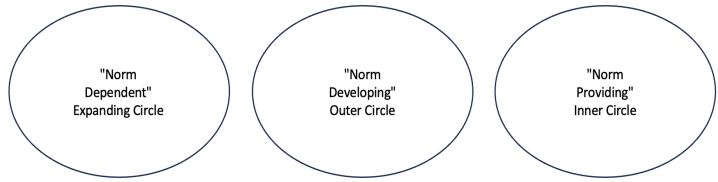


Figure 1 Three Circles (Adapted from Kachru, 1985)

These Inner, Outer, and Expanding Circle countries are organized according to the role and status of English. Kachru (1985) demonstrated the spread of the norms of the language across boundaries. Norm-providing countries include the UK, the USA, Canada, Australia, and New Zealand, which provide linguistic standards for the use of English. Norm-developing countries, belonging to the Outer Circle, represent postcolonial Anglophonic contexts, numerically large and diverse speech communities, including African and Asian countries such as Nigeria, India, Zambia and Singapore (Bolton, 2006). Lastly, Expanding Circle countries, such as Türkiye, are the ones where English does not have an official status but is used as an international language as a means of communication and acquired as a foreign language (e.g., Korea, Japan, Taiwan). They are classified as norm-dependent countries, which usually follow standard Englishes from Inner Circle varieties.

The term variety in this regard is defined as 'a language, a dialect, an idiolect or an accent which is used for language production' (Bauer, 2002). It refers to changes in the form of a language due to 'social, historical, geographical, or a combination of these factors' (Hickey, 2004). Changes in language use can occur even in interactions between individual speakers who come from different social, cultural, and educational backgrounds. Eventually, it affects how language is interpreted, viewed, and adapted, leading to variations in vocabulary, pronunciation, grammar, and pragmatic use. In the context of Türkiye, there is no officially recognized local variety of English; instead, predominantly preferred varieties in language education are often either Standard British or American English at all levels.

Within the framework of World Englishes, this situation has raised concerns related to native-speakerism and perceived ownership of English. Adopting a monolithic view of English, restricting instruction to a singular variety, also limits teaching the cultural dimension of it. While exposure to English in daily life is already limited to one's occupation, interests, and access to the language, excluding different varieties of English and cultures represented in teaching materials not only affects learners' ability to achieve using English competently but also limits their knowledge of the world.

Empirical studies on World Englishes and Culture in the EFL context

One of the aims of teaching a foreign language is to develop intercultural awareness to be able to adjust language use appropriately and effectively in various social and cultural settings with diverse speakers around the world. Language and culture are codependent and constructed in communities who have shared values and beliefs, which are subject to change. To implement cultural components in teaching materials, teachers first should broaden their knowledge of what culture encompasses. In an EFL setting, especially in norm-dependent countries like Türkiye, exposure to the target language is mostly bound to language classes where teachers make decisions based on their educational background, institutional requirements, and materials they have access to. Language and content presented to learners based on only inner-circle varieties is not adequate to develop awareness of and positive attitudes towards World Englishes (Jenkins, 2006; Matsuda, 2003; Si, 2019). Materials used in language classes should present linguistic and cultural diversity (Matsuda, 2003). There have been studies on language teachers' incorporation of varieties of English and culture, which show teachers' knowledge of, practices, and readiness to adjust their teaching to be more inclusive in this manner.

Among the studies on the implementation of World Englishes and culture, Matsuda (2010) focused on evaluating writing skills beyond conventions. The study suggested that in Expanding circle countries, in addition to standard Englishes, it is possible to introduce learners' nondominant language forms and functions. For example, instead of using traditional ways to judge a text (e.g. correct language use) produced by learners, other factors could be included for evaluation of a text: writer's argument, writer's knowledge of the subject, intentional use of a variation to establish a pattern throughout the text (Matsuda, 2010). In another study, Chang (2014) concluded that by teaching students about World Englishes, their awareness could be increased and help them develop positive attitudes. In the study, participants were engaged in issues such as the spread of English, varieties of English, ownership of the language, etc. The analysis of the participants' reflection essays on their course showed that learners were able to reflect on language use more critically. Karakaya and Hatipoğlu (2017) investigated attitudes of EFL teachers in Türkiye towards teaching

varieties of English. The study particularly focused on their awareness of developments in WEs and English as a lingua franca (ELF). The participants consisted of 50 English teachers who have taught at different levels not only in higher education but also in primary and secondary schools, which made the scope of this study large. The participants referred to the varieties commonly used in the coursebooks when defining standard Englishes as a formal and correct language to be taught. The participants who preferred Standard Englishes as a norm explained that BrE and AmE are the most common and accepted varieties. Because of the global status of English, the participants showed positive attitudes towards integrating varieties of English, especially in Expanding circle countries, where English is continuously shaped by speakers whose native language, social and cultural backgrounds differ.

As for raising cultural awareness, Lee (2012) analyzed the implementation of World Englishes in language classrooms in the South Korean context with a focus on Intercultural English learning/teaching. The study, based on Byram's (1997) model of intercultural competence, concluded that teachers should pay attention to the properties of intercultural competence involving behavioral skills, attitudes, and critical awareness. Also, learners should be taught the skills to 'interpret, relate and discover' differences across cultures. In a more recent study conducted in Türkiye, Cesur and Balaban (2020) investigated teacher trainers' views on the content of WE and Culture course integration in the ELT undergraduate program, and the preferred topics to be included in the syllabus of this course. The participants consisted of 63 teacher trainers from universities in Türkiye. After the participants shared their preferred topics (e.g. 'The effect of culture on language teaching', 'English culture and history', 'English as an International Language'), they mentioned the most significant topics which were 'The effect of culture on language teaching', 'Introduction: Why World Englishes?' , 'Raising awareness on WE and culture' and 'the use of EIL'. This study also showed the teachers' awareness of the interrelatedness of culture and varieties of English. From the perspective of learners' attitudes towards varieties of English, Ören et al. (2017) conducted action research with A2 level preparatory school students in higher education in Türkiye. The materials presented to the participants were designed within the framework of World Englishes (WEs), incorporating videos, dialogues among speakers of various nationalities, reading texts, and listening resources featuring a range of accents. As the participants became familiar with diversity, their tolerance of differences improved as much as their confidence in their own language use. Fidan et al. (2024) investigated prospective ELT teachers' attitudes towards WEs and culture in Türkiye. The participants were enrolled in a "World Englishes and Culture" which lasted a semester. In their study, Fidan et al. (2024) employed multiple data collection tools, including a pre- and post-test questionnaire, a verbal-guise task, focus group discussions, and written artifacts. The intervention significantly increased the participants' awareness and knowledge of WEs and WE-informed pedagogy, which led them to think about equal treatment of English users around the world.

Differing from the study by Fidan et al. (2024), who studied prospective ELT teachers enrolled in a "World Englishes and Culture" course, this study investigates in-service EFL instructors at university preparatory schools in Türkiye. It also includes perceptions of teaching culture and offers insights grounded in actual teaching practice, rather than training or instructional contexts.

Overall, these findings highlight the importance of creating opportunities for learners to engage with English in ways that allow them to negotiate and interpret meaning from diverse cultural and linguistic perspectives. To support this, EFL teachers need to be aware of different varieties and cultural contexts, enabling learners to explore the language more deeply. Familiarity with different uses of English contributes to more positive attitudes and increased motivation among both teachers and learners. Over time, this can foster a sense of ownership of the language. Building on this foundation, the present study aims to explore how in-service EFL instructors in higher education in Türkiye perceive and approach the teaching of World Englishes and culture, offering insights grounded in their lived teaching experiences.

METHOD

This study tried to explore EFL instructors' perceptions of and attitudes towards World Englishes and Culture with an aim to uncover their awareness of World Englishes and how they incorporate WEs and culture in their teaching practices. A mixed-method research design was employed, including a questionnaire and a semi-structured interview. In line with the purpose of the study, two research questions were addressed:

1. What are EFL instructors' perceptions of World Englishes and culture in higher education in Türkiye?
2. What are EFL instructors' attitudes towards the inclusion of World Englishes and culture in teaching English as a foreign language in Türkiye?

Participants

The targeted population of this study was EFL instructors working at the Schools of Foreign Languages departments at universities in Türkiye. Therefore, the sampling included available EFL instructors working in preparatory schools of English in higher education in Türkiye. The participants were chosen based on convenience sampling. They were from different nationalities speaking different varieties of World Englishes.

Instruments

With respect to attitudes towards World Englishes and for culture teaching practices, Tosuncuoğlu and Kırmızı's (2019) and Sercu's (2006) questionnaires were adapted upon their written permission. In addition to administering the questionnaires, a semi-structured interview was conducted to explore in-depth views of instructors about teaching World Englishes and culture. The interview questions were adopted from Tosuncuoğlu and Kırmızı's (2019) study. The participation in the interview was voluntary and took place online or in person, depending on the participants' availability.

Data collection tools and procedures

The procedure of data collection is described in detail in the table 1 below:

Table 1 Data Collection Tools of the Study

Data Collection Tool	Procedure
Questionnaire	Section 1: 4 open-ended questions for demographic data Section 2: Foreign Language and culture: 2 open-ended questions Section 3: Your familiarity with the foreign language cultures associated with English: 8 Likert-scale questions
Semi-structured interview	Section 4: Intercultural Foreign language teaching: Your opinion: 16 Likert-scale questions Section 5: World Englishes Teaching: Your opinion: 12 Likert-scale questions 4 Questions about the effectiveness of native/non-native teachers, ownership of English, Standard English vs World Englishes

Data Analysis

Descriptive analysis was employed using SPSS 29 for the quantitative part. Then, thematic analysis of the qualitative data was conducted for semi-structured interviews.

RESULTS

Findings based on the Quantitative Data

The quantitative data were analyzed for four sections of the questionnaire.

The relevant questionnaire items of this part were: 1- When were you born? 2- How long have you been teaching English? 3- What is your native language? Or, if you consider yourself bilingual, what are your native languages? and 4- What

is your nationality? Or, if you have more than one nationality: what are your nationalities? Demographic descriptive analysis of the participants is demonstrated in the tables below:

Table 2 Age of EFL Instructors

	Min	Max	M	SD
Demographics Q1: Age	24	67	39.49	10.309

According to the above table, most of the participants' ages are around 39 years old, with a maximum age of 67 and a minimum age of 24, with a standard deviation value of 10.3.

Table 3 Years of Teaching English

	Min	Max	M	SD
Demographics Q4: How long have you been teaching English?	1	40	13.37	9.426

Most of the participants' years of teaching English are around 13 years, with a maximum age of 40 years and a minimum age of 1 year, with a standard deviation value of 9.4.

Table 4 Native Languages of EFL Instructors

	Frequency	Percentage
Turkish	66	66%
Persian	13	13%
English	7	7%
Arabic	3	3%
Filipino	2	2%
Azerbaijani	1	1%
Belarusian	1	1%
Bengla	1	1%
Greek	1	1%
Kurdish	1	1%
Kyrgyz	1	1%
Polish	1	1%
Russian	1	1%
Turkmen	1	1%
Total	100	100%

The table demonstrates that the majority of the participants were Turkish, with a frequency of 66%. Native Persian speakers represented 13% of the total respondents. English native speakers represented 7% of the total respondents, and 3% of the respondents were Arabic speakers. Among the participants, Filipinos comprise the frequency of 2%. The remaining participants' native languages were Belarusian, Bengali, Greek, Kurdish, Kyrgyz, Polish, Russian and Turkmen 1% each.

Table 5 Nationalities of EFL Instructors

	Frequency	Percentage
Turkish	69	69%
Iranian	14	14%
American	3	3%
British	3	3%
Filipino	2	2%
Bangla	1	1%
Belarusian	1	1%
Greek	1	1%
Kyrgyz	1	1%
Moroccan	1	1%
New Zealander	1	1%
Polish	1	1%
Syrian	1	1%
Turkmen	1	1%
Total	100	100%

As can be seen in the table, most of the respondents were Turks, and they represented 69% of the total participants. There were also Iranians who represented 14% of the total respondents. Among the native speakers of English, the Americans and the British represented 3% of the total respondents. Participants from the Philippines represented 2%. The remaining respondents' nationalities 1% were Bangladeshi, Belarusian, Greek, Kyrgyz, Moroccan, New Zealander, Polish, Syrian, and Turkmen.

Section 3 of the questionnaire focuses on non-native EFL instructors' familiarity with English and with social and cultural aspects of English. The question for this part was: How familiar are you with the country, culture, and people associated with English? Each item had the following options: Very familiar, sufficiently familiar, not sufficiently familiar, not familiar at all. In the descriptive analysis shown in the following table, very familiar is represented by 4, sufficiently

familiar by 3, not sufficiently familiar by 2, and not familiar at all is represented by 1.

Table 6 Familiarity with English and associated culture and people

	Min	Max	M	SD
Q1: History, geography, political system, religion	2	4	3.22	.561
Q2: Different ethnic and social groups	1	4	3.10	.745
Q3: Daily life and routines, living conditions, traditions, food and drink, etc.	2	4	3.54	.558
Q4: Professional life, education	2	4	3.24	.638
Q5: Literature	1	4	3.22	.773
Q6: Other cultural aspects (music, drama, etc.)	2	4	3.36	.644
Q7: Values and beliefs	2	4	3.21	.656

Based on the findings, the participants were sufficiently familiar with different aspects of culture. There was a consistency in their self-evaluation as they stated sufficient familiarity with all the questionnaire items. However, their reflection on their knowledge of small cultures regarding item 3 was the highest, followed by item 6, which covers other cultural aspects. Topics such as literature and different ethnic and social groups were scored less compared to the other items. Overall, it can be inferred that the non-native participants' perception of their knowledge of the field, including a range of social and cultural elements of English, was positive.

Findings on EFL Instructors' Opinions about Culture Teaching in an EFL Setting

The participants were given 16 statements which had the following alternatives in a Likert-scale format: completely agree, agree to a certain extent, undecided, disagree to a certain extent, and Completely Disagree. The respective values shown in the table are represented as follows: completely agree (5), agree to a certain extent (4), undecided (3), disagree to a certain extent (2), and completely disagree (1).

Table 7 EFL Instructors' Opinions about Culture Teaching in an EFL Setting

	Min	Max	M	SD
Q1: In a foreign language classroom, teaching culture is as important as teaching the foreign language.	1	5	4.47	.717
Q2: A foreign language teacher should present a positive image of the foreign culture and society.	1	5	3.73	1.081
Q3: Before you teach culture or do anything about the intercultural dimension of foreign language teaching, students have to possess a sufficiently high level of proficiency in the foreign language.	1	5	2.71	1.233
Q4: Intercultural skills cannot be acquired at school.	1	5	2.08	1.089
Q5: It is impossible to teach the foreign language and the foreign culture in an integrated way.	1	5	1.80	1.172
Q6: I would like to promote the acquisition of intercultural skills through my teaching.	2	5	4.35	.716
Q7: Intercultural education has no effect whatsoever on students' attitudes.	1	5	1.65	.880
Q8: In international contacts misunderstandings arise equally from linguistic as from cultural differences.	1	5	3.90	.969
Q9: Foreign language teaching should enhance students' understanding of their own cultural identity.	2	5	4.22	.811
Q10: When you only have limited time for teaching, culture teaching has to give way to language teaching.	1	5	3.39	1.063
Q11: A foreign language teacher should present a realistic image of a foreign culture, and therefore should also touch upon the negative sides of the foreign culture and society.	1	5	4.09	1.074
Q12: If one wants to be able to achieve anything at all as regards intercultural understanding, one should use texts written in the mother tongue and discuss these texts in the mother tongue.	1	5	2.87	1.253

Q13: In the foreign language classroom students can only acquire additional cultural knowledge. They cannot acquire intercultural skills.	1	5	2.15	1.175
Q14: I would like to teach intercultural competence through my foreign language teaching.	1	5	4.25	.914
Q15: Intercultural education reinforces students' already existing stereotypes of other cultures and nations.	1	5	3.02	1.348
Q16: Providing additional cultural information makes students more tolerant towards other cultures and nations.	2	5	4.51	.643

According to the findings, it could be interpreted that EFL instructors are aware of their effective role in teaching culture, and most of them believe it is possible to teach the language and culture at the same time. They also think that teaching culture is inseparable from teaching the language. Most of the participants agreed with the statement "In a foreign language classroom, teaching culture is as important as teaching the foreign language."

Additionally, the participants showed enthusiasm for teaching culture. The findings showed that EFL instructors were aware of the importance of providing cultural information. Most of the respondents agreed that in international contacts misunderstandings arise equally from linguistic as from cultural differences. It could be said that teachers value teaching cultural differences as much as they focus on teaching the language; however, they are not sure of the best way to make their learners interculturally competent. Most of the participants said they are undecided whether they should use texts and discuss them in students' native language or English to help them gain intercultural understanding. However, the statement which most of the participants strongly agreed with was "providing cultural information makes students more tolerant towards other cultures and nations".

As a result, findings of this section of the questionnaire revealed that most of the EFL instructors believe that it is as crucial to provide cultural information as teaching the language to equip students with intercultural skills. Teaching culture does not entail sacrificing linguistic knowledge or vice versa; it is possible to integrate them in class time. However, while the participants strongly believed in the importance of intercultural skills, they were undecided if culture teaching has to give way to language teaching when time is limited. One possible inference from this contradiction would be teachers' inflexibility with how they devote class time to different aspects of English. Because there is a curriculum to follow for EFL instructors, the degree of flexibility in covering lesson objectives changes

depending on the administrative structure of the related department of an institution. Also, it depends on the expectations set by preparatory schools for the instructors in terms of their approach to language teaching.

Based on the findings, most of the participants agreed that providing cultural information about nations and societies facilitates open-mindedness, leading to positive attitudes towards differences. Language learners are better prepared for learning differences when teachers present both positive and negative sides of the foreign culture and society.

Another issue that stood out in the questionnaire was deciding if cultural aspects should be integrated based on learners' linguistic competence. Most of the respondents were not sure about whether students must possess a sufficiently high level of proficiency in the foreign language before teachers integrate intercultural dimensions of foreign language teaching. This might show that EFL instructors lack the knowledge of adapting materials to suit the needs of learners across different proficiency levels for cultural aspects of language teaching.

Findings on EFL Instructors' Opinions about Teaching World Englishes in an EFL Setting

The participants were given 12 statements which had the following alternatives in a Likert-scale format: completely agree, agree to a certain extent, undecided, disagree to a certain extent, and completely disagree. The representation of each option follows the same numbers as in the previous section: from 5 for 'completely agree' to 1 for 'completely disagree'.

Table 8 EFL Instructors' Attitudes towards Teaching World English in an EFL Setting

	Min	Max	M	SD
Q01: I have heard of World Englishes.	1	5	4.34	1.027
Q02: British English and American English are the major varieties of English used in our textbooks.	1	5	4.64	.732
Q03: We should adopt a native-speaker model of English (e.g. British or American English) for teaching and learning.	1	5	2.96	1.271
Q04: In international communication, intelligibility with an accent is acceptable for oral English.	1	5	4.13	1.022
Q05: The non-native speakers can also speak standardized English.	1	5	4.48	.717

Q06: Most Turkish citizens need English to communicate mainly with native speakers.	1	5	2.96	1.490
Q07: Most Turkish citizens need English to communicate mainly with other nonnative speakers.	1	5	4.01	.948
Q08: There are many standardized Englishes.	1	5	3.69	1.169
Q09: There will be a specific variety of English in Türkiye one day.	1	5	2.92	1.152
Q10: The variety of English in Türkiye should have its own linguistic features at the levels of phonology, vocabulary, and grammar.	1	5	2.90	1.185
Q11: The variety of English in Türkiye can replace the existing teaching model which is used now.	1	5	2.80	1.155
Q12: Students should learn the characteristics of World Englishes and other varieties of English in addition to American and British English when they attend English preparatory schools.	1	5	3.94	1.052

As mentioned earlier, most of the participants (69%) who volunteered to complete the questionnaire were Turkish, who belong to the Expanding Circle country in Kachruvian terms. Among the participants who also belong to the expanding circle, Iranians comprised %14, and the other nationalities (Belarusian, Greek, Kyrgyz, Moroccan, Polish, Syrian, and Turkmen) each comprised 1% of the participants. As a result, 90% of the participants were EFL instructors who taught English as a foreign language in EFL contexts where the most common varieties of English appearing in textbooks are standard varieties of English, either British or American. This was also noted in most of the respondents' agreement with the statement "British English and American English are the major varieties of English used in our textbooks". Therefore, based on these findings, there is limited exposure to other varieties of English in Türkiye as an Expanding circle country. The other participants' demographics included 3 Americans, 3 Britons, 2 Filipinos, and 1 Bangladeshi.

Most of the participants agreed that they learned English to communicate mainly with other nonnative speakers. This shows that non-native speakers around the world outnumber native speakers now because of globalization. This situation has transformed our understanding of our learners' need for English for their future. In line with this opinion, most of the participants stated that students should learn the characteristics of all varieties of English. Therefore, it can be inferred that EFL instructors' attitudes towards varieties of English and teaching them were mostly positive. Their knowledge of the concept could be an effective factor in forming

their positive attitudes. The majority also stated that non-native speakers can speak standard English. This means that although English is acquired as a foreign language in Türkiye, with the effect of extensive exposure to standard varieties through textbooks and other sources, language learners can learn these varieties and speak like native speakers.

Lastly, intelligibility is one of the issues that comes up when discussing varieties of English. The participants were asked if intelligibility with an accent is acceptable in oral English in international communications. Most of them agreed with this statement, showing that if one makes himself understood, or is intelligible, accent does not cause communication problems. Finally, the participants were not sure if the existing model in teaching English which is used now can be replaced with other varieties of English or not.

Findings based on the Qualitative Data

Two open-ended questions in the second section of the questionnaire were addressed: 1- What countries, cultures, and nationalities are usually associated with English? and 2- Of the countries and cultures you mentioned above, which one is primarily associated with English?

As for the first question, *"What countries, cultures, and nationalities are usually associated with English?"*, 56% of the participants referred to Inner-circle countries, which they think are the nationalities and cultures associated with English (e.g. the USA and England). There were 33 participants who also included the Outer circle (e.g. India, Pakistan, Singapore) and Expanding circle countries (e.g. Japan, Türkiye, Italy). There was 1 participant who stated that "*English is associated with all the cultures, countries, or nationalities that deal with international businesses."* There was 1 participant who emphasized Middle East countries: *"English is associated with mostly all countries. I can say Middle East countries are the top ones in association with English, such as Iran, UAE, Qatar, Oman, Kuwait, Türkiye."* Two participants emphasized the global status of English. One of them stated that *"Since English is a global language, it is associated with international cultures."* Four participants included European countries in addition to the inner circle countries. Lastly, there was 1 participant who mentioned only Turkish, Russian, and Arabic nationalities as the ones associated with English.

As for the second question, *"Of the countries and cultures you mentioned above, which one is primarily associated with English?",* there were only 10 participants who did not state inner-circle countries. One of them mentioned Iran, Türkiye, Germany, UAE. One of them stated that *"There is not a particular culture associated with English. Global cultures should be associated with English."* One participant who said that European countries are associated with English repeated their answer for this question, too. There was one participant who mentioned that *"Every country and nation in and around Europe are associated with English. African countries are also associated with English after French. Saudi people are*

also associated with English but not adequately. However, for the countries that are primarily associated with English, their answer was only *"European countries"*. 90% of the participants only mentioned inner-circle countries to say that these countries are primarily associated with English.

It can be inferred that most of the respondents think that English can be associated with many countries, regardless of its status as the first or second language, because it is a global language now. However, when it comes to the countries and cultures that are primarily associated with English, the U.K., USA, Canada, and New Zealand became prominent for most of the respondents.

Semi-structured Interview

The interviews were conducted with 15 participants, and 4 questions were addressed (Tosuncuoğlu and Kırmızı, 2019): 1- What are your views about the native speaker and non-native speaker teacher dilemma (dichotomy)? Which one is better for teaching/learning purposes? 2- Do you have any knowledge of Standard English or World Englishes (English as a common language)? 3- Do you believe in the ownership of the English language in the world, or should the ownership belong to any of the other languages? 4- What terms or labels best represent your relationship with the English language?

Based on the thematic analysis of the context of the interviews, the researcher came up with four general themes: 1- Nationality as a less-determining factor for effective language teaching, 2- Teachers' knowledge of Standard English and World Englishes based on their teaching experiences, 3- English as a global language belonging to everyone, 4- English language instructor as a global communicator.

Nationality as a Less-determining Factor for Effective Language Teaching

Most of the participants did not favor either native or non-native teachers for being effective in class. Instead, they put forward other factors that determine what makes language learning and teaching effective. Some of the participants also shared challenges they faced because of native-speakerism in the job market.

Teacher N: *"In my opinion, it is not about the nationality, rather about the qualifications that a teacher has such as a good academic background. They should possess accurate knowledge of English and should know how to teach it."*

Teacher G: *"It became an obsession, a marketing tool in Türkiye. Almost in all private schools, having native speaker teachers has become a reason to advertise their school. People tend to think language education is one step ahead of other schools if there are native speakers there."*

Teacher N: *"I remember having a nickname, not in higher education but when I was teaching at different levels in different private schools, and I was asked not to share my identity. They believed students would take it more seriously and not use L1 in class."*

Teachers' Knowledge of Standard English and World Englishes

The second question of the interview was: "Do you have any knowledge of Standard English or World Englishes (English as a common Language)?"

Most of the participants' explanations of the concepts were in line with their answers given to the questionnaire items. They gave references to their education and job experiences in learning and teaching Standard English varieties predominantly.

Teacher N: *"My knowledge is limited to my study books, or according to my knowledge of the field. I have learnt that Standard English is British or American. I used to watch different channels to practice my English such as Al Jazeera. I noticed different accents and vocabulary so this might be considered as World Englishes?"*

Teacher B*: "Actually I don't have an exact information about their difference, but standard English is what we always studied, British or American. World Englishes sounds wider, including other cultures as well."*

Two participants put forward the importance of intelligibility.

Teacher M: *"As long as you make yourself clear and understood, you do not have to follow standard English rules. Using English is beyond following only British or American varieties; people tend to focus on being understood clearly for communicative purposes."*

Three participants emphasized the significance of familiarity with different varieties of English regardless of being a NEST or NNEST.

Teacher H: "*I have limited knowledge of WEs and I think it affects my teaching at some point when I teach international students. I could understand their pronunciation and even culture better if I knew more about different varieties."*

English as a Global Language Belongs to Everyone

The third question of the interview was: "Do you believe in the ownership of the English language in the world, or should the ownership belong to any of the other languages?"

Twelve participants stressed the fact that English belongs to anyone who uses it. They stated that English is used as a global communication tool.

Teacher L: "Any language can be spoken by everyone and we continue to shape it, make it our own."

Two participants evaluated owning the English language from a sociopolitical perspective.

Teacher M: *"The idea of ownership is tied to power dynamics and has political underpinnings. People who are in control, such as publishers, exam boards, are the ones influencing our thoughts about who owns it."*

English Instructor as a Global Communicator

The last question of the interview was: "What terms or labels best represent your relationship with the English language?"

Most of the participants expressed their ideas of English as a global communication tool which represent their role in teaching it.

Teacher B: *"I believe, to become a global citizen in the world, we should define ourselves as a global communicator. I think it broadens our way of thinking and how we accept diversity. I grew up in a rural area and it was not easy to reach the outside world, know about others. English helped me understand the world better."*

Some of the EFL instructors from Inner-circle countries explained their role from native/non-native speaker perspectives:

Teacher L: *"From my perspective, I am a native speaker who is also aware of varieties of English."*

Teacher O: *"As per the concept of what native and nonnative mean, I am a native speaker. I grew up in a culture that is inner circle. Speaking that as my first and only language.*"

DISCUSSION

This study aimed to investigate EFL instructors' perceptions of and attitudes towards teaching World Englishes and culture in higher education in Türkiye. Accordingly, the findings revealed: EFL instructors' awareness and incorporation of varieties of English and cultures associated with the language, their views about the effectiveness of native/non-native speaker teachers, and their language identity.

Although most of the participants associated English predominantly with Inner Circle countries from a historical perspective, the findings showed their awareness

of global use of English, with an increased number of non-native speakers. By addressing communicative purposes of English, it was regarded as a global language rather than belonging to a certain nation. As one participant said, "*English has become the language of science, technology, business, academia, and so on*. *Everybody uses it as a common language now."* This finding is in line with Kirkpatrick's (2007) statement that English is presented as a useful communicative tool *"for gaining access to 'Western' technology and skills".*

Regarding potential differences between native and non-native speaker teachers and their impact on the learning environment, the interviewees highlighted several factors, including rapport with students, subject knowledge, professional background, and classroom management. While most participants commented on these aspects, they also emphasized the unique strengths of both teacher types. Native speakers were recognized for providing authentic exposure to natural language use (e.g., idioms, humor), as one participant noted: "*Students become natural speakers when they are exposed to native teachers' use of language*." In contrast, non-native teachers were valued for their ability to model grammar instruction effectively, particularly in relation to learners' L1, as reflected in the comment: "*Non-native speaker teachers can be a good role model in building understanding of grammar structures differing from students' L1*". Several studies have similarly demonstrated that nonnative English-speaking teachers are advantageous in facilitating students' comprehension of grammatical structures that differ from their first language, due to their shared linguistic background and ability to make cross-linguistic comparisons (Rizki, 2018; Rasyid et al., 2023).

Regarding the instructors' familiarity with cultural topics associated with English, they showed sufficient familiarity with most of them, with those related to small cultures (Kramsch, 2013) ranking the highest. As for intercultural foreign language teaching, the findings showed the instructors' eagerness to incorporate a wide array of cultural content into their teaching. They valued improving learners' intercultural competence and agreed that cultural teaching can be practiced in class whilst learning other aspects of the language. Using materials showing linguistic and cultural variation increases tolerance and empathy to others (Matsuda, 2003). This will also prepare learners "to cope with issues related to wider use of English in local and international contexts" (Bayyurt, 2006).

The instructors' attitudes towards teaching varieties of English were positive and they expressed sufficient familiarity with the concepts that World Englishes represents. Most of them agreed that Standard English varieties are not only used by people who use them as their mother tongue, but also by non-native speakers. Regardless of the three circles, teachers should have awareness of language varieties to build an understanding of the diversity existing in English (Jenkins, 2006). Another relevant finding was that communication in English is not confined to happen only between non-native to native speakers; instead, it is gradually becoming to occur among non-native speakers.

As for the likelihood of the emergence of a new variety of English in Türkiye, the instructors were not positive, and rather, they were skeptical about the characteristics of the variety of English in Türkiye in terms of grammar, vocabulary, and phonology. This finding could be interpreted considering Aktuna and Kiziltepe's (2005) article. In their discussion of the evolving status of English in Türkiye, they suggest that English continues to spread all over Türkiye; however, its horizontal spread keeps the varieties limited to the use among people of the same social class or generation. Additionally, because English is mostly viewed as a functional tool and used for instrumental purposes, attitudes toward owning English to create a new variety are not quite clear yet.

Considering all the findings of the study, it could be said that training teachers regarding social, historical and cultural aspects of English would broaden their horizons to make language education more inclusive and appreciative of diversity. In line with this, the study suggests the following aspects to be considered when aiming for World Englishes and culture teaching: providing institutional support, effectively integrating a cultural component into the curriculum through a pluricentric view of English and utilizing World Englishes-informed resources.

CONCLUSION

This study revealed EFL instructors' understanding of and experiences in teaching varieties of English and culture in Türkiye, where the language plays a central role in enabling individuals to take an active role in the global community. As the English language, like all others, is dynamic and constantly evolving to reflect changes in society and culture, language education must be adapted in the 21st century accordingly.

In multilingual and multicultural learning environments in EFL settings, the role of being familiar with different accents, linguistic features, or lexical choices is important for language instruction. It ensures creating a more authentic environment where differences across varieties are recognized, understood, and challenges resulting from these differences are dealt with competently and confidently.

In this manner, this study found that the EFL instructors believe culture and language must be recognized as two inseparable elements. In a classroom environment, blending intercultural teaching and focusing on features of the target language is considered possible and necessary. The instructors in this study highlighted not only the limitations of language teaching materials but also the absence of a comprehensive educational and professional foundation. Despite these drawbacks, they were not in favor of a monolithic view of teaching; rather valued integrating different varieties of English and cultures.

As seen in this study, the efforts and willingness of EFL instructors to transform their practices are often constrained by institutional contexts for several reasons. Therefore, a collective effort is needed where everyone who influences language

education is included in the decision-making processes. Both pre-service and in-service language educators should receive ongoing support and training to follow evolving dynamics in English, which can trigger a paradigm shift- encouraging learners to own the language themselves with confidence in representing their own language and cultural identity. In response to the demands of today's world, not only language educators but also their learners should become critical thinkers who can adapt themselves when confronted with unfamiliar contexts and view cultural and linguistic differences as an opportunity to grow personally and professionally.

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Exploring Chatbots, Adaptive Systems, and Beyond: AI in Foreign Language Teaching

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ABSTRACT

Artificial intelligence is reshaping foreign language education by expanding opportunities for practice, feedback, and personalization at scale. This article offers a narrative review of current AI technologies in language teaching, with particular attention to chatbots and adaptive learning systems. Drawing on recent empirical studies and conceptual work, it examines their effectiveness, articulates core challenges related to validity, equity, and pedagogy, and outlines a forward-looking agenda. The analysis points to credible gains in micro-skills such as vocabulary, grammar, and pronunciation, and emerging benefits for fluency and pragmatics when AI is embedded within coherent instructional designs and teacher mediation. The article argues for hybrid human–AI ecosystems that foreground explainability, ethical use, and curricular alignment.

Keywords: Artificial Intelligence, Foreign Language Education, Chatbots, Adaptive Learning Systems, AI in Education

INTRODUCTION

In the span of a few years, the capabilities of AI systems relevant to language education have advanced from narrowly scripted drills to conversational agents and adaptive tutors capable of responding, however imperfectly, to learner intentions in real time (Wang et al., 2021; Godwin-Jones, 2023). Teachers now encounter tools that promise immediate feedback on writing, fine-grained pronunciation diagnostics, and individually calibrated practice sequences that adjust to each learner's knowledge state (Ma & Kelly, 2021; Li et al., 2022; Liu et al., 2023). The promise is undeniably attractive: more practice, better targeted feedback, and data-informed instruction without proportionally increasing teacher workload (Zawacki-Richter et al., 2019; Viberg et al., 2018).

That promise is also entangled with a set of pressing questions. Can chatbots reliably model the pragmatics and discourse conventions that language learners must master (Hill et al., 2015; Wang et al., 2021)? Do adaptive systems capture the complexity of interlanguage development, or do they risk confining learners to decontextualized items (Liu et al., 2023; Zheng et al., 2023)? How should educators balance the efficiencies of automated feedback with the irreplaceable

value of human judgment, particularly for higher-order skills (Roscoe et al., 2017; Chapelle, 2020)? And how can institutions safeguard privacy, mitigate bias, and maintain academic integrity as generative tools become ubiquitous (Popenici & Kerr, 2017; Godwin-Jones, 2023)?

This review takes stock of what we currently know. It synthesizes findings across chatbots, adaptive platforms, automated writing evaluation, speech technologies, and emerging multimodal approaches, and it foregrounds design choices that appear to matter most (Wang et al., 2021; Ma & Kelly, 2021; Li et al., 2022; Zheng et al., 2023). Throughout, the lens remains pedagogical: not whether AI can do something, but when and how it contributes meaningfully to language acquisition (Chapelle, 2020).

LITERATURE REVIEW

Theoretical foundation

AI interventions are best understood through familiar second language acquisition frameworks. Interactionist accounts highlight negotiation of meaning and pushed output; here, chatbots can approximate an interlocutor that recasts, prompts, and elicits clarification moves (Wang et al., 2021; Bibauw et al., 2019). Sociocultural theory draws attention to mediation and the Zone of Proximal Development; adaptive tutors instantiate this idea by adjusting task difficulty and feedback as learners progress (Zheng et al., 2023; Liu et al., 2023). Noticing and focus-on-form approaches align closely with systems that surface timely, context-sensitive feedback on form within meaningful tasks (Ma & Kelly, 2021; Roscoe et al., 2017). Across these traditions, the pedagogical value of AI hinges not on novelty but on how effectively it reproduces (or enhances) conditions known to facilitate learning (Chapelle, 2020).

Chatbots in speaking and writing practice

Contemporary language-learning chatbots, increasingly powered by large language models, support free conversation, role-play, and task-based dialogues (Godwin-Jones, 2023; Wang et al., 2021). In classroom and extracurricular deployments, they tend to expand opportunities for output under reduced anxiety (Wang et al., 2021). When prompts are purposeful and feedback is explicit—ranging from recasts to metalinguistic explanations—learners often show gains in fluency, lexical diversity, and pragmatic appropriateness (Bibauw et al., 2019; Hill et al., 2015). The pattern is not uniform. Beginners can be overwhelmed by open-ended exchanges and benefit from constrained interfaces and exemplar-rich scaffolding (Wang et al., 2021). Across proficiency levels, the chief vulnerabilities are inconsistency in linguistic accuracy, occasional unidiomatic suggestions, and a tendency to drift in genre or register without guardrails (Godwin-Jones, 2023; Hill et al., 2015). Teacher mediation—before, during, and after chatbot interactions—emerges as a consistent moderator of outcomes (Chapelle, 2020).

Adaptive systems and personalized progression

Adaptive platforms operationalize a straightforward promise: deliver the right item at the right time with the right feedback (Zheng et al., 2023; Liu et al., 2023). Whether through Bayesian knowledge tracing, Elo-style difficulty calibration, or simpler heuristics, these systems personalize practice in vocabulary, grammar, and reading (Liu et al., 2023; Viberg et al., 2018). The resulting gains are most visible in retention and accuracy. Vocabulary learning typically benefits from adaptively spaced review attuned to item difficulty and individual forgetting rates (Liu et al., 2023). Grammar practice improves when feedback is immediate, specific, and varied enough to prevent pattern overfitting (Ma & Kelly, 2021; Roscoe et al., 2017). Reading tools that adjust text difficulty and provide glosses and comprehension checks can accelerate progress, particularly when paired with strategy instruction (Zheng et al., 2023). The limitations are equally instructive. Many models still treat skills as separable and static, thereby underestimating transfer across tasks and neglecting discourse-level competencies (Chapelle, 2020).

Automated writing evaluation as formative support

Automated writing evaluation now offers multi-trait feedback that spans grammar, lexis, coherence, and organization (Burstein et al., 2013; McNamara et al., 2013; Rei et al., 2020). As a formative layer within multi-draft pedagogy, AWE tends to increase the frequency and quality of revisions on surface and mid-level features (He et al., 2021; Zhang & Zou, 2021). The risk, well-documented by teachers and researchers alike, is a drift toward correctness at the expense of idea development and rhetorical clarity (Roscoe et al., 2017). Systems that expose their rationale, provide positive models, and defer to human feedback for higher-order concerns show the strongest alignment with learning goals (Roscoe et al., 2017; Chapelle, 2020).

Speech technologies for intelligibility and prosody

ASR-based pronunciation tutors and high-quality text-to-speech offer learners a closed feedback loop (Link et al., 2014; Nazari & Xodabande, 2020). When diagnostics reach the phoneme or syllable level and include clear visualizations for stress and intonation, learners often improve in segmental accuracy and intelligibility (Li et al., 2022; Link et al., 2014). Accent bias in ASR remains a serious concern: misrecognition and misclassification do not simply frustrate learners; they can also distort practice trajectories (Nazari & Xodabande, 2020). The most promising designs foreground intelligibility over nativeness, provide multiple accent models, and couple automatic feedback with instructor guidance (Li et al., 2022; Link et al., 2014).

Multimodal generation and task design

Generative models that integrate text, image, and increasingly audio invite richer task designs—scene descriptions, contextualized dialogues, and co-created stories that recycle target forms (Godwin-Jones, 2023). Early studies document heightened engagement and evidence of semantic elaboration, though robust evaluation methods for multimodal outcomes are still catching up, and ethical considerations around content sourcing and cultural representation require careful attention (Popenici & Kerr, 2017; Zawacki-Richter et al., 2019).

Ethics, equity, and governance

As language data becomes the substrate for personalization, privacy and transparency move to the center (Popenici & Kerr, 2017). Institutions are confronting obligations to minimize data collection, secure storage, and articulate what models do with learner inputs (Zawacki-Richter et al., 2019). Equity concerns surface in two forms: access to capable devices and connectivity, and fairness within model behavior itself—most notably in ASR performance across accents and in LLM tendencies to normalize certain registers (Nazari & Xodabande, 2020; Godwin-Jones, 2023). Professional development for teachers proves pivotal, both to mitigate workload and to ensure that AI augments rather than displaces pedagogical judgment (Chapelle, 2020).

METHODOLOGY

This article presents a narrative critical review of recent research on AI in foreign language education, emphasizing studies from the past five to seven years across K–12, higher education, and adult learning contexts (Wang et al., 2021; Liu et al., 2023; Zheng et al., 2023). It privileges peer-reviewed experimental and quasi-experimental work, complemented by meta-analyses and systematic reviews (He et al., 2021; Zhang & Zou, 2021). Outcomes of interest include accuracy, fluency, complexity, intelligibility, retention, and affective variables such as anxiety and motivation. Given the heterogeneity of interventions and metrics, the review synthesizes convergent findings and design principles rather than aggregating effect sizes (Chapelle, 2020).

DISCUSSION

Where AI is most effective

The evidence converges on several domains where AI contributes most reliably. For high-frequency practice—vocabulary, grammatical patterns, and targeted pronunciation—adaptive systems and ASR tools produce consistent short- and medium-term gains (Liu et al., 2023; Li et al., 2022). For feedback that is immediate and specific—whether on local textual issues in writing or on mispronounced segments in speech—AI accelerates revision cycles and increases uptake (He et al., 2021; Link et al., 2014). In speaking practice, chatbots create low-stakes environments that encourage risk-taking and reduce anxiety,

especially when their outputs are channeled through clear tasks and reflective prompts (Wang et al., 2021; Bibauw et al., 2019). Across use cases, teacher-facing analytics add value by revealing persistent bottlenecks at the class and individual levels (Viberg et al., 2018).

Design features that shape outcomes

Certain design choices recur in successful implementations. Beginners benefit from tight scaffolding—structured prompts, exemplar responses, and bounded interaction spaces—while advanced learners gain from open-ended tasks that press for pragmatics and discourse control (Wang et al., 2021; Bibauw et al., 2019). Hybrid feedback models, in which AI addresses surface-level and mid-level concerns and teachers focus on content, argumentation, and genre, align well with learning goals (Roscoe et al., 2017; Ma & Kelly, 2021). Explainability matters: learners respond to feedback that includes rationales, alternatives, and, where appropriate, visualizations (Roscoe et al., 2017; Link et al., 2014). Above all, alignment matters most. Tools embedded in a curriculum with explicit objectives, assessment rubrics, and opportunities for transfer outperform tools added as standalone novelties (Chapelle, 2020; Zawacki-Richter et al., 2019).

Constraints and risks

The limitations are not incidental. Hallucinations and occasional unidiomatic suggestions challenge the reliability of chatbot feedback; inconsistency in register can undermine genre learning (Godwin-Jones, 2023; Hill et al., 2015). Adaptive systems risk overemphasizing decontextualized drills at the expense of discourse and pragmatics if not balanced with communicative tasks (Liu et al., 2023; Zheng et al., 2023). Short study horizons and heterogeneous outcome measures complicate claims about durable learning and transfer (He et al., 2021; Zhang & Zou, 2021). Teachers face a workload paradox: while AI promises efficiencies, initial configuration, monitoring, and integration can be burdensome without institutional support (Viberg et al., 2018; Zawacki-Richter et al., 2019). Finally, generative tools raise difficult questions about authorship and assessment; reliance on detection is brittle, and assessment design must evolve toward process transparency and performance-based tasks (Popenici & Kerr, 2017; Godwin-Jones, 2023).

Future directions

Promising trajectories are beginning to take shape. Learner models that integrate linguistic performance with process data (e.g., keystrokes, timing, interaction moves) may estimate individual ZPDs more accurately and adapt instruction with greater fidelity (Zheng et al., 2023; Viberg et al., 2018). Conversational agents that model pragmatics—speech acts, register, intercultural norms—could move beyond grammaticality to teach appropriateness (Wang et al., 2021; Bibauw et al., 2019). Conversation analytics may unlock feedback on turn-taking, backchannels, and discourse prosody. Privacy-preserving, on-device models will be essential to broaden access and safeguard sensitive speech data (Zawacki-Richter et al., 2019).

Finally, teacher-in-the-loop authoring environments can bring transparency to adaptive logic and enable shared control over item banks, difficulty calibration, and feedback rationales (Roscoe et al., 2017). Longitudinal research with delayed post-tests and transfer measures will be necessary to validate durable impacts (He et al., 2021; Zhang & Zou, 2021).

Practical illustrations

In practice, instructors are finding traction with a few repeatable patterns. Weekly chatbot role-plays—anchored in curricular scenarios such as office hours, travel, or negotiation—give students structured opportunities to practice target functions and receive rubric-aligned feedback, with instructors reviewing representative exchanges (Wang et al., 2021; Bibauw et al., 2019). Adaptive vocabulary work, coupled with generative production tasks that require recycled lexis, helps consolidate form–meaning mappings (Liu et al., 2023). Multi-draft writing sequences benefit from AWE on local issues in early drafts, followed by peer and instructor feedback on content and organization (He et al., 2021; Ma & Kelly, 2021). Pronunciation labs that pair ASR diagnostics with high-quality models enable learners to visualize and adjust stress and intonation, while keeping intelligibility—not nativeness—as the primary goal (Li et al., 2022; Link et al., 2014).

CONCLUSION

AI has established itself as a credible contributor to foreign language education. The strongest benefits accrue where its strengths are clearest: providing abundant, individualized practice; delivering timely, specific feedback; and illuminating learning trajectories through analytics (Liu et al., 2023; He et al., 2021; Viberg et al., 2018). These strengths translate most directly into gains in vocabulary, grammar, and pronunciation, and they can support fluency and pragmatic development when embedded in coherent tasks and accompanied by teacher mediation (Wang et al., 2021; Li et al., 2022). The field now faces a constructive challenge: to design hybrid ecosystems in which AI augments the human work of teaching rather than substituting for it, and to do so under conditions that respect privacy, promote equity, and make model behavior legible to learners and teachers (Chapelle, 2020; Zawacki-Richter et al., 2019; Popenici & Kerr, 2017). Progress will depend on transparent design, robust evaluation, and a continued commitment to pedagogy over novelty (Roscoe et al., 2017; Godwin-Jones, 2023).

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The Role of Adopting Artificial Intelligence into Architectural Design in Promoting Urban Sustainable Development

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ABSTRACT

The world faces numerous challenges to sustainable development, including poverty, overcrowding, unemployment, disasters, and air pollution. The United Nations introduced the 2030 Agenda for Sustainable Development and announced the 17 Sustainable Development Goals (SDGs). Goal #11 is regarding making cities and human settlements inclusive, safe, resilient, and sustainable. This requires adequate, safe, and affordable housing, accessible and sustainable transport systems, and inclusive and sustainable urbanization. Additionally, Goal #11 recommends protecting the world's cultural and natural heritage, reducing the environmental impact of cities, and providing universal access to accessible, green, and public spaces.

Architectural Design is the process of planning and designing buildings, focusing on the buildings` forms, materials, and styles to construct the most aesthetic, sustainable, and safe buildings and cities. However, there is a lack of knowledge regarding the contribution of adopting Artificial Intelligence (AI) in the architectural design process to Urban Sustainable Development. This research aims to define the role of adopting AI in architecture in Promoting Urban Sustainable Development and in achieving SDG #11. Grounded theory and a semi-structured questionnaire were used to achieve the research aim, and a descriptive analytical method was used by reviewing and analyzing related literature. This research found that AI can accelerate the design of drawings and applications for safe, sustainable, and affordable housing, as well as for a sustainable transportation system, which facilitates urban sustainable development. Additionally, adopting AI in architectural design enables architects to rebuild the world's cultural heritage sites virtually to understand their attributes, and can help in conducting studies about the environmental impact in cities and how to solve it, which contributes to achieving Goal #11 from the SDGs. This

research recommends merging AI with architectural design education (theoretical and practical) to create a path for Sustainable Development.

Keywords: Artificial Intelligence (AI), Architectural Design, Sustainable Urban Development

INTRODUCTION

The world is facing immense challenges to sustainable development currently. Billions of citizens live in poverty and low-quality-of-life circumstances. Global health, natural disasters, violence, terrorism, unemployment, and poverty threaten the development progress. The depletion of natural resources, including drought, land degradation, and loss of biodiversity, impacts environmental development. Climate change increased global temperatures, and sea level rise are among the greatest challenges to achieving sustainable development. Finally, the survival of many societies and the biological support system of the planet is at risk. Therefore, global efforts were conducted to save the environment. One of those efforts was the United Nations of Sustainable Development, which introduced the 2030 Agenda for Sustainable Development and announced the 17 Sustainable Development Goals (SDGs) (Affairs, 2015).

Sustainable development means meeting present needs without compromising the needs of future generations (Hendawy, Junaid, & Amin, 2024). Urban sustainable development concerns the built environment design that may affect quality of life, climate change, and public health (Muscat, Brambilla, Caracci, & Capolongo, 2020). Architectural and urban design should apply sustainable design principles to promote the quality of the built environment. This research paper focuses on how to promote sustainable development through the collaboration of architecture and Artificial Intelligence (AI). AI is a technology that enables software to simulate learning, problem-solving, and creativity in architectural design and can facilitate design drawings and applications (Stryker & Kavlakoglu, 2024).

Research Problem

Architectural and urban design, as a process of planning buildings and cities, is an interdisciplinary field that contributes to urban development. However, promoting sustainable urban development through adopting Artificial Intelligence (AI) in architectural and urban design is still unknown. There is a gap in knowledge regarding the contribution of merging design and AI in sustainable urban development.

Research Objective

This research aims at clarifying how to promote urban Sustainable Development through adopting Artificial Intelligence (AI) in architectural and urban design. Specifically, this research tends to define how merging AI with architecture can

facilitate the following of the strategies of the eleventh sustainable development goal, SDG#11: (Making cities and human settlements inclusive, safe, resilient and sustainable).

Research Questions

Q.1: What are the outcomes of adopting Artificial Intelligence (AI) in Architectural and urban design?

Q.2: How can merging AI with Architectural and urban design contribute to promoting sustainable development?

Q.3: How can AI tools in architecture achieve the strategies of the eleventh sustainable development goal, SDG#11: (Making cities and human settlements inclusive, safe, resilient and sustainable).

Research Significance

The significance of this research is driven by defining the outcomes of the collaboration of AI and architecture and the possible contribution of this collaboration in urban development locally and globally.

LITERATURE REVIEW

Sustainable Development

Sustainable development is about the integration of several disciplines in a way that benefits most of the sectors and generations. Sustainable development has three pillars: society, economy, and built environment; their connection means well-being and a productive population (Strange & Bayley, 2008). Sustainable Development (SD) is an international terminology used as a jargon of development planners and environmental activities (Mensah, 2019). SD is an approach that uses resources in a way that allow them to exist for next generations (Mensah, 2019).

Sustainable development aims to understand the challenges appeared by technical innovation and its impact on the environment. Sustainable development is a model of development that fits the current needs without compromising the ability of the future to fit with their needs (Gbekley, GBEKLEY, & ANNOUAR, 2024). Sustainable urban development is a strategy to balance economic growth and a healthy and friendly environment (Cina, Elbasi, Elmazi, & Alarnaout, 2025).

The 2030 Agenda for Sustainable Development

The agenda was introduced by the United Nations of Sustainable Development and aims to transform the world from a place full of poverty, hunger, pollution, diseases, and chaos to a place free of fear and violence. The target is a world with universal literacy and equitable and high-quality health and education sectors with mental, physical, and social well-being. The agenda seeks to reach a world where

we reaffirm our communities and rebuild our environment (Affairs, 2015). Currently, the Agenda has 17 Sustainable Development Goals with 169 associated targets that are integrated and indivisible, which aim to promote physical and mental health and well-being, and to extend life expectancy for all.

The SDGs concern reducing poverty, hunger, inequality, and violence. Additionally, SDGs concern ensuring healthy lives, quality education, sustainable management of water, access to sustainable energy, economic growth, and resilient infrastructure. Moreover, SDGs aim to promote sustainable industrialization by ensuring sustainable consumption and production patterns. They emphasize the importance of urgent actions to combat climate change and save the natural environment, ecosystems, and forests. Promoting peace, justice, and global partnership worldwide is a major goal to achieve sustainable development. Finally, the eleventh goal was to make cities inclusive, safe, resilient, and sustainable.

The Eleventh Goal: Making cities and human settlements inclusive, safe, resilient, and sustainable

This SDG goal is the linkage between merging AI with architecture on one side, and urban sustainable development on the other side. Following the strategies of this goal is easier by merging AI with architecture than with architectural design only. The strategies include (Affairs, 2015):

1. Ensure access to safe and affordable housing and services
2. Provide access to safe, affordable, accessible, and sustainable transport systems
3. Ensure sustainable urbanization and capacity for participatory
4. Protect the world's cultural and natural heritage
5. Reduce water-related disasters, and protect the poor and people in vulnerable situations
6. Pay special attention to air quality and waste management
7. Provide access to safe and accessible, green and public spaces, for women and children, older persons, and persons with disabilities.

The collaboration of AI and architecture

AI offers credits to the client and the designer; the client benefits from virtual reality tools that help in visualizing the design details, while the designer benefits from increasing productivity and decreasing errors (Holmes, 2024). AI enhances technologies like Building Information Modeling (BIM), Virtual Reality (VR), Extended Reality (XR), and Internet of Things (IOT). AI knowledge Map is a

good chance to enrich architecture with new and updated data (Muntanola, Saura, Bermejo, & Roders, 2022).

Adopting AI in architectural and urban design contributes to optimizing the designs, enhancing sustainability, and improving project management (Holmes, 2024). AI can contribute to many phases of the architectural design process, starting from concept development to the optimal and innovative designs (Matter & Gado, 2024).

There are ten key benefits of adopting AI in architecture, which contribute to a more efficient and sustainable built environment; they are (Holmes, 2024):

1. Enhancement of design alternatives that emphasize the creative design process
2. Optimization of material use and energy by analyzing parameters of environmental data and cost-effective building.
3. Automation of time-consuming tasks and project scheduling.
4. Assisting with the project scheduling and risk management
5. Facilitating data transfer between architects, contractors, and clients
6. Enhancement of the visualization of the project before construction
7. Prediction of the required maintenance and management
8. Analyzing energy-consumption patterns and friendly environment design
9. Increasing precision and reducing errors
10. Data-driven to better design choices

The integration of AI into the architectural design process introduces a transformative approach and empowers architects with advanced tools. AI facilitates the creation of unique design concepts (Matter & Gado, 2024). AI can be used in better study and analyzing the urban form based on the historical buildings and heritage sites (Muntanola, Saura, Bermejo, & Roders, 2022).

RESEARCH METHODOLOGY

This research followed a qualitative approach, focusing on grounded theory and a semi-structured questionnaire. An extensive literature review for the built environment, AI, and Architecture was studied and analyzed by the content analysis method to find a linkage between them that can benefit sustainable urban development. A semi-structured questionnaire was conducted by face-to-face interviews with 18 experts in architectural and urban design and with 12 planners in Jordan. The questionnaire focused on the benefits of integrating AI with

architecture and its contribution to promoting sustainable development. Open-ended questions were asked personally; the answers were recorded to be analyzed by thematic analysis, and the main themes were coded using a descriptive analytical method.

RESULTS

This research found that there are many benefits of integrating AI with architectural and urban design, including: on the level of drawings (2D and 3D), there will be an enhancement for using Building Information Modeling (BIM); on the level of project management, there will be assistance in scheduling, resource allocation, and risk management; on the level of budget, there will be more planning for the cost of every single detail of the plan; on the level of communication, there will be better presentation for the project, more integration of data from various sources, and better communication with stakeholders; on the level of the building, there will be enhancements for the building lifecycle, making structures smarter and more efficient.

Additionally, as sustainable development has many global policies and programs, this research found that the collaboration of AI and architecture can promote sustainable development by achieving the Sustainable Development Goals (SDGs), specifically SDG #11: (Making cities and human settlements inclusive, safe, resilient and sustainable). Finally, this research found the specific tools and programs that can achieve four of the seven strategies of SDG#11, which are summarized in the following table (Ohakawa, Adeyemi, & Okwandu, 2024):

Table 1. The AI tools of architecture that can achieve the strategies of SDG#11

The Strategies of SDG#11:	The Role of AI
Ensuring access to safe and affordable housing	Artificial Intelligence (AI) and Machine Learning (ML) can optimize cost, efficiency, and sustainability outcomes of affordable housing design (Ohakawa, Adeyemi, & Okwandu, 2024) Building Information Modeling (BIM) improves design precision and reduces waste (Ohakawa, Adeyemi, & Okwandu, 2024) AI and ML can significantly enhance the quality and sustainability of housing solutions, and improve the lives of low-income communities (Steinhoff, 2025)

Ensuring access to accessible and sustainable transport systems	AI design enhances the efficiency of transportation systems through data processing and analysis, and through traffic simulation and optimization (Ghomari, 2025)
Ensuring sustainable urbanization	Artificial intelligence is transforming architectural design and urban planning from the traditional role of design to the critical role in the development of smart cities and intelligent infrastructure (Cina, Elbasi, Elmazi, & Alarnaout, 2025)
Provide access to safe and accessible, green and public spaces, for women and children, older persons, and persons with disabilities	AI collaboration with architectural and urban design introduces possibilities for predictive modeling through data-driven decision making for efficient urban planning (Cina, Elbasi, Elmazi, & Alarnaout, 2025)

CONCLUSION AND RECOMMENDATIONS

Currently, the world faces complex challenges toward sustainable development related to poverty, disasters, diseases, crowding, and conflicts. This research focuses on promoting urban sustainable development by utilizing AI in architectural and urban design. Adopting AI in architectural and urban design as a tool for the design process can power possibilities and optimize layouts. Adopting AI in design was successfully implemented in real-world affordable housing projects (Ohakawa, Adeyemi, & Okwandu, 2024). When architects started using AI in their designs, they contributed to increasing the efficiency and sustainability of the project vision. The collaboration between architect and AI accelerates creativity and project development. AI is transforming all aspects of architectural design and building processes (Holmes, 2024). Combining AI into architecture enhances green urban living initiatives and the smart living community projects (Ohakawa, Adeyemi, & Okwandu, 2024).

Through content analysis of the related literature, and thematic analysis of a structural semi-questionnaire, this research found that the Sustainable Development Goals SDGs specifically SDG #11, can be achieved through the collaboration of AI and design easily. The seven strategies of SDG#11 were defined, and four of them were explored regarding the role of AI and design in achieving them. This research found that Artificial Intelligence can optimize cost, efficiency, and sustainability outcomes of affordable housing design, and Building Information Modeling (BIM) improves design precision and reduces waste (Ohakawa, Adeyemi, & Okwandu, 2024). Additionally, AI with design can enhance the quality and sustainability of housing solutions and improve the lives of low-income communities (Steinhoff, 2025).

Moreover, AI design enhances the efficiency of transportation systems through data processing and analysis, and through traffic simulation and optimization (Ghomari, 2025) and develops the smart cities and intelligent infrastructure (Cina, Elbasi, Elmazi, & Alarnaout, 2025). Finally, this research found that AI collaboration with architectural and urban design introduces more possibilities for predictive modeling through data-driven decision making for efficient urban planning (Cina, Elbasi, Elmazi, & Alarnaout, 2025). All these opportunities promote urban sustainable development and achieve the Sustainable Development Goals (SDGs).

This research recommends adopting AI, including all the digital tools and software in architectural and urban design in architectural firms, contract companies, and academic departments, to ensure the required skills for a better future of sustainable development. This research calls for further research regarding the barriers that may be faced when integrating AI tools with architectural design.

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Transforming Higher Education in Ibero-America: Empowering Global Change Agents Through Coil and the SDGs

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ABSTRACT

This paper explores the transformative impact of "COIL en Clave ODS para la Educación Superior en Iberoamérica," a five-week online program developed by STAR Argentina to empower higher education professionals from Latin America, the Caribbean, and Spain to integrate global citizenship and the Sustainable Development Goals (SDGs) into Collaborative Online International Learning (COIL) initiatives. The program applied active learning methodologies—such as the flipped classroom, project-based learning, and intercultural synchronous sessions—to foster collaboration, critical reflection, and sustainability-oriented teaching. A distinctive feature of this initiative was the use of Artificial Intelligence (AI), specifically Natural Language Processing (NLP), to systematize and classify projects according to relevant SDGs and to design an interactive online gallery that expanded the program's international visibility. Quantitative and qualitative analyses of pre- and post-program surveys and project submissions revealed significant growth in participants' confidence and competence to design intercultural, SDG-aligned COIL experiences. Educators also reported improved skills in intercultural communication, curriculum internationalization, and critical global awareness. These findings position COIL as both a professional development tool and a transformative strategy for advancing sustainability, inclusion, and global citizenship across higher education.

Keywords: Active Learning; Artificial Intelligence in Education; Collaborative Online International Learning (COIL); Global Citizenship Education; Higher Education Internationalization; Intercultural Competence; Sustainable Development Goals (SDGs).

INTRODUCTION

Globalization has profoundly reshaped education, challenging higher education institutions to rethink their pedagogical practices in order to prepare students for a world marked by interdependence, complexity, and rapid change (UNESCO, 2024). As societies become increasingly interconnected, educators are called to cultivate global citizens who can engage ethically, collaboratively, and critically

with contemporary issues—ranging from climate change and inequality to digital transformation and cultural diversity. Within this paradigm, global citizenship has emerged as an essential twenty-first-century competence, grounded in values of solidarity, social justice, equity, and respect for linguistic and cultural plurality (Oxley & Morris, 2013).

Aligned with Target 4.7 of Sustainable Development Goal (SDG) 4, educators worldwide are urged to ensure that all learners acquire the knowledge, skills, and dispositions needed to advance sustainable development, human rights, gender equality, peace, and global citizenship (United Nations, 2015). Achieving this ambitious target requires pedagogical innovation and the design of transformative learning experiences that connect local classrooms to global realities (UNESCO, 2017).

The Collaborative Online International Learning (COIL) model—pioneered by the State University of New York (SUNY) COIL Center—offers a powerful response to these demands. By fostering virtual collaboration between educators and students across borders, COIL integrates intercultural dialogue and joint project work into existing curricula, enabling "internationalization-at-home" for institutions that may lack the resources for traditional mobility programs (Leask, 2015). This model not only democratizes access to international and intercultural experiences but also promotes a more inclusive, equitable, and sustainable approach to global learning (SUNY COIL Center, 2015). As such, COIL represents both a pedagogical innovation and a strategic tool for embedding global citizenship education within higher education systems worldwide.

BACKGROUND

The adoption of Collaborative Online International Learning (COIL) across Latin America and the Caribbean has been uneven, constrained by persistent structural challenges such as limited digital infrastructure, unequal access to technology, insufficient teacher preparation in active and intercultural pedagogies, and a lack of institutional frameworks to support curriculum internationalization (De Wit, 2020; Leask, 2015). Despite these barriers, a growing body of research highlights COIL's transformative potential to bridge structural inequalities, foster inclusion, and strengthen learners' global, intercultural, and digital competencies (Cuevas Álvarez et al., 2025; Lorenzutti et al., 2023).

Grounded in the principles of critical pedagogy (Gadotti, 1998), transformative learning theory (Taylor, 2008), and global citizenship education (Oxley & Morris, 2013), STAR Argentina developed COIL en Clave ODS as a model for empowering educators to act as agents of change within their communities. The initiative seeks to integrate local and global knowledge systems through dialogic, reflective, and socially responsible teaching practices that align with the United Nations Sustainable Development Goals (SDGs). By promoting intercultural collaboration and critical engagement with global issues, COIL en Clave ODS

contributes to reimagining education as a shared, transformative endeavor for sustainable and equitable futures (Ramírez Ramírez & Bustos-Aguirre, 2022).

Program Description

The program "COIL en Clave ODS" was conceived, developed, and implemented by STAR Argentina between March and April 2025 as part of its ongoing commitment to advancing global and sustainable education in Latin America. Designed as a five-week fully online program, it adopted a flipped-classroom model that combined asynchronous learning—through readings, video lectures, and reflective tasks—with synchronous sessions dedicated to collaborative dialogue, peer exchange, and project-based learning. The curriculum was organized around three interrelated thematic modules, each aimed at progressively deepening participants' understanding and application of global education principles. Module 1 introduced the conceptual foundations of global education and active pedagogies , engaging participants with methodologies such as problem-, project-, and challenge-based learning (Álvarez-Salgado et al., 2024). Module 2 centered on the integration of the Sustainable Development Goals (SDGs) into COIL design, with special emphasis on SDG 4 (Quality Education), SDG 10 (Reduced Inequalities), and SDG 13 (Climate Action). In Module 3, participants examined institutional challenges and sustainability, exploring strategies to embed COIL within curricular structures and to promote long-term, cross-institutional collaboration.

The program brought together educators from Argentina, Chile, Costa Rica, El Salvador, Spain, Mexico, and Peru, representing a wide range of disciplines—including education, law, psychology, languages, and economics. This diversity of academic and cultural perspectives created a dynamic learning community that enriched intercultural dialogue and fostered innovative approaches to COIL design. Through shared reflection and collaborative project work, participants not only exchanged disciplinary insights but also co-constructed new understandings of how global and local challenges can intersect meaningfully within educational practice.

DATA AND METHODOLOGY

A mixed-methods research design was adopted to comprehensively assess the impact of the COIL en Clave ODS program on participants' knowledge, attitudes, and professional practices. This approach enabled a nuanced understanding of both quantitative outcomes and qualitative experiences, aligning with the program's emphasis on reflective and transformative learning (Taylor, 2008).

Quantitative data were gathered through pre- and post-program surveys administered to all participants. These instruments measured changes in participants' familiarity with the Sustainable Development Goals (SDGs), their confidence in designing and implementing COIL projects, and their self-perceived intercultural collaboration and digital communication skills.

Descriptive and inferential statistical analyses were conducted using SPSS (version 29) to identify patterns of growth and statistically significant differences between pre- and post-program responses.

Qualitative data were derived from multiple sources, including open-ended survey responses, participant reflections, and analyses of final COIL project designs. These data provided rich insights into participants' evolving conceptions of global citizenship, their pedagogical decision-making, and the strategies employed to contextualize COIL within their institutional realities. A documentary analysis of final projects further examined dimensions of pedagogical coherence, SDG alignment, and methodological innovation, offering evidence of how theory was translated into practice.

By triangulating quantitative and qualitative findings, this dual methodological approach not only captured measurable shifts in participants' competencies but also illuminated transformative learning processes, revealing how educators reimagined their roles as facilitators of global and sustainable education.

RESULTS

The findings indicate that COIL en Clave ODS had a transformative impact on participants' professional and pedagogical development, with outcomes emerging in five key areas : (1) sustainability competencies, (2) intercultural collaboration, (3) innovative project design, (4) professional identity transformation, and (5) scalability and long-term sustainability.

Participants demonstrated a high capacity to design, integrate, and implement SDG-aligned COIL projects , developing initiatives that linked local and global challenges through collaborative, interdisciplinary approaches. Many reported establishing cross-border partnerships that strengthened empathy, intercultural understanding, and mutual respect. The projects developed included digital storytelling campaigns, interdisciplinary learning modules , and community-based initiatives that addressed issues such as climate change, inequality, and inclusive education. Through these experiences, participants redefined their professional identities as global educators , positioning themselves as facilitators of dialogue and agents of sustainable transformation within their institutions.

Quantitative Results

Table 1 presents the descriptive statistical results obtained from the post-program survey (N = 15), which assessed participants' perceptions of their learning outcomes and skills development.

Table 1 Descriptive Statistical Results

Variable	Min	Max	M	SD
Design of an effective COIL-ODS project	4	5	4.80	0.41
Integration of COIL-ODS in teaching	2	5	4.47	0.83
Implementation of COIL-ODS project	4	5	4.53	0.52
Contribution to the community	3	5	4.87	0.52
Acquisition of new ideas and perspectives	4	5	4.87	0.35
Maintenance of follow-up sessions	3	5	4.67	0.72
Collaboration capacity	3	5	4.27	0.80
Professional purpose development	4	5	4.80	0.41
Teaching skills	3	5	4.73	0.59
Confidence	2	5	4.47	0.99
Evaluation of resources and materials	4	5	4.93	0.26
Integration of COIL with other work	4	5	4.80	0.41

Note. N = 15. Data analyzed using SPSS v29.

The quantitative results show consistently high mean values across all dimensions, indicating strong perceived growth in teaching skills, innovation, and sustainability-oriented thinking. The highest scores were observed in the evaluation of resources and materials (M = 4.93, SD = .26) and contribution to the community (M = 4.87, SD = .52), underscoring participants' commitment to designing inclusive and context-sensitive learning projects. Slightly lower averages in collaboration capacity (M = 4.27, SD = .80) and confidence (M = 4.47, SD = .99) suggest that sustaining international partnerships and navigating intercultural dynamics remain areas for continued professional growth (Ramírez Ramírez & Bustos-Aguirre, 2022).

Qualitative Results

The qualitative data, drawn from reflective responses and final project analyses, provided deeper insight into participants' evolving beliefs, attitudes, and practices. Three overarching themes emerged from the thematic analysis: (1) reimagining global citizenship in local contexts, (2) collaboration as a space for empathy and transformation, and (3) pedagogical innovation and institutional change.

Reimagining Global Citizenship in Local Contexts

Participants reported a shift in their understanding of global citizenship from an abstract ideal to a practical and contextually relevant framework for education. They emphasized how linking global issues to local realities empowered learners

to see themselves as agents of change. As one participant reflected, "Working on SDG 10 through the lens of local inequalities helped my students realize that global challenges begin in our own communities." This theme illustrates how the COIL framework supported the localization of global competencies, reinforcing the idea that global learning is most impactful when grounded in community needs.

Collaboration as a Space for Empathy and Transformation

Participants consistently highlighted the transformative dimension of intercultural collaboration, describing how dialogue and co-creation fostered empathy and mutual understanding. Many expressed that the online, multilingual environment challenged them to negotiate meaning, embrace diversity, and reflect on their own cultural assumptions. One educator noted, "I learned that collaboration goes beyond language—it is about listening, patience, and building trust across cultures." Such reflections reveal that COIL facilitated affective and cognitive growth, aligning with the transformative learning principles described by Taylor (2008).

Pedagogical Innovation and Institutional Change

A third emergent theme concerned participants' enhanced capacity for pedagogical innovation and their intention to advocate for institutional support to sustain COIL initiatives. Many described feeling inspired to adapt their curricula, integrate SDG-related content, and promote interdisciplinary teamwork within their departments. For example, one participant explained, "After the program, I proposed a COIL-based elective course on climate action that connects students in Argentina and Mexico. My institution is now exploring how to scale this model." This demonstrates the program's ripple effect, extending beyond individual learning to influence institutional cultures of teaching and collaboration.

Together, the quantitative and qualitative findings provide convergent evidence that COIL en Clave ODS successfully fostered transformative learning, global citizenship development, and pedagogical innovation. While the quantitative data highlight measurable growth in skills and confidence, the qualitative insights reveal the depth of reflection and change in participants' perceptions, practices, and professional identities. These findings underscore the potential of COIL as a scalable, equity-oriented model for advancing sustainability and internationalization in higher education across Latin America.

The Role of Artificial Intelligence in COIL Systematization

A major innovation of COIL en Clave ODS was the purposeful integration of Artificial Intelligence (AI) tools to enhance the analysis, systematization, and dissemination of participants' projects. By employing Natural Language Processing (NLP) techniques, the program team automatically categorized the submitted COIL projects according to their alignment with specific Sustainable

Development Goals (SDGs), identified emerging thematic trends, and visualized the frequency of concepts related to sustainability, interculturality, and inclusion (Falasca, 2025). This process not only streamlined data organization but also provided valuable insights into how educators across diverse disciplines approached the integration of global challenges into their curricula.

Building on this analysis, an interactive virtual gallery was developed, making participants' projects accessible in English and Spanish. This gallery significantly expanded the international visibility of educators' work, fostered cross-border networking, and served as an open educational resource for institutions seeking to replicate or adapt COIL-SDG models across Ibero-America. The ethical and strategic use of AI in this context—particularly for translation, content visualization, and public dissemination—demonstrated how technology can serve as a catalyst for sustainability-oriented innovation and equitable knowledge sharing (Barbosa et al., 2021).

Similar AI-supported initiatives in collaborative learning analytics (Kim, Hong, & Song, 2022) and intercultural COIL environments (Sun, 2024) have shown that data-driven insights can strengthen reflection, improve teamwork, and foster intercultural understanding. In COIL en Clave ODS, AI thus operated not as a replacement for human creativity and dialogue, but as a supportive partner in amplifying the visibility, inclusivity, and transformative potential of international educational collaboration.

CONCLUSION

COIL en Clave ODS demonstrates that meaningful internationalization can flourish beyond physical mobility, offering a powerful, equitable, and sustainable alternative to traditional exchange models. By integrating intercultural collaboration, critical reflection, and sustainability-oriented pedagogy, the program cultivates global citizenship competencies that directly align with the principles of SDG 4: Quality Education (United Nations, 2015). Participants' experiences affirm that virtual exchange can transcend geographical, economic, and institutional barriers, expanding inclusive access to transformative international learning opportunities for educators and students across Ibero-America.

The results highlight the importance of institutionalizing COIL as a central strategy within "internationalization-at-home" policies, as advocated by De Wit (2020) and Leask (2015). When supported by leadership commitment, digital infrastructure, and sustained professional development, COIL can foster communities of practice that bridge disciplines, languages, and regions. These communities not only strengthen global engagement and intercultural understanding but also reinforce the social responsibility and relevance of higher education in addressing complex twenty-first-century challenges such as inequality, climate change, and social fragmentation. In this way, COIL serves as

both a pedagogical and ethical framework for embedding global competence and sustainability within the core mission of higher education.

Looking forward, the integration of artificial intelligence (AI)-driven tools within COIL initiatives offers exciting opportunities to amplify innovation, reflection, and knowledge co-construction. Emerging applications—such as Natural Language Processing (NLP) for multilingual communication, automated translation, and qualitative data analysis—can enhance accessibility, foster inclusivity, and enrich intercultural dialogue (Barbosa et al., 2021). When thoughtfully implemented, the synergy between human creativity and AI-assisted insight can expand the reach and depth of virtual collaboration, supporting educators in designing more personalized, equitable, and context-aware learning experiences.

Ultimately, *COIL en Clave ODS* illustrates how digital collaboration grounded in critical pedagogy and sustainability can reimagine education as a transformative global endeavor. By empowering educators to act as catalysts for change, COIL contributes not only to the internationalization of curricula but also to the collective construction of a more just, connected, and resilient educational future—one where global learning is both inclusive and locally meaningful.

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Learning by Doing: Using Role-Play Simulations to Enhance Project Management Education

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ABSTRACT

This paper introduces an openly licensed role-play toolkit that connects international project management (PM) standards with Education for Sustainable Development (ESD) competences. Through practical simulations, learners take on roles such as project manager, sponsor, or external auditor and work with core PM tools like SMART criteria, planning, and project closure. Each activity also includes reflection prompts on ethics, inclusivity, and environmental impact. The toolkit was designed for easy adaptation and use across disciplines. It is modular and aligned with global frameworks such as the UN Sustainable Development Goals (SDGs). The paper outlines how the toolkit was developed, what it contains, and how it can be used. It aims to inspire educators to adopt more interactive, learner-centered approaches in PM teaching. By releasing the toolkit as an Open Educational Resource (OER), the authors seek to reduce access barriers and place sustainability and reflection at the center of future-oriented project management education.

Keywords: Project Management Education, Role-Play Simulation, Experiential Learning, Learning by Doing, Student-Centered Learning, Open Educational Resources (OER)

INTRODUCTION

We present an openly licensed and modular role-play toolkit that links established project management (PM) standards with Education for Sustainable Development (ESD) competences. Its main goal is to help educators create useful PM learning experiences that prepare students for real-world practice.

In today's educational landscape, project management teaching needs to go beyond theory. Students must experience how methods work in dynamic, often uncertain settings. Hands-on learning that is adaptable across disciplines and cultures supports deeper understanding and the ability to transfer knowledge into action. Responding to this need, the authors developed a role-play toolkit for PM courses that can also be applied more broadly due to its modular structure. The toolkit addresses a challenge in PM education: helping students see project management not just as a set of tools, but as a way of thinking and acting collaboratively.

The motivation for developing this toolkit came from two sources. First, PM educators continuously look for better ways to make learning tangible and engaging for students. Second, we observed a pattern in our own classes: when students used tools like Gantt charts, they often began adjusting the templates to fit their specific situations. What initially seemed like creative deviation turned out to be meaningful contextualization. Students were not rejecting project management principles, but they were rather adapting them to their local and personal contexts. This process of connecting established methods with local or personal realities is what we want to foster. It reflects the bridge between universal knowledge and its application.

Established project management knowledge provides students with a solid framework, such as timelines, stakeholders, deliverables, and accountability. Yet when students apply these methods in companies, municipalities, or NGOs, they must adapt them to local communication styles and real conditions. This translation is not a weakness but a demonstration of practical competence. We see it as the educator's task to make this visible and teachable.

Role-play, as a form of "learning by doing," offers an effective way to create such bridges. By stepping into roles like project manager, sponsor, or auditor, learners engage in realistic scenarios that mirror professional challenges. These simulations encourage collaboration, decision-making, and reflection, sometimes under time pressure or other external factors.

The toolkit integrates ESD principles by fostering critical thinking on ethics, inclusion, and ecological impact and supports students in developing both

technical and interpersonal skills that are essential for sustainable and successful project management.

BACKGROUND AND RELATED WORK

Why Practice-Oriented PM Teaching Matters

Teaching project management successfully requires more than presenting frameworks and tools. While standards such as those from the Project Management Institute (PMI) or the International Project Management Association (IPMA) provide comprehensive models, we feel that students often struggle to apply them effectively in real contexts. Without opportunities to practice, project management can remain abstract; something that exists "on paper" rather than as a lived professional activity.

This gap between knowing and doing is already documented in education and practice. It appears not only among students but even among experienced managers (Lee-Kelley, 2018). The reason seems simple: project work always takes place under uncertainty, involves human interaction, and demands adaptation. These factors are difficult to capture through lectures or static case studies alone.

Practice-oriented teaching may help closing this gap. It gives learners authentic problems to solve and encourages them to justify their decisions, handle stakeholder interests, and experience the consequences of their actions. In such environments, students develop judgment and communication skills, and an understanding of how project decisions affect people and outcomes.

This aligns with experiential learning theories (Kolb, 1984) and with constructivist pedagogy, both of which emphasize learning through active experience and reflection. When students are invited to "learn by doing," they develop competence not only by understanding project management concepts, but by experiencing how those concepts function in complex, unpredictable situations.

Role-Play in Project Management Education

Role-play has long been recognized as a powerful way to translate theory into practice. Van Ments (1999) describes it as a learning method where participants take on roles in a simulated situation to explore human interaction or to practice specific skills. In our context of project management teaching, we narrow down this definition to seeing role-play as structured enactment of realistic project scenarios in which participants assume stakeholder roles (e.g., sponsor, project manager, auditor) to make decisions and experience project work.

Role-play especially challenges students to act under the influence of "stressful, unfamiliar, complex, or controversial" impact which requires them to examine personal feelings toward others and their circumstances (Bonwell & Eison, 1991, p.47).

Recent research confirms the effectiveness of role-play as a learning approach. Studies show significant improvements in engagement, skill development, and retention when role-play is used in structured educational settings (Fu & Li, 2025). We hypothesize that these effects extend to PM role-play.

Related Work

Multiple resources support experiential PM learning or role-plays in general. Some previous work focuses on role-plays in teaching, but not specifically covering project management education (Northern Illinois University, 2012; Queen's University, 2020). Furthermore, we would like to specifically address the distinction between role-play and simulation. It is probably not always entirely obvious how the two differ, and some didactic approaches likely contain aspects of both. However, the difference can probably be summarized most simply as follows: Simulations show the systemic effects of decisions (e.g. cost-time-quality) whereas role-plays train interpersonal, communication and ethical skills. One example for a simulation is the MIT Sloan's Project Management Simulation (MIT Sloan School of Management, n.d.). It is a system-dynamics "management flight simulator" that trains sensitivity to rework, staffing, and schedule trade-offs whereas our role-plays foreground communication, conflict handling, and artefact quality under pressure. Other resources include those that are not published as open resource or may not be used free of charge, such as "Simulation Powered Learning" (2023).

TOOLKIT DEVELOPMENT

Teachers' Input

To develop the toolkit, we conducted qualitative surveys among colleagues who teach project management at our university. In doing so, we encountered the following barriers in particular, which we paid special attention to when developing the toolkit. Some reported that they simply lacked the information or guidance on where to start when integrating role-playing into their own teaching. However, the biggest barrier seems to be that, subjectively, there does not appear to be any time left in the everyday teaching routine to develop new material. Another issue is the uncertainty about how to assess students' performance in such

role-playing games. We aim to address all these points in our toolkit. The goal was therefore to lower the entry threshold so more teachers can integrate experiential PM learning confidently.

We would like to point out that the sample size of the survey is very small for this first implementation of the role-playing toolkit and therefore does not claim statistical significance, either in the German-speaking higher education sector or in general. Nevertheless, we are convinced that the concerns and issues expressed individually by the respondents are not illegitimate and should therefore be taken into account in the development of the toolkit.

Design Methodology

The design goal was to provide an openly accessible, modular toolkit that allows educators to set up realistic project scenarios without requiring extensive preparation. Three main design principles guided the development process:

1. Authenticity: Learning activities should mirror the social dynamics of professional PM practice.
2. Constructive alignment: Each role-play should be explicitly linked to learning outcomes, teaching activities, and assessment rubrics (Biggs & Tang, 2011).
3. ESD integration: Role-plays should cultivate sustainable thinking, ethical reflection, and systems awareness in alignment with UNESCO's ESD framework (UNESCO, 2022).

We followed an iterative design process combining requirements definition, prototyping, very early classroom testing, stakeholder interviews, and refinement. Based on identified needs in project management education, six role-play modules were developed and partially piloted in courses at FH JOANNEUM. Feedback from students and instructors led to an improvement cycle. This cyclical approach ensured that the toolkit evolved into a largely robust and practically feasible resource.

OER Philosophy and Accessibility

To maximize adoption and adaptation, all materials were released under a Creative Commons Attribution 4.0 International License (CC BY 4.0). This aligns with the growing movement toward open educational resources (OER) that promote accessibility and continuous improvement (Conole & Weller, 2008).

The toolkit is published on an online platform (Neubauer et al., 2025) and provides templates, role cards, facilitator guides, and rubrics. Each component is

modular so educators can integrate single role-plays into existing courses or conduct a full sequence covering the PM life cycle. This flexibility directly responds to feedback from practitioners who face time and curriculum constraints. The is downloadable as a complete PDF and is partially referenced in the appendix of this paper.

TOOLKIT ARCHITECTURE AND MATERIALS

In addition to a detailed introduction and overview of the topic, the toolkit presented and discussed here contains the following content:

The material contains six role-plays, forming the core of the toolkit and spanning the PM life cycle: Commissioning, Kick-off, WBS, Controlling, Finalization, and Assessment, as illustrated in Figure 1. We believe that this accurately reflects the reality of a project cycle and creates many opportunities to achieve the didactic goals of the role play.



Figure 1 Included Role-Plays throughout the PM Lifecycle.

Role-play Scenarios

For each of these individual scenarios, there are a number of additional resources, which are illustrated here using the WBS as an example but are also available in adapted form for the other scenarios. The resources are grouped under these categories:

Learning objectives and competences: the exercise builds methodological competence in developing a WBS and enhances facilitation, visualization, and teamwork skills. Participants learn to structure projects, assign responsibilities, and manage conflicting stakeholder interests.

Roles and group composition: teams include a project manager, subject matter experts, and stakeholder representatives such as a client, cost controller, or sustainability officer. Optional observers document group dynamics to support reflection and feedback.

Setting tools: the role-play can be conducted on-site using flip charts and cards or online with tools such as Miro or Conceptboard. Facilitators provide role cards and a WBS checklist to ensure consistency and structure.

Process and duration: the session lasts about 75–90 minutes, following the phases prepare, act, present, and reflect. Teams develop a WBS collaboratively, present their results, and conclude with guided reflection on clarity and collaboration.

Artefacts and results: key outputs include a visualized WBS, documentation of discussions, and observation notes. These artefacts demonstrate planning quality and teamwork outcomes.

Injects: facilitators introduce short "injects" such as new legal requirements, resource cuts, or added client demands. These events train adaptability, prioritization, and decision-making under pressure.

Assessment rubric: evaluation considers the completeness and structure of the WBS, teamwork quality, stakeholder integration, and depth of reflection. The assessment rubric is adapted to the respective role-play and reflects the learning objectives.

Supplementary Material

Furthermore, the toolkit contains supplementary material, which will be presented here in overview form. The supplementary resources expand the core role-play framework with practical instruments for facilitation, reflection, and evaluation. They include detailed didactic guidelines such as conflict moderation scripts, emergency plans for facilitators, and structured debriefing guides based on the DIEP and Advocacy–Inquiry models. These materials ensure psychological safety, participation, and effective knowledge transfer after each exercise.

Additional sections provide evaluation tools and calibration methods for fair and transparent assessment, alongside Universal Design for Learning (UDL) checklists that promote accessibility and inclusion in diverse learning contexts. Ethical standards regarding data protection and AI use are also defined to safeguard privacy and transparency.

The toolkit further offers scaling and logistics guidelines for large cohorts, a detailed implementation run book for facilitators, and an inject toolkit containing realistic scenario (surprise) events for each project phase. A comprehensive competence map links all exercises to specific project management and ESD competences. Finally, appendices provide glossaries, facilitator method cards, and tool recommendations (e.g., Miro, Mentimeter, Conceptboard) to support both in-person and online formats.

DISCUSSION AND CONCLUSION

From a pedagogical perspective, the toolkit demonstrates the significant value of experiential learning methods. Role-play enables students to experience the complexity of project management in a safe and reflective environment, connecting theoretical models with real-world decision-making. The structured

reflection phase, supported by rubrics and feedback instruments, transforms mistakes into learning opportunities and promotes self-awareness.

Therefore, the implementation of role-play as an active learning format in project management education shows considerable potential for developing practical competences; however, its actual learning impact depends strongly on facilitation quality and participant engagement. While initial observations indicate that students gain deeper understanding, systematic evidence of long-term competence growth remains limited. Further empirical studies including pre- and post-assessments are needed to measure learning outcomes over time.

Future development and improvement of the toolkit will focus on extending the toolkit with additional role-plays that address emerging topics such as for example agile project management or AI-assisted planning.

Further improvement is needed to make the toolkit even more extensively useful: Despite the inclusion of Universal Design for Learning (UDL) guidelines (which focus as a guideline for materials derived from the toolkit), the toolkit itself may not yet be entirely barrier-free. Further adaptation is required to ensure accessibility for learners with diverse linguistic, cognitive, or physical needs.

A broader pilot implementation and evaluation with students is planned for the next academic year. The results will provide practical insights into the toolkit's effectiveness, inclusivity, and potential for integration into broader curricula.

Acknowledgments

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Appendix

This appendix is only a very short but coherent overview of the toolkit which does not cover the described material entirely. For the full toolkit, readers are referred to the online resource (Neubauer et al., 2025). The toolkit may further be accessed via the QR-code to the left.

Common Module Template

1. Learning Objectives & Competences: 3–6 clear, assessable outcomes covering PM hard skills, methods, teamwork, and ESD competences.
2. Roles & Group Composition: Typical roles (e.g., sponsor, project manager, SME, controller, auditor) plus optional observers.
3. Setting & Tools: On-site (whiteboard/flipcharts) and online alternatives (e.g., shared docs/boards, breakout rooms).
4. Process & Timing: Preparation, execution, feedback/debrief; typical total duration per module: 60–105 minutes.
5. Artefacts & Results: Concrete outputs such as project charter, agenda and minutes, WBS, status report, acceptance report, lessons learned.
6. Injects (Optional): Scripted disruptions such as scope creep, resource cuts, delays, technology failure, or stakeholder conflicts.
7. Assessment Rubric: Transparent criteria that align with objectives; can be calibrated and used for self/peer assessment.

Per-Module Summaries

Project Commissioning

1. Focus: Establish foundations; goals, scope, acceptance criteria, and role clarity; negotiation practice.
2. Suggested learning objectives: apply SMART criteria; negotiate scope and acceptance; document agreements; practice conflict handling.
3. Process (85–105 min): 20 min preparation → 40–60 min negotiation → 15 min feedback → 10 min iteration (optional).
4. Inject examples: late goal change; budget cut; feasibility concerns by an SME.
5. Suggested artefacts: project charter with acceptance criteria; optional requirements specification; record of agreements.

Project Kick-Off

1. Focus: Alignment at the start; agenda design, role clarity, stakeholder management, handling disruptions under pressure.
2. Process (~60 min): 10 min prep → 25 min meeting (with conflict injects) → 15 min feedback → 10 min iteration (optional).
3. Inject examples: client distraction; new stakeholder demands; technology failure.
4. Suggested artefacts: agenda; kick-off minutes; flipchart/board notes; role matrix

Work Breakdown Structure

1. Focus: Structure project scope; integrate stakeholder perspectives; make prioritization transparent.
2. Process (75–90 min): 10 min intro → 45–60 min WBS development with injects → 5 min presentation → 15 min feedback/reflection.
3. Inject examples: new regulation; resource shortage; stakeholder intervention; scope creep.
4. Suggested artefacts: visual WBS; discussion log; observer notes.

Project Controlling

1. Focus: Evidence-based status analysis and decisions; manage cost/time/quality trade-offs; communicate transparently.
2. Process (65 min): 10 min prep (status packet) → 40 min controlling meeting → 15 min feedback/reflection.
3. Inject examples: milestone delay; cost overrun (e.g., 80% budget used at 50% progress); supplier failure; conflicting priorities.

4. Suggested artefacts: status report; decision/action log; updated risk register.

Project Finalization

1. Focus: Acceptance and benefit articulation; defend outcomes under audit-style questioning; capture lessons learned.
2. Process (65–80 min): 20 min final report prep → 30–45 min presentation with audit Q&A → 15 min reflection.
3. Inject examples: sustainability questions; stakeholder doubts about benefits; contested acceptance criterion.
4. Suggested artefacts: final report (time/cost/benefit); presentation; lessons-learned minutes.

Project Assessment / Evaluation

1. Focus: Systematic retrospective; translate insights into concrete improvements and future actions.
2. Process (55 min): 10 min setup → 30 min evaluation workshop → 15 min transfer-focused reflection.
3. Inject examples: conflicting KPIs vs. user satisfaction; stakeholder bias; audit challenge; unclear benefits; late data arrival.
4. Suggested artefacts: lessons-learned document; improvement action plan with owners and timelines.

Didactic Guidelines and Facilitator Scripts

Conflict moderation principles

Psychological safety, transparency, time discipline. Useful scripts include three-sentence de-escalation, role resets, non-violent communication prompts, and a visible Parking Lot for off-topic items.

Emergency plan (decision-tree)

If stalled, check clarity of goal, decision criteria, and option overload; use time-boxed voting or "try-a-step." If escalation persists, run a short mediation round or make a facilitator tie-break with explicit rationale. For online failures, pivot to a shared document immediately.

Structured debriefing

Use DIEP (Describe–Interpret–Evaluate–Plan) with Advocacy–Inquiry to link action to theory and to professional practice. Ensure participation of quiet voices and capture 2–3 transferable takeaways per team.

Inject Toolkit

Injects are short, scripted events that increase realism and decision pressure. Use at most 1–2 per module and debrief their handling explicitly.

1. Commissioning: unclear goals; tight budget; stakeholder conflict; late contract change.
2. Kick-Off: start date brought forward; public feasibility challenge; tech failure; client distraction.
3. WBS: new regulation; resource shortage; external stakeholder feature request; scope creep.
4. Controlling: milestone delay; cost overrun; supplier failure; priority conflict (cost vs. quality).
5. Finalization: missing documentation; dissatisfied stakeholder; disputed acceptance; sustainability audit query.
6. Assessment/Evaluation: conflicting KPIs vs. satisfaction; stakeholder bias; audit challenge; unclear benefits; late data.

Rubrics

Rubrics are exemplarily shown for the WBS role play scenario:

Criteria	0 points	1 point	2 points	3 points
Completeness of tasks	Mainly incomplete	Partially covered	Largely covered	Comprehensive and accurate
Structure & logic of WBS	Chaotic	Poorly structured	Clear, comprehensible	Systematic, consistent
Teamwork	No cooperation	Unevenly distributed	Cooperative	Inclusive, constructive
Stakeholder perspective	Not considered	Partially included	Properly integrated	Comprehensive and actively integrated
Artefacts (WBS, documentation)	Missing	Incomplete	Correct	Complete and visually refined
Reflection	None	Superficial	Reflected	In-depth, visible transfer

Role of AI and Metaverse in Revolutionizing Health Care and Medical Training

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ABSTRACT

The potential benefits of Artificial Intelligence Solutions and the Metaverse in the healthcare sector are vast. Furthermore, understanding the results of using those solutions in Education, especially medical education, contributes to more effective results and quality improvement in the field of healthcare. Through comprehensive model evaluation and comparison, we aim to identify the most reliable techniques for ongoing AI solutions in the healthcare sectors and evaluate the possible impact for each by evaluating future usage and combining techniques towards future developments in the field of healthcare, ultimately contributing to robust and accurate models that can provide more quality in the healthcare sector than any time before.

The main aim of the study is to effectively compare existing techniques for medical imaging starting from AI solutions, Metaverse solutions and then a combination of both, with models that can offer significant insights providing real-world solutions. These results are crucial in medical imaging to decrease error rates that humans might miss and someday perform the job independently.

Various Computer Vision algorithms can be applied to historical medical imaging data to develop models that can analyze diseases and forecast future conditions with robust diagnostic results.

Computer Vision techniques and algorithms, provide accurate methods for analyzing healthcare situations. These algorithms can uncover complex relationships between patient's images and future predictions by the big data that those models are trained on. Some applications like cancer risk detection images

could detect both, if the patient has a cancer at that time, and is able to detect the risk four years earlier. By training these models on large datasets, they can perform accurate predictions. Several evaluation metrics to determine the reliability, accuracy, and precision of the models in new unseen cases are crucial and important to ensure that those models can be used in sensitive situations like healthcare, with potential solutions including capabilities requiring technological innovation. This paper will focus on how the fusion of the Metaverse with extended reality (AR, VR, and AI) can improve medical education and the healthcare sector through its applications and solutions that use it in healthcare.

Keywords: Computer Vision, Deep Learning, Image Processing, Virtual Reality VR, Medical training, Education

INTRODUCTION

The integration of the Metaverse, which combines Augmented Reality (AR), Virtual Reality (VR), and Mixed Reality (MR), with advanced AI tools, is poised to revolutionize medical education and healthcare. This combination offers unprecedented opportunities to enhance learning experiences and improve medical outcomes of which today we seem on the brink of this revolution in medical education and healthcare. At its core, virtual reality VR is a medium through which we can experience things that we imagine, to create and explore new worlds, to connect our competent minds with a childlike enthusiasm, fostering creativity and innovation. The issue of how AI is changing not only education but also everything in our daily lives. Education is one of the biggest fields in which we can take advantage of the Metaverse and AI combined towards development in the quality of medical results. The goal of this research is to leverage the Metaverse and AI to transform medical education, and healthcare solutions making it more immersive and effective.

In the very first beginning, VR started as a serious scientific tool for NASA as the VR Lab started an experiment in 1990 and has become a necessary training facility for integrated Extravehicular Activity (EVA) spacewalks and robotic simulation for astronauts ever since (Seils, 2015). This technology was not available during the first period of NASA's 50 years of EVA. During the past few decades, it has become an integral training tool in making NASA's spacewalks an incredibly successful part of our journey to space exploration**,** where today no aircraft pilot can operate a commercial jet without first learning skills in a simulator and passing a battery of tests.

This research aims at exploring the impact of combining the Metaverse and AI on medical education and healthcare solutions showing impact results on education and showing different Machine Learning models used in healthcare issues. To

achieve this, we will analyze the use of AR, VR, and AI in medical training, focusing on ongoing projects and their outcomes. Generative AI tools in real-world applications like ChatGPT by OpenAI and Copilot by Microsoft are already changing education. Those tools are being widely used in education by students or institutions and are changing the "current" way of education (Schönberger, 2019). In this research, we will discuss solutions with using more AI and technology towards developing the "current" way of education by enhancing the healthcare diagnostics and medical solutions towards more quality results in the healthcare field rather than focusing on ethical usage. The regulation of AI together with ethical usage, is still an important feature in this study in which we outlined how robust healthcare solutions should be aligned with the rules and regulations of AI Act Laws. Actions for the use of Generative AI tools in education are both important and sensitive. There are two potential approaches: imposing strict limits on AI usage, effectively forbidding AI tools in education (as was temporarily adopted by the Italian government during the early release of ChatGPT by OpenAI), or using more AI solutions to change the "current" way of education (Browne, 2023). There are still more laws that are entering into force to regulate the use of AI. The most recent is on the 1st of August 2024, when the European Artificial Intelligence Act (AI Act) enters into force (European Union, 2024). It is necessary as providers of these developments of technologies and AI advanced models to align with the regulations and rules that make those models successful solutions in the healthcare world.

THE IMPACT OF ARTIFICIAL INTELLIGENCE ON EDUCATION

According to a study on the impact of Artificial Intelligence in teaching and learning science, the usage of AI in science education has steadily established positive impacts on student learning outcomes (Almasri, 2024). There is evidence of universities implementing AR and VR technology as supplemental learning tools for medical anatomy, with promising findings. This demonstrates that the Metaverse, combined with AI, can significantly impact medical education, potentially leading to positive outcomes in overall healthcare. Additionally, the use of these tools has been increasingly examined for radiology education (Ahuja et al., 2022). This paper focuses on ongoing and completed projects involving different Deep Learning Models in radiology and X-ray images. The difference between real and VR experiences is not only the shortened time between idea and experience with VR but also the ability to invent new things that do not exist in the real world. The real value of VR lies in its ability to let you learn from your imagination, as you experience what you imagine, aligning perfectly with the methodology of teaching medical students.

To handle surgery as a doctor, one must practice questions and imagination in practical settings. A study defining a great surgeon showed that the top two

qualities of a *great surgeon* were dexterity (cited by 54% of respondents) and meticulousness (cited by 18% of respondents), both of which are developed through practical experience (Luscan et al., 2023). Consequently, the greatest doctors are those who have experienced more practical surgeries. VR allows medical students to not only gain experience but also find answers to their imaginative scenarios in a safe environment without any harmful impact on patients or hospitals. Early adoption of extended reality tools for surgical training can significantly strengthen the foundational surgical knowledge of students before they even apply to residency programs, thereby enhancing applicant pools and revolutionizing traditional medical education (TEDx, 2018). Figure 1 below demonstrates that students trained on VR for surgical procedures nearly doubled the surgical performance scores of non-VR-trained students (TEDx, 2018). These numbers in Figure 1 below indicate that training medical students on the Metaverse and AI with healthcare solutions during their education in universities is becoming more necessary than ever before.

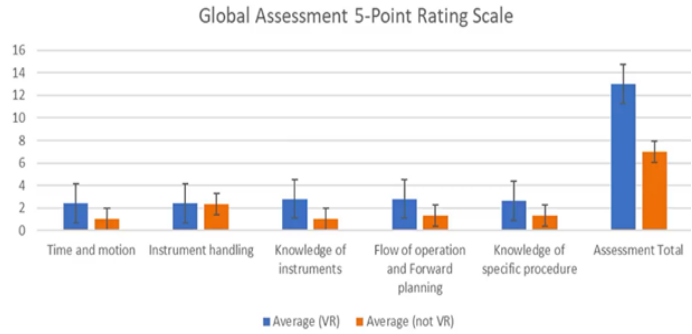


Figure 1 Students Trained on VR for Surgery (TEDx, 2018).

MATERIALS AND METHODS

During our study, we focused on proving two main goals: The first is how efficient it is to adapt AI and the Metaverse tools in education especially medical education, and the second is the efficient technical solutions and tools to adapt healthcare innovative solutions for improving the experience in healthcare, save more lives, and help doctors and healthcare professionals in decision making situations by benefiting from technology development. The study provided examples of real-world results with successfully adapting AI and the Metaverse in some situations which allows the readers to understand how broad and efficient it is to use these tools. In the technical examples part, we also provide results of technical works that used different types of Machines Learning Algorithms in AI for providing healthcare solutions, at high-risk and low-risk healthcare situations, especially the most recent studies. In section 7 (Future growth analysis of the Metaverse in education), we provide studies from resources emphasizing that the Metaverse has

great growth in the educational market which makes our study a current topic and valuable to be adapted in the future with those proofs that it is today's necessity and not tomorrow's luxury. We also mentioned the ethical usage or the ethical considerations to make the adaptation of these solutions real and having a solid usage in the real-world.

Computer Vision and Deep Learning Models

Diving into AI, especially Deep Learning and Computer Vision in radiology, there is promising usage of Deep Learning models in analyzing medical images such as X-rays with greater accuracy and speed. This is particularly useful in situations where physicians often compare a patient's previous and current medical scans side by side (McDonough, 2024).

Deep Learning models such as CNN and RNNs are being used for object detection. Their robustness allows them to be utilized in healthcare solutions to detect very small signs and even moving objects that may not be visible to the human eye (McDonough, 2024).

Medical imaging is therefore among the fields in which computer vision is touted to decrease error rates by picking up on clues that humans might miss or even someday performing the job independently (McDonough, 2024).

MIT researchers have improved their machine learning system developed to predict cancer risk from mammogram images four years earlier, as shown in Figure 2, and validated its effectiveness with studies across several hospitals (Gordon, 2021). In Figure 2 below, the first left image is taken four years earlier, while the third one shows cancer four years later.

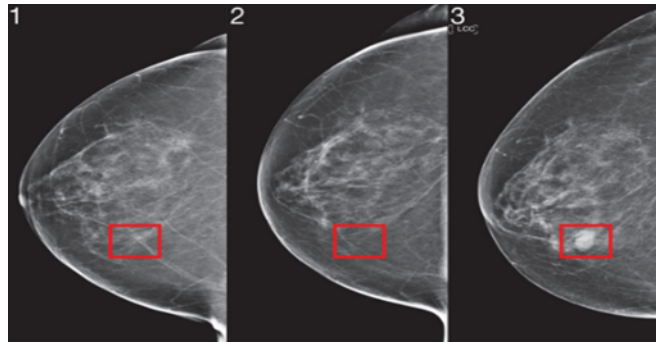


Figure 2 Cancer Risk Detection Mammogram Four Years Earlier

Other ongoing projects in radiology fields, such as dental diagnostics, use Deep Learning models with Computer Vision to detect various dental issues including implants, root canals, and fillings (Sivari et al., 2022).

Results in diagnosing dental issues have had a significant impact on this field, by detecting early small issues that the dentist or radiologist might not be able to see. Here is a pre-result using machine learning models to detect implant diseases, where the image before detection looks like Figure 3.a.



Figure 3a X-Ray Before Detection

After detection, the trained model and applied machine learning show how the diagnostic AI result looks in Figure 3.b. Adapting these models into healthcare can have a huge impact on the field. Training health professionals, radiologists, and doctors to use these advanced technologies can help them provide higher-quality results at the end of a surgery or diagnostic process. This is becoming a necessity as these models demonstrate the quality they can provide for the healthcare sector.

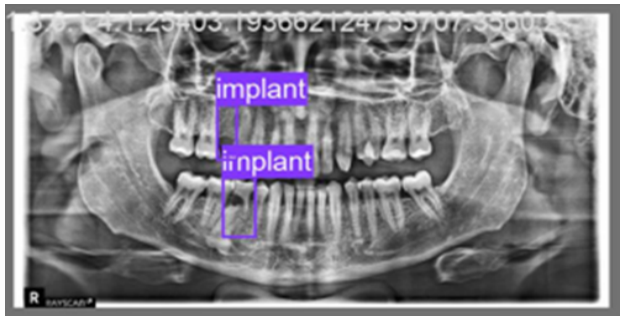


Figure 3b X-Ray After Detection

Convolutional Neural Networks (CNN)

Artificial Neural Networks (ANNs) are inspired by the work of the nervous systems that humans have (similar to the human brain). The base structure of ANN can be shown in Figure 4. Below. It is loaded in such a way as to distribute the input layer to the hidden layers, usually in the form of a multidimensional vector. The hidden layers take decisions from the Input layer (previous layer) and

discuss how a stochastic change within them harms or improves the final output, which is called the learning process (Zakiroglu, Yılmaz, & Aslan, 2021).

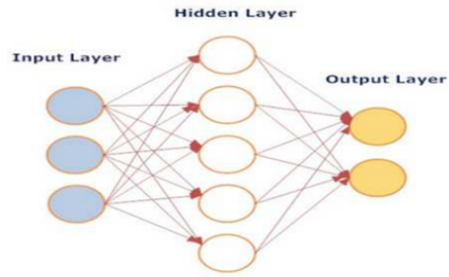


Figure 4 ANN Basic Structure

Convolutional Neural Networks (CNNs) are like traditional ANNs in that they consist of neurons that optimize themselves through learning. Each neuron will again receive an input and perform an operation that is the basis of countless ANNs. The last layer contains the loss functions associated with the classes. The only main difference between CNNs and ANNs is that CNNs are primarily used for pattern recognition in images. This allows us to encode image-specific features into the architecture, making the network more suitable for image-oriented tasks, while further reducing the parameters required to tune the Automated Detection of Alzheimer's Disease Using Wavelet Transform with Convolutional Neural Networks model (Zakiroglu, Yılmaz, & Aslan, 2021).

The research used Automated Detection of Alzheimer's Disease Using Wavelet Transform with Convolutional Neural Networks for diagnostic for Alzheimer's disease (AD) which is shown below in Figure 5.

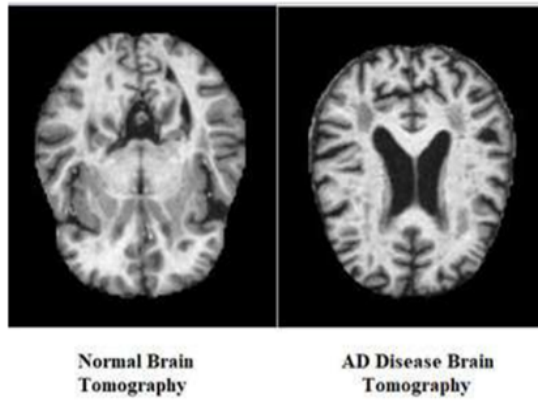


Figure 5 Normal Brain and AD Disease Brain

Figure 5 shows samples of normal brain and high-grade of AD disease brain tomography that is used in the study. The brain affected by Alzheimer's is considerably shrunken, due to the degeneration and death of nerve cells.

Image Processing

Image Processing is a method of converting an image into digital form and performing operations on it to obtain an enhanced image or extract some useful information from the image**.**

Applying specific Image Processing for the training images before applying machine learning algorithms on them can increase the efficiency of the model, with better diagnostic results. Sample Image Processing applied looks like in Figure 6 below.

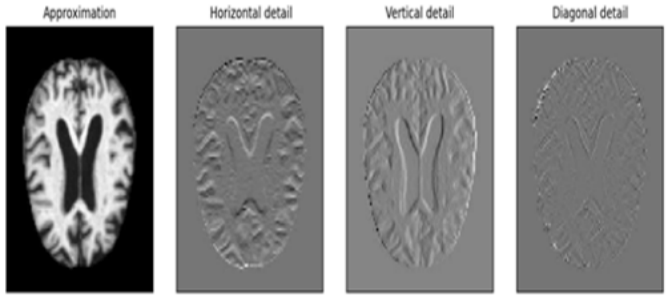


Figure 6 Sample Image Processing

Regarding increasing efficiency with the use of Image Processing, we used the dental diagnostic part in Figure 7.a transforming the input image as it was gray level and contrast variations make it hard for our model to learn the right features to detect the pattern of the disease.

We applied CLAHE (Contrast Limited Adaptive Histogram Equalization) which is a histogram equalization technique that allows to enhance contrast locally while limiting the amplification of noise using Open-Source Computer Vision (OpenCV, 2015) so the result will look like in Figure 7.b.



Figure 7a Before CLACHE.



Figure 7b After CLACHE

As shown in the comparison above, after applying CLACHE the X-Ray image is clearer which can increase the efficiency of the Deep Learning model used as it is easier to detect the issue.

Segment Anything Models or SAM

Another great recent model (paper published on August 6th, 2024) (Ma et al., 2024), what is called "SAM", falls under segmentation. Segmentation is one of the fundamental tasks in medical image analysis and is a prerequisite for many downstream tasks, such as early cancer detection and disease diagnosis. The Segment Anything Model (SAM) is the first foundation model in image segmentation, trained on 256 GPUs with 1.1 billion mask annotations from 11 million images. It has also been split for improvement, with variations such as Med-SAM, SAM1, SAM2, etc.

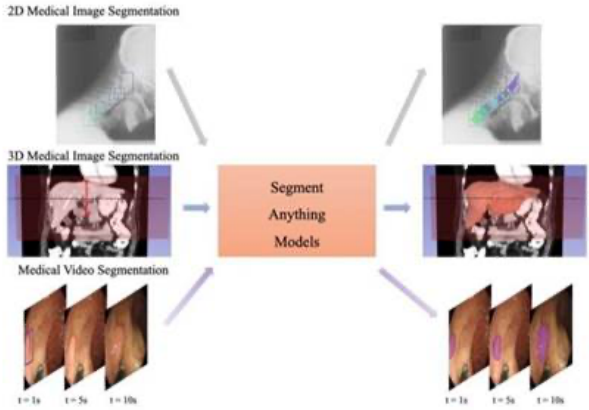


Figure 9 SAM Model (Ma et al., 2024)

As in Figure 9, Datasets and evaluation protocol of SAM (Ma et al., 2024), researchers evaluated SAM2 on various 2D and 3D medical images and videos. The 2D images and the bounding box prompts are directly passed to SAM2 to generate segmentation results. The 3D images and videos are initialized with a bounding box prompt on the middle slice and the first frame to get the 2D masks, respectively. Then, the model propagates the 2D mask to the remaining slices/frames.

As shown in Table 1, the evaluation results on 2D images demonstrate its efficiency, with more than 96% accuracy in some modalities, especially in the "MedSAM" modality.

Table 1 Quantitative Segmentation Results

Modality	SAM1-B	SAM1-L	SAM1-H	SAM2-T	SAM2-S	SAM2-B	SAM2-L	MedSAM
CT	0.8825	0.9001	0.9028	0.9058	0.9090	0.9242	0.9167	**0.9572**
MR	0.8620	0.8673	0.8602	0.8897	0.8867	0.8858	0.8863	**0.9507**
PET	**0.8198**	0.8151	0.8042	0.7874	0.7791	0.7877	0.7727	0.8160
Ultrasound	0.7749	0.7789	0.7703	0.7792	0.7614	0.7540	0.7873	**0.9398**
X-Ray	0.8095	0.8181	0.8065	0.7835	0.7851	0.7939	0.7822	**0.8573**
Dermoscopy	0.8683	0.8731	0.8706	0.8927	0.8706	0.8875	0.9068	**0.9197**
Endoscopy	0.9170	0.9328	0.9395	0.9370	0.9346	0.9338	0.9315	**0.9673**
Fundus	0.9119	0.9522	0.9495	0.9338	0.9475	0.9483	0.9465	**0.9498**
Mammography	0.6931	0.7485	0.7512	0.7495	0.7304	0.7197	0.7601	**0.8320**
OCT	0.7482	0.7148	0.7160	0.6414	0.6374	0.6498	0.6273	**0.8166**
Light Microscope	0.8332	0.8246	0.8178	**0.8431**	0.8388	0.8188	0.8322	0.6873

MERGING COMPUTER VISION WITH VR

Combining Computer Vision and VR can be illustrated in Figure 8, which shows a captured image of patient positioning in a VR X-Ray. Users can operate the X-

ray equipment and the examinee in a highly immersive VR space, perform X-ray imaging, and train while checking the captured X-ray images (Kato et al., 2022).

This type of technology in healthcare, together with Deep Learning Algorithms as mentioned above (Gordon, 2021), can predict cancer risk from mammogram images four years earlier, as shown in Figure 2**.** Combining those 2D and X-Ray models with VR will be able to predict cancer four years earlier and in addition to that, providing a space for doctors and healthcare professionals to experience handling such situations with specific patient analyses without causing any harm to the patient. This can provide initial results for doctors to determine if a treatment approach is successful or not, especially in complicated or high-risk surgeries where the success rate is low. Personalizing the situation for each patient, which was not possible before without AI and the Metaverse technologies, is a significant step towards quality in healthcare.



Figure 8 Captured İmage of Patient Positioning in VR X-Ray

The Metaverse and AI together can improve both low-risk surgeries, such as eye surgeries and dental procedures, and very high-risk surgeries, such as heart surgeries (Whitlock, 2024). In low-risk surgeries, the focus can be on improving the quality of treatment provided to patients and obtaining pre-results, especially with personalized results of the exact treatment path the doctor will use and how the results will look in a Metaverse space where it appears real. In high-risk surgeries, it can increase the success rate for very high-risk surgeries where the success rate is very low. With the use of the Metaverse, doctors and patients can have pre-results by providing the patient's analysis of the Metaverse and experimenting with possible treatments in the virtual reality space. This will show the success not only by predicting but also by experiencing the imagination in a virtual reality space, where these technologies can provide doctors with a clear vision of the patient's analysis, which will help them during the surgery.

ETHICAL USAGE

All advancements of using these technologies which benefit from the great potential and unprecedented advancement of AI in the field of medical and healthcare are still new requirements in the field of medical ethics. The paper "Ethical Issues of Artificial Intelligence in Medicine and Healthcare" states that

we should be aware that AI in the field of healthcare can have negative aspects that might outweigh its benefits (Farhud & Zokaei, 2021), and experts must consider humanity and ethics in this regard. There are also many other articles written on the ethical usage of AI in healthcare that can be interesting to review: "The Ethical Issues of the Application of Artificial Intelligence in Healthcare" (Karimian, Petelos, & Evers, 2022) , "Implementing Ethics in Healthcare AI-Based Applications: A Scoping Review" (Goirand, Austin, & Clay-Williams, 2021), and "Artificial Intelligence in Healthcare: A Critical Analysis of the Legal and Ethical Implications" (Schönberger, 2019).

The results show promising future usage for these technologies if adapted into healthcare solutions. It is still important to consider ethical usage to provide successful solutions by ensuring the technology acceptance model by users, which could be a necessity to clear. This will enable us to provide innovative solutions, especially in sensitive fields like healthcare, which require robust and highly accurate models.

Additionally, we strongly recommend collaboration between AI engineers/Data Scientists who built the models together with healthcare professionals, as mentioned at the end of the paper. Revealing this collaboration and understanding how the data was trained will help doctors and healthcare professionals become experts in interpreting the model's results. This understanding can help avoid any faults that may occur if the AI model fools in any situation, thereby increasing the likelihood that doctors can intervene appropriately and save the patient's life.

FUTURE GROWTH ANALYSIS OF THE METAVERSE IN EDUCATION

The growth of the Metaverse in education with the K-12 segment by Academic had the largest share in the global market. The Metaverse in the education market is projected to grow at a CAGR of 38.90% during the forecast period, 2023-2032 (Secondary Research et al., 2023). Figure 9 shows the market of the Metaverse in education which is clearly increasing towards applying the Metaverse in education over the years till 2032.

Europe Metaverse in the educational market accounts for the second-largest market share as the European tech industry, particularly in France, is poised for heightened investments in the Metaverse technologies for educational purposes. The growth of using the Metaverse technology in education is not only specified for specific regions or countries as figure 10 shows the highest growth of the Metaverse in education is in North America while other countries and continents have increasing growth in the Metaverse educational market as well.

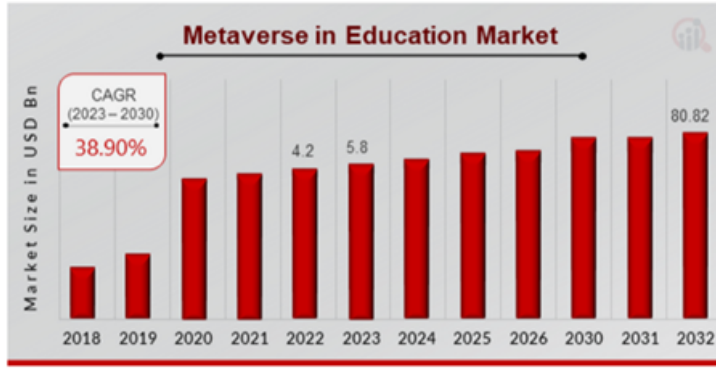


Figure 9 The Metaverse in Education Market Size, 2024-2032 (USD Billions) (Secondary Research et al., 2023)

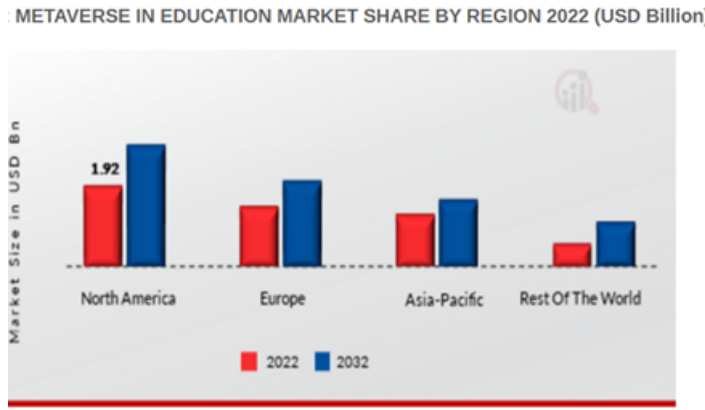


Figure 10 The Metaverse in Education Market by Region 2022 (USD Billion) (Secondary Research et al., 2023)

As a result of those investments, there are many benefits gained to countries and continents adapting the Metaverse and investing in the Metaverse in the educational market.

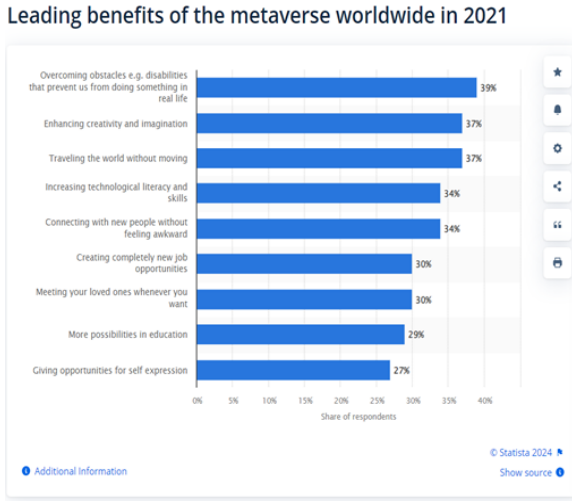


Figure 11 Benefits of the Metaverse Worldwide (Petrosyan, 2022)

Figure 11 above illustrates several key benefits of the Metaverse on a global scale. Foremost among these is the ability to overcome obstacles. Additionally, there is a 37% increase in enhancing creativity and imagination, as VR applications provide individuals with the space to conceptualize and transform creative ideas into virtual reality (Petrosyan, 2022).

We also observe a rise in the creation of entirely new job roles. AI and the Metaverse can perform many tasks more efficiently in less time, as depicted previously with its use in some healthcare solutions. However, this technological advancement not only optimizes existing jobs but also generates numerous new employment opportunities.

RESULTS AND DISCUSSION

The results of combining all these experiments and technologies together can clearly have a significant impact with full change on both, the way of teaching and learning medicine, and in the healthcare sector overall, where Technology and Engineering are becoming for the first time the biggest part of healthcare with proving its capabilities especially with cheaper, faster, and more accurate results than humans. The Metaverse technologies and their adaptation in fields such as healthcare (high risk sector) where it is a matter of life or death in many cases, prove that these simulators are not tomorrow's luxury, but they are today's necessity. Educational opportunities accessible through this emerging technology can help future aspiring doctors and healthcare professionals gain early exposure to various specialties and meet new mentors from anywhere in the world. With these potential impacts in mind, early exposure and training programs surrounding this technology should continue to be explored. All the discussed opportunities in this paper revealed the positive impact of adapting those tools into healthcare, as well as the growth of adapting the Metaverse in the educational market for the future. Regarding those factors we believe these models need to be overall controlled and that the last decision comes from well-trained doctors and healthcare professionals. These tools and Machine Learning models can be a second monitor for doctors and can help doctors and healthcare professionals to have clear overall vision by enhancing their decision-making. Teachers, Students, and Healthcare professionals must continue to receive training in the use of innovative technologies that can be implemented in the field of healthcare in order to enable promoters to provide students with up-to-date and high-quality education in healthcare and provide a positive impact that can be gained from healthcare solutions.

We highly recommend integrating these tools into healthcare by training doctors and healthcare professionals as users of these tools. It is also necessary that they understand well how these models were trained and developed. That can be reached by strong collaboration with technologists and Data Scientists so they can understand the reason and the concept behind the machine adapting decision on specific treatment.

We have concluded that, in a field like healthcare where quality is the biggest demand, the technological improvements that exist around us nowadays are able to significantly improve the quality of healthcare for patients and save more lives. Furthermore, the use of these technologies for educating medical students and professionals can have the ultimate advantage for more experienced and more ready-to-go professionals in healthcare right after their graduation.

All these results make healthcare more efficient, personalized, and accessible for high-quality healthcare solutions demand, and in middle income or conflict

countries that have no access to specialized healthcare can gain insights from these models to build this relationship between humans and Medical AI such as a multi-modal AI that can help us to create those solutions.

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Integrating Wildlife into Forest Europe Process: A Critical Gap in Framework

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ABSTRACT

Forestry faces a complex management situation. The SFM approach now goes beyond simply ensuring sustainable timber production. SFM strategies must fulfill ecological, economic, and social functions without harming other ecosystems. Under this approach, forest management actions cannot be evaluated in isolation or based on a single factor. The Forest Europe system is dynamic and continuously updated. All six criteria are related to wildlife. Although there are related indicators, there are no criteria or indicators that directly address wildlife. Even in a comprehensive criterion such as biodiversity, it has been found that wildlife is not directly and sufficiently addressed. This is a major shortcoming in protecting forest integrity. It is critical to include wildlife as a main topic, not a subtopic, in future international meetings so that sustainable decisions can be made. As seen in many international definitions of SFM, this is an economic policy, and it is critical to include the economic value of both living and non-living elements of wildlife. Human activities affect wildlife and therefore determine the success of SFM. For this reason, "wildlife health and diversity" should also be added to the Forest Europe process as a separate indicator or sub-criterion of SFM criteria.

Keywords: Forest Europe, wildlife protection, sustainable forestry, wildlife management

INTRODUCTION

According to the 2020–2030 strategy prepared by CIFOR (Center for International Forestry Research) and ICRAF (International Centre for Research in Agroforestry) in line with their work consistent with the Sustainable Development Goals, the Paris Agreement, and the three Rio Conventions, deforestation and biodiversity are among the five major concerns that need to be addressed on a global scale (CIFOR, 2020; CIFOR-ICRAF, 2021). The long-standing prioritization of timber production, which focuses more on use than conservation, as the fundamental principle of forest management has led to concerns about biodiversity today. As society began to take an interest in

conservation and feel responsible for the loss of biological diversity, multiple-use and conservationist approaches to forest management began to gain ground. With the development of the sustainable forest management (SFM) approach, issues such as biological diversity, endangered species, and wildlife habitats began to receive greater attention. In many countries, it is now impossible to determine a single dominant use purpose in line with the demands of society (Wolfslehner and Vacik, 2008; Rodriguez Franco and Conje, 2022). The extent to which countries keep these approaches on the agenda and implement them is important. Despite growing concerns in this regard, it is still evident that there is no clear approach towards wildlife in SFM processes (Uyar et al., 2024).
SFM is analyzed in terms of ecological, social, and economic dimensions. Forest management units also continue their activities by taking these dimensions into account (Beriozovas et al., 2024). Wildlife and forest economics are interrelated. The debate on the sustainable use of wildlife should not be limited to a conflict between advantages and disadvantages (Makutėnienė et al., 2022). While the old understanding of nature and wildlife conservation was based on a protective philosophy aimed at defending nature against the consequences of development, modern biodiversity conservation is a voluntary approach that aims to meet human needs for biological resources while also ensuring the long-term continuation of the world's biological wealth (Williamson, 1987). This information is valuable for managers responsible for designing or modifying wildlife management areas. At this point, it is important to view wildlife as both a consumable and non-consumable resource (Hay and McConnell, 1984; Uyar et al., 2024).

According to the report by the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services (IPBES, 2019), approximately 1 million plant and animal species are at risk of extinction because of human impacts. The Living Planet Report (2020) published by WWF reminds that between 1970 and 2016, vertebrate species populations declined by 68%. In addition to these findings, research shows that protected areas are one of the most important tools for slowing biodiversity loss (Almond et al., 2020). The fact that the Forest Europe process (Helsinki decision/Pan-European process) makes decisions on a continental scale and that the criteria commitments of the member countries are global commitments shows that the biodiversity habitat framework in this regard is sufficient. However, it is seen that the success rates in implementation and indicator monitoring are not sufficiently measured.

In addition to positive values (such as historical, educational, nutritional, scientific research, and the preservation of ecological processes), wildlife can sometimes present negative values. The damage wildlife causes to humans (losses), domestic animals (predator attacks), agriculture (crop damage), and the natural landscape (invasive pests) is counter or anti-values. However, researchers or decision-makers with different perspectives may view the damage predators cause to domestic animals as a normal value (Williamson, 1987; Chardonnet et al., 2002). Costs associated with game animals include grazing, predation, traffic accidents, and disease transmission. Economic valuation may also enable the development of policies on issues such as property rights and taxes (Conover et al., 1995).

The increase in the number of private forest owners across the European continent and the intensive activities carried out by these owners in various forms are a cause for concern for policymakers and representatives of the forestry sector. The growing demand for forest products and societal expectations are not limited to wood alone. For forests to be managed effectively, they must be categorized according to their purpose (Niedziałkowski and Chmielewski, 2023; Škema et al., 2024). Sustainability is crucial in forest management because it means long-term and multifaceted use. Sustainability must be incorporated into planning for these multifaceted uses, including social demands. If sustainability is missing from the plan, total value production cannot be increased (Baskent, 2015).

Approaches to wildlife conservation vary across continents and even within countries in terms of legal frameworks. CITES does not directly regulate the care and rehabilitation of injured wild animals. Therefore, procedures for caring for injured animals in Europe differ from those in many other countries around the world. In Europe, the rehabilitation of wild animals is generally carried out by voluntary organizations and individuals. For example, in the United Kingdom, under the Animal Welfare Act 2006, injured wild animals are protected, and no license is required for rehabilitation. However, responsibilities for the care of animals are defined. Similarly, in Germany, no special license is required for the care of wild animals; however, the animals must be transferred to authorized persons for rehabilitation. In Estonia, no work has yet been done on legalizing the rehabilitation of wild animals. This shows that each country in Europe has its own internal decisions regarding wildlife protection (IWRC, 2025). In the United States, the rehabilitation of wild animals is subject to stricter regulations. In many states, a state-level license or permit is required for wildlife rehabilitation. For example, the states of Colorado, Florida, Georgia, Indiana, New York, Maine, North Dakota, Oregon, and Texas have specific training and licensing requirements for rehabilitation. These regulations aim to ensure that the rehabilitation process is carried out professionally and safely. As regulations have only emerged in the last forty to fifty years, they are likely to continue evolving in response to societal needs. In this context, administrative laws and regulations governing wildlife rehabilitation are constantly changing, making this area of law particularly challenging (Eisen, 2017).
In Europe, the participation in hunting of young people reaching adolescence is a tradition historically rooted as a rite of passage. Since the early Middle Ages, it has been accepted among the noble classes that boys gained courage, discipline, and social status through hunting (Goldberg, 2020; Bloch, 1992). Archaeological and ethnographic data show that this tradition served similar functions in prehistoric hunter-gatherer communities (Nowell, 2020). However, in the modern era, this cultural remnant is perpetuated in some European countries in the form of "sport hunting" or "young hunter training"; this situation conflicts with wildlife conservation principles, particularly by increasing pressure on bird and mammal populations. Therefore, hunting, historically a socio-cultural "rite of passage into adulthood," has now become a practice that undermines ecological sustainability (Lemke et al., 2017). Although successful projects and campaigns such as Rewilding Europe are being carried out today, the issue of wild animals returning

to nature with sufficient populations being exploited commercially and economically does not receive sufficient attention (INTERPOL, 2022; Rewilding, 2024).

To eliminate the negative effects of overhunting, ensuring that wildlife conservation is based on a solid legal ground will provide deterrence. The effective enforcement of laws, however, can only be achieved by raising awareness within society. In this regard, it is crucial to evaluate flora and fauna together as an inseparable whole, explaining their benefits to both the ecosystem and humans, as well as the dangers posed by their overexploitation. Involving local communities in monitoring and conservation processes is also extremely important for the effective management of SFM processes (Perkumienė et al., 2023). Moreover, as a strategic wildlife management approach, the method of reducing hunting-related tools, permits, or access opportunities to regulate or limit hunting activities is widely applied. This approach is used for habitat conservation, the sustainability of biological diversity, and the prevention of human–wildlife conflicts. Resources may be restricted when hunting conflicts with local communities, ecotourism, or sustainable land use. Depending on management priorities, conservation methods may also be developed for populations declining due to overhunting (Gortázar and Fernandez-de-Simon, 2022). It is critically important to manage endemic wildlife species without exceeding the carrying capacity of the area or causing their numbers to decline to an extent that disrupts the ecological balance. In this context, both hunting grounds and wildlife breeding facilities exist to contribute to the development of wildlife (Uyar, 2018). Within the scope of Forest Europe, importance is attached to habitat conservation policies, but the degree to which this conservation approach includes wildlife has not been measured.

Improvements Made to the Forest Europe Process

Forest Europe, established in 1990 as a regional political initiative and transformed into a discussion forum for European international forest policy, develops common strategies for the protection and sustainable management of forests. The first Forest Europe meeting was held at the ministerial level in Strasbourg, France, in 1990 and continues today (Linser et al. 2015). The first set of criteria and indicators was announced in 1998 as part of the process. The process is overseen by the European Forest Protection Ministerial Conference (Forest Europe). The topics that form the basis of forestry practice in Europe are: “Effective national policies in sustainable forest management and development”, “Certification”, “Basic forestry measures–monitoring”, “Rural development”, “Biodiversity”, “Climate change and carbon management”, “Forest industry”, “Forest production materials and phytosanitary measures”, “International forestry policy processes”, “Development of cooperation” and “International trade and external relations” (Sener and Tolunay; 2016).

The sustainable management approach, developed after the Stockholm Conference, the Brundtland Report, and the 1992 United Nations Conference on Environment and Development (Rio Summit), emerged from biodiversity conservation and other environmental concerns and has gone through 10 main stages; however, some of these stages were not sustained throughout the process

(Hakverdi, 2020; Uyar et al., 2024). The first set of Forest Europe criteria and indicators was created to monitor the extent to which the sustainability goals defined in the Helsinki Decisions were being met in European countries (Linser et al. 2015). In this context, the SFM criteria can be considered dynamic. It is important to remember that, considering all conservation requirements, the path to the most accurate assessments requires thorough research. The results of the data analysis conducted in this context are presented below.

The Forest Europe Process, launched in 1994, has 41 member countries and includes six regional and six national criteria. According to Uyar et al. (2024), there are 1 global, 43 regional, 83 national, 11 forest management unit and 24 local criteria in all SFM processes. It is important to address these processes, which are mostly national and regional, at a more global level. The six main criteria in the Forest Europe Process are core criteria accepted globally by the FAO. In this context, the importance of wildlife conservation, in line with biodiversity conservation concerns, needs to be made more understandable and visible internationally. In 2003, at the International Conference titled "The Contribution of Criteria and Indicators for SFM: the Way Forward," the process was improved by identifying seven thematic areas that form the basis of existing international (ecoregional) and regional criteria and indicator processes. The criteria are as follows (Castañeda, 2000; CICI, 2003; Innes, 2016; FAO, 2024): the scope and extent of forest resources (contribution to the global carbon cycle, etc.); forest biodiversity; health and vitality of forest ecosystems; protective functions of forests: soil, water, and others; production functions of forests: non-timber forest products (NTFPs), etc; socioeconomic functions of forests; legal, institutional, and policy framework.

Following this improved set, the political framework was updated in 2011, but the number of indicators remained unchanged. The last Forest Europe update was in 2015 and has been carried out to date with 34 quantitative and 11 qualitative indicators (in the State of Europe's Forests report). Forest Europe adopted 6 basic criteria within the scope of its first name, the Pan European process. At the same time, FAO also announced that these criteria were taken as a basis (FAO, 2024). In line with this update, the legal, institutional and political framework has been included in the 6 criteria.

In line with Target 15(7) – Life on Land, one of the United Nations international development goals, urgent action is needed to end poaching and trade in endangered species of flora and fauna and to address both the demand and supply of illegal wildlife products (Lemaître and Hervé-Fournereau, 2020; Yuliantiningsih et al., 2023; Bandeira and Fonseca, 2024; Nijman et al., 2024). Therefore, this study will emphasize the role and importance of wildlife in development. It is also important to note that NTFPs (non-wood forest products) encompass all materials other than wood extracted from forests for human use. These include food, medicines, spices, essential oils, resins, gums, latex, tannins, dyes, ornamental plants, wildlife (crops and live animals), fuelwood, and raw materials, especially rattan, bamboo, small wood, and fibers (CIFOR, 1999; Castañeda et al., 2001; CIFOR, 2020; CIFOR-ICRAF, 2021). It should be noted

that wildlife consists of both flora and fauna, and these are also among the non-wood forest products. The illegal trade in living and non-living parts of wildlife is a current concern (Yuliantiningsih et al., 2023; Nijman et al., 2024).
Sustainability within the ecosystem management framework means maintaining the combination of soil, water, air, biological assets, and ecological processes, in other words, maintaining all elements and relationships of this multidimensional system (Nijman et al., 2024; Uyar and Perkumienė, 2025). Criteria and indicators are forest policy development tools that provide relevant information for national forest policies, plans, and programs and form the intersectoral basis for forest-related data collection. SFM enables monitoring, evaluation, and reporting of developments at global, regional, and national levels. In this context, one of the objectives of applying SFM criteria and indicators is to create a basis for communication between policymakers and relevant stakeholders in forestry and other sectors, and to contribute to the development of SFM and forestry policies (Linser et al. 2015).

Major global challenges such as climate change, the ongoing loss of biodiversity, deforestation and desertification, the need for sustainable renewable energy supply, and the spread of invasive species persist. Various international meetings are underway to understand the current situation and measure changes in SFM. The ecosystem approach, which aims to identify ecosystem services, the landscape approach, which aims to reconcile different land uses, political concepts, and new economic pioneers such as biological economics or green economy have emerged over the years in the search for solutions to these problems. The search for solutions has become increasingly complex and challenging, particularly regarding the application of Forest Europe's criteria and indicators. This is thought to be because there are few or no indicators measuring these changes (Linser et al. 2015).

MATERIAL AND METHOD

This research examines whether wildlife protection efforts are sufficient given the changes in criteria and indicator sets undergone by the Forest Europe process. Among the literature data analyzed regarding these criteria and indicators, it was determined that information on wildlife protection was quite inadequate. Additionally, when wildlife and SFM keywords were examined together worldwide, it was observed that there were mostly local or regional studies on these two topics (Rodriguez Franco and Conje, 2022; Niedziałkowski and Chmielewski, 2023; Uyar et al., 2024). Based on this, the deep relationship between the criteria and wildlife was interpreted, and recommendations for updating were presented.

Forest Europe's final criteria and the place of wildlife in these criteria have been tabulated by evaluating data in the literature and official international documents. The interest levels in this table are evaluated as medium (3 points), high (4 points), and very high (5 points) with a vision of expertise accumulation. The score values range from 1 to 5, starting from very low (1 point) and low (2 points) interest levels. Below medium status (1 and 2 points) was ignored in the evaluation

because wildlife and forest are an inseparable whole (Uyar and Perkumienė, 2025). It is expected that experts at future Forest Europe meetings will determine exactly what the average or above-average level of interest is in relation to current concerns.

Later, by analyzing academic articles written in line with the data obtained from the official website of the United Nations, the number of wildlife-related indicators for the process was determined and shown as a graph of the approximately 30-year period. The rates of wildlife indicators were determined within a total of 6 basic criteria. The outputs of the indicator change processes that the 6 criteria of the process went through are tabulated. In this table, a content analysis of each indicator was conducted with respect to wildlife protection. The EFLD (Environmental and Forest Law Department) scoring method was applied to the indicators, which were numerically reduced to the level of relevance. To examine whether a particular criterion contributing to wildlife protection is at a satisfactory level, EFLD scoring was applied in parallel with the wildlife protection indicator rates within the indicators. The indicator contents of each criterion are explained and shown in separate groups before and after 2015. In addition, the deficiencies identified in the indicators within each criterion in terms of wildlife protection are given in the form of a criticism column.
This scoring method (Table 1) has been applied previously by environmental and forest lawyers (Elvan, 2013; Elvan and Turker, 2014; Elvan et al., 2021). The scoring table for the method is as follows:

Table 1
EFLD Scoreboard

Point	Description
0	Does not meet criterion
1	Criterion is described in general terms and is inadequate
2	Criterion is described in close terms but not enough detail
3	Criterion is partially met but there are gaps
4	Criterion is fully met

In line with this information, a study was conducted to locate and better understand wildlife to make the process more ecologically holistic. Given the ongoing alarming loss of wildlife worldwide, the Forest Europe criteria need to be evaluated in this context. In addition, after all the data were obtained, the document analysis in the literature in question was conducted again with a deductive approach and the need for improvement was determined and inductive suggestions were presented along with the findings determined in the content analysis.

Forest Europe SFM Criteria

The proportion of Forest Europe criteria allocated to wildlife sustainability within the scope of all SFM processes was found to be 16.70%. The Forest Europe rate of wildlife-related criteria in all SFM processes is 8% (Uyar et al., 2024). This

study finds that Forest Europe is mostly discussed in the context of wildlife trade, and the limited consideration of wildlife sustainability is seen as a major shortcoming. The contents of the processes that include provisions regarding wildlife trade are based on headings such as "import and export, product demand, commercial biodiversity protection, illegal marketing of flora and fauna species, international trade and foreign relations, investment in the forest industry, the share of the forest industry in GNP/GDP, product values and forest trade balance". In this article, this process has been examined in more depth in terms of wildlife, considering the updates made, and it has been determined how each criterion can be improved in terms of wildlife. The current Forest Europe criteria are as follows (Forest Erope, 2015; FAO, 2020): forest resources and their contribution to the global carbon cycle; health and vitality of forest ecosystems; production function of forests (wood and non-wood products); maintenance, conservation, and appropriate enhancement of biological diversity in forest ecosystems; protective functions of forests; socioeconomic functions of forests.

The protection of forests, which are the primary habitats of wildlife whose numbers are decreasing worldwide, depends on the effectiveness of these basic criteria and indicators. Since wildlife is the most fundamental component and an indispensable part of forest ecosystems, evaluating it separately would be an incomplete approach.

RESULTS

The Forest Europe Criteria and Indicators were evaluated for their relevance to wildlife, and success was measured as shown in Table 2. The assessments were evaluated by the author, who has approximately 15 years of field experience in the wildlife field. When Forest Europe was evaluated in terms of 6 main criteria related to wildlife, it was found to be of 2 medium, 2 high and 2 very high interest levels. The annotated table showing the possible impacts on wildlife conservation success is as follows:

Table 2 Wildlife Relevance Levels of Six Criteria

Criteria	Impact	Wildlife Relevance Level	Example of Impact
Criterion 1	The carbon stock and area size of forests determine habitat quality.	High	Ancient forests represent critical habitat for large mammals and birds.
Criterion 2	Disease, pests, fire and drought degrade habitats, resulting in species losses.	Very High	Bark beetle outbreaks reduce bird and insect diversity.
Criterion 3	Intensive wood production can reduce habitat; sustainable use	Medium	Monoculture plantations mean reduced biodiversity.

	can support conservation.		
Criterion 4	Species diversity, habitat connectivity, and the protection of endemic species directly impact wildlife.	Very High	More than a third of Europe's tree species are threatened.
Criterion 5	Soil, water, and climate regulation indirectly support all wildlife.	High	Forests that protect water resources are especially vital for amphibians and large-bodied mammals.
Criterion 6	Forest villagers, tourism and non-wood product use create both opportunities and pressure.	Medium	Illegal hunting and habitat clearance create wildlife pressure.

When the relationship between wildlife and Forest Europe is measured on a 3-5 point scale, it appears that wildlife is a global problem worthy of consideration and improvement. According to the data in Table 1:
2 Medium: $2 \times 3 = 6$
2 High: $2 \times 4 = 8$
2 Very High: $2 \times 5 = 10$
Total = $6 + 8 + 10 = 24$
Total criteria count is 6, so the mean is: $24 \div 6 = 4$
Result: High level of relevance.

According to the data in Table 2, the weighted average of the Forest Europe main criteria and wildlife values was found to be 4, indicating a “high” level of correlation. This situation shows that the approach that needs to be adjusted for wildlife conservation is particularly intensive wood production and human pressure. Approaches that fail to give sufficient importance to biodiversity are a significant obstacle to achieving SFM goals. It should not be forgotten that biodiversity consists of both flora and fauna. In this regard, wildlife should be prioritized among forest resources, as it consists of wild plants and wild animals. Among the 6 Forest Europe Criteria, criteria 2 and 4 were found to be of very high relevance to wildlife. It seems that when these criteria are evaluated in future international meetings, reference should be made explicitly to wildlife flora and fauna elements.

First of all, the fact that all six of Forest Europe’s criteria are directly related to wildlife represents a high degree of target alignment. The proportion of these directly related SFM criteria was evaluated with a simple measurement and found to be high. In other words, when wildlife protection measures are taken, it is envisaged that they will be more successful in terms of biodiversity and ecosystem protection, especially in terms of these 6 criteria. Whether this high level of

interest is supported by the required indicators is systematically examined below (Figure 1 and Table 3).

In 1994, a core pan-European SFM set consisting of 6 criteria and 27 quantitative indicators was agreed at expert level. In 1995, 101 descriptive/qualitative indicators grouped under six criteria were adopted (Linser et al., 2015). However, a total of 104 indicators were declared on the FAO website, and 34 indicators were declared in the last updated Forest Europe official report in 2015 (Forest Europe, 2015; FAO, 2020; 2024). According to the latest version of the data appearing in the official databases of FAO and Forest Europe, the data is examined based on 6 criteria as indicator numbers in the table below (Figure 1).

According to FAO data, regulations from the early 1990s until 2015 were limited to 41 member states plus the EU. After the updates made in 2015, there was an increase in member countries to 46 members plus the EU. The regulations made were also seen as changes in the number of indicators and contents of the 6 main criteria (UNECE, 2011; Linser et al., 2015; Forest Europe, 2015). As can be seen in Table 3, the indicator numbers for all six criteria were reduced over a period of approximately 15 years. When the Table and Figure are evaluated, the first three criteria with the largest decrease are criterion 5, criterion 1 and criterion 6, respectively. Of these criteria, 1 and 5 were found to have a high level of relevance to wildlife.

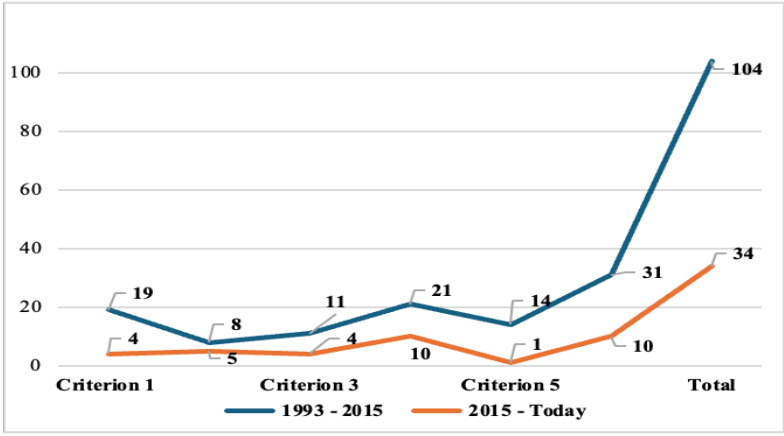


Figure 1 Change in number of Forest Europe indicators over time.

Table 3 Increase and Decrease Rates of Forest Europe Process' Indicators

	Signatory Country Number	Number of Indicators						Total
		Criterion 1	Criterion 2	Criterion 3	Criterion 4	Criterion 5	Criterion 6	
1993* - 2015	41+ European Union	19	8	11	21	14	31	104

2015 - Today	46+ European Union	4	5	4	10	1	10	34
Number of Increase/ Decrease	5 Increase	15 Decrease (78,9%)	3 Decrease (37,5%)	7 Decrease (63,6%)	11 Decrease (52,3%)	13 Decrease (92,8%)	21 Decrease (67,7%)	70 Decrease (67,3%)

According to Table 3, the total number of indicators has been reduced by approximately 67% in the Forest Europe Process, which has existed for more than 30 years. From another perspective, whether the decline in indicators represents a positive revision for wildlife can be determined through an analysis of the indicators updated after 2015. Table 4 shows the percentage effectiveness of the indicators that changed in 2015 and are still valid today, according to the EFLD scorecard. In this table, EFLD scoring was applied to wildlife protection rates based on the indicator numbers in Table 3.

Table 4 EFLD Score and Comments Concerning the Changes in Process

	Wildlife relevance definition in Indicators		Number of Wildlife related Indicators		Comments on Indicators		EFLD Score*	
	Pre-2015	Post-2015	Pre-2015	Post-2015	Pre-2015	Post-2015	Pre-2015	Post-2015
Criterion 1	Habitat protection policies.	Forest area and measurements.	1	2	It is classified according to the type of forest and vegetation, ownership structure, age structure and origin of the forest. When it comes to habitat, the existence of animal species in the wild and their protection status should also be included in the criteria. These are indicators that indirectly affect wildlife.	While resource metrics have been incorporated into conservation policies, there is no progress or clear statement regarding wildlife. In other words, they still include indirectly related indicators.	0.3	2.5
Criterion 2	Potential for damage as a game animal.	Damaged forest areas, combating natural and human-induced damage (wind, insects, ungulate browsing, and forest fires).	1	2	Wild animals and wild plants should be clearly considered in this criterion. It includes a statement directly addressing wildlife.	It seems that there is still no development in this regard. There is no statement directly involving wildlife.	0.6	2
Criterion 3	Amounts as a game animal and as a flora.	Measurements on non-timber forest products and their place in the market.	1	1	Wild animals and their parts should also be included in non-timber forest products. They are only listed as hunting resources. We can say that this indicator directly relates to wildlife.	The economic value of non-timber forest products is calculated, but it is unknown whether this includes wildlife. Since it is not specified, it has indirect related indicators.	0.5	1.2
Criterion 4	Protecting the ecosystem and biodiversity at the genetic level, determining its economic value, keeping the inventory up to date and making updates in forest management for ecological impact assessments. Increasing endemic biodiversity in production forests, protecting biodiversity in old forests, determining the ratio of endangered species to the total number of forest species according to reference lists (IUCN, EU Habitat Directive, etc.).	Tree species rates, number of genetic resources, threatened forest species, common forest bird populations.	12	5	Establishing an infrastructure for the effective management of biodiversity by determining the legal and economic framework. The categories referred to as "forest species" should be considered not only as trees and forest flora but also as forest fauna. These are indicators that directly concern and include wildlife.	When forest diversity is mentioned, only trees are mentioned among the biological components. When genetic resources are mentioned, it is not explicitly stated whether animal species are also included. Similarly, when threatened forest species are mentioned, it is unclear whether fauna, flora, or both are included. Since one indicator here considers bird species, it can be considered that these indicators directly concern and include wildlife.	2.9	2.5

Criterion 5	General assessment of the protective functions of the forest.	Measurements and ratios for the protective functions of the forest. The use of forests for human benefit and the wood trade are particularly prominent.	1	1	The maintenance and appropriate development of protective functions in forest management (especially soil and water) are crucial for wildlife; however, no clear focus has been established on this issue. These are indicators that directly concern wildlife.	No clear correlation has been established in this regard. These indicators are indirectly related to wildlife.	0.4	5
Criterion 6	Allocating a portion of forest revenues to raising public awareness about forests.	Measurements and ratios for the protective functions of the forest. The use of forests for human benefit and the wood trade are particularly prominent.	1	1	Public awareness about forests is being raised, and policy frameworks that prioritize protection over exploitation are being developed. In other words, the possibility of inclusion for wildlife is clear, but it indirectly concerns wildlife and does not include any mention of wildlife.	The wood trade in Europe was considered, and measurements were presented as the forest sector. No data on wildlife trade or consumption was found in the reports. Therefore, these indicators can be indirectly linked to wildlife.	0.2	0.5
						AVERAGE:	0.82	2.28

*The ratios calculated between 1 and 5 by reducing them to a straight ratio were then converted into the indicator descriptions in Table 1.

As can be seen from the indicator analysis columns, the criteria related to flora and fauna in the process were scored in terms of Forest Europe indicators. The data used in the scoreboard are explained in the critique columns. The total indicator set before 2015 was found to be 0.8 according to the EFLD scoreboard, corresponding to approximately 1 (Criterion is described in general terms and is inadequate). This indicates a below-average and inadequate approach to wildlife. The total indicator set after 2015 was found to be 2.3 according to the EFLD scoring system, which corresponds to approximately 2 (Criterion is described in close terms but not in enough detail). This means that indirect expressions about wildlife are the majority and, because they are lacking in detail, they are found to have an average level of relationship. When examining the level ratios, it would be beneficial to update them, considering whether the wildlife connection is direct or indirect. Despite the adjustments made in the intervening period, only one level of progress has been made. According to this scoring method, higher rates in future studies will ensure an effective and comprehensive SFM policy.

To show the general results regarding the indicators of the criteria according to the 1-5 ratio included in the EFLD analysis, the average of the pre-2015 and post-2015 averages, which were 0.8 and 2.3, was taken and the average interest level obtained throughout the process was found to be 1.5. Figure 2 shows how progress was made compared to before the 2015 general revision.

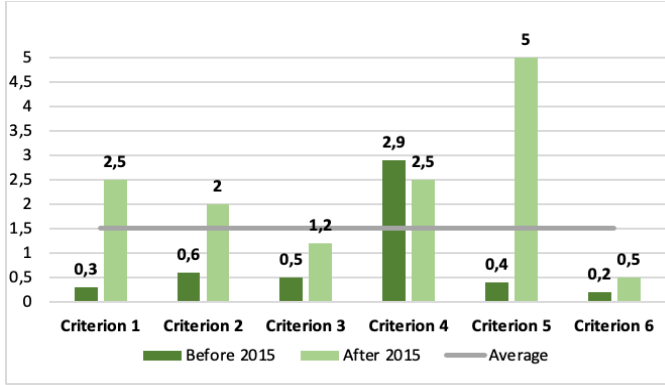


Figure 2 Wildlife Relevance EFLD Point Comparison for All Criteria

Before 2015, only the 4th criterion showed an above-average improvement, but after the 2015 revision, all criteria showed improvement, while only the 4th criterion showed a decrease. In other words, while the revisions have shown some improvement in other criteria, particularly those we expected to have a direct impact on wildlife, except Criterion 4, they still haven't achieved the expected impact. Because this impact is limited to relevance in this article, measuring its effectiveness will have to wait until the next article. While the mean value was 0.82 for Before 2015, it was 2.28 for After 2015.

In other words, according to the EFLD scorecard, the level of interest in wildlife conservation has increased in general. However, when the average of the two indicator sets (0.82 and 2.28) is taken, it is seen that Criterion 4 has decreased, compared to 1.55. The success of the process varies depending on each country's geographic situation, legal infrastructure, public awareness, and level of participation in governance. At this point, the approach presented in this study should be viewed as a general conclusion. All criteria in the Forest Europe process were found to have above-average relevance to wildlife, but they scored low due to their indirect relevance. According to the findings obtained using the EFLD method, the indicators for all criteria except Criterion 4 improved after the 2015 indicator revision. Criterion 4 dropped to 2.5 points, indicating a weaker EFLD score, but a stronger score than the other criteria in terms of including indicators directly related to wildlife. Although Criterion 2 also has directly related indicators, it has shown little improvement in terms of excluding fauna and including passive wildlife in the new update. Criterion 3, while the first set of indicators directly addressed game animals, later saw indirect improvement. Therefore, it has been found that countries should prioritize this issue by reviewing the indicators and adding the data on flora and fauna directly to the criteria.

DISCUSSION

Flora and fauna elements in Europe, which are severely damaged by multiple use/utilization areas, should be included as a core theme in the SFM criteria for more effective protection. The history, update meetings, and indicators of the Forest Europe criteria are already known (FAO, 2024). However, the final framework, which has undergone changes to this data, has not received a comparable coverage in the literature compared to its previous version, and the scope of each criterion for wildlife is unknown. This has been identified as a gap in research that needs to be filled. Furthermore, when developing the revised Forest Europe process criteria and indicators, it was seen that each needed to be re-examined in terms of scope. The data in this study are expected to have a developmental impact on sustainable wildlife management research.

It is important to ensure the participation of interest groups in decisions regarding the sustainable management of wildlife. Residents and hunters should be informed and their awareness raised about hunting through announcements, books, brochures, etc. Public relations techniques should be utilized in this process. This way, local people can be more aware of wildlife poaching and are encouraged to report poachers. In addition, more studies should be conducted to increase the production of wild animals in wildlife breeding stations and to release these animals into the wild. As a result, for the sustainable management of hunting and wildlife resources, these resources should be protected, developed and brought into the economy (Aydar, 2020; Pehlivan and Izyajen, 2024; Perkumienė et al., 2023).

A direct relationship can be established between the Forest Europe criteria and wildlife, particularly through the topics “biodiversity”, “forest production materials and phytosanitary measures,” and “international trade”. In this process, it is noteworthy that among the indicators determined for criterion 4, there are indirect and direct statements about the protection, development and maintenance of biological diversity in forest ecosystems related to wildlife (Castañeda et al., 2001; Sener and Tolunay, 2016). SFM indicators provide an international reference for policymakers in formulating national policies and programs. However, according to an analysis of the Forest Europe criteria, in many countries, insufficient data for flora and fauna assessment remain, and gaps in monitoring remain (Lahteenmaki-Uutela et al., 2023; Uyar and Elvan, 2024). Therefore, detailed data on wildlife are not available at international meetings on SFM processes.

When the process is analyzed, it reveals what needs to be improved and updated in all criteria related to wildlife. A healthy diversity of wildlife is a key element of biodiversity. If biodiversity is damaged, wildlife suffers as well. Therefore, the protection of biodiversity in terms of both habitat and species diversity is extremely important. In other SFM processes that have been implemented for years based on conservation measures, wildlife is directly included in very few criteria. When this situation is analyzed in percentage terms, it is seen that wood-related processes mostly exclude wildlife. However, it is not reasonable to

evaluate these elements separately in terms of wood quality and ecosystem integrity.

According to the results of wildlife-related indicator scores (Table 3), issues that need to be improved in terms of criteria should be evaluated to increase the future success of international sustainable forestry. As one of the most important components for forest sustainability, wildlife should be developed in all SFM processes, and its scores should be higher.

Looking at the latest average chart, the 4th criterion, which is related to biodiversity and is expected to be most relevant to wildlife, has shown a surprising decline. Again, surprisingly, the interest of wildlife in the protective functions of the forest, which is in criterion 5, shows a great increase after the regulations. It is believed that new updates regarding wildlife health are needed for these two criteria. This situation is explained in the SFM (2020) publication and in many reports, with statements indicating that adequate assessment cannot be made due to the lack of flora and fauna inventory (SFM, 2020).

There is no statement about the protective use of wildlife under the indicators on biodiversity conservation. In another criterion, poaching of wild animals was stated as one of the reasons for the loss of natural forest areas, but after 2015 this criterion was removed and addressed in more general terms. In addition, NTFP and trade procedures are still discussed in general terms and only focus on timber. Therefore, although detailed data on wildlife in SFM processes are not available, the ongoing commercial wildlife supply and demand situation is known today. In many scientific meetings, it was emphasized that measures should be taken to develop the legal infrastructure, increase wildlife populations and preserve genetic purity (SFM, 2020). Although wildlife has been included more frequently in the agenda of country reports in recent years, it has been observed that effective conservation success has not yet been achieved.

The most important driving force affecting wildlife populations is human activities, which occur through direct and indirect interactions (Woodroffe et al., 2005; Nyhus, 2016). Over the years, to reduce the negative impacts of human practices, including agriculture, recreation, and hunting, strict conservation goals have been established, and humans and wildlife have been separated (Crespin and Simonetti, 2019). However, the positive effects of practices such as hunting should not be ignored. Unlike over-exploitation and poaching, controlled hunting is highly beneficial for ecosystem sustainability. For example, hunting is a necessary control mechanism for combating invasive alien species, provides economic benefits, and helps bring populations within the carrying capacity of the area (Pehlivan and Izyajen, 2024). Hunting income is a source of livelihood for many local communities (Nyhus, 2016). Inventory, education, monitoring and control, which are the fundamental elements of wildlife management, must be managed effectively, especially within the scope of SFM.

A healthy and diverse wildlife requires a healthy and sustainable forest. International agreements on these issues and the biodiversity conservation agenda

can be considered when identifying priority improvements in these efforts. Once the framework criteria have been established and are being developed within the framework of the International Conference on Criteria and Indicators (CICI) based on FAO data, it can be concluded that national and international institutions should continue to conduct research on difficult-to-measure criteria and indicators. These indicators could focus on specific areas such as biodiversity, NTFPs, non-market values, soil and water conservation, carbon sequestration, and sociocultural issues (CICI, 2003; Innes, 2016; Castañeda et al., 2001; Uyar, 2023). The situation in European forests and society has changed significantly since 1990. These changes have increased information needs both within the forest sector and in external communication. However, awareness of the new requirements and the need to communicate SFM with other sectors is limited (Linser et al., 2015).

In Europe, NTFPs and forest data (including studies on flora and fauna) are of great importance for strengthening the bioeconomy (Lahteenmaki-Uutela et al., 2023; Huber et al., 2023). Good knowledge and valuation of forest products (living and non-living) can both diversify forest revenues and strengthen ecological integrity. Scientific research on transparency to increase access to forest data is also ongoing (Krott, 2005; Rochmayanto et al., 2022). Among the member countries of the process, the economic value of the hunting and wildlife sector has not yet been calculated, even for the largest cities (Uyar et al., 2024). Furthermore, preserving the natural structure of existing habitats and restoring them in accordance with ecological demands is crucial. Environmental regulations in areas with wildlife populations should be implemented with the utmost care, and the needs and survival threats of wild animals should be considered. Animals, as active elements of wildlife, have needs such as shelter, roaming, soil bathing, water, and food (Vincent et al., 2017; Ye et al., 2024). In addition, the regular implementation of bio restoration plans will ensure the optimum preservation and development of the carrying capacity of habitats and target species (Oğurlu et al., 2010). In forest ecosystems, primarily to improve the forest cover, afforestation, protection of sub-flora, control of grazing, restoration of plant species preferred by wild animals, production of shrubs and trees, laying of pruned branches, combating erosion, protection and development of water resources and combating the direct and indirect effects of forest fires should be regularly monitored (Mol, 2006).

CONCLUSIONS

Sustainability in forests and wildlife is not an issue that can be planned independently of each other. Forests are the primary habitat of wildlife. In this case, although there are many criteria related to wildlife, the fact that a criterion directly related to wildlife has not yet been regulated will be a permanent deficiency in protecting forest integrity.

Planning forest products according to socioeconomic factors and other functional purposes requires the inclusion of wildlife in these plans. Economic planning without considering wildlife diversity will result in consequences that threaten the existence of forests. It is important to calculate the economic value of wildlife,

considering that it is considered among the NTFPs. A standard should be developed to determine the economic value of wildlife fauna and flora species and this issue should be included in the SFM criteria. Numerous criteria and indicators in other processes also indicate this value. While research on issues such as wildlife trafficking, NTFPs, and invasive alien species has been conducted, it has been determined that the development of this standard is inadequate. Standardization efforts need to be increased for the economic valuation of wildlife, which is known to have a place in all areas of SFM. As seen in many international definitions of SFM, this is an economic policy, and the inclusion of both living and non-living elements of wildlife is critical. Just as raw materials for medicines, cosmetics, and other products are obtained from wild animals, products derived from their hides and feathers also contribute significantly to the economy. When the ecological, cultural and social values of hunting and wildlife are considered, the total economic value will increase much more and the sector's contribution to GDP will increase at the same rate. In this context, it is important to conduct the necessary scientific research to mathematically calculate the total economic value of hunting and wildlife. It would also be useful to examine examples of countries that have achieved success in this regard. In addition, a database should be created to keep accurate records of wildlife resources that can be used for this purpose.

SFM criteria and indicators provide an international reference for developing national policies and programs. Despite these limitations, many countries still lack sufficient data for flora and fauna assessment, and monitoring deficiencies persist. Developing monitoring standards and placing greater emphasis on inventory studies should be a priority for countries in the process.

Social participation, research/development dimension and integration of forest villagers into decision-making processes regarding resource use and wildlife will ensure full protection. Including wildlife in decision-making processes, considering social participation, R&D perspective and resource use, ensures that full protection is achieved.

It should also be emphasized that wildlife management and legal infrastructure cannot be considered separately. This legal infrastructure must be effective and applicable, in accordance with current international law. Scientific researchers in process countries should classify these important criteria as priority implementation policies.

As can be understood from the statements made on the subject so far, efforts to fully achieve SFM goals must also include wildlife. Wildlife encompasses both plant species (subspecies, grasses, shrubs, trees) and animal species (mammals, birds, insects, etc.) that maintain ecosystem functions. Habitat health is directly related to climate change and biodiversity. Failure to include wildlife in an SFM indicator creates a serious shortcoming in measuring ecosystem integrity. Human activities (wood harvesting, agriculture, recreation) affect wildlife and therefore determine the success of SFM. Therefore, “wildlife health and diversity” should be added to the SFM criteria as an independent indicator or sub-criterion in the Forest Europe process. In addition, other indicators should be included among the

indicators of criteria such as NTFP. The indicators to be created can be evaluated separately or in an integrated manner for both flora and fauna.

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Legal Regulation of Water Use: Lithuanian Experience

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ABSTRACT

Climate change limited natural resources and growing needs of various economic sectors determine that the issues of legal regulation of the use of water resources are becoming increasingly relevant. Water is today perceived not only as a gift of nature, but also as a resource of strategic importance, which has a direct impact on the quality of life of society, economic development and the state of the environment. Therefore, it is necessary to ensure a clear, consistent and effective legal system for water resources management. The article aims to analyze aspects of legal regulation of water use, identifying theoretical and practical problems. The study concludes that when analyzing the legal regulation of water use, it is necessary to assess both theoretical and practical challenges in this area. The regulation in force in Lithuania includes the issuance of permits, restrictions on water use, as well as liability and control mechanisms. However, certain shortcomings are still evident in practice: the fragmentation of the legal framework, the lack of coordination between institutions, and the difficult reconciliation of private and public interests. These gaps indicate the need to improve the existing system to ensure the harmonious and sustainable protection and use of water resources.

Keywords: Water resources, climate change, legal regulation of water use, nature

INTRODUCTION

The obligations of the Republic of Lithuania to the European Union, implementing the Water Framework Directive and other international agreements, require the creation of an effective, integrated and sustainable water management system (Mikša et al., 2021). Secondly, gaps are still noticeable in national practice - fragmentation of legal regulation, shortcomings in the coordination of institutional activities, as well as unresolved issues of balancing interests between private use and public interest (Štreimikienė et al., 2022). The relevance of the thesis topic is also increased by the fact that the legal regulation of water use is closely related to the areas of agriculture, industry, energy, tourism and public health (Shoushtarian and Negahban-Azar, 2020). The sustainable development of these sectors depends on an effective water policy; therefore, it is necessary to conduct a detailed study of the legal regulation of water use, identifying problems and challenges in water use and providing prospects for improvement. The issues of legal regulation of the use of water resources are becoming increasingly relevant, considering the impact of climate change, the limited availability of natural resources and the growing needs of various economic sectors

(Ramanauskas et al., 2024). Water is not only a natural asset - it is also a strategic resource that is of fundamental importance for the quality of life of society, economic development and environmental protection (Plunge et al., 2022). For this reason, it is necessary to ensure a clear and consistent legal framework regulating the use of water and its protection (Punys et al., 2017).

When analyzing the institute of legal regulation of water use, the following main problems are distinguished: First, the lack of clarity of the criteria for issuing permits and the subjectivity of the assessment. One of the main problems is the insufficiently clear and objective criteria applied when issuing permits for the use of surface or groundwater. Court practice notes that administrative institutions often resolve issues regarding permits based on their own discretion, in the absence of clear methodologies or assessment guidelines. Although Lithuania has a permit issuance procedure for water use, in practice problems often arise due to the duration of the issuance of permits, the clarity of their conditions or the lack of control. Secondly, the complex reconciliation of economic activity and environmental protection interests. Although legal acts declare the principle of sustainable development, disputes arise in practice regarding where the line should be drawn between permitted use and excessive environmental impact. Court practice examines cases when business entities dispute the conditions of a permit, arguing that they disproportionately restrict economic activity. Third, there is a lack of clarity in legal regulation. Water use is regulated by various legal acts, but their provisions are not always coordinated with each other.

The purpose of the article is to analyze aspects of legal regulation of water use. Research objectives are to define the theoretical aspects of the water use institute; to analyze the legal acts regulating the water use institute. The following scientific research methods were applied: document analysis, systematic analysis, comparative, logical-analytical method and generalization methods.

THE CONCEPT OF WATER USE AND THE IMPORTANCE OF WATER

Water is one of the most important natural resources, necessary both for human life and for various economic, industrial and social activities. For this reason, the legal regulation of water use occupies a significant place in environmental law. Proper use of water resources must ensure sustainable development, reconcile economic interests with environmental protection goals and maintain a sustainable state of ecosystems (Adamopoulos, 2024).

The importance of water is constantly growing due to the increasing population, urbanization, technological development and the impact of climate change, which affects both the quantity and quality of water. For this reason, the legal regulation of water use occupies an important place not only in national law, but also in international and European Union legislation. Water is considered a public good, therefore the state has a duty to ensure that it is used rationally, preserving the environment and preventing possible abuses or waste of resources (Nedeva, 2024). Legislation regulating water use seeks to balance the development of economic activity with the need to preserve the natural environment and biodiversity, as

well as to guarantee the availability of water for future generations (Matta et al., 2025).

Freshwater is a limited and vulnerable resource essential for sustaining life, development and the environment (Masese et al., 2025). However, despite its readily recognized importance, the management and ongoing management of the precious water resource by humanity has led to several major environmental challenges related to water. Many river basins around the world are facing water scarcity. Many water bodies are contaminated with a variety of substances, and both surface and groundwater reserves are being depleted in many parts of the world (Kurre and Samantaray, 2025). As a result, ecosystems and soils have been degraded, sometimes irreparably. Species that depend on these water resources are losing their habitats and are disappearing at an alarming rate. Finally, the vulnerability of water systems to (climate) change has increased significantly (Owen, 2021).

From a legal perspective, water use includes all activities in which surface or groundwater is abstracted, used, stored, recycled or released back into the environment (Göl et al., 2017). In the Water Law of the Republic of Lithuania, water use is understood broadly-it includes both direct water withdrawal and consumption, and its indirect use, when water is needed for the implementation of certain activities (e.g. hydropower, recreation or fishing) (Water Law of the Republic of Lithuania, 2017). This concept also includes activities related to water pollution or wastewater discharge, which indicates the complex and environmentally important nature of this phenomenon. Water use can be divided into several main categories according to its purpose: domestic, economic, industrial, energy, recreational and ecological (Kruopienė and Žiukaitė, 2022). Domestic water use includes water used for personal purposes - drinking, cooking, hygiene (Liang et al., 2024). Economic use is most often associated with agriculture-irrigation, livestock watering. Industrial water use is characteristic of various branches of production, where water is needed for production processes, cooling or chemical reactions. Energy use is most evident in the operation of hydroelectric power plants (Mierauskas, 2017). Recreational water use is related to human leisure and leisure activities-swimming, sailing or sports. Ecological use refers to the necessity of water as a vital environmental element for the functioning of ecosystems (Masese et al., 2025).

Thus, the concept of water use encompasses not only economic or commercial activities, but also the harmonization of environmental protection and public interests. Such a comprehensive approach allows for a better understanding of the need for legal regulation and its importance in achieving sustainable use of natural resources.

ECONOMIC AND ECOLOGICAL ASPECTS OF WATER USE

Water, as a limited and unevenly distributed natural resource, is of great economic and ecological importance. Its use is inseparable from the development of the economy of society, but at the same time it raises the need to ensure a harmonious

balance between economic benefits and environmental objectives. Water is an important productive resource used in practically all sectors of the economy. Agriculture is one of the largest consumers of water, especially in regions of intensive agriculture, where irrigation systems determine fertility and food security (Wingfield et al., 2021). In industry, water is needed for technological processes, cooling and raw material processing, therefore its availability is an essential prerequisite for the continuity of production (Punys, 2017). In the energy sector, water is used both for hydropower generation and in thermal power plants. Thus, water contributes to economic growth, competitiveness and job creation (Vasiliauskienė and Kriščiūnaitė, 2020).

Water supply, treatment and distribution require significant investments in infrastructure. Water pricing therefore becomes not only an economic but also a social instrument: it must ensure that water users pay for the services, but that price is not a barrier to access to this vital resource (Zhang, 2025). The use of water resources inevitably has an impact on the environment. Intensive exploitation of surface and groundwater can lead to their depletion, ecosystem degradation and loss of biodiversity. One of the current problems is the pollution of water bodies with wastewater, fertilizers and pesticides, which increases eutrophication processes and worsens the state of ecosystems. Industrial pollutants and domestic wastewater pose a threat to both human health and the natural environment (Razzaq, 2024).

From an ecological point of view, sustainable water use is of particular importance, based on the principles of rational consumption, waste water management and resource recovery. The European Union Water Framework Directive (2000/60/EC) emphasizes that water resources must be managed according to the basin principle, ensuring their protection, ecological integrity and long-term availability for future generations (Olawuyi, 2020).

Reconciling economic and ecological interests is one of the greatest challenges in water use. Excessive economic exploitation can cause environmental losses that affect the economy itself in the long run, such as reduced productivity, more expensive water treatment or infrastructure damage due to pollution. Therefore, a sustainable water use model must be based on an integrated approach: technological innovations, water saving measures, effective pricing and strict environmental controls (Zięty and Mikalauskaitė-Šostakienė, 2025).
The economic and ecological aspects of water use are closely interrelated. Water, as one of the most important natural resources, ensures both the functioning of the economy and the vitality of ecosystems. Sustainable management of water resources is a prerequisite for reconciling economic development and environmental protection, ensuring the long-term well-being of people and nature (see Table 1).

Table 1 Economic and ecological aspects of water use*.

Aspect	Economic significance	Ecological significance	Potential problems
Industrial water use	Ensures production processes, energy, cooling	Increases pollution risk, impacts on ecosystems	High energy and water consumption, discharge of contaminated wastewater
Agricultural activities	Irrigation systems determine yield and income	Excessive water use disrupts the groundwater balance and causes soil degradation.	Chemicals enter the water, biodiversity decreases
Domestic needs of the population	Water is needed for daily needs, health, sanitation	Wastewater pollutes rivers, lakes, coastal areas	Excessive consumption, overloading of the water management system
Energy sector	Hydropower – renewable energy source, economic benefits	Dams change river ecosystems, fish migration	Damage to ecosystems, loss of natural flows
Tourism and recreation	Stimulates local economy, job creation	Possible increase in eutrophication of water bodies, littering	Excessive use of resources, deterioration of water quality

* Compiled by the author based on Olawuyi (2020).

In summary, it can be stated that the concept of water use in legal doctrine is understood as a complex process that encompasses both personal and public needs. Water use is not limited to biological necessity - it encompasses a wide range of social, economic and ecological functions. The diversity of water use types allows us to reveal the multifunctionality of this resource. Water is used for both domestic and production purposes, as well as in industry, energy, the transport system and agriculture. Each type of water use is characterized by specific legal requirements and goals, therefore their regulation is necessary in order to ensure sustainable use of resources. When examining the significance of water as one of the main natural resources, its special importance in biological, economic, social, legal and environmental aspects is emphasized.

OWNERSHIP OF SURFACE AND/OR GROUNDWATER BODIES AND RIGHTS AND OBLIGATIONS OF WATER BODIES AND/OR THEIR WATER USERS

According to Article 5 of the Law on Water of the Republic of Lithuania, the rights and obligations of the owner of a surface water body include the guaranteed possibility of the owner of a surface water body to use his property. This means that he may: manage the water body belonging to him - i.e. to maintain, organize its use and ensure that the established conditions are met; also use the water body for various purposes - for economic activities, recreation, fishing, other needs, but only to the extent that this does not contradict the laws and established restrictions, and dispose of the water body by transferring it to other persons for use, by concluding lease or use agreements, as well as by transferring the right of ownership in accordance with the procedure established by law (Water Law of the Republic of Lithuania, 1997) (article 5).

The legal status of the owner of a surface water body is based on a balance between the exercise of property rights and the obligation to protect the environment and the public interest. The owner is granted broad rights - he can manage, use and dispose of the body, manage its shores, use water for personal needs, conclude transactions or allow others to use the body under contracts. Along with the rights, the owner of the water body also has defined obligations. The owner must ensure that the water body is not polluted or otherwise damaged, avoid actions that would violate the rights of other persons, and comply with environmental and territorial planning requirements. The owner must protect the ecological balance, not violate the coastal protection zone regime and respect the public's right to use water resources.

Thus, the provisions enshrined in Articles 5 and 6 of the Water Law ensure that the use of surface water bodies is not only a legal but also a responsible activity in which the owner's personal interest is combined with the principles of nature protection, landscape preservation and public welfare. Such a system promotes sustainable management of water resources and contributes to maintaining environmental quality (Water Law of the Republic of Lithuania, 1997). These rights are not implemented absolutely, but in accordance with the Land Law, the Water Law and other special legal acts (e.g. environmental protection, territorial planning, protected areas regulations) (Šileikis, 2019). Along with rights, the owner also has responsibility for the protection of the water body and the environment (Natural Resources, 2025).

The position of the owner of a surface water body is twofold: on the one hand, he is granted property rights (management, use, disposal), on the other hand, strict obligations are established to ensure that the body is not used against the interests of society and the environment. The owner of a surface water body can organize the maintenance of the body - for example, cleaning water vegetation, maintaining the shores, installing access for boats. He can decide for himself whether to allow another person to use the body, for example, granting a permit for fishing or boating. The owner can use the water for his own farm needs (e.g., irrigation) if

this does not contradict environmental requirements. He can use the body for recreation - swimming, relaxation, tourism. The owner can transfer the body to another person (e.g., sell or donate the plot with the body), and he can also conclude a lease agreement with a fishing club or tourism business so that they use the body under agreed conditions (Natural Resources, 2025).

LEGAL REGULATION OF SURFACE WATER MANAGEMENT

Surface water bodies in Lithuania are state property and are classified as objects of special environmental protection (Order, 2014). Their management is based on the Constitution of the Republic of Lithuania, the Law on Water, the Law on Environmental Protection, the Law on Protected Areas and other by-laws. The main goal is to ensure that surface water bodies are used in accordance with the principles of sustainable development, i.e. by balancing ecological, social and economic interests.

Water body cleaning works include various actions, such as cutting and removing bushes, trees and aquatic plants (macrophytes) growing on the banks, shores or in the water, applying biomanipulation, isolating, stabilizing or binding pollutants in the ecosystem of the body. It may also include spreading mineral soil on the bottom, leveling or restoring damaged coastal soil, installing artificial spawning grounds and other works designed to restore the morphological characteristics of water bodies (Order, 2014).

It is prohibited to carry out water body maintenance work:

1. In cases established by the Law of the Republic of Lithuania on Protected Areas;
2. During the migration period of waterfowl (i.e. from April 1 to July 1), except for water bodies of recreational importance located in the territories of cities and towns or their parts, which are classified as recreational areas by territorial planning documents or decisions of municipal councils;
3. During the spawning and migration period of fish (i.e. from March 15 to June 30), except for the exception specified in point 7. Also excluding management works carried out in water bodies of recreational importance located in the territories of cities and towns or their parts. In water bodies classified as salmon water bodies and potentially classified as salmon water bodies, the list of which was approved by the Order of the Minister of the Environment of the Republic of Lithuania of July 10, 2002 No. 362 "On the Division of Water Bodies", water body management work is additionally prohibited from September 15 to December 31 (Order, 2014) (article 6).

Water body cleaning works that must be carried out during the fish spawning and migration period may also be carried out during this period, however, the water body management project and the notification of the intention to manage the water

body must indicate measures to reduce the impact of the aforementioned works on fish and information on how the damage caused to the environment will be compensated or repaid (Order, 2014) (article 7).
Management of surface water bodies includes not only the regulation of the use of water resources but also measures designed to maintain and improve the ecological status of bodies, preserve biodiversity and meet public interests (Order, 2014).

1. Surface water management includes a set of measures that are implemented both at the national and municipal levels.
2. Environmental protection measures, which include water quality monitoring and control of pollution sources; restriction and supervision of wastewater discharges into bodies of water; protection of coastal vegetation and maintenance of biodiversity; establishment of protection zones in which economic activities are restricted.
3. Regulation of economic activities, which is related to the permit system for the use of water bodies (fishery, recreation, energy, transport); restrictions on agricultural activities in coastal zones to reduce diffuse pollution; coordination of construction and other projects with environmental requirements (Zięty and Mikalauskaitė-Šostakienė, 2025).
4. Management plans and programmes. Specific management plans are drawn up for each larger body of water or basin, considering the provisions of the EU Water Framework Directive; river basin district management programmes are implemented, which set objectives and measures for improving water quality (Marcinkevičiūtė et al., 2022).

Institutional regulation is associated with the management of surface water bodies, in which several institutions participate: the Ministry of the Environment, which forms policy and strategic goals; the Environmental Protection Agency, which carries out monitoring, issues permits, supervises pollution prevention; Municipalities, which take care of the management of bodies of local importance, ensuring public access and recreational use; Directorates of Protected Areas, which are responsible for the management of bodies located in national and regional parks (Zięty and Mikalauskaitė-Šostakienė, 2025). The management of surface water bodies is based on the principle of public interest, therefore public participation is very important. Residents and non-governmental organizations can submit proposals for management plans, participate in public consultations, and in some cases - voluntarily contribute to environmental initiatives (e.g. coastal clean-ups), (Povilanskas et al., 2024).

CONCLUSIONS

The concept of water use in legal doctrine is understood as a complex process that encompasses both personal and public needs. Water use is not limited to biological necessity – it encompasses a wide range of social, economic and ecological functions. The variety of types of water use allows us to reveal the multifunctionality of this resource. Water is used for both domestic and production purposes, as well as in industry, energy, the transport system and agriculture.

Each type of use is characterized by specific legal requirements and goals, their regulation is necessary to ensure sustainable use of resources. When examining the significance of water as one of the main natural resources, its special importance in biological, economic, social, legal and environmental aspects was emphasized. Water is considered a limited resource; therefore, its legal regulation must be oriented towards rational use and protection of public interests. Current legal regulation does not ensure a comprehensive and systematic approach to the regulation of water use relations. To ensure the effective functioning of this institute, it is necessary to improve legal regulation, ensuring clear compatibility of norms, adherence to the principle of legal clarity, and integrity of practical application.

The management of surface water bodies in Lithuania is an integrated process that includes legal regulation, environmental protection measures, restrictions on economic activities, monitoring and public involvement. This ensures that the bodies are used rationally, preserving their ecological balance and the needs of society. Although the regulation is based on the principles of EU law, the most important national commitment to protect surface water bodies as public good remains.

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Assessing Period Poverty and Menstrual Issues: A Descriptive Analysis from an Online Survey of College Students

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ABSTRACT

Period poverty—defined as inadequate access to menstrual hygiene products, education, and sanitation—remains a significant global public health and equity concern, affecting individuals in both low- and high-income settings. Although growing attention has been given to this issue among college populations, research focusing on minority students, particularly those attending historically Black colleges and universities (HBCUs), remains limited. This study aimed to examine menstrual product access and the psychosocial impacts of menstruation among students at an HBCU through an anonymous online survey. A total of 77 students participated. Findings revealed that more than half of respondents resorted to using non-menstrual substitutes or borrowing products due to lack of access, while approximately 70% reported insufficient provision of menstrual supplies by the university. Many participants experienced anxiety, embarrassment, and self-consciousness, with several reporting menstrual accidents and reduced class participation or absenteeism. High rates of dysmenorrhea were also reported, potentially compounding academic challenges. The results highlight persistent gaps in menstrual health support and underscore the need for improved access to free or affordable products, enhanced campus resources, and broader menstrual health education. Addressing these issues is critical to advancing menstrual equity and supporting the academic success and well-being of minority college students.

Keywords: Menstrual equity, period poverty, menstruation, menstrual health, historically Black colleges and universities, student well-being, global health

BACKGROUND

Period poverty is the inability to afford or access adequate menstrual hygiene products. It extends beyond financial barriers. It also includes limited education about menstrual health and insufficient access to sanitation facilities. Period poverty is a global public health and equity issue affecting millions worldwide (Rossouw & Ross, 2021). With more than two billion people menstruating each month, period poverty represents a significant global public health issue that requires urgent attention (UN Women, 2025). In low- and middle-income countries, lack of affordable products, stigma, and poor sanitation infrastructure lead to missed school or work. In high-income nations, including the United States, socioeconomic inequalities create similar challenges. Period poverty among college students has received more attention recently. However, there is limited research focused specifically on minority student populations. Students at

historically Black colleges and universities (HBCUs) may face distinct challenges related to menstrual health. These challenges include limited campus resources and cultural stigma surrounding menstruation.

METHODS

To obtain preliminary data on menstrual product access and the psychosocial effects of menstruation among minority college students, an anonymous online survey was administered to students enrolled at an HBCU. The survey assessed access to menstrual products, coping strategies during menstruation, perceptions of campus support, and the emotional and academic impacts of menstruation, including anxiety, embarrassment, and class absenteeism.

RESULTS

A total of 77 students completed the survey. More than half of respondents reported using non-menstrual substitutes (e.g., tissues, socks, or folded toilet paper) or borrowing products due to lack of access. Approximately 70% perceived that the university does not provide adequate menstrual supplies. Most participants expressed feelings of self-consciousness and anxiety during menstruation and reported experiencing menstrual accidents on campus. Several respondents indicated that these challenges contributed to missed classes or reduced academic participation.

DISCUSSION

While there has been an increase in free or low-cost menstrual products in public, this is not the case everywhere (Casola, Luber, Riley, & Medley, 2022). For instance, one respondent in our study stated that products, "…should be free, not in a machine charging 25 cents." If old coin dispensers remain on campuses, students may see them as unreliable and unhelpful while menstruating, especially in this digital age.

Products not designed for menstruation include, but are not limited to, toilet paper, towels, rags, or even diapers (Sebert Kuhlmann et al., 2019). These pose issues because they can lead to discomfort, potential infection, and irritation when worn longer than recommended (Suleman et al., 2024). Ninety-three percent of our respondents reported dysmenorrhea or painful cramps while menstruating, whereas a similar student at an urban institution in Chicago reported 65% with painful periods and 56% reporting cramps (Suleman et al., 2024). We need to assess whether cramps and pain prevented our students from attending courses and missing assignments. Many participants report that the products in dispensers are uncomfortable or do not fit their bodies. For instance, one respondent stated, "I think they provide some in certain buildings, but they are ones that are uncomfortable or have low coverage, etc."

Additionally, past national and international studies have revealed education and knowledge, as well as costs, as barriers to the use of sustainable or reusable products (Babbar & Garikipati, 2023; van Eijk et al., 2016). This study did not

inquire about the use of reusable products; however, this is an area that should be studied more in the future.

CONCLUSION

Findings highlight a significant unmet need for menstrual health support among students at HBCUs and reflect a broader, global issue of menstrual inequity. Around the world, individuals continue to experience educational and occupational disruptions due to inadequate menstrual resources and persistent stigma. Expanding access to free or low-cost menstrual products, improving menstrual health education, and addressing cultural taboos are essential steps toward advancing menstrual equity and ensuring students are not hindered from attending classes or completing assignments. Further research is needed to explore how this issue impacts students' mental health and how campuses and employers can assist in addressing period poverty.

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Navigating Inclusive Excellence: Centering International Student Voices for a More Equitable Campus

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ABSTRACT

This study examines the impact of cultural differences and inclusion on international students, proposing strategies for enhancing their inclusion. The Inclusive Excellence Framework is used as a lens for this study. Inclusive Excellence (IE) is a comprehensive approach to fostering an inclusive environment. This qualitative study utilizes reflective notes from seven international students in the Midwestern United States to provide deep insights into their experiences, challenges, and needs. Notably, this study examines the support or lack thereof provided to international graduate students through university initiatives, programs, and policies. The discussion could offer insights that can inform the planning and implementation of initiatives, practices, and policies at the university level.

Keywords: International students, inclusive excellence, collective autoethnography, knowledge decolonization, global inclusion, higher education

INTRODUCTION

Diversity, Equity, and Inclusion (DEI) initiatives at public and select private institutions in the United States have undergone notable shifts in response to evolving political and legal contexts (Gretzinger et al., 2024). Many institutions have transitioned to frameworks such as Inclusive Excellence (IE) since early 2023 because of a national movement to dismantle or rebrand DEI. These frameworks are designed to promote more holistic and sustainable approaches to equity and inclusion.

To establish a more inclusive and supportive environment, universities are increasingly implementing IE (Filippou et al., 2025). However, it is imperative to analyze the effects of these changes on specific student populations, particularly international students, who encounter distinctive academic, cultural, and social barriers while pursuing higher education in another country (Filippou et al., 2025). The objective of this study is to investigate how international students navigate cultural differences and institutional inclusion within the framework of the IE model. The research endeavors to provide a more comprehensive understanding of the efficacy of current university initiatives and to suggest strategies for promoting more inclusive educational environments through policy, programming, and practice by emphasizing the voices of these individuals.

LITERATURE REVIEW

Many public universities in the Midwest have transitioned from Diversity, Equity, and Inclusion (DEI) to Inclusive Excellence (IE), reflecting a deeper commitment to fostering a diverse and inclusive environment for all students within the institution (Williams et al., 2005; William & Mary, 2023). IE highlights not just representation or fairness but also high standards and excellence in every aspect, such as curriculum, research, and community engagement (Williams et al., 2005; William & Mary, 2023). The shift from DEI to IE is particularly critical; IE ensures that all students, including international students, have equitable access to opportunities and resources for them to succeed in an educational institution.

Recent studies have emphasized the need to consider the intersectionality of DEI with internationalization in higher education (Sun et al., 2023). IE fully embraces and connects with this emerging call. According to Özturgut (2017), practices and policies related to DEI should encompass local, national, and global levels, while internationalization should recognize diversity. In response, higher education institutions have the potential to enhance cooperation by connecting internationalization and DEI (Özturgut, 2017). This can be achieved by leveraging the common ground between these programs and creating synergy through the integration of their strategies and practices.

As a systematic approach, IE is intended to create a genuine inclusive environment (Williams et al., 2005; William & Mary, 2023). IE particularly highlights every individual in the university, including international students. International students made a strong commitment to receive a better education, leaving their home country (Kim, 2022; Sun et al., 2023); they should be actively engaged with their universities, and universities need to provide related support and ensure that they meet their academic, cultural, and social needs for contributing to a truly inclusive campus environment.

THEORETICAL FRAMEWORK

Inclusive Excellence (IE) is a comprehensive approach to fostering an inclusive environment at the institutional level (William & Mary, 2023). The IE framework encompasses five dimensions: access and success, climate and intergroup relations, education and scholarship, infrastructure and investment, and community and partnership. Each dimension highlights a critical area where IE initiatives are strategically implemented to enhance social, academic, professional, and institutional excellence (William & Mary, 2023). However, it is also criticized that universities often face a lack of resources and challenges regarding human, financial, and structural resources (Williams et al., 2005). Additionally, the study is employing Santos' (2014) Epistemologies of the South to critically examine reconceptualization through a decolonial lens in achieving global social justice and shifting beyond Western-centric perspectives. Thus, this study employed the IE and the Epistemologies of the South frameworks to analyze the data and examine how institutional initiatives are helping or not for international students to succeed in their educational endeavors, as well as analyze if inclusive

excellence needs to move from institutional initiatives to epistemic inclusion to validate knowledge from different perspectives.

METHODOLOGY

This qualitative study employs a collective autoethnography methodology (Noel et al., 2023), as seven international graduate students collectively interpreted their experiences after collecting the data at a university in the Midwestern area in the US. Purposeful sampling was employed (Merriam, 2009; Merriam & Tisdell, 2015) based on specific inclusion/exclusion criteria. A total of seven international students or recent graduates from countries such as China, Vietnam, Mexico, South Korea, Nigeria, and Thailand contributed to this study, both as participants and authors. Notably, this study explores the support, or lack thereof, provided to international graduate students through university initiatives, programs, and policies.

ANALYTICAL APPROACH

Data were analyzed concurrently with data collection, following a constant comparative method of analysis (Merriam & Tisdell, 2015). Five open-ended prompts were provided to international graduate students to guide reflection on their experiences of support and moments of significance during their academic journey. Follow-up clarification questions were used to
deepen reflection and shape the development of individual reflective notes. These reflective notes were then analyzed collaboratively by three different authors using a thematic analysis approach. Through iterative discussion and ongoing dialogue during the coding process, the research team identified emergent categories and themes that captured shared and divergent experiences. This approach aligns with reflective qualitative inquiry, which values the participant's voice and the researcher's reflexivity (Noel et al., 2023; Tracy, 2010).

The prompt questions focused on participants' experiences within the university setting, aiming to elicit deeper insights into their challenges, needs, and overall support systems. A structured guideline with reflective questions was utilized to facilitate the articulation of individual and collective experiences related to institutional initiatives in higher education.

DATA ANALYSIS

An inductive analysis process (Bingham & Witkowsky, 2021) guided by the theoretical framework was used. Initially, open coding—also referred to as initial coding (Saldaña, 2021)—was employed for systematic analysis. This process involves identifying and labeling distinct pieces of data without preconceived categories. Following this, axial coding was utilized to organize and synthesize the data into coherent categories and subcategories, creating a structured framework for further analysis. The analysis focuses on identifying themes and patterns related to the support we received, providing a comprehensive understanding of the effectiveness of university support mechanisms.

SIGNIFICANCE AND CONCLUSION

Preliminary findings suggest that meaningful inclusion is achieved through authentic relationships and interactions rather than superficial practices. By providing students with genuine opportunities for connection, such as structured programs and diverse cultural events, universities create an environment where students feel included, welcomed, and safe. This study provides critical and timely insights into how higher education institutions can more effectively support international graduate students within the evolving landscape of DEI. As numerous universities transition from conventional DEI frameworks to IE models, there is an increasing necessity to understand the impacts of these changes on diverse student populations, particularly international students who frequently encounter cultural, social, and structural obstacles during their academic journeys.

This research highlights the importance of intentional, institutionally supported inclusion efforts and amplifies the voices of international students through the lens of the IE framework. The results of this study emphasize that meaningful inclusion is not limited to policy statements or isolated programs; it is fostered through culturally responsive support systems and sustained, authentic engagement. The study offers actionable insights that higher education leaders, practitioners, and policymakers can use to inform inclusive practices, programming, and strategic planning by focusing on the lived experiences and reflections of international students.

Additionally, this research addresses a national imperative to reaffirm the importance of inclusive environments in response to the growing political and legislative scrutiny of DEI initiatives in the U.S. It provides a framework for the integration of IE and internationalization in a way that enriches campus life, improves student success, and advances the institutional mission. This research contributes to the ongoing discourse in higher education regarding the development of inclusive, globally oriented campuses that prioritize excellence for all students, regardless of their nationality. Moreover, this study highlights the international students' voices as local knowledge systems to challenge dominant frameworks that are US-centric and provide globally transferable insights to achieve global justice through reciprocal internationalization and student-centered educational change.

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Student Engagement with AI Writing Tools: Benefits, Challenges, and Ethical Considerations in the Rural Development Program of Tribhuvan University, Nepal

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ABSTRACT

The rapid integration of Artificial Intelligence (AI) in academia has sparked debates on its influence on writing and research. AI tools offer multiple benefits for students and scholars but also pose challenges and ethical concerns. This study investigates how students at different levels use AI tools, such as ChatGPT, for academic writing in a Rural Development program of Tribhuvan University in Nepal. Using a structured questionnaire with 79 participants and input from 6 university faculty, it explores the prevalence of AI use, perceived benefits, drawbacks, and needs of institutional guidance. Findings show that 89.9% of students reported using AI, mainly to improve grammar (55.7%), save time (50.6%), and generate ideas (58.2%). ChatGPT was the most used tool (88.6%), followed by Google Gemini and Grammarly. Most students agreed AI enhances writing quality, coherence, and creativity, with 59.5% finding it "very helpful." Concerns included originality (46.8%) and difficulty verifying AI content (36.7%). While 67% believed AI use is ethical with revision and citation, only 43% received clear instructor guidance. These findings highlight both opportunities and challenges of AI for educators, policymakers, and researchers. AI democratizes access for rural students, supports faculty in pedagogy and assessment, and aids policymakers in evidence-based planning. Yet unequal resources and digital literacy gaps call for ethical integration, faculty training, and policy reform. Further research is needed on long-term impacts, cross-disciplinary applications, and regional disparities of AI use in a broad spectrum of writing and research.

Keywords: Artificial Intelligence, academic writing, student perception, ethical concern, institutional guidance

INTRODUCTION

In recent years, the swift and transformative progress of artificial intelligence (AI) has significantly reshaped the way people engage with digital technologies across multiple domains, with education being one of the most profoundly influenced

sectors. Within academic settings, AI-powered applications such as ChatGPT, Google Gemini, Grammarly, and QuillBot have increasingly become integral components of the writing process (Rahem et al. 2023). These tools provide a wide array of support for students, ranging from correcting grammatical errors and refining vocabulary to generating ideas, structuring content, and enhancing overall coherence. Their adoption offers substantial potential for improving both the quality and speed of student writing, thereby enabling learners to produce more polished and well-organized academic work. However, the growing reliance on such technologies also sparks important debates regarding the preservation of originality, the safeguarding of academic honesty, and the establishment of effective teaching strategies that balance technological assistance with critical thinking and independent learning skills. Gültekin Talayhan and Babayiğit (2023) highlighted the strength of AI tools that help generate ideas, improve expression, and enhance the writing structure of students and scholars. While these tools positively support coherence and organization. However, excessive reliance on such tools could hinder critical thinking and creativity, highlighting the need for balanced use of them. This point of view is also accepted by the Artificial Intelligence Index Report 2025.

AlAli et al. (2024) noted that generative AI has the potential to significantly improve educational practices by streamlining tasks, supporting personalized learning, and enriching instructional quality. However, its successful adoption depends on balancing innovation with ethical safeguards, protecting privacy, and aligning technological use with sound pedagogical objectives. By following informed strategies and learning from proven case studies, educators and policymakers can harness generative AI as a powerful tool to advance both the efficiency and equity of education. Tsao and Nogues (2024) noted that AI can be a creative catalyst to the students that challenged traditional ideas of authorship and experimented with unconventional communication. Therefore, AI can be treated creatively as a shared process of learning between humans and AI. The collaborative use of GenAI can eventually support emancipatory and innovative perspectives in education. However, Buriak et al. (2024) emphasized that while AI text-generation tools like ChatGPT are advancing and becoming harder to detect, scientific writing still fundamentally depends on human creativity, expertise, and integrity. Due to this, the researcher must use AI cautiously, follow best practices, and remain vigilant to maintain the trust and authenticity of scientific work. Overall, AI has rapidly advanced in capacity, adoption, and global impact in recent years, reshaping science, business, and society, including academia, while raising urgent questions of responsibility, governance, equity, and trust. That is why it stands as both an engine of global transformation and a test of how humanity balances innovation, equity, and responsibility (Maslej et al., 2025). Therefore, the real question in an AI-driven future is not merely what AI can do, but what choices societies, institutions, and individuals make in shaping how AI is used so that it supports human development, agency, equity, and flourishing rather than undermining them (UNDP, 2025).

Sun and Deng (2025) investigate university students' experiences using ChatGPT as a generative AI tool to support experiential learning. The study finds that

instructor-guided prompts influence how students create their own prompts, and students generally perceive ChatGPT as helpful and satisfactory for learning tasks. However, concerns regarding metacognitive aspects of the AI output were noted. Overall, the research highlights the potential, challenges, and pedagogical implications of integrating generative AI into higher education, extending understanding of experiential learning and Bloom's taxonomy in this context. Likewise, Mohammed and Mohammed (2025) explore the use of AI-assisted writing tools in grammar correction and sentence structuring while raising concerns about academic integrity, originality, and over-reliance. It emphasizes the need for structured integration of AI in writing instruction to enhance technical skills without undermining independent literacy and critical thinking.

The students engaging in AI-enhanced constructivist activities report improved motivational orientation and learning strategies, suggesting that such activities can effectively support critical thinking, increase engagement, and encourage learner autonomy in higher education (Pavlis, 2025). The responsible and effective use of AI entails opportunities for enhancing education while addressing risks such as over-reliance, reduced creativity, privacy concerns, and academic integrity, stressing the need for proactive oversight, risk assessment, and preparedness among educators and administrators (West Virginia Department of Education, 2025).

Johnston et al. (2025) found that students primarily employ generative AI tools for definitions, explanations, and essay structuring, yet traditional sources such as journal articles and Google searches remain central. Interestingly, while students relied on AI outputs in their writing processes, they failed to cite AI tools, raising questions about referencing gaps and academic integrity. Similarly, Nelson et al. (2025), studying Ecuadorian students in STEM-based English learning, highlighted that students viewed AI-generated work as academically dishonest, even as they acknowledged its practical benefits. Unlike Johnston et al., whose findings stress gaps in citation practices, Nelson et al. emphasized students' internalized ethical concerns and the perceived threat to personal skill development. Further, Sun and Deng (2025) emphasized that GAI can enhance experiential learning when supported by instructor-guided prompts, influencing how students learn to generate their own prompts. Their study situates AI not only as a tool but also as a pedagogical partner, aligning with constructivist and experiential learning theories. Complementing this, Zhang (2025) demonstrated practical applications in database education, where AI tools supported both teaching material preparation and student learning of SQL coding and problem-solving. However, Zhang cautioned that AI must be paired with critical thinking strategies to avoid over-reliance, echoing Sun and Deng's concern over metacognitive risks. Supporting the given ideas, Rahiman and Kodikal (2023) pointed out that AI adoption in higher education enhances evaluation methods and faculty engagement, with awareness, perceived risk, and performance expectancy shaping its successful integration.

Beyond classroom practices, broader policy discourses underscore the societal and regulatory dimensions of AI use. Nepal's National Policy Draft 2081 (BS) calls for strategies that both promote AI adoption and mitigate risks, framing AI as a driver of innovation, skills development, and socio-economic transformation across sectors. On a global level, Floridi and Cowls (2019) advocate for a coherent ethical framework to guide AI development through laws, standards, and best practices, ensuring alignment with the United Nations Sustainable Development Goals while preventing misuse such as cybercrime. AI can improve education by personalizing learning, predicting needs, and adapting to students while also making education more inclusive. However, issues like ethics, weak infrastructure, and cultural resistance are the key challenges (Sadhu, 2021; Apara et al., 2025). Silwal (2022) has also explored both the scope and challenges of AI use in the legal sector as its potential benefits for legal processes but mentioned the barriers like high costs, limited awareness, and lack of research for effective implementation. Focusing on this idea, Li (2023) highlighted its potential to both enhance learning and worsen inequalities by reinforcing resource gaps. While AI can strengthen human–AI collaboration, it may also marginalize vulnerable groups for which targeted reforms and international cooperation are needed to ensure equitable access and educational fairness. Along with its vast potential, there are growing concerns about research integrity and the future of the human researcher (Khan et al., 2023). Likewise, Rasheed et al. (2025) pointed out that AI tools not only improve student engagement and support disadvantaged learners, which contributes to educational disparity, but ethical challenges such as data privacy, bias, and the digital divide remain major barriers, underscoring the need for strategic policies and responsible implementation in higher education (Crompton & Burke, 2023; Arini & Nursa'ban, 2024). However, rather than replacing human excellence, generative AI can support key knowledge development activities for the researchers in advancing knowledge and innovation (Schryen et al., 2025).

Existing research reveals both the promises and pitfalls of AI-assisted writing: while students and educators recognize its benefits for efficiency, coherence, and personalized learning (AlAli et al., 2024; Tsao & Nogues, 2024), they also highlight risks such as plagiarism, over-reliance, and reduced self-directed learning (Buriak et al., 2024; Johnston et al., 2025). Studies further emphasize gaps in referencing practices, the need for ethical frameworks, and the importance of pedagogical strategies that promote responsible and balanced integration of AI in higher education (West Virginia Department of Education, 2025; Zhang, 2025).

Despite such global debate and its local reflection, there is little known about how students in developing countries like Nepal, particularly those who enrolled in social science disciplines like Rural Development, are engaging with AI writing tools. Similarly, the National AI Policy Draft of Nepal 2081BS recognizes its transformative potential in education and other sectors. However, empirical evidence remains scarce regarding the student's experiences, perceived benefits, challenges, and ethical considerations in the academic context. In the vacuum of

such evidence, policies and teaching strategies remain at risk of being misaligned and eventually fail to equip students with the skills necessary for responsible and effective use of AI in academic writing.

Therefore, this study tries to address a critical research gap by examining how students of Rural Development at Tribhuvan University in Nepal are engaging with AI writing tools, exploring their motivations, perceived benefits, challenges, and ethical concerns. Understanding these dynamics is vital for informing policy, guiding teaching practices, and fostering a balanced approach that integrates AI tools into higher education without compromising academic integrity or critical thinking. Realizing this ground reality, the aim of this research is to investigate the use of AI writing tools among Rural Development students at Tribhuvan University, Nepal, with a focus on identifying their perceived benefits, challenges, and ethical concerns while providing insights for promoting responsible and pedagogically sound integration of AI in higher education.

MATERIALS AND METHODS

This study employs a mixed-methods approach within a descriptive research design, integrating quantitative and qualitative data to provide a comprehensive understanding of students' engagement with AI writing tools. The mixed-methods design was chosen to capture both measurable trends (quantitative) and in-depth perspectives (qualitative), enabling triangulation and enhancing the validity of findings (Creswell & Creswell, 2023).

The primary data were collected from 79 students enrolled in rural development programs at Tribhuvan University, Nepal, across various academic levels. Participants were purposively selected based on their availability, willingness to participate, and prior exposure to AI writing tools, ensuring relevance to the research objectives. This sample size, although limited, provides sufficient depth for descriptive statistical analysis and qualitative exploration within the context of the study. Quantitative data were obtained through a self-administered online survey, comprising structured items including closed-ended questions for statistical analysis and open-ended questions to elicit qualitative insights. To complement this, six key informant interviews were conducted with faculty members teaching rural development courses, focusing on similar thematic areas as the student survey. This approach allows for comparative insights and triangulation of data. Secondary data were sourced from government reports, official digital databases, and scholarly publications, providing context and supporting evidence for interpreting primary data. Quantitative responses were analyzed using descriptive statistical techniques, including frequencies, percentages, and mean scores, computed through MS Excel. Qualitative data from open-ended survey items and interviews were subjected to thematic analysis, following Braun and Clarke's (2006) six-step framework, to identify key themes related to the benefits, challenges, and ethical considerations of AI writing tools.

Integration of both data types allowed for a more nuanced interpretation of patterns and experiences.

The study follows rigorous ethical standards. Voluntary participation was ensured, with participants providing informed consent. Anonymity and confidentiality were strictly maintained, and all findings are reported transparently, without fabrication or manipulation. The study also received approval from the relevant academic authority at Tribhuvan University.

RESULT AND DISCUSSION

This study aimed to explore students' engagement with AI writing tools in rural development programs at Tribhuvan University, Nepal, examining perceived benefits, challenges, and ethical considerations. Data were collected from 79 students through an online survey and six key informant interviews with faculty members

QUANTITATIVE RESULTS

Out of the total, the survey data shows that about 90 percent of the participants reported actively using AI tools, whereas the rest were only familiar. Similarly, more than 85 percent of the participant students were between the ages of 18 and 34 years, whereas about 12 percent belonged to the above-35-year age group.

Perceived Knowledge Regarding AI Use:

The survey data demonstrate the diverse preference of the use of AI tools in writing to university students. Some questions were asked mentioning the benefits of AI tools in writing; the participant students have shown diverse preferences. However, the majority of students agreed to the multiple advantages of AI tools, some have even given a neutral response, and only an insignificant number of students disagree with AI use.

Table 1 Perceived knowledge on the use of AI tools in writing

Response type	AI tools help me improve the quality of writing, *n* (%)	I feel more confident in my writing when I use AI tools, *n* (%)	Using AI helps me save time on writing assignments, *n* (%)	AI-generated suggestions make my writing more coherent and well structured, *n* %)	ols enhance reativity when ıg academic s, *n* (%)
Strongly disagree	3 (3.80)	2 (2.60)	1 (1.28)	1 (1.32)	2 (2.60)
Disagree	1 (1.27)	3 (3.90)	1 (1.28)	1 (1.32)	9 (11.69)
Neutral	18 (22.78)	22 (28.57)	15 (19.23)	10 (13.16)	17 (22.08)
Agree	45 (56.96)	41 (53.25)	45 (57.69)	54 (71.05)	40 (51.95)
Strongly agree	12 (15.19)	9 (11.69)	16 (20.51)	10 (13.16)	9 (11.69)
Total	79	77	78	76	77

Note. Data source: Online survey (2025).

Table 1 presents student responses on their perceptions of AI tools in academic writing across five dimensions. Out of total participants, over 70 percent agree or strongly agree with AI tools to improve quality of writing, more than one-third of the total feel more confident, and nearly 30 percent have a neutral response. The strongest positive responses are seen with 71.05% agreeing and 13.16% strongly agreeing as a perceived effectiveness in improving text structure and flow. Overall, the findings reveal that students predominantly view AI tools as useful for improving quality, saving time, and enhancing coherence in academic writing. Confidence gains are evident but not universal, while creativity enhancement remains a relatively contested area.

Table 2 Reasons to Use AI Tools in Writing (Multiple Response)

Answer choice	Frequency	Percentage
To save time	40	50.63%
To improve grammar and clarity	44	55.70%
To enhance academic vocabulary	29	36.71%
To generate new ideas and arguments	46	58.23%
To assist with research synthesis	21	26.58%
To help with structuring and organizing content	34	43.04%
To overcome language barriers	20	25.32%
To ensure better coherence and fluency	23	29.11%

Note. Data source: Online survey (2025).

Table 2 shows that students primarily use AI tools to generate new ideas and arguments (58.23%) and to improve grammar and clarity (55.70%), followed closely by saving time (50.63%). A considerable proportion also rely on AI for structuring and organizing content (43.04%) and enhancing academic vocabulary (36.71%). Less frequently reported purposes include ensuring coherence and fluency (29.11%), assisting with research synthesis (26.58%), and overcoming language barriers (25.32%). Overall, the findings suggest that students view AI tools mainly as supports for idea generation, linguistic refinement, and efficiency in academic writing.

Table 3 Challenges Faced while Using AI Tools in Writing

Challenge	Frequency	Percentage
AI-generated content lacks originality	37	46.84%
Difficulty in verifying the accuracy of AI-generated text	29	36.71%
Difficulty in integrating AI-generated text into my own writing	24	30.38%
AI-generated content misinterprets my intended meaning	34	43.04%
Other	3	3.80%

Note. Data source: Online survey (2025).

Table 3 shows that the main challenges students face with AI tools are lack of originality, preferred by nearly half of the participants, and misinterpretation of intended meaning, both raising concerns about academic integrity and clarity. Additionally, a significant portion reported difficulty in verifying accuracy (36.71%) and integrating AI-generated text into their own writing (30.38%), indicating limitations in reliability and usability. Only a small share mentioned other issues, suggesting that most difficulties revolve around originality, accuracy, and coherence.

Table 4 Guidance Received from Instructors on Appropriate Use of AI in Writing

Response option	Frequency	Percentage
Yes, AI use is encouraged with proper guidelines	34	43.04%
Yes, but AI use is restricted	13	16.46%
No, there is no clear guidance on AI use	18	22.78%
No, but I would like guidance on ethical AI use	14	17.72%

Note. Data source: Online survey (2025).

The findings in Table 4 revealed that while 43.04% of participants report AI use is encouraged with proper guidelines, a smaller share (16.46%) note its restricted use. However, a combined 40.5% highlight the absence of clear guidance whereas 22.78% state there is no policy at all, and 17.72% express a desire for ethical guidance. This suggests that although many institutions are moving toward structured AI integration, a substantial gap remains in providing consistent policies and ethical frameworks for its responsible use.

QUALITATIVE RESULT EXPLANATION

Convenience and Efficiency

The wider use of AI tools provides numerous benefits for university students, mainly because they save time, simplify the complex tasks, and offer accessible support throughout curricular and other learning processes. Some of the major strengths are noted as follows:

Quick access to information and language support: Instead of spending hours searching through books, journals, and multiple websites, AI tools like ChatGPT or DeepSeek can provide required amounts of information, definitions, summaries, and explanations of complex concepts in a conscious questioning by providing appropriate prompts. That is why it became exponentially popular within the short period of time globally. Likewise, for those students whose first language is not English, AI tools can help with well-structured and rephrased sentences with grammatical correction and improving academic tones in their writings. For example, a student preparing for the exam of the subject rural and development studies can simply ask, "How did development discourse change

over time?" and get a clear, concise, academically correct, and hands-on explanation instantly while lying in his/her bedroom. That is how AI tools save time in a convenient way compared to handling several notes and textbooks. Realizing the multiple benefits of AI tools, one of the participant students assorted that,

> Even though I don't know the grounded drawback of ChatGPT and Grammarly. I have been using both of these AI tools for getting quick insight into various concepts of Rural Development and its current trend since the last one and a half years. I also learn the way of writing by arranging the cohesion and coherence of the given issue while preparing assignments and reports too.

Research efficiency and structuring assignments: Another more important benefit of AI tools is the ability to summarize long articles, passages, and research papers by making it easier to capture main arguments, concluding remarks, and comparative insights of multiple sources along with descriptive support of huge data in a limited time. Additionally, it helps students and readers to organize their essays, reports, and research papers more systematically by recommending scientific and popularly used outlines or even providing quick draft structures of any kind. For instance, a student undertaking research and tasked to prepare a report focusing on the main ideas of an article having over 40 pages on sustainable development following the similar logical framework can easily prepare the basic outline following the recent trend of report writing with appropriate citation and referencing with the help of AI tools. More importantly, time management and technically structured writing are the best parts of the AI tools for all students, researchers, and other practitioners. One of the participants responded that I normally use Deepseek for preparing notes and submitting the reports in time. However, I feel there is an unnecessary exaggeration of the content and sources without proper links.

ISSUES AND CHALLENGES

AI tools such as ChatGPT, Grammarly, Deepseek, Google Gemini, etc., offer numerous benefits with convenience and efficiency. However, several students reported inaccurate suggestions or contextual errors generated by such AI tools. Others mentioned a lack of understanding of AI outputs, which sometimes required manual corrections. Some faculty also highlighted the downsizing of students' creativity and critical thinking. Therefore, the issues and challenges that are realized by students and pointed out by the faculty must be considered. These issues and challenges can be grouped into academic, technical, and ethical, which are illustrated below:

Accuracy and reliability issues: AI tools are designed to generate quick responses, artificial corrections, and summaries only based on the recorded information, which may not always be factual, accurate, contextually relevant, or academically reliable. Sometimes they provide incorrect, incomplete, fabricated, and non-

updated information, which may mislead the students and learners. It is also called the hallucination of the information. Some other issues are oversimplification of complex topics, contextual misinterpretation, outdated knowledge base, and absence of a verification mechanism. This may create problems for university students who rely on such tools for learning, writing assignments, and preparing research reports. One of the master's-level students mentioned, "I trusted the citations of ChatGPT for my thesis; unfortunately, I did not find them when I searched in Google Scholar after the doubt of my guide teacher. It wasted my time and left a bad impression on my teachers. In this connection", one of the faculty of University Campus, Kirtipur, reported that, in recent days, students blindly use AI-created documents and research reports, which is disastrous to the entire academia. Even some of the students don't know the meaning of the words they have used in their writing.

Dependency, critical thinking, and referencing issue: Excessive dependency on readymade and non-humanized AI outputs leads to an oversimplified understanding of the contents and loosens analytical skills of the students. They don't even show interest in a deeper understanding of complex issues. Similarly, students develop the tendency to accept whatever they find on the AI tools rather than going through analytical insight. Similarly, AI-generated content and information do not always provide credible references. The sources cited look genuine; however, they do not actually appear once they are cross-verified. Covering all these things, one of the MPhil scholars noted that,

> I use ChatGPT to explain a theory in my assignment; however, my professor said the writing looks oversimplified and shows an absence of analytical skill and doubtful sources. I do not prefer to write even a single sentence without taking assistance from Grammarly. Now I realized my creativity decayed due to AI use in research and writing.

One of the faculty members of Patan Campus argued that sometimes the writing of students looks standard and artistic on the pages, but it lacks originality and critical thinking. As much as I find the recent reports and writing, they look similar in pattern and composition.

ETHICAL CONSIDERATION

Both students and faculty highlighted plagiarism risks and academic integrity concerns. While students acknowledged the convenience of AI, they expressed caution regarding its ethical use in assignments. Thorough copy-pasting from AI tools without any modification and humanization may result in plagiarism and originality issues. Another ethical issue is contextual misunderstanding originating from the grammatical suggestion made by the system. Sometimes AI provides biased information and limited cultural understanding. Since these tools are mostly trained on Western data, they may overlook local or contextual knowledge. One of the bachelor-level students reported that I asked Google Gemini about Rural Development policies of Nepal, but it provided me with a

generic global example that does not match the Nepalese context. Since then, I do not rely on it perfectly. In this regard, most of the faculty to whom the researchers communicated commonly raised the ethical issue of students' AI use now and in the future. Focusing on the authorship and intellectual ownership, a faculty on Ratnarajya Laxmi Campus mentioned,

> In my opinion, the essence of AI in academic writing is to demonstrate one's intellectual engagement, critical reasoning, and originality. It also helps reduce educational disparity through easy access to materials and resources. If a significant portion of a paper is produced by AI, the authorship becomes more questionable than we often realize. Therefore, universities must address whether AI is a collaborator, a tool, or an unacknowledged ghostwriter, and what that means for recognizing student achievement.

Overall, despite their various benefits and strengths, most of the AI tools in use are not free from limitations. There are several ethical concerns regarding its authentic and scholarly use in academic writing, mainly in terms of integrity, authorship, fairness, and academic standards. The disproportionate access and use of AI tools among students may raise challenges to fairness and equity while evaluating from the faculty, where original writing without fabrication might be scored lower compared to well-polished AI-generated content. Another most important ethical issue seems to be transparency and proper acknowledgement. Many universities lack clear guidelines on whether AI sources should be cited or kept unstated. To sum up the entire arguments, one of the MPhil-pursuing participant mentioned,

> The growing use of AI in academic writing challenges the ethical foundation of higher education. As I know, it blurs authorship, undermines fairness, and weakens critical thinking, while also introducing risks of misinformation. Our university is still unclear and lacks clear-cut policy guidelines. Unless we are transparent about its use and institutions set clear guidelines, AI threatens to erode the values of originality, honesty, and equity that universities are built upon.

INTEGRATED DISCUSSION

The findings of this study reveal that AI writing tools are increasingly embedded in the academic practices of Rural Development students at Tribhuvan University, reflecting global trends in higher education (Rahem et al., 2023; AlAli et al., 2024). Quantitative results suggest that students overwhelmingly perceive AI tools as beneficial for improving writing quality, saving time, and enhancing coherence. More than two-thirds agreed or strongly agreed that AI improves structural flow and clarity, aligning with Gültekin Talayhan and Babayiğit's (2023) argument that AI enhances textual coherence and organization. At the same time, confidence gains were less universal, and creativity enhancement remained contested, which

resonates with concerns raised by Buriak et al. (2024) about AI's potential to undermine originality and self-directed learning.

Motivational factors for AI use further underscore this duality. Students reported adopting AI tools primarily to generate new ideas and arguments, refine grammar, and save time. These findings mirror Johnston et al. 's (2025) results, where students used AI for essay structuring and definitions but continued to rely on traditional sources for credibility. However, while students valued efficiency and linguistic support, issues of accuracy and originality emerged as significant concerns. Nearly half of the participants pointed to originality deficits, while over a third noted challenges in verifying factual reliability, echoing global critiques of AI "hallucinations" (West Virginia Department of Education, 2025).

Qualitative data provided nuanced insights. Students emphasized AI's convenience in accessing complex information and organizing academic work, particularly for non-native English speakers. These benefits resonate with Sun and Deng's (2025) findings on AI's role in supporting experiential and constructivist learning. However, both students and faculty cautioned that excessive dependence risked eroding critical thinking, creativity, and independent authorship—concerns echoed in Nelson et al. (2025), who noted that STEM students in Ecuador considered AI-generated work academically dishonest. Similarly, interview data with faculty underscored skepticism about the authenticity of AI-assisted submissions, particularly when outputs appeared stylistically polished yet lacked analytical depth.

The ethical dimension remains a pressing challenge. As highlighted by faculty and echoed by Floridi and Cowls (2019), the absence of transparent policies on authorship and referencing complicates how AI use is understood within higher education. In this study, many students admitted not citing AI tools, paralleling Johnston et al.'s (2025) observation of referencing gaps. Furthermore, contextual biases and culturally irrelevant outputs, as noted by students seeking Nepal-specific content, highlight the limitations of AI trained on predominantly Western datasets. This aligns with broader calls for locally relevant AI applications (National AI Policy Draft of Nepal, 2081 BS).

Finally, the issue of institutional guidance is striking. While 43% of participants reported that AI use is encouraged with guidelines, an almost equal proportion highlighted either restrictive practices or a complete lack of clear direction. This policy vacuum not only creates inconsistency but also risks growing inequities, as students remain uncertain about ethical expectations. Similar to Zhang's (2025) findings in database education, the effectiveness of AI integration hinges on balancing innovation with pedagogical safeguards that prevent over-reliance while fostering critical engagement.

CONCLUSION

This study demonstrates that students in Rural Development programs at Tribhuvan University perceive AI writing tools as highly useful for improving efficiency, clarity, and academic structuring, yet they also face challenges related to accuracy, originality, and ethical use. More importantly, AI-driven technologies can reduce educational inequality by promoting personalized learning and accessibility for underserved groups. The findings align with international scholarship, underscoring a shared tension between the pedagogical opportunities of AI and the risks of dependency, misrepresentation, and diminished creativity. While students embrace AI as a convenient and supportive resource, both faculty and students recognize the need for responsible, transparent, and critically engaged use.

Policy and pedagogical implications are clear: universities must establish explicit guidelines on ethical AI use, referencing, and authorship to safeguard academic integrity. Simultaneously, educators should integrate AI into constructivist teaching approaches that encourage creativity and critical thinking rather than replace them. At a national level, Nepal's AI policy framework must bridge the current evidence gap by incorporating students' lived experiences, ensuring that technological integration strengthens educational equity, authenticity, and innovation.

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Exploring Nepalese Teachers' Perceptions towards the Effectiveness of the PTE Test in Improving English Language Skills

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ABSTRACT

Pearson Test of English is a globally accepted high-standard test of English language proficiency for university admission and migration to other countries. It has become a standardized test to evaluate the proficiency of the English Language in recent years. Considering this fact, this study attempts to address the issues through these queries: How can PTE Test bring improvement in learning the English Language? In what ways does the PTE test measure students' English speaking, listening, reading and writing skills in a single test? The study aims to explore teachers' perceptions of the effectiveness of the PTE Test in improving English language skills. The study adopts a phenomenological research design that describes the meaning for several individuals of their lived experiences of the event or situation. This research study is qualitative in nature. The study adopted language instructors/teachers who are taking the classes of PTE in different language institutions of the Rupandehi district. The participants' perceptions are gathered through semi-structured interviews. The findings of the study suggest that the PTE test gives the students a comprehensive understanding of their language proficiency. It makes the students improve their level of learning language to reach a higher level of competence in English by focusing on their grammar, vocabulary and pronunciation.

Keywords: PTE, perceptions, test, improvement, language skills

INTRODUCTION

As a lingua franca, the role of the English language is enormous in the global arena. In the digital age, different assessment systems of English language have evolved. While going to abroad to study and immigrating to Western countries, the knowledge of English language skills is measured through various kinds of tests such as the International English Language Testing System (IELTS), Scholastic Assessment Test (SAT), Graduate Record Examinations (GRE), Test of English as a Foreign Language (TOEFL) and Pearson Test of English (PTE). Among them, PTE has now gained a different popularity among teenagers and

adults who are willing to go to study abroad. It was originally introduced by the University of London Schools Examination Board in 1982 and now the prominent English-speaking countries accept PTE as proof of English for all visa tiers (De Jong and Benigno, 2017). PTE test commenced globally in 2009 to measure the students' competence to use English language in real-world situations (Isbell and Kremmel, 2020). PTE is a computer-based test that measures English language proficiency for communication in tertiary-level academic settings, it is also emphasized for intermediate to advanced English language learners and measures the communicative language skills required for reception, production and interaction in both oral and written modes (Barkaoui, 2019). PTE focuses on a candidate's actual comprehension of the English language used in the surroundings (Zheng and De Jong, 2011). It indicates that PTE provides a good platform for every student and assesses listening, reading, speaking and writing skills, which motivates learners to enhance all-around skills of the language. The structure of the PTE displays real-world language use, preparing the students for practical communication in academic as well as professional settings. In fact, PTE is a fully regulated test where the four language skills are evaluated by computer. Many employers and universities around the world judge the PTE as evidence of the proficiency level of English language skills.

In addition to this, the PTE test is conducted in different types such as PTE Academic (PTE-A), PTE General and PTE Academic Online. The PTE-A test's time duration is about 2 hours, it adopts the pattern of three sections: speaking and writing, reading, and listening. Similarly, the PTE General version is classified into two sections: writing and speaking, which is prepared to evaluate reading, writing, listening and speaking proficiency of the English Language. The PTE General test has six levels of proficiency that consist of foundation, elementary, intermediate, upper-intermediate, advanced/operational proficiency and proficient/mastery. The purpose of PTE General is to do work and study, particularly in non-English speaking European countries, which has validity forever through the test centers. Whereas PTE Academic is to work, study and immigrate in English-speaking countries, which has validity for two years via the Pearson official website online. Another Online PTE Academic exam system is similar to PTE-A, it permits the students to take tests from their comfort area. Overall, PTE Tests are conducted through computers that integrate skills simultaneously and examine English language proficiency in distinct contexts. The test is designed to assess how well the learners can use English language skills in academic and professional careers in real global situations. After taking the PTE Test, with its score, students are evaluated on their level of competence in the English Language. The test measures listening, speaking, reading and writing skills and motivates the students to enlarge their command in the English language for a language learning journey. The PTE test is evaluated under 90 points. The content of the PTE Academic test is exhibited in Table 1 as follows:

Table 1 Structure of PTE Academic

PTE Academic Test Skills	PTE Academic Structure
Writing and Speaking	1. Duration: 77-93 minutes 2. There are eight parts of tasks concerning the skills tested (6 tasks for speaking and 2 tasks for writing): a. Personal introduction b. Read aloud c. Repeat sentence d. Describe image e. Re-tell lecture f. Answer short question g. Summarize written text h. Essay
Listening	1. Duration: 45-60 minutes 2. There are five types of questions for this component: a. Highlight correct summary b. Multiple choice (single answer) c. Select missing word d. Highlight incorrect word e. Write from dictation
Reading	1. Duration: 32-40 minutes 2. There are five tasks for reading component: a. Fill in the blanks (drag and drop) b. Multiple choice (one answer) c. Re-order paragraphs d. Fill in the blanks (choose correct word) e. Multiple choice (multiple answers)

Source: https://www.examenglish.com/PTE/PTE_Academic.htm

The table displays the structure of the PTE Academic test, which is an automated scoring system that captures communicative score and skills score from the range of 10 to 90 points. In writing and speaking skills, it gives emphasis on six tasks for speaking and two tasks for writing, starting from personal introduction to writing an essay in a duration of twenty minutes. Similarly, listening covers forty-five to sixty minutes times that evaluate five types of questions like multiple choice, selecting missing words, and writing from dictation. Finally, reading takes between thirty-two and forty minutes to assess five types of questions. While going through the structure of the PTE Academic test, it can be inferred that the PTE test is a good platform to learn the English language significantly.

Nowadays, most of the students who want to study abroad are taking the PTE Test to show competency in English language skills. Can the PTE test really bring improvement in learning the English Language? In what ways does this test enhance proficiency in the English language? These are queries intently

concerned. When the students are longing to take the PTE test, they go on preparing for the test to secure a better score. After taking the classes, students participate in the PTE Test. Here, one thing is inferred that the PTE test makes the students learn much better about English language skills. Considering this fact, this study plans to get in touch with those teachers who are involved in teaching PTE classes. This study seeks the perceptions of the queries from the teachers about whether PTE Test support to improve English Language learning or not, because it is also one of the platforms to bring transformation in the process of learning language. While talking about the PTE test in improving English language skills, the study attempts to explore the perceptions of teachers who are highly involved in this testing system about the effectiveness of PTE. The study digs out the significance of PTE for improving English language skills through integrated language that is used throughout the test and students may listen to a variety of accents and academic language used in certain premises. The study seeks to find out Teachers' perception towards the effectiveness of PTE test in improving English language skills.

FORMULATION OF RESEARCH QUESTIONS

The present study attempts to investigate the PTE test, which measures students' English speaking, listening, reading and writing skills in a single test. Regarding this matter, this study seeks teachers' perceptions of the effectiveness of the PTE test in improving language skills. Hence, the study aims to formulate these research questions and issues:

a. What are teachers' perceptions towards the effectiveness of the PTE Test in improving English Language skills?

b. In what ways does the PTE test measure students' English speaking, listening, reading and writing skills in a single test?

This research concerns such research questions and issues. It aims to find out Teachers' perception towards the effectiveness of the PTE test in improving English language skills. The main concern of the study is whether the PTE test can assist the students to improve English language skills. Therefore, this study focuses on the PTE test as a tool to enhance every student's level of proficiency for mastering the English Language.

REVIEW OF RELEVANT LITERATURE

In recent days, the PTE test has taken a good position because many students abroad are eagerly taking it. The PTE test is all computer-based and marked by a machine which measures the English language skills of non-native speakers longing to apply for university courses in English-speaking countries. The relevant literature of PTE test can be reviewed through the following themes:

PTE Test for Improving the English Language

Evaluating English language competence in the context of academic programs of study where English is the language of instruction, Zheng and De Jong (2011) from London conducted a study on the establishment of construct and concurrent validity of the Pearson Test of English Academic. They argue that the construct validity of the PTE test is quite good and certainly assists in improving the English Language. In the same way, assessing English language proficiency required for international work study, or immigration, Clesham and Hughes (2020) discuss that the test provides a common frame of reference for different assessments to describe the domain of English language. They further mention that PTE academic genuinely increases students' overall scores and communicative skills through the English Language. In the same way, emphasizing the PTE as a psychometric measurement model for the adult English language learners, Pae (2012) argues that the test stability of PTE is a useful measurement tool for English language learners' academic English assessment. It shows that PTE is a standardized form of test that is designed for the assessment of all language skills of English. Similarly, McQuarrie (2019) carries out research on PTE tests that English language skills have been enhanced significantly by taking the test of PTE. This type of test helps to develop the competence of English language learning. Barkaoui (2019) conducted a study on the PTE Academic writing, evaluating the sources of differences in L2 writing scores. It concludes that the PTE test is beneficial for upgrading overall English language proficiency. In addition to this, Ismail and Othman (2020) discuss the study in the Malaysian context about the English language entry requirements for international students into post-graduate programs, which shows that proficiency in English language is fully required to get admission. Taking the PTE test means a good command of the English language.

PTE Test to Measure Language Skills

While analyzing the English reading proficiency through PTE for teachers in Ghana, Stoffelsma and Jong (2015) quantitatively investigates and mentions that the PTE test plays a good role in upgrading students' reading proficiency. He further argues that a test has made the students enhance their language capability brilliantly. In the same way, focusing on the cognitive validity and face validity of PTE to measure language skills, Chan (2011) argues that the test mainly covers four language skills, which thoroughly capture the validity and reliability of the test. He further mentions that summarizing written text and writing an essay engage different cognitive processes, which are essential in academic writing contexts. In addition to this, examining the concurrent and predictive validity, Riazi (2013) explores that PTE measures the four communication skills of listening, reading, speaking and writing in an exact manner, where significant correlations were observed between the participants' academic performance. The study concludes that the PTE test measures language skills in an expected manner.

After going through different studies on the PTE test, it is revealed that PTE assists in assessing English language skills. This type of test measures students' ability to use English in instructional and professional settings. In Nepal, being a non-native English-speaking country, the PTE test is likely to play a crucial role in improving English language. To examine, the present study attempts to explore teachers' perceptions regarding the effectiveness of the PTE test in improving English language skills in the Nepalese context.

RESEARCH METHODOLOGY

This part of the research describes and verifies the overall structure of the research design. Research methodology is the process of bringing a philosophical standpoint that consists of ontology, epistemology and axiology and develops the perceptions and tools through the research process (Hesse-Biber, 2010). The present study was carried out to explore teachers' perceptions of the effectiveness of the PTE Test in improving English language skills. To achieve its objective, the study adopts a phenomenological research design that describes the meaning for several individuals of their lived experiences of the event or situation (Williams, 2007, p.69). This research study is qualitative in nature. The study adopted 12 teachers/language instructors who are teaching the classes of PTE in different language institutions of Rupandehi district. The participants' perceptions were gathered through semi-structured interviews. The institutions that participated in this research are listed in Table 2; with the teachers who consented to participate actively. The researcher described the research objective and then obtained their informed agreement. Participants' names are replaced with pseudonyms.

Table 2 Participant Institutions and Teachers/Language Instructor

Institutions (Pseudonyms)	Teachers (Pseudonyms)	Gender	Experience (Years)
PS	Baran	Male	5
KN	Pratima	Female	3
NEP	Subesh	Male	4
GEN	Sushmita	Female	2
GGC	Lalit	Male	5
KS	Deep	Male	4
NBS	Manasvi	Female	2
MBS	Roshan	Male	3
BSC	Pritam	Male	4
NC	Mayank	Male	5
SCP	Riwaz	Male	2
YNC	Sandy	Male	6

PHILOSOPHICAL PROPOSITION

The present research study is trying to explore teachers' perceptions of the effectiveness of the PTE Test in improving English language skills. To proceed ahead, the study states the constructivist assumptions for setting up a worldview of the position. Regarding the philosophical proposition, there are different alternative knowledge that displays the position on the research design such as positivism, constructivism, advocacy/participatory and pragmatism (Creswell, 1999). Here, Positivism indicates knowledge from empirical observation and justification of theory; pragmatism claims the consequences of problems and based on real-world practice; advocacy or participatory reforms through collaborative and empowerment processes (Tashakkori and Creswell, 2007). Similarly, yet most importantly, this research follows constructivism, which focuses on knowledge through multiple participants' meaning and it accepts reality as a construct of the human mind, so the reality is perceived to be subjective (Splitter, 2009). Constructivism promotes diverse viewpoints and identifies intermediary skills to absorb based on the necessities (Steffe and Gale, 1995). In addition to this, constructivist researchers seek to comprehend the perceptions and the experience of research participants to seek the participants' subjective truth or perceptions. That means constructivists don't claim objectivity but acknowledge and explain subjectivity as co-construct comprehending with the participants (Sutinen, 2008). Following this concept, the study adopts qualitative research guidelines. It collects information from the teachers and complements qualitative data analysis.

Research Paradigms

In qualitative research, it is subjectively focused on multiple realities. Constructivism signifies that reality is constructed through human interaction; it means that knowledge is a human product and is socially and culturally constructed. Individuals create meaning through their interactions with each other and the environment in which they dwell (Reich, 2007). Regarding the research paradigm, ontology: what is the nature of reality? It implies that reality is made by people in social ways and it is the product of mutual understanding. Similarly, epistemology: how do we know things? Here, knowledge is co-constructed, and we know by engaging in building and sharing in education that is connected in sociology. In the same way, axiology claims the values which can be grasped through rationality, human and contextual. Overall, constructivism employs qualitative methods like case study and uses them for building theory. The study pays attention to more subjective and less objective reality while exploring the information on the ground.

Qualitative Inquiry Proposition

Qualitative inquiry implies a broad approach that qualitative researchers adopt to examine social circumstances. Here, the inquiry assumes which posits that people utilize 'what they see, hear and feel' to make sense of social experiences

(Rossman and Rallis, 2017). There are five methods in qualitative inquiry: ethnography, narrative, phenomenological, grounded theory and case study. The present study follows a phenomenological method of qualitative inquiry, which shows the individuals' experiences and perceptions to collect the data for the research. Similarly, phenomenological research is a qualitative research approach that seeks to understand and explain the universal essence of a phenomenon; it discovers the experiences of human beings (Casey, 2009). Finally, the study presents the essential knowledge of the different research participants inductively.

Sampling Procedure

Sampling in qualitative research is to obtain information that is significantly useful for comprehending the complexity, depth, variation, or context surrounding a phenomenon (Bodnar et al., 2013). It infers the research objectives, and the characteristics of the study population determine which and how many people to select. A subset of a population is selected for any given population, which implies the sample (Balamurali and Jun 2006). Sampling aims to produce a miniature copy of the population. That means each person in the population has an equal probability of being selected into the sample. The present study aims to explore teachers' perceptions from different institutions that are running classes for the PTE test in Rupandehi district. Here, the population is selected by applying a purposive sampling technique for qualitative data.

Data Collection and Processing

This is a qualitative study that focuses on collecting qualitative data (Migueles et al., 2017). In this study, teachers who are teaching PTE tests in different institutions of Rupandehi district are the major participants of this research. To get authentic data, open-ended questions based on semi-structured processes are conducted. Here, participants' perceptions are usually taken as the main aspect of qualitative research. In the process of data collection, first the researcher prepares a set of open-ended questions, and then plans to meet the respective informants through a purposeful sampling process. The researcher meets the participants physically and builds rapport and informs them about the conducting activity. The researcher takes an interview and makes an audio recording with their permission. After the collection of data, show gratitude to them and transcribe the recorded version into words.

Data Analysis and Interpretation

After receiving the data from a data collection instrument, data analysis takes the data apart to determine individual responses and put it simultaneously to summarize it (Avery et al., 2012). The researcher goes through all the transcriptions of audio notes. The data were carefully studied for their literal meaning from the individual quotes and perceptions through data coding procedure. After coding the data, a different form of description and broad themes will be pointed out. The data is analyzed through inductive rationality while going

on the detailed data to general codes and themes or categories with the aim of receiving specific meaning. The study focuses on how the PTE test assists in English language skills. So, the data created categories, and sub-categories are coded into the literal meaning. That means the collected data were analyzed through specific themes of the research subject matter.

Criteria of Quality Assurance

In the process of data analysis, the data-gathered categories and sub-categories are coded into the literal meaning through the appropriate themes. In qualitative research, credibility, transferability, coherence, and triangulation are the main concerns in terms of data collection and data analysis (Bryman, 2016). Here, credibility in research implies the data that has been collected from the participants are the quality of being trusted and believed in. In the same way, transferability in quality research is associated with generalizability which denotes that the degree to which the result of qualitative research can be transferred to other contexts (Finfgeld-Connett, 2010). In this regard, the present study generalized a different perception either from the students or the experiences of teachers towards the PTE test in improving language skills. Similarly, coherence in qualitative research explains the fit between the purpose and the philosophical perspective that follows. The research study uses appropriate research methods to explore and address each research question. Triangulation signifies the use of multiple methods or data sources in qualitative research to develop a comprehensive understanding of phenomena (Patton, 1999). It tests the validity through the convergence of information from different sources. This research was conducted to obtain appropriate validity in the qualitative research from the perceptions of teachers towards the effectiveness of the PTE test in improving the English language skills.

Mitigation of research ethical issues

While conducting the process of data collection, the researcher follows the designated norms of behavior and practices. The study genuinely concerns the ethical issues of adopting the norms by Bell and Bryman (2007) while carrying out the research: ensuring whether there is harm to participants, lack of informed consent, an invasion of privacy and deception. Here, the study follows a “do no harm” system while collecting information from the participants. The researcher decides whether to record an audio or not and also seeks consent from the respective participants. While exploring teachers’ perception towards the effectiveness of PTE Test in improving English language skills, the researcher has clearly followed certain mitigation of research ethical issues in a qualitative study.

FINDINGS

This study brings out the findings from the analysis of the teachers’ perception towards the effectiveness of the PTE Test in improving English language skills. It has used thematic analysis to analyze the collected data from the participants.

Early, the data was recorded by taking interviews in audio or script form and then transcribed into several themes. In particular, three themes were coded to demonstrate the effectiveness of the PTE Test in improving English language skills.

Impacts of PTE Test on Language Development

While going through the gathered data. I found that the majority of the teachers and language instructors of twelve different language institutions significantly suggested that the PTE test has a great impact on language development. They perceived that the PTE test assists to enhance the process of language learning and develop the proficiency over the language. Every teacher believes that the PTE test motivates the students to upgrade a well-grounded proficiency in English. For example, Subesh from GEN language institution asserted:

The PTE provides a standardized metric for English language proficiency, which is known globally. It supports the students in improving their level of learning language to reach a higher level of competence in English. It also helps the students to focus on improving their grammar, vocabulary and pronunciation which can enhance overall language development.

Subesh's opinion revealed that the PTE test has a great impact on transforming language function to develop the English language. Students often emphasize on learning grammar, vocabulary, pronunciation and comprehension, which can support them in the process of language development. Similarly, Baran from PS institution uttered:

In the process of learning the English Language, the PTE test has a significant impact on specific language skills such as listening, speaking, reading and writing that encourages language students to enhance a balanced proficiency in all aspects of English rather than focusing merely on written communication and conversational spontaneity.

Pratima, a lady instructor from KN institution, echoed Baran that the PTE test has a great platform to improve English language development through assessing listening, reading, speaking and writing proficiency. She further added:

"PTE test provides visible feedback on students' language abilities which help the learners comprehend their proficiency in different language skills. Repeated practice and test-taking can permit the learners to progress and develop learning strategies. This can assist in enhancing English language proficiency in a good way."

These examples conclude that PTE is a standardized test that always focuses on helping learners to improve their language skills and abilities. The impacts of the PTE test can be viewed from different domains such as encouragement of structured learning that assists in transforming curriculum design and learning

outcomes, enhanced motivation to learn English that focuses on improvement of language skills through standardized measurement and global recognition.

PTE Test Emphasis on Real-World Language Skills

In this study, I found that most of the language instructors who are taking PTE classes in different institutions of Rupandehi district, highly accepted PTE is a good learning setting where the students learn about different language skills because this test focuses on real-world language skills. While sharing their opinions on the PTE test that emphasis on language skills, perceived their thoughts on it. For instance:

- The PTE test is designed to evaluate the English language proficiency of non-native speakers with a focus on real-world language skills. That means it assesses how well the learners can use English in real-life contexts like academic settings, workplace conversation, problem-solving skills and social interactions. (Sushmita from GEN institution)
- PTE test emphasis on integrated language skills in real life communication practically. In speaking and writing, students have to concentrate on summarizing spoken content and responding to questions in written form like mimicking tasks which is essential in everyday life. Similarly, in reading and listening, there is a task like listening to the lecture and reading a passage and answering the questions based on real-world context. (Lalit from GGC institution)
- The task in the PTE test stimulates real-life situations such as describing verbally about an image, summarizing information vividly which is useful in academic settings. It also evaluates listening skills in distinct contexts like conversations, lectures and presentations and a wide range of real-world scenarios. (Deep from KS institution)
- PTE is a computer-based test that evaluates technological skills through virtual communication. That means, it stimulates the digital format by enhancing the significance of technology in educational and career communication in real-life situations. (Manasvi from NBS language institution)
- PTE assists to expose global English because it is used all over the world that is full of diversity in accents, pronunciations and situations which make the students develop the proficiency to comprehend English as it is uttered by people from distinct cultures and regions. This displays the real-world environment where the English learners come from different linguistic backgrounds. (Roshan from MBS institution)

These remarks exhibited a vivid image that the PTE test assesses the English language competence of non-native speakers, focusing on the practical, real-world language skills. That means the PTE test connects the learners with real-life situations and language skills through giving emphasis on integrated skills, academic and professional relevance, focus on everyday vocabulary and use of

phrasal terms. Besides these, it stimulates digital communication, global and cross-cultural communication. PTE takes a strong focus on real-world language skills through practical application in both academic and professional scenarios.

PTE Test Preparation Overload over actual Language Learning

Perceptions from the language instructors/ teachers who are taking PTE classes in different institutions of Rupandehi district on the effectiveness of PTE Test in improving English language skills, I found that PTE test preparation overloads actual language learning. PTE test, a computer assisted test, has now become a diligent platform for every student to improve their way of learning English language especially in non-native English speakers. For instance, Pritam from BSC language institution opined:

6. PTE test preparation overload impacts real language learning. When the students are preparing well for the test, they automatically commence to learn the language in a good flavor through goal-oriented learning, a student may spend hours practicing the tasks that certainly enhance their abilities to utter naturally.

His views demonstrated that PTE preparation supports the real language learning. The high degree of particularity in test preparation may lead towards a good English language learning. Similarly, Mayank from NC language institution argued that PTE test preparation is a significant process of English language learning. He further revealed:

7. PTE test preparation focuses on developing all aspects of language skills: speaking, listening, reading and writing beyond the test's scope and it gives emphasis on maintaining long-term language learning goals which ensures the students develop not just test-taking skills but also genuine proficiency in English.

His statement denoted that the PTE test is an effective assessment system that measures academic and professional English proficiency in standard ways. It focuses on the expense of organic language development to use English flexibly, fluently and naturally. In the same way, Manasvi from NBS institution said:

8. Tests are always helpful to make the students master the learning process. Here, when the students commence to prepare for the PTE test, their preparation supports them to learn the English language much better. From the preparation of the test, students learn the actual learning. That means, students learn adequately about the English language when they appear in the PTE test.

Her perceptions indicated that the PTE test is essential to upgrade the proficiency of the English language, especially in non-native speakers. This type of test always supports the Nepali learners to improve their competence and performance of the English language in different skills: listening, speaking, reading and writing.

Thus, the process of preparing for the test can lead to enhance substantial reforms in distinct domains of English language learning.

With these examples, it can be inferred that the PTE test is designed to evaluate four major language skills: listening, speaking, writing, and reading. From the different participants' thoughts, it is urged that the PTE test plays a pivotal role in improving English language proficiency by inspiring the students to emphasize on all aspects of language acquisition. It also stimulates the students to develop real-world language skills, which are highly essential for career upliftment, instructional success and sound communication in the global scenario.

DISCUSSION

The study explored language instructors/teachers' perceptions towards the effectiveness of PTE Test in improving English language skills in the Nepalese context. It attempted to gather lived experiences and thoughts of the tutors about the PTE test from the different language institutions. After analyzing the data in thematic analysis, it is inferred that the PTE test is an effective assessment system that measures academic and professional English proficiency in standard ways. The research participants perceived that the PTE test focuses on the expense of organic language development to use English fluently and naturally. Similarly, it plays a pivotal role in improving English language proficiency by inspiring the students to emphasize on all the aspects of language acquisition. It is found that PTE tests emphasize integrated language skills in real life communication practically. In speaking and writing, students have to focus on summarizing spoken content and responding to questions in written form like mimicking tasks which is essential in everyday life. Similarly, in reading and listening, there is a task like listening to the lecture and reading a passage and answering the questions based on real-world situations. That means, most of the language instructors said that the PTE test helps to bring changes in the process of learning English especially in non-native English-speaking countries like Nepal. Besides this, it helps the students improve their level of language learning to reach a higher level of competence in English. It also assists the students to focus on improving their grammar, vocabulary and pronunciation.

In the opinions of the participants, it is comprehended that, while preparing for the PTE test, students obviously improve their way of learning English because PTE preparation supports the real language learning. The high degree of particularity in test preparation may lead towards a good English language learning. The structure of the PTE displays real-world language use, preparing the students for practical communication in academic as well as professional settings. In fact, PTE is a fully regulated test where the four language skills are evaluated by computer (Chan, 2011). Many employers and universities of the world judge the PTE as evidence of proficiency level of English language skills. Other major findings from the research indicated that the PTE test connects the learners with real-life situations and language skills through giving emphasis on integrated

skills, academic and professional relevance, emphasis on everyday vocabulary and use of phrasal terms. From this point, it can be suggested that the PTE test plays a significant role in improving the English language particularly in non-native speakers.

CONCLUSION

In this digital era, the PTE test has become one of the standardized tests to evaluate the students in order to enter native English-speaking countries in a purpose of admission in a university and immigration. PTE is a computer-based test that evaluates technological skills through virtual communication. That means, it stimulates the digital format by enhancing the significance of technology in educational and career communication in real-life situations. Students from non-native English-speaking countries have obtained a bountiful platform to improve their English language proficiency through the PTE test. That means while preparing for the PTE test, many students transform their ways of learning the English language. PTE test supports all learners to improve their language proficiency for the purpose of securing a good score. The findings of the study suggest that the PTE test gives the students a comprehensive understanding of their language proficiency. It makes the students improve their level of learning language to reach a higher level of competence in English by focusing on their grammar, vocabulary and pronunciation. That means the PTE test connects the learners with real-life situations and language skills through giving emphasis on integrated skills, academic and professional relevance, focus on everyday lexical and use of phrasal terms. Majority of the participants perceived that the PTE test has played a genuine role to bring improvement over English language competence of the learners particularly in non-native English-speaking countries like Nepal.

This study is mainly based on the interviews of the language instructors/teachers, from different language institutions, who perceived that the PTE test is highly significant in improving English language proficiency. If future students carry on the PTE test, one can adopt the PTE test and its impacts in the assessment to non-native speakers of English speakers in the Nepalese context.

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Impact of Integrating Local Knowledge Systems (LKS) into the Basic Education Curriculum as a Strategy for Decolonizing Education and Enhancing Students' Engagement and Cultural Identity in Public Secondary Schools in Anambra State, Nigeria

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ABSTRACT

This study examined senior secondary school students' awareness, engagement and perceptions of Local Knowledge Systems (LKS) integrated into the basic education curriculum as a strategy for decolonizing education and enhancing cultural identity in public secondary schools in Anambra State, Nigeria. Anchored in a descriptive survey research design, the study targeted 243 students from three purposefully selected Education zones and twelve schools that offered culturally grounded learning opportunities and incorporated indigenous knowledge into subjects such as social studies, cultural and creative arts and civic education. Data were collected using a structured questionnaire developed from a comprehensive review of relevant literature and validated by experts in curriculum education and measurement and evaluation. The instrument demonstrated high reliability, with a Cronbach's alpha coefficient of 0.86. The questionnaire measured students' knowledge and understanding of LKS, engagement in culturally grounded classroom and community-based activities, sense of cultural identity and pride and perceptions of how LKS integration influenced learning relevance and motivation. Descriptive statistics, including mean and standard deviation, were used to answer the research questions. The findings revealed that students had moderate to high awareness and understanding of LKS, actively participated in culturally grounded learning experiences and reported enhanced cultural identity and pride. Additionally, students perceived that LKS integration improved the relevance of learning and motivated their active participation. The study highlighted the importance of systematic inclusion of LKS in the curriculum to foster culturally responsive pedagogy, decolonize educational content and enhance students' engagement and appreciation of indigenous heritage. The study concluded that integrating Local Knowledge Systems into the basic education curriculum effectively enhances students' engagement, cultural identity, and the relevance of learning in public secondary schools. The study recommended that school administrators and policymakers should promote the systematic integration of Local Knowledge Systems into teaching and learning by providing

teachers with adequate training and resources, thereby enhancing students' engagement, cultural identity and the relevance of education.

Keywords: Cultural identity, curriculum integration, decolonization, engagement, Local Knowledge Systems

INTRODUCTION

Education remains one of the most powerful instruments for individual empowerment, cultural renewal and sustainable national development. Through structured curricula, instructional innovation and value transmission, education enables learners to acquire the knowledge, skills and dispositions required to engage meaningfully in their communities and to participate in global development (Makokotlela, 2025). However, in many postcolonial contexts, including Nigeria, the content and structure of formal education continue to reflect colonial epistemologies that privilege Western knowledge systems while marginalizing indigenous languages, cultural heritage and local knowledge (UNESCO, 2020; Oukouomi Noutchie, 2025). This epistemic imbalance has resulted in generations of learners who are disconnected from their cultural roots and community realities, leading to weakened identity formation, limited relevance of schooling and diminished civic engagement (Matindike, 2024; Odora Hoppers, 2021). The call to decolonize education has thus gained prominence among African scholars and policymakers who advocate for the development of inclusive, contextually relevant and culturally grounded learning systems (Makokotlela, 2025; Seleke et al., 2025). Decolonizing education entails critically examining the power relations that shape knowledge production, curriculum content and pedagogical practice. It involves recognizing indigenous epistemologies, not as supplementary perspectives but as equal systems of knowing and doing that reflect learners' lived realities (Anor, 2022; Jaxa, 2024). Within African contexts, decolonization represents both a cultural and intellectual reclamation, transforming education into a tool for self-definition, community empowerment and sustainable development (Matindike, 2024; Oukouomi Noutchie, 2025). One strategic pathway for achieving this transformation is through the integration of Local Knowledge Systems (LKS) into the formal curriculum. LKS encompasses the collective wisdom, skills and beliefs developed through long-term interactions with the natural and socio-cultural environment. It includes traditional ecological management, indigenous governance systems, oral histories, craftsmanship and moral values (Jaxa, 2024; Anor, 2022). Integrating LKS into classroom instruction can make learning more meaningful, participatory and culturally affirming. Studies have shown that contextualized pedagogy enhances learners' motivation, strengthens cognitive engagement and promotes cultural pride (Muchenje & Muzenda, 2024; Seleke et al., 2025). By bridging formal education and community realities, schools can cultivate students who are both academically competent and culturally grounded. In Nigeria, national

policies such as the National Policy on Education (Federal Ministry of Education [FME], 2024) and the framework (Universal Basic Education Commission [UBEC], 2025) advocate for the inclusion of local content in curricula. However, implementation has remained largely theoretical, with most schools still relying on imported models that undervalue indigenous experiences (Ebele, 2024). Consequently, many learners perceive formal education as alien to their lived environments, which contributes to declining engagement and fragile cultural identity. This challenge is particularly visible in secondary education, where learners begin to form critical worldviews and social consciousness (Oladipupo, 2025).

Empirical studies in African settings highlighted the pedagogical and socio-cultural benefits of integrating local knowledge into school curricula. In Ghana, Anor (2022) found that embedding indigenous knowledge in chemistry lessons improved students' cognitive and emotional engagement. Similarly, in South Africa, Matindike (2024) reported that indigenous integration in science and entrepreneurship classes enhanced relevance and motivation among students. Seleke et al. (2025) further observed that when learners engage with community-based knowledge, they develop stronger environmental awareness and social responsibility. Despite these successes, Nigerian research in general and Anambra State as a whole and policy practice remain limited, calling for empirical evidence to guide the integration of LKS into mainstream education.

In Anambra State, education plays a central role in youth and community development, yet the curriculum still reflects limited engagement with indigenous heritage. Many students show minimal awareness of traditional ecological practices, indigenous conflict resolution systems or local artistic expressions that once served as vehicles for civic and moral education (Ebele, 2024). Teachers, too, face challenges in implementing local content, citing lack of training, institutional support and culturally aligned teaching materials. This has resulted in a persistent disconnection between school knowledge and community life, undermining learners' engagement and identity formation (Oladipupo, 2025).

This study therefore investigated the impact of integrating Local Knowledge Systems into the basic education curriculum as a strategy for decolonizing education and strengthening students' engagement and cultural identity in public secondary schools in Anambra State, Nigeria. Grounded in constructivist learning theory (Vygotsky, 1978) and experiential learning theory (Kolb, 1984), the study assumed that students learn more effectively when instruction connects academic knowledge with familiar cultural experiences and authentic community activities. Through culturally relevant pedagogies, such as community storytelling, indigenous arts and participatory environmental projects, learners are expected to experience deeper understanding and cultural affirmation.

Consequently, this study sought to provide empirical evidence on the impact of LKS integration on students' cognitive and affective outcomes. Specifically, it

examined how indigenous content enhances participation, motivation and identity formation and identified challenges teachers face in operationalizing culturally grounded pedagogy. By linking curriculum reform to the broader agenda of educational decolonization, the study contributed to the growing discourse on culturally responsive education in Africa. It offered practical understandings for curriculum developers, policymakers and teacher educators seeking to make education both globally competitive and locally meaningful. Ultimately, integrating Local Knowledge Systems into the curriculum is not merely a pedagogical innovation but a moral imperative, restoring dignity, agency and relevance to learners while strengthening the transformative role of education in postcolonial societies.

PURPOSE OF THE STUDY

The main purpose of this study was to examine the impact of integrating Local Knowledge Systems (LKS) into the basic education curriculum as a strategy for decolonizing education and enhancing students' engagement and cultural identity in public secondary schools in Anambra State, Nigeria. Specifically, the study aimed:

1. To determine students' awareness and understanding of Local Knowledge Systems (LKS) integrated into their school subjects, such as traditional environmental management, indigenous art forms and oral traditions.

2. Assess the level of students' engagement in culturally grounded classroom and community-based learning activities that incorporate LKS.

3. Examine the influence of LKS integration on students' sense of cultural identity, pride and appreciation of indigenous heritage.

4. Explore students' perceptions of how the integration of LKS contributes to learning relevance, motivation and the decolonization of education.

RESEARCH QUESTIONS

1. To what extent are students aware of and understanding of Local Knowledge Systems (LKS) integrated into their school subjects, such as traditional environmental management, indigenous art forms and oral traditions?

2. What is the level of students' engagement in culturally grounded classroom and community-based learning activities that incorporate Local Knowledge Systems (LKS)?

3. What is the influence of LKS integration on students' sense of cultural identity, pride and appreciation of indigenous heritage?

4. What are students' perceptions of how integrating LKS into the curriculum contributes to learning relevance, motivation and the decolonization of education in Anambra State?

Research Design

This study adopted a descriptive survey research design to investigate the impact of integrating Local Knowledge Systems (LKS) into the basic education curriculum as a strategy for decolonizing education and enhancing students' engagement and cultural identity in public secondary schools in Anambra State, Nigeria. The descriptive survey design is considered appropriate because it allows the researcher to collect quantitative data on participants' perceptions, experiences and attitudes in their natural school settings without manipulating study variables (Ikegbusi, 2022). It provides an accurate snapshot of existing conditions and relationships between LKS integration, students' engagement and cultural identity.

Population and Sample

The target population for this study comprised all 21,272 Senior Secondary Two (SS2) students enrolled in 269 public senior secondary schools across the six education zones of Anambra State, Nigeria. This population was considered appropriate because SS2 learners are typically at an advanced stage of adolescence when identity formation, critical thinking and appreciation of cultural values are being consolidated (Obi et al., 2022). In addition, SS2 students are widely exposed to subjects such as Civic Education, Social Studies, History, Cultural and Creative Arts, Agricultural Science and English Language, subjects that commonly integrate elements of Local Knowledge Systems (LKS) and indigenous cultural perspectives.

A purposive sampling technique was employed to ensure representation of different socio-geographical contexts within Anambra State while maintaining feasibility. Out of the six education zones, three zones (Otuocha, Aguata and Onitsha) were purposively selected to reflect rural, semi-urban and urban settings. Within each selected zone, four public senior secondary schools were purposively chosen based on their prior participation in community-based learning, cultural heritage projects or locally relevant curriculum enrichment programs, criteria indicating exposure to LKS-related activities. From each of the twelve selected schools, 21 SS2 students were purposively drawn, ensuring gender balance and inclusion across different subject streams. This produced a total sample of 252 participants (3 zones × 4 schools × 21 students = 252). The sample size and selection process were guided by accessibility, willingness to participate and the need to capture diverse students' experiences with LKS integration across distinct school environments.

INSTRUMENTATION

The main instrument for data collection in this study was a structured questionnaire titled Students' Engagement and Cultural Identity through Local Knowledge Systems Integration Questionnaire (SECILKSQ). The instrument was developed after an extensive review of relevant literature on decolonizing

education, culturally responsive pedagogy and indigenous knowledge integration in school curricula. Items were adapted and contextualized from established instruments that measure students' engagement (Freda et al., 2023), cultural identity development (Gharaei et al., 2024) and perceptions of culturally grounded learning (Gay, 2018; Ladson-Billings, 2021).

The SECILKSQ was designed to assess four key constructs:

1. Students' awareness and understanding of Local Knowledge Systems (LKS) integrated into their school subjects (e.g., traditional environmental management, indigenous art forms and oral traditions).

2. Students' engagement in culturally grounded classroom and community-based learning activities, such as storytelling, local crafts, traditional festivals or heritage projects.

3. Students' sense of cultural identity and belonging, as reflected in their pride in local heritage, value appreciation and cultural self-expression.

4. Students' perceptions of how LKS integration contributes to learning relevance, motivation and school participation.

Each item in the questionnaire was rated on a 4-point Likert scale, with response options of extent scale of Very High Extent (4), High Extent (3), Low Extent (2) and Very Low Extent (1), for research question one and Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1), for research questions 2, 3 and 4. The 4-point scale was chosen to discourage neutrality and to prompt respondents to take a clear position on each statement (Kankaraš & Capecchi, 2024).

Validity and Reliability

To enhance contextual relevance, examples drawn from Anambra State's cultural practices, such as local proverbs, indigenous agricultural methods, moral instruction through folktales and traditional apprenticeship systems, were included in item wording. The research instrument was subjected to both face and content validation to ensure its appropriateness, clarity and alignment with the study objectives. Two experts, one in curriculum studies and one in educational measurement and evaluation from Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus, Anambra State, Nigeria, reviewed the instrument to evaluate the adequacy of the items in measuring students' engagement and cultural identity in relation to the integration of Local Knowledge Systems (LKS) into the basic education curriculum. Their feedback guided the refinement of ambiguous items, enhancement of content relevance and adjustment of language to ensure cultural and contextual appropriateness for students in Anambra State.

To determine the instrument's reliability, a pilot study was conducted using 30 students drawn from two public secondary schools in Enugu State that were not included in the main study but shared similar cultural and educational

characteristics. The responses were analyzed using Cronbach's alpha to assess the internal consistency of the instrument. The reliability coefficient obtained for the entire scale was 0.86, indicating a high level of internal consistency and dependability of the instrument. This value exceeds the 0.70 benchmark recommended by Creswell and Creswell (2018), signifying that the instrument was reliable for data collection.

Data Collection Procedure

Prior to data collection, the researcher obtained formal approval from the Anambra State Ministry of Education and the principals of the selected public secondary schools. Informed consent was also sought from participating students and their guardians to ensure ethical compliance and voluntary participation. Three trained research assistants, each with a background in educational research and curriculum studies, were engaged to assist in administering the questionnaire.

Before the commencement of fieldwork, the research assistants were given a one-day orientation on the purpose of the study, ethical considerations such as confidentiality and anonymity and standardized procedures for administering the instrument. They were also instructed on how to provide clarification for questionnaire items where necessary without leading or influencing participants' responses.

Data collection was conducted during regular school hours to avoid disruption of academic activities. The questionnaires were distributed and completed within the classroom setting under the supervision of the research team. Out of the 252 copies of the *Students' Engagement and Cultural Identity through Local Knowledge Systems Integration Questionnaire (SECILKSIQ)* distributed, 243 were properly filled and retrieved, representing a 96.4 % return rate. The high retrieval rate was attributed to the close monitoring of the process and the cooperative attitude of the school authorities and students.

METHOD OF DATA ANALYSIS

The data collected were coded and analyzed using the Statistical Package for the Social Sciences (SPSS), Version 28. Descriptive statistics, including the mean (M) and standard deviation (SD), were employed to answer the research questions. The mean scores provided a quantitative summary of students' levels of engagement, cultural identity awareness and perceptions of the integration of Local Knowledge Systems (LKS) into the basic education curriculum.

A decision benchmark of 2.50 was adopted as the criterion mean for interpreting responses on the 4-point Likert scale. Thus, mean scores of 2.50 and above were regarded as high or positive, indicating favourable perceptions, strong engagement and high cultural identity awareness, while mean scores below 2.50

were interpreted as low or negative, reflecting weak engagement or limited cultural connection.

This analytical approach was appropriate given the descriptive survey design of the study, as it enabled the researcher to summarize and interpret the overall patterns of students' responses in relation to the integration of LKS in their learning experiences. The use of descriptive statistics provided a clear, objective and interpretable representation of students' attitudes and experiences, aligning with recommendations by Pallant (2020) that descriptive analysis is suitable for summarizing large-scale educational data and identifying emerging trends in learner perceptions.

RESULTS

This section presents the analyzed results based on the four research questions guiding the study.

Students' Awareness and Understanding of Local Knowledge Systems (LKS) Integrated into School Subjects

Table 1 presents the mean ratings of students on their awareness and understanding of Local Knowledge Systems (LKS) integrated into school subjects such as traditional environmental management, indigenous art forms and oral traditions. The responses of 243 students were analyzed and summarized based on five questionnaire items.

Table 1 Students' Awareness and Understanding of Local Knowledge Systems (LKS) Integrated into School Subjects (N = 243)

S/N	Items	M	SD	Decision
1	I am aware that some of my school subjects include lessons related to local culture, traditions and community knowledge.	2.92	1.07	High
2	I understand examples of Local Knowledge Systems such as traditional farming, indigenous arts and oral storytelling taught in school.	2.78	1.10	High
3	My teachers often connect classroom topics with local community experiences or indigenous practices.	2.45	0.93	Low
4	I can explain how indigenous knowledge helps to solve environmental or social problems in my community.	2.30	0.88	Low
5	I have learned about traditional values and practices that represent my community's heritage in my school lessons.	2.80	1.05	High
	Grand Mean	**2.65**		**High**

The results in Table 1 showed that students in public secondary schools in Anambra State possess a high level of awareness and understanding of Local Knowledge Systems (LKS) integrated into their school subjects, as indicated by

the grand mean score of 2.65. This implied that the extent of LKS integration perceived by students is relatively high. Students demonstrated strong awareness of LKS-related content, particularly regarding the inclusion of cultural and traditional themes in classroom learning (Item 1, M = 2.92; SD = 1.07) and their understanding of indigenous practices such as farming, art and storytelling (Item 2, M = 2.78; SD = 1.10). They also acknowledged learning about traditional community values through school instruction (Item 5, M = 2.80; SD = 1.05).

However, lower mean scores in Items 3 and 4 indicated that students are less exposed to the practical application of LKS in classroom teaching. This suggested that while students are aware of indigenous knowledge concepts, these are not consistently translated into active classroom practice or contextual learning. Overall, the findings implied that the extent of students' awareness and understanding of LKS in the curriculum is moderately high, reflecting that schools are making progress in integrating local culture and knowledge, though deeper experiential engagement is still limited.

Students' Engagement in Culturally Grounded Classroom and Community-Based Learning Activities that Incorporate Local Knowledge Systems (LKS)

Table 2 presents the mean ratings of students on their level of engagement in culturally grounded classroom and community-based learning activities that incorporate Local Knowledge Systems (LKS). The responses of 243 students were analyzed and summarized based on five questionnaire items.

Table 2 Students' Engagement in Culturally Grounded Classroom and Community-Based Learning Activities that Incorporate LKS (N = 243)

S/N	Items	M	SD	Decision
1	I actively participate in classroom discussions that involve local traditions, customs and indigenous practices.	2.75	1.06	High
2	I take part in school or community projects that showcase traditional art, crafts or cultural heritage.	2.68	1.08	High
3	My teachers encourage me to relate classroom lessons to real-life local experiences or cultural events.	2.42	0.97	Low
4	I enjoy learning through cultural activities such as storytelling, songs, drama or local festivals organized in school.	2.80	1.04	High
5	I have opportunities to share knowledge from my family or community during classroom learning.	2.50	0.92	Low
	Grand Mean	**2.63**		**High**

The results in Table 2 revealed that students showed a high level of engagement in culturally grounded classroom and community-based learning activities that incorporate Local Knowledge Systems (LKS), as indicated by the grand mean score of 2.63. This means that students participate in learning experiences that

reflect their cultural and community background. Students reported being particularly involved in class discussions about local customs and traditions (Item 1, M = 2.75; SD = 1.06) and participating in school projects that highlight indigenous crafts and heritage (Item 2, M = 2.68; SD = 1.08). Similarly, enjoyment of cultural learning experiences such as storytelling, songs and festivals (Item 4, M = 2.80; SD = 1.04) was rated high, reflecting positive engagement in culturally relevant activities.

However, students indicated lower engagement in areas where they are expected to connect lessons to real-life community experiences (Item 3, M = 2.42; SD = 0.97) or contribute indigenous knowledge from their families during class (Item 5, M = 2.50; SD = 0.92). This suggested that active integration of students' lived experiences and community knowledge into classroom learning remains limited. In summary, the findings showed that while students participate enthusiastically in cultural and community-based activities, there is still a need for teachers to provide more opportunities for experiential learning and cultural exchange within classroom settings to deepen LKS-based engagement.

Students' Sense of Cultural Identity and Pride in Indigenous Heritage as Influenced by Local Knowledge Systems (LKS) Integration

Table 3 presented the mean ratings of students on their sense of cultural identity, pride and appreciation of indigenous heritage as influenced by exposure to Local Knowledge Systems (LKS) in their school learning experiences. Responses were obtained from 243 students.

Table 3 Students' Sense of Cultural Identity and Pride in Indigenous Heritage (N = 243)

S/N	Items	M	SD	Decision
1	Learning about indigenous traditions and local practices helps me to feel proud of my cultural heritage.	2.86	1.07	High
2	I feel a strong sense of belonging when our lessons reflect my local culture and community values.	2.78	1.01	High
3	I am confident to express my cultural identity during classroom activities and discussions.	2.60	0.94	High
4	School activities that involve traditional festivals, songs or stories make me to appreciate my culture more.	2.74	1.09	High
5	I believe that learning through LKS helps me to understand who I am and where I come from.	2.91	1.08	High
	Grand Mean	**2.78**		**High**

The results in Table 3 indicated that students generally possess a high sense of cultural identity and pride in their indigenous heritage, as reflected by the grand mean score of 2.78. This suggested that integrating Local Knowledge Systems

(LKS) into classroom learning positively influences students' appreciation of their cultural background and strengthens their sense of belonging. Specifically, students strongly agreed that learning about indigenous traditions and local practices enhances their cultural pride (Item 1, M = 2.86; SD = 1.07) and that such lessons foster a sense of belonging to their community (Item 2, M = 2.78; SD = 1.01). Similarly, students expressed confidence in expressing their cultural identity during classroom interactions (Item 3, M = 2.60; SD = 0.94), indicating that LKS-based learning environments promote openness and self-expression.

Additionally, participation in traditional activities such as festivals, songs and storytelling (Item 4, M = 2.74; SD = 1.09) and understanding the connection between cultural knowledge and personal identity (Item 5, M = 2.91; SD = 1.08) further reinforce cultural self-awareness among students. Overall, the findings revealed that LKS integration plays a significant role in strengthening students' cultural identity, promoting pride in their heritage and encouraging cultural continuity through education. This supports the idea that when students see their culture reflected in learning experiences, they develop stronger motivation, confidence and self-worth.

Students' Perceptions of How Local Knowledge Systems (LKS) Contribute to Learning Relevance, Motivation and the Decolonization of Education

Table 4 presented the mean ratings of students on their perceptions of how the integration of Local Knowledge Systems (LKS) contributes to learning relevance, motivation and the decolonization of education in public secondary schools in Anambra State. Responses were gathered from 243 students.

Table 4 Students' Perceptions of the Role of LKS in Enhancing Learning Relevance, Motivation and Educational Decolonization (N = 243)

S/N	Items	M	SD	Decision
1	Learning through Local Knowledge Systems makes school lessons to be more meaningful and easier to relate to real-life experiences.	2.89	1.05	High
2	I am more motivated to learn when examples and activities are based on my local environment and culture.	2.82	1.09	High
3	LKS-based learning helps me to see that my culture and traditions are valuable sources of knowledge.	2.91	1.02	High
4	Integrating LKS in teaching helps to reduce over-dependence on foreign ideas and makes learning to be more locally relevant.	2.76	1.10	High
5	I believe that using LKS in the curriculum helps to promote respect for indigenous knowledge and cultural diversity.	2.84	1.07	High
	Grand Mean	**2.84**		**High**

The results in Table 4 showed that students have a highly positive perception of how Local Knowledge Systems (LKS) enhance the relevance, motivation and decolonization of education, as indicated by the grand mean of 2.84. This finding implied that LKS integration is perceived by students as an effective approach to making learning experiences more authentic, engaging and culturally grounded. Students strongly agreed that when LKS is used in the classroom, lessons become more meaningful and applicable to real-life contexts (Item 1, M = 2.89; SD = 1.05). They also reported higher levels of motivation and interest in learning when cultural examples and local environments are used in teaching (Item 2, M = 2.82; SD = 1.09). Furthermore, students recognized that integrating LKS validates indigenous knowledge and highlights the intellectual value of their cultural heritage (Item 3, M = 2.91; SD = 1.02). They also viewed LKS-based education as a way to reduce dependence on foreign epistemologies and strengthen local relevance in schooling (Item 4, M = 2.76; SD = 1.10).

Additionally, most students believed that LKS integration fosters respect for indigenous wisdom and cultural diversity (Item 5, M = 2.84; SD = 1.07). In summary, the findings suggested that students perceive LKS integration as a decolonizing force in education, one that enhances motivation, bridges cultural gaps in learning and promotes respect for indigenous knowledge systems. This aligns with the principles of culturally responsive and context-relevant pedagogy, which advocate for the inclusion of local perspectives as a means of empowering learners and communities.

DISCUSSION

This study investigated the impact of integrating Local Knowledge Systems (LKS) into the basic education curriculum as a strategy for decolonizing education and enhancing students' engagement and cultural identity in public secondary schools

in Anambra State, Nigeria. The discussion of findings is presented under four major themes derived from the research questions.

Students' Awareness and Understanding of Local Knowledge Systems (LKS)

Findings from the study revealed that students demonstrated a relatively high level of awareness and understanding of Local Knowledge Systems (LKS) integrated into their school subjects, such as traditional environmental management, indigenous art forms and oral traditions. The mean ratings indicated that students were familiar with certain indigenous practices and cultural elements reflected in subjects like Civic Education, Social Studies and Cultural and Creative Arts. However, while general awareness was high, deeper conceptual understanding of how these local systems contribute to knowledge, problem-solving and sustainable development appeared limited.

This pattern suggested that although students encounter cultural content in the curriculum, such exposure may be surface-level rather than integrated into critical thinking and practical applications. These findings corroborate the results of Ezeanya-Esiobu (2019) and Adeyeye (2019), who found that African educational systems still marginally incorporate indigenous knowledge within mainstream curricula, often as add-ons rather than as frameworks for teaching and learning. Similarly, Mlotshwa and Tsakeni (2024) observed that while learners in South Africa were aware of indigenous practices, they lacked deeper epistemic engagement because teachers were not adequately trained to contextualize content within local realities.

Kolb's Experiential Learning Theory provided a useful lens to interpret these findings. According to Kolb, learning occurs when students move through cycles of experience, reflection, conceptualization and experimentation. The findings implied that while Nigerian students have "experienced" local knowledge through exposure, they have not sufficiently reflected on or applied it to contemporary learning problems. Thus, to enhance understanding, teachers need to create experiential learning opportunities where students can apply indigenous knowledge in practical, problem-solving contexts (Kolb, 1984).

Students' Engagement in Culturally Grounded Classroom and Community-Based Learning Activities

The results further revealed that students' engagement in culturally grounded classroom and community-based learning activities was moderately high. Students participated in locally inspired activities such as storytelling, indigenous art, environmental conservation projects and traditional festivals. These forms of engagement raised interest, creativity and social participation. However, the level of engagement varied across schools, depending on teachers' initiative, school leadership support and community involvement.

These results are consistent with the findings of Sefoka and Chuene (2024), who reported that incorporating indigenous practices in classroom instruction increases learners' motivation and participation because it connects education to their lived experiences. Similarly, Kugara and Mdhluli (2023) emphasized that the inclusion of cultural content in school activities enhances learner-centered pedagogy and bridges the gap between formal education and community knowledge systems.

From a theoretical standpoint, Vygotsky's Sociocultural Theory explained this relationship by emphasizing that learning is mediated through cultural tools, language and social interaction. When learners participate in storytelling, local crafts and heritage projects, they engage in socially meaningful activities that strengthen their cognitive and emotional connection to learning. Consequently, integrating LKS in learning experiences promotes both engagement and identity formation, aligning with the decolonial vision of contextually relevant education.

Influence of LKS Integration on Students' Sense of Cultural Identity and Indigenous Pride

The findings demonstrated that LKS integration had a strong positive influence on students' sense of cultural identity, pride and appreciation of indigenous heritage. The mean ratings showed that students felt proud of their cultural roots and recognized the value of indigenous knowledge as legitimate and relevant to contemporary society. They also reported that LKS-based education helped them to appreciate traditional values such as respect for elders, community cooperation and environmental stewardship.

These findings echo the works of Sithole (2020) and Ezeanya-Esiobu (2019), who asserted that the inclusion of indigenous perspectives in education helps to restore cultural dignity and identity among African learners. Similarly, Chilisa (2020) argued that decolonizing education begins with recognizing indigenous epistemologies as valid sources of knowledge, capable of shaping identity and national consciousness. The findings thus confirmed that education rooted in local knowledge strengthens students' sense of belonging and reinforces cultural continuity.

Kolb's experiential framework again offered insight into this process. When students engage directly with cultural practices and reflect on their significance, they progress through the learning cycle, from experience to understanding to internalization. This active participation transforms knowledge into personal meaning, leading to deeper identity formation. Thus, the inclusion of LKS not only enriches content knowledge but also nurtures self-worth and cultural consciousness among learners (Kolb, 1984).

Students' Perceptions of the Role of LKS in Enhancing Learning Relevance, Motivation and Educational Decolonization

The final finding showed that students had positive perceptions of the role of Local Knowledge Systems in making learning relevant, motivating and decolonizing. Students reported that when teachers used examples from local settings, such as indigenous agricultural methods, folklore or cultural arts, they found lessons more relatable and meaningful. This localized approach also enhanced their motivation and appreciation for schooling, as it bridged the gap between home knowledge and classroom learning.

These findings align with those of Kugara and Mdhluli (2023) and Sefoka and Chuene (2024), who reported that contextualized and culturally responsive teaching enhances students' engagement and critical thinking. Moreover, Mawere and Mukusha (2022) emphasized that integrating indigenous perspectives into school curricula is key to epistemic justice and educational transformation in postcolonial societies. The results of this study strengthened the argument that decolonizing education is not merely a political project but a pedagogical approach that humanizes learning by making it culturally authentic and socially relevant.

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SUMMARY OF THE DISCUSSION

Overall, the study's findings confirmed that integrating Local Knowledge Systems into the basic education curriculum contributes significantly to students' awareness, engagement, cultural identity and perceived relevance of learning. However, the study also revealed a need for deeper pedagogical incorporation, teachers' training and curriculum redesign to ensure that LKS moves beyond superficial inclusion toward transformative educational practice. The results affirmed that decolonizing education through LKS is both achievable and vital for fostering culturally grounded, inclusive and sustainable learning environments.

CONCLUSION

This study examined the impact of integrating Local Knowledge Systems (LKS) into the basic education curriculum on students' engagement and cultural identity in public secondary schools in Anambra State, Nigeria. The findings indicated that students generally possess a moderate to high awareness and understanding of LKS concepts embedded in their school subjects, such as traditional environmental management, indigenous art forms and oral traditions. Furthermore, the results showed that participation in culturally grounded classroom and community-based learning activities enhances students' engagement, motivation and active learning.

Importantly, the integration of LKS into the curriculum positively influences students' sense of cultural identity, pride and appreciation of their indigenous heritage, suggesting that curriculum decolonization through LKS is an effective strategy for fostering cultural self-awareness and belonging. Students also perceive that the inclusion of LKS makes learning more relevant, meaningful and connected to their lived experiences, highlighting the pedagogical value of culturally responsive education.

However, the study also revealed that the extent of LKS integration varies across subjects and schools, with some learners reporting limited exposure to indigenous knowledge content. This indicated a need for systematic and deliberate incorporation of LKS in lesson planning, teachers' training and curriculum development to ensure consistency and depth in its application.

Overall, the findings emphasized that integrating Local Knowledge Systems into basic education is not only crucial for decolonizing the curriculum but also for promoting students' engagement, cultural identity and meaningful learning. Educational policymakers, curriculum developers and teachers should therefore prioritize strategies that embed indigenous knowledge across subjects, facilitate active participation in culturally grounded learning activities and strengthen the relevance of education to students' cultural and community contexts.

Educational Implications

The findings of this study have several important implications for educational practices, particularly regarding curriculum decolonization, culturally responsive pedagogy and students' engagement in public secondary schools. First, the moderate to high levels of students' awareness and understanding of Local Knowledge Systems (LKS) indicated that learners possess a foundational familiarity with indigenous knowledge embedded in their subjects. Educators can build on this foundation by deliberately integrating LKS into lesson planning, using culturally relevant examples and linking classroom content to students' lived experiences. This approach enhances the relevance of learning and encourages deeper comprehension of both academic and cultural knowledge.

Second, the study highlighted that students' engagement increases when learning activities are grounded in local culture, such as storytelling, traditional crafts, community heritage projects and local environmental management practices. School administrators and teachers should therefore prioritize experiential and project-based learning strategies that actively involve students in culturally grounded tasks. Such activities not only promote engagement and motivation but also foster creativity, problem-solving skills and critical thinking in ways that are meaningful and contextually relevant.

Third, the positive influence of LKS integration on students' cultural identity, pride and appreciation of indigenous heritage emphasizes the role of education in shaping learners' social and cultural development. Schools should leverage this by creating opportunities for students to express, preserve and critically reflect on their cultural heritage. For example, incorporating local festivals, oral histories and indigenous arts into curriculum activities can strengthen students' sense of belonging, self-worth and cultural responsibility, thereby addressing issues of identity erosion commonly associated with colonialized curricula.

Fourth, the findings suggested that consistent, systematic and well-supported integration of LKS across subjects is necessary to achieve meaningful educational outcomes. This requires professional development for teachers, including training on culturally responsive pedagogy, effective methods of embedding LKS into teaching and strategies for linking indigenous knowledge to broader learning objectives. Schools should also provide instructional resources and community partnerships to support culturally grounded learning experiences.

Finally, the study emphasized that curriculum decolonization through LKS integration has broader implications beyond students' engagement and cultural identity. It promotes inclusive education by validating indigenous knowledge systems, bridging the gap between formal schooling and community realities and preparing learners to contribute to culturally aware and socially responsible communities. Educational policymakers, curriculum developers and teacher educators should therefore prioritize LKS integration as a core component of curriculum reform in Nigeria and similar contexts.

Limitations

This study has several limitations. First, the sample was restricted to students from selected public secondary schools in Anambra State, which may limit the generalizability of the findings to other regions or school types. Second, the study relied on self-reported questionnaire data, which may be influenced by social desirability bias, with students potentially overstating their awareness, engagement or perceptions of LKS integration. Third, the study did not include classroom observations or teacher interviews, which could have provided

complementary insights into the actual implementation of LKS in teaching and learning. Future research should address these limitations by employing a larger and more diverse sample across multiple states and by combining self-reports with observational or performance-based assessments to strengthen the validity and reliability of findings.

Recommendations

1. Public secondary schools should systematically embed Local Knowledge Systems across relevant subjects to enhance students' awareness and understanding of indigenous practices, oral traditions and local environmental management.

2. Teachers should implement participatory, project-based learning activities, such as storytelling, heritage projects and traditional crafts, to strengthen students' engagement and creativity through hands-on interaction with LKS.

3. Schools' management should provide structured opportunities for students to explore and express their indigenous heritage, promoting cultural self-expression, pride and a stronger sense of belonging.

4. Policymakers and curriculum developers should equip teachers with training, resources and instructional guidance to effectively integrate LKS, thereby enhancing learning relevance, motivation and advancing the decolonization of education.

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Ethical Considerations

Ethical approval for this study was obtained from the Research Ethics Committee of the Faculty of Education, Chukwuemeka Odumegwu Ojukwu University, Igbariam Campus, Anambra State, Nigeria. Informed consent was secured from all students' participants and their guardians. The study strictly adhered to ethical principles for research involving human subjects, including confidentiality, voluntary participation, the right to withdraw at any stage and protection of participants' identity and responses.

Conflict of Interest

The authors declare that there are no conflicts of interest associated with this study.

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Women's Political Participation through the Lens of Feminist Theory: The Case of Türkiye after 1934 and Comparisons with Afghanistan and Denmark

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ABSTRACT

The present study examines the question of women's political representation in Türkiye from historical and comparative feminist perspectives. Although Türkiye introduced legal reforms granting women the right to vote and stand for election as early as 1934, structural inequalities, a patriarchal political culture, and media bias continue to prevent women from participating meaningfully in decision-making processes. Using a qualitative comparative approach, the research compares Türkiye's experience with that of Afghanistan, where women face severe political repression, and Denmark, which has a more inclusive political model supported by feminist governance and voluntary quotas. Drawing on liberal, radical, and postmodern feminist theories, the study critically analyzes the visible and invisible barriers preventing women from being fully recognized as political actors within Türkiye. Factors such as class, religion, education, and ethnicity are examined to highlight how political exclusion manifests differently in various Turkish contexts. The findings demonstrate that legal equality alone is insufficient in the absence of structural reforms and cultural transformation. The study therefore calls for binding gender quotas, feminist education, and comprehensive protection against gender-based violence, particularly in digital spaces, as necessary steps to achieving true gender equality in political representation in Türkiye.

Keywords: Women's Political Participation, Türkiye, Feminism, Gender Quotas, Intersectionality, Afghanistan, Denmark, Symbolic Representation, Feminist Theory, Digital Violence, Political Exclusion

INTRODUCTION

In Türkiye, women's unequal representation in political decision-making processes continues to be one of the structural problems of democracies. The study examines the historical development of Turkish women's political representation and provides a comparative assessment with Afghanistan and Denmark. It emphasizes that women should be seen as active political subjects

and not only in a biological role. The fact that women's representation rate in Türkiye is 20% shows that male domination continues, while the exclusion of women from public life in Afghanistan demonstrates an authoritarian and patriarchal structure. In contrast, Denmark represents women more strongly through voluntary quotas and gender equality laws. Women's representation in politics constitutes a significant obstacle to gender equality.

In this context, the study focuses on the following research questions:

1. How has women's political representation in Türkiye evolved historically?

2. What types of challenges do women face when they attempt to enter or remain in political life?

3. How does Türkiye compare to other global examples in terms of gender equality in political participation?

This study is theoretically based on a synthesis of liberal, radical, and postmodern feminist theories. While liberal feminism emphasizes individual equality, radical feminism focuses on structural power relations, and postmodern feminism advocates evaluating women not as a singular identity but through plural and intersectional experiences. These approaches enable the study to provide a critical, multi-layered analysis.

The comparative qualitative analysis method is used. Historical documents, parliamentary data, academic literature, feminist analyses, media discourses, and NGO reports on Türkiye, Denmark, and Afghanistan are examined, and differences in women's representation rates, legal regulations, media language, and gender policies are evaluated. Additionally, the distinction between symbolic and active participation is addressed in line with feminist theory. Consequently, this research aims to inform policymakers and academic studies on how women can be made visible and actively and effectively participate in political decision-making processes.

LITERATURE REVIEW

Historical Background: Women's Political Rights in Türkiye (1934–Present)

Voting and the Right to Be Elected in 1934

The reforms led by Mustafa Kemal Atatürk put Türkiye ahead of many other countries by granting women the right to vote and stand for election in 1930 and 1934. In 1935, 18 women entered Parliament. However, women's representation remained limited during the Second World War and the Democratic Party era (Bigat Akça & Yıldız Aybak, 2024). The period between 1923 and 1960 is seen as a transitional period in which gains were made but political participation remained low.

Women in the Transition to The Multi-Party Era

The transition to a multi-party political system began in 1946 and ended the single-party era in 1950 (Akıncı & Usta, 2016). However, this change did not equally reflect women's representation. Following 1935, there was a decline in the number of female MPs, and concomitantly, there was a decrease in the political visibility of women. Democratization served to restructure the system rather than promote gender equality.

The First Female Members of Parliament in Türkiye and Their Work in Parliament

In 1934, with the introduction of legislation that granted the right to vote, 18 highly educated women, including teachers, doctors, and even a village president, entered the Turkish Grand National Assembly in 1935. Women parliamentarians played a significant role in parliamentary activities with their strong participation in education, health, budget, and women's welfare issues (Sezer, 1998, p. 891). Deputies such as Meliha Ulaş, Sabiha Görkey, and Fatma Memik served in different commissions (Sezer, 1998, p. 892).

Post-1980 Transformation: The Political Impact of Women's Movements

In Türkiye, the women's movement that emerged after 1980 challenged traditional passive identities and sought to promote the view of women as 'free individuals,' emerging as a powerful force in civil and political spheres. Despite its initial momentum, the movement encountered obstacles to political representation in the 2000s due to issues such as the headscarf debate and male-dominated structures, indicating a setback in progress (Karagöz, 2008, s. 185). Women's rights have evolved from a social demand into a struggle for equal citizenship, highlighting the ongoing challenges and struggles for gender equality in Turkish society (Karagöz, 2008, s. 185).

Current Representation in Türkiye: Legal Progress vs. Structural Barriers

Parliamentary and Executive Representation

After the 2023 elections, the percentage of female MPs in the Grand National Assembly reached a historic high of 20.1% (Aydın, 2021). However, this percentage is quite low in the executive branch, where only one of the eighteen ministers is a woman. In the 2024 local elections, 11 provinces elected female mayors. These data show that, despite legal progress, structural limitations on women's political representation persist.

Quota Absence and Party-Level Barriers

Although gender equality is recognized as one of the fundamental indicators of democracy, there is no binding gender quota at the national level in Türkiye.

While some small political parties apply a 40% gender quota, there are no such provisions in the statutes of the major parties (Çağlar, 2016). According to feminist theorists, the underrepresentation of women in decision-making mechanisms is not only a gender issue but also a problem of democratic legitimacy. Without structural reforms, women remain at a symbolic level of representation rather than active agents in politics.

Women in Image, Not Representation: Political Bias in the Media and Feminist Criticism

The media creates not only a numerical barrier to women's political representation but also a cultural and ideological one. Female politicians are often reduced to traditional gender roles in the media and are highlighted for their motherhood, elegance, or appearance, while their political identities remain in the background (Kesgin, 2023). Traditional and new media often position women as 'anti-male' and create a discourse that ignores women's demands for liberation (Kesgin, 2023). This situation highlights the reality often emphasized by feminist theory that 'rights recognized by law are suppressed by cultural codes.' Therefore, for women to be truly represented in politics, not only structural but also mental and cultural transformation is necessary.

Afghanistan – Symbolic Rights under Patriarchy

Pre-Taliban Short-Term Representation (2001–2021)

In the period following 2001, women in Afghanistan gained opportunities to participate in politics through constitutional reforms and began to win seats in parliament and local councils. However, this participation has remained symbolic and has been limited due to security issues and patriarchal culture. As noted in Moozhedeh Hafed's thesis, ‘By providing the necessary groundwork for women to increase their political and social activities, it has led to more women participating in political and social spheres’ (Hafed, 2021, p. 2). Despite progress in this process, women have not been able to achieve permanent and strong representation in politics.

The Taliban's Political Oppression of Women in Afghanistan

According to Katzman (2006), ‘although the representation of women through a 25 percent parliamentary quota is legally guaranteed, this ratio does not translate into effective political power in practice’ (cited in Hafed, 2021, p. 51). Furthermore, the failure of political parties to develop a strategic approach towards women leads to them being seen merely as a ‘means of controlling the quota of women in government.’ Jafari (2016) identifies party corruption, ethnic dominance, and lack of women in leadership as key reasons for their exclusion (as cited in Hafed, 2021, p. 56). Under Taliban rule, women were banned from running for office, and ministries related to women (such as the Ministry of

Women's Affairs) were closed. Additionally, political gatherings, rallies, and media participation were also strictly prohibited or punished.

The Situation of Women's Rights Activists and Political Exclusion in Afghanistan from the Perspective of Feminism

According to the data presented in the thesis, women prefer individual or civil society-based paths rather than joining political parties because parties both 'instrumentalize women' and do not show sincere commitment to women's rights (Jafari, 2016, cited in Hafed, 2021, p. 56). This situation is defined in feminist literature as 'invisible exclusion' or 'symbolic participation.' Women's political presence should be evaluated not only in terms of numbers but also in terms of their qualified representatives in decision-making processes; however, this representation is not possible in Afghanistan due to structural inequality.

From Vote to Power: Feminist Governance in Denmark

Feminist Political Transformation in Denmark: From Suffrage to Structural Equality

In Denmark, feminist political transformation began in 1915 with the granting of voting and eligibility rights to women and gained momentum in 1918 with the right to be elected to parliament. Structural reforms in education, employment, and family life were implemented with the enactment of equal opportunity laws in the 1920s. Ranked at the top of the 2011 Gender Gap Index, Denmark offers a comprehensive model of feminist transformation by institutionalizing gender equality at both the societal mindset and legal regulation levels. (Öztürk, 2012, s. 15).

Quota Systems and Political Leadership: The Rise of Gender-Conscious Representation

Denmark has achieved a significant level of political representation for women in parliament, at approximately 37%, without implementing mandatory quotas, relying instead on voluntary targets and internal party practices (Dahlerup, 2011). This approach, which does not involve quotas and is based on cultural acceptance and institutional support, has led to progress in representative democracy (Siim and Agustín, 2018). However, academics argue that presence does not always guarantee political influence and that structural reforms are still necessary to ensure meaningful participation (Sørensen, 2016). Former Prime Minister Helle Thorning-Schmidt shows how, in line with feminists' calls for quantitative and qualitative equality, Denmark emphasizes both visible and effective female representation.

Policy-Driven Equality: Government Reforms and Feminist State Practices in Denmark

Denmark has institutionalized gender equality through long-standing reforms rooted in feminist policymaking. Denmark has advanced gender mainstreaming practices and established mechanisms such as the Gender Equality Council to ensure equal participation across public and private sectors (Agustín, 2015). These efforts reflect not only a policy commitment but also a structural approach that integrates gender into all levels of governance, demonstrating how feminist state practices can move beyond symbolic inclusion to generate measurable, system-wide change.

Comparative Analysis: Türkiye, Afghanistan, and Denmark

Representation and Political Participation Table

Table1 Participation Table

Country	Women in Parliament (%)	Women in Cabinet	Women Mayors	Quota System	Key Challenges
Türkiye	20.1% (2023)	1 out of 18 ministers	11 provinces	No national quota; some parties have voluntary quotas	Cultural norms, media bias, lack of structural reforms, absence of binding quotas
Afghanistan	25% (pre-2021, quota-based)	None under Taliban rule	None under Taliban rule	Constitutional quota (pre-2021)	Patriarchal structures, political instability, Taliban restrictions, symbolic participation
Denmark	Approximately 37%	High representation	Broad participation	Voluntary party quotas	Underrepresentation in top leadership roles, need for structural reforms

In Türkiye, despite the right to vote and be elected in 1934, women's political representation is still limited to 20.1%. In Afghanistan, a 25% quota was implemented for the period 2001-2021, but this representation remained symbolic and disappeared completely with the return of the Taliban to power. In Denmark, women's political representation is around 37%, achieved through voluntary quotas and internal party practices. This shows that women's political representation is still superficial in many countries, as “women's participation in

the political sphere remains mostly symbolic and does not translate into real decision-making power" (Koşar Taş, 2021, p. 178).

Political Cultures and Gender Norms

Türkiye: Despite the modernization process that began with the proclamation of the Republic in Türkiye, women's participation in political life has remained limited by traditional gender roles. In the male-dominated political culture, women are mostly defined with "supportive" roles, and their participation in decision-making mechanisms remains at a symbolic level (Alp, 2023, p. 207). This situation constitutes a serious obstacle not only to women's numerical representation but also to their qualitative representation.

Afghanistan: Women's political participation in Afghanistan is very limited due to the patriarchal structure of society and security threats. Due to the insincere and instrumentalizing attitudes of political parties, women struggle for their rights through civil society organizations or digital platforms instead of direct politics (Turanl & Tahiry, 2022, p. 129). This situation points to a form of participation defined as "invisible exclusion" in feminist literature.

Denmark: In Denmark, gender equality has been achieved through comprehensive education and social policies and by promoting women's political participation. This holistic approach has led to a significant increase in women's political participation. Denmark's success demonstrates the need to encourage and support women in all aspects of political life, emphasizing a proactive societal commitment that is integrated into policy and cultural norms. Denmark's deep-rooted integration of gender equality principles is unique and demonstrates the transformative power of consistent efforts across educational institutions, social structures, and public discourse.

Types of Oppression Women Face in Politics

In addition to low representation rates, women politicians in Türkiye must deal with various forms of violence, such as psychological intimidation, sexist discourse, threats, and digital violence. Women politicians often have difficulty legitimizing their presence in political parties and are seen as "substitutes for male candidates" in candidate nomination processes (Yeryüzü Kalkınma Kooperatifi, 2023). This is a problem faced by women leaders both in Türkiye and globally. As hate speech against women in digital media increases, it also suppresses women's online political presence. For example, female leaders such as Angela Merkel and Jacinda Ardern have often been criticized for their appearance and motherhood rather than their leadership, focusing on their identity as women.

In addition, the rise of hate speech against women in digital media suppresses women's political visibility online. Movements such as "#MeToo" show that women in Türkiye are resisting male violence not only in the private sphere but also in the public sphere and politics. When considered within the framework of

feminist theory's emphasis on “visibility and voice,” these forms of violence constitute an obstacle not only to women's representation but also to their active participation in decision-making processes. Therefore, it is not only a question of increasing the number of women's organizations but also of ensuring that women can exist on a safe and equal political ground.

Intersectionality: How Class, Religion, and Education Shape Participation

Women's political participation goes beyond a gendered issue, as it intersects with class, religion, and education levels. Abdi (2022) emphasizes how family responsibilities, patriarchal norms, religious interpretations, and educational levels create obstacles for women in politics. Low education limits women's political expression, while educated women face social and religious pressures. These intersecting inequalities in women's political representation are in line with Kimberlé Crenshaw's theory of intersectionality. According to Crenshaw's (1989) theory, women's experiences cannot be explained simply by reference to their identity as "women." Instead, she argues that various social identities, including class, ethnicity, religion, and age, interact to create a form of discrimination that is both multiple and multiplier.

This perspective reveals that the obstacles faced by a poor woman wearing a headscarf, for example, stem not only from her gender but also from her socioeconomic status and religious identity. Intersectionality emphasizes that these multidimensional forms of oppression are intertwined and interactive, not separate from each other. To increase women's political participation, Abdi (2022) emphasizes the need for multidimensional egalitarian policies and cultural and religious transformations. This includes raising women's awareness through education and involving them in decision-making processes, rather than relying solely on gender-based positive discrimination or structural reforms. Ultimately, achieving women's empowerment in politics requires addressing various obstacles and adopting comprehensive strategies.

Political Participation of Religious Women in Türkiye: An Assessment on the Axis of Headscarf and Class

Despite the increasing visibility of religious women in Türkiye, especially the turban, they still face obstacles in achieving equal representation and empowerment in politics. Examples include gender roles and stereotypes, lack of self-confidence, and exclusion from political parties' candidate selection processes. Women with a turban face discrimination based on their religious identity and traditional roles that prevent them from participating in decision-making processes (Sahin, Özalp, & Boduroğlu, 2024). While their visibility has increased, it has not led to significant improvements in representation and has largely been limited to certain class and ideological boundaries. Although she has had the right to vote and be elected since 1934, structural inequalities persist and limit the presence of religious women in Turkish politics.

The Political Struggle of Women with Ethnic and Tribal Structures in Afghanistan

In Afghanistan, women's political participation is hindered by gender, ethnic, and tribal factors, particularly prevalent in Pashtun and Tajik societies, where male-dominated leadership structures limit their involvement. The influence of tribal structures excludes rural and uneducated women from political representation, while urban and educated women are often relegated to symbolic roles in politics (Khawarnasab & Avcı, 2023). The Taliban's current rule further exacerbates the challenges faced by women, with systematic exclusion and political bans leading to severe restrictions on their participation in institutions and civil society. This multi-layered exclusion, viewed through a feminist intersectionality lens, highlights that women in Afghanistan are not only marginalized due to their gender but also due to their tribe, class, and geographical location, further inhibiting their equal representation in the political sphere.

Representation of Immigrant Women in Denmark: Equality Laws and Invisible Barriers

Denmark is known for its progressive gender equality policies, but immigrant women face unique challenges due to structural and cultural barriers. Despite official principles of equality, inequalities in education and employment hinder their political participation. Research indicates that women with migrant backgrounds are marginalized in political processes, being excluded as voters, candidates, and decision-makers (Kesgin, 2023). Postmodern feminism highlights the diversity among women, revealing that Denmark's equality discourse is based on a homogeneous female profile, neglecting the experiences of immigrant women. It is evident that legal regulations alone are insufficient for ensuring equal representation; societal biases must also be addressed to promote true equality.

Breaking the Chains: Feminist Reflections on Barriers and Empowerment in Political Participation

Family pressure, the superficial point of view of the media, and the existence of a male-dominated political structure restrict the progress of female politicians. Online harassment has a negative impact on women's political representation on platforms. Baloğlu (2023), in a study conducted specifically for female journalists, found that online harassment against women on Twitter involves systematic, sexist, and psychological violence; it emphasizes that these attacks harm women's professional and public representation. The same structure applies to female politicians. The #MeToo movement, which is at the forefront of the international resistance against this digital violence, has taken on both an encouraging and organizing role by showing that women are not alone. Women politicians in Türkiye emphasize the importance of collective empowerment beyond individual empowerment and state that it is necessary to support their voices by challenging

social norms. Steps should be taken to combat digital sexism to create a more inclusive and egalitarian political environment.

CONCLUSION

A research study has revealed that women's political representation in Türkiye is inadequate and often merely symbolic, showing that legal regulations do not ensure genuine political participation. Despite the progressive nature of reforms in Türkiye, women's full participation in political decision-making processes is hindered by patriarchal structures and traditional gender norms. Women's political representation faces both quantitative and qualitative challenges. In Afghanistan, despite the implementation of a 25% quota, cultural norms, party support shortages, and security threats limit participation. Although Denmark provides a positive model by implementing voluntary party quotas and feminist state policies to encourage greater female participation, structural barriers such as the exclusion of migrant women hinder progress towards equality.

The analysis, which is based on liberal, radical, and postmodern feminist theories, highlights the importance of addressing deep-rooted ideological and cultural barriers beyond official rights. The emphasis of liberal feminism on equality before the law is insufficient without the criticism of power hierarchies offered by radical feminism and the attention to intersectionality offered by postmodern feminism. This layered approach enables us to critically assess how women are positioned, not only as biological reproducers but also as capable political agents. Women in Türkiye face many obstacles, ranging from media bias and political violence to being excluded from party structures.

These difficulties are further complicated by intersecting factors such as class, education, religion, and ethnicity. As emphasized by Kesgin (2023) and Baloğlu (2023), digital harassment and stereotypical depictions reduce women to passive symbols rather than active decision-makers. This is particularly evident in the underrepresentation of hijab-wearing women in Türkiye and of immigrant women in Denmark, highlighting the inadequacy of one-size-fits-all gender policies.

Real democratic governance requires more than just symbolic participation. It requires significant reforms to ensure that women have a voice and power, as well as a place at the table. Therefore, the study calls for policies that include binding gender quotas, feminist education, cultural transformation, and legal protections against gender-based digital violence. Only then can women overcome their historical marginalization and become fully recognized political subjects in both national and global arenas.

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Sustainable University Campus Design: Case of Istanbul Aydin University

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ABSTRACT

This study aims to evaluate the use of urban furniture located at Istanbul Aydın University's Halit Aydın Campus. The scope of the research includes entrance gates, seating units, shading systems, litter bins, lighting elements, signage, paving, handrails, planters, sculptures, and artistic elements located within the campus. The study employed on-site identification, observation, and photographic documentation as its methodology. The findings indicate that furniture designs across the campus require improvement. The study identified functional and physical problems such as non-ergonomic seating, lack of shade, inadequate directional signage and night lighting, and slippery surfaces. This situation demonstrates that the current arrangements are inadequate in meeting user needs and do not fully respond to the principles of comfort, quality and sustainability on campus.

Keywords: Campus design, Urban furniture, Sustainability, User comfort

INTRODUCTION

University campuses are not merely places where individuals acquire academic knowledge; they are also environments where people socialize, relax, and experience quality of life. In this context, the landscape areas that form the physical environment of the campus serve as part of the learning experience (Działek et al., 2023; Puhakka, 2021; Spake et al., 2013). Research shows that campus landscapes influence many factors, such as spatial perception, orientation, sense of belonging, and environmental awareness (Alnusairat, et al., 2021; Lu & Fu, 2019; Nguyen-Dinh, Zhang, 2025). Campus design can also be considered a fundamental workspace, as it brings together multiple functions such as education, accommodation, entertainment, and cultural activities (Ilgaz, 2014). The designer's task is to provide shared communication areas that are compatible with cultural and social aspects by incorporating specific events and activities into the space. Therefore, the characteristics of a successful campus are comfort, identity,

diverse activities, and enhanced social interaction; it is also expected to offer opportunities for sitting, talking, reading, and walking (Öztürk Tel, 2020).

Environments that support cognitive performance and improve visual focus may be important for campus settings. Visual and non-visual contact with nature, the presence of water, scenery, physical contact with nature, living lighting, shade and climatic protection, flexibility and adaptability, complexity and order, and technological integration can be achieved by adhering to these principles (Özdemir, 2024). One of the fundamental characteristics of a campus is that streets, squares, and gardens integrate with urban amenities to establish a strong connection between users and their surroundings (Gülen, 2021). Campus landscaping includes urban furniture such as open green spaces, plant designs, walking paths, seating areas, water features, and lighting systems. All these components facilitate orientation, encourage social interaction, provide psychological comfort, and enhance sustainability. It is important that the campus is designed according to sustainable planning principles. This is achieved by preferring environmentally friendly materials, using renewable energy sources, and encouraging local plants (Yıldız, 2020). The relationship between aesthetics and the environment strengthens spatial identity and a sense of belonging; dimensions, colors, and selected materials give the campus a unique character (Gobster et al., 2007; Bayraktar et al., 2008).

Urban furniture is a fundamental component of urban and architectural design. Its emergence is linked to changing human needs and reflects socio-cultural transformations. The consideration of anthropometric criteria in furniture design is a fundamental requirement for comfort and sustainability (Ulay & İtah, 2024). The evaluation of urban fixtures is not limited to formal dimensions; it also encompasses functional, aesthetic, social, and cultural dimensions (Kuter & Kaya, 2019). A survey conducted at Clayton State University found that dark brown signs were not noticeable and difficult to see at night; it emphasized that signs should convey identity and vibrancy. Furthermore, it was noted that the existing directional signs did not adequately indicate important intersections and buildings on campus. These findings indicate a need for colorful, contrasting, and corporate identity-bearing signs in future designs. The importance given to flowers and plants adds aesthetic value and brings liveliness to the space (Liu et al., 2022). Careful distribution of plants in corridors and squares can reduce stress levels and promote psychological renewal (Carrus et al., 2015). Lighting designs can strike a balance between economic, aesthetic and technical considerations (Zülfikar, 1998). Artistic sculptures, on the other hand, are placed at strategic points as visual elements that convey social and cultural messages. Signage and information systems are important elements in terms of the social nature of the campus. They facilitate user access and enhance the functionality of the space. Therefore, it is recommended that they be included in the design, especially in heavily used areas (Akyol, 2006). Urban furniture should be consistent with the overall design language of the campus and the identity of the university (Kayahan, 2023). The form, color, and texture choices of the furniture should complement

the campus architecture (Volkan Aksu, 2012). In this context, this study aims to analyze the current state of urban furniture on the Istanbul Aydın University campus and develop recommendations that will increase user comfort and support sustainability.

METHOD

Study Area

The study area for this research is the Halit Aydın Campus of Istanbul Aydın University, located in the Küçükçekmece district of Istanbul (Figure 1). This centrally located area, with its high urban density, contains open and semi-open spaces used daily by students, academic staff and visitors. The scope of the study includes entrance gates, seating areas, shading systems, litter bins, lighting elements, signage, paving, railings, planters, sculptures, and artistic elements located within the campus.



Coordinates: 40°59'25.3"N , 28°47'47.9"E

Figure 1 Work Place

Methodology

The methodology employed in this study involved on-site identification, observation and photographic documentation. The field data obtained were evaluated considering functional efficiency, aesthetic contribution and physical condition.

- Functional efficiency: Responsiveness to user needs and compliance with anthropometric criteria.
- Aesthetic contribution: Contribution to spatial identity and visual integrity.
- Physical condition: Durability, maintenance level, and compliance with sustainability principles.

RESEARCH FINDINGS AND RECOMMENDATIONS

Table 1 Evaluation of Entrance Doors and Design Recommendations

 A entrance	 D entrance	 E entrance
Evaluations		**Recommendations**
Pedestrian and vehicle lanes not separated At some gates (e.g. D and E), there are no separate lanes for pedestrians and vehicles. This situation leads to crowding and disorder, particularly during peak hours, and increases the risk of accidents.		Separation of pedestrian and vehicle lanes with pavements and the addition of metal barriers for safety. Ensuring order during peak hours at pedestrian crossings with road markings and traffic lights. Enhancing the architectural value of the space and strengthening its identity using natural stone or decorative tiles. Strengthening directional perception and increasing ease of use with light-colored stone lines and contrasting colors. Organizing pedestrian paths to enhance user comfort in terms of both functionality and safety.
Inconsistency in architectural design The doors have been constructed in three different styles: classical, neoclassical and modern. However, the lack of visual harmony between these styles weakens the university's corporate identity and leaves a negative impression on visitors and students.		A common design language should be adopted to ensure architectural harmony: Use of the same materials (natural stone, decorative concrete, modern metals). Installation of similar architectural lighting units to enhance visual integrity.

	Adopting a common design language strengthens corporate identity and symbolic value at university gates. This ensures architectural integrity.
Insufficient aesthetic elements Some entrance doors lack architectural lighting, decoration or elements that highlight their visual identity. This causes the doors to appear dull and fails to reflect the university's prestige.	The use of energy-efficient modern lighting systems and the illumination of architectural details from the bottom up. The installation of LED strips integrated into the floor to facilitate night-time use and the support of the system with solar energy. Positioning a three-dimensional sculpture symbolizing values such as science, success or power near the entrance gate. Transforming the sculpture into a symbol reflecting the university's values by highlighting it with both natural and artificial light. Enhancing aesthetic elements, making the gates not only functional but also a cultural symbol.
Weak integration with green spaces The lack of trees and flowers at entrances results in doors appearing ineffective and cold; it also prevents the campus from blending in with its natural surroundings.	Planting shade trees and seasonal flowers on both sides of the entrances. Balancing hard surfaces with green areas. Providing shaded seating areas with trees or pergolas, adding functional and aesthetic value to the space. Green space integration not only contributes aesthetically but also reinforces the principles of

	natural harmony and sustainability (Liang, Fan, 2021). The development of external doors contributes to creating a safer and more attractive environment on the university campus and strengthens the institution's corporate identity. It also leaves a positive impression on users by providing a balanced unity between functionality and aesthetics, transforming the campus into a more modern and sustainable space.

Table 2 Evaluation of Seating Elements and Design Recommendations

Evaluations
Chairs 
Amplifiers 
• The presence of plastic chairs and portable tables throughout the campus, • Insufficient shading, • Deformations and insect infestation in the wooden seating area in the amphitheatre,

- The use of low-durability materials limiting aesthetic and comfort contributions,
- Plastic furniture being adversely affected by external conditions such as sun and rain,
- The white color being easily soiled and requiring frequent maintenance,
- A traditional design approach that is incompatible with the modern identity of the campus,
- Congestion in some areas and emptiness in others due to irregular placement,
- Some areas being exposed to wind,
- Plastic chairs not providing comfort for long periods of sitting or studying,
- Lack of supporting elements such as charging units or lighting.

Recommendations

- Replacing existing seating elements with more durable and ergonomic alternatives,
- Increasing the number and variety of seating types,
- Including open-air classrooms equipped for outdoor lessons,
- Positioning seating areas in passageways between blocks, at points of high pedestrian traffic, and in areas with scenic views,
- Adding benches and table sets suitable for group and individual work.

The arrangement and development of seating units on campuses will provide diversity that reduces monotony and traditional character, ensuring they are usable in all weather conditions and throughout the year (Kahveci & Erzurumlu, 2023).

Furthermore, the use of smart seating units equipped with modern technologies that can be charged by solar energy, have night lighting and heating or cooling features can be recommended; thus, sustainability can be increased, and the university's electricity consumption can be reduced. Although the initial cost is high, it will provide greater savings in the long term (Bayraktar et al., 2008).

Fixed, shaded, semi-enclosed seating units that provide protection from the sun and rain can be integrated. These units can be positioned as part of an aesthetic architectural design surrounded by flowers or water features.

Regular maintenance and updating of traditional and wooden seating units can preserve their durability and quality.

Thus, the design of seating areas on campus becomes an integrated structure that combines diversity, comfort, sustainability, and aesthetics, directly improving

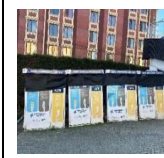
the experience of students, visitors, and academic staff, and increasing social and functional activity within the campus.

Table 3 Evaluation of Canopies and Roof Elements and Design Recommendations

Evaluations
  
  
• Insufficient shaded areas (particularly limited use of shaded areas in the main center), • The presence of large black movable umbrellas for general use, • The risk of existing umbrellas tipping over or shifting in strong weather conditions, • Their limited size means they cannot provide shade for large numbers of students, • Their function is mostly limited to small café-like areas, • They are difficult to maintain, • They do not visually match the architectural identity of the campus, • Although they provide shade in summer, they do not offer adequate protection from rain and wind in other seasons.
Recommendations
• Modular shaded areas (retractable awning systems, flexible covers with textile tensioned membranes, sun-filtering wooden or metal pergola systems), • Multi-purpose usage units,

- Stronger wind and rain protection (Semi-enclosed seating areas, glass, plexiglass or wooden wind barriers, sloped roofs or systems that direct water flow),
- Resistance to climatic conditions and use of durable materials,
- Integrated lighting system for night-time use,
- Integrated charging units for laptops and mobile phones
- Comfortable and eco-friendly design that encourages activities such as sitting, socializing and working in open spaces.

Table 4 Evaluation of Waste Bin Elements and Design Recommendations

Evaluations			
Stainless Steel Ash Tray - Column-shaped	Painted steel Standard	Recycling	Plastic
			
• Visual disorder (The use of different sizes, colors and materials disrupts spatial harmony), • Inadequate guidance (Most bins lack labels or explanatory signs), • Poor recycling separation (There is insufficient classification and guidance according to waste type), • Lack of smart technology (No sensors or automatic sorting systems are in place), • Lack of user awareness (Students do not know which waste should be placed in which bin), • Cleaning and maintenance issues (Overflow or environmental pollution occurs when bins are not emptied regularly), • Low environmental sustainability (Materials used are not durable or environmentally friendly), • Aesthetically unappealing design (Does not add visual value to the campus environment).			
Recommendations			
The general waste bin plan should be designed to be environmentally compatible and unobtrusive. The use of artificial intelligence-supported smart waste bins (digital systems integrated with fullness sensors will indicate when bins need emptying and			

prevent overflow/decomposition issues). These bins can be integrated in a way that visually complements the campus's architectural identity thanks to their aesthetic design),



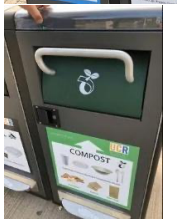
Coordinate with the big data platform to monitor recycling data in real time.

Provide recycling data analysis and reports to University Management.

Shatin University smart bins (Baguio Green Group, 2025)

- Installation of waste separation stations at central points on campus (cafeteria, library, open areas) (using a color-coding system/green: organic, blue: paper, yellow: plastic, grey: general waste to enable students to easily separate their waste). Collaborating with local recycling companies to ensure that separated waste is regularly recycled.
- Supporting environmental awareness campaigns across the campus with digital displays, posters, and educational seminars.
- Motivating students to separate waste through incentive systems (e.g., points, rewards, or cafeteria discounts).
- Designing 'Waste Corners' for easy access and integrating them into seating areas,



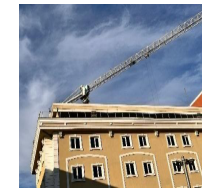


The University of California has solar-powered Bigbelly bins with a light that indicates how full they are (Ghori, 2019).

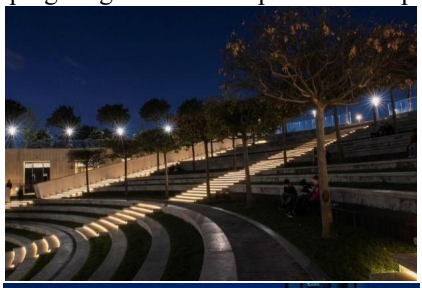
- Preferring environmentally friendly materials (galvanised steel, recycled plastic) for waste bins,
- Creating a digital waste database linked to the university and reporting monthly waste quantities and types,

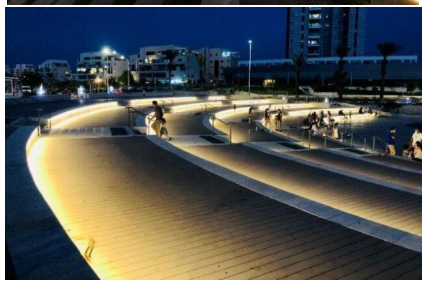
- Establishing a ‘Sustainable Campus Committee’ and regularly monitoring waste management performance.

Table 5 Evaluation of Lighting Elements and Design Recommendations

Evaluations			
Wall-mounted lighting	Fluorescent Lighting	Floor lighting	Facade lighting
			
● Use of tall lighting fixtures in classic style, painted black, ● Sufficient lighting along main axes, increased lighting in sub-codes and secondary areas. ● Landscape lighting of the main campus to be powered by solar panels, ● Use of LED fixtures for lighting, ● Provision of wide-angle visibility through predominantly top-down lighting, ● Prevention of glare with lighting elements positioned above eye level, ● Insufficient lighting compromising safety and visibility.   			
Recommendations			
● The addition of high-mast LED lamps, ● Attention to lighting design that leaves no dark spots,			

- Preference for modern types over traditional lighting,
- In lighting design, consideration of topographical differences and night-time usage intensities, planning a homogeneous lighting system across the campus,
- Adding LED strip lighting under the amphitheater steps,





Examples of amphitheater lighting

- The addition of background lighting to areas displaying block letters and names,
- Highlighting sculptures and monuments within the campus with spotlights,
- The addition of low-level lighting among grass and flowers,
- Use of motion-sensor smart lighting throughout the campus,
- Addition of solar-powered lighting poles in open areas,
- Use of anti-glare fixtures.

Table 6 Evaluation of Signage and Design Recommendations

<table>
<tr><td colspan="3">Evaluations</td></tr>
<tr><td colspan="3">Direction signs





</td></tr>
<tr><td colspan="3">Information Boards</td></tr>
<tr><td colspan="3">Depending on material usage</td></tr>
<tr><td>Vinyl and foil sheets

</td><td>Metal sheets
</td><td>Other materials


</td></tr>
<tr><td colspan="3">By design type</td></tr>
<tr><td>Text-Based Signs
</td><td colspan="2">Colour-Coded Signs/ Red: Prohibition and Danger




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Colour-Coded Signs/Green: Safety and Information





Symbol or Icon-Based Signs





- Insufficient signage for campus route guidance,
- Use of dark lettering on dark backgrounds on some signs (insufficient contrast),
- Inadequate material quality of signs,
- Need to improve sign placement,
- Absence of tactile signage for the visually impaired,
- Sign heights not considering the reach of wheelchair users,
- Signs around main structures (such as the library, square, entrance gate) not being clearly visible.

Recommendations

- To improve the legibility of signs, standardize font types and point sizes,
- Select contrasting text and background colors (with a minimum color contrast of 70% between text and background to ensure legibility, particularly in low light conditions),
- Place signs at pedestrian eye level (150–170 cm),
- Ensuring that letters on outdoor directional signs are at least 5–10 cm high, with a letter height of approximately 30–35 cm for legibility from a distance of 100 m,
- Using multilingual content and universal symbols on signs (to facilitate orientation for foreign students and visitors),
- Emergency exit and assembly area signs should be highlighted in different colors (Kanakri et al., 2016),
- Use of mobile applications and digital guidance systems,
- Installation of LED screens in areas with high student traffic, such as in front of the canteen, library entrance, main square, and campus entrance gates (these screens should display weather conditions, events, faculty announcements, service hours, maps, and directions).

Table 7 Evaluation of Flooring and Design Recommendations

Evaluations	
	**Natural cubed stone** (Walkways and seating areas) Advantage: Durable, gives a historical feel. Problems: Uneven surface, not suitable for wheelchair use.
	**Blue rubber flooring (Stair tread surface)** Advantages: Non-slip, shock-absorbing, preferred for sports and children's areas
	**Marble/Tile flooring (Ramp and block fronts)** Advantages: Clean appearance, easy to clean Problems: Risk of slipperiness, heat retention, high risk of falling
Recommendations	
● To ensure user safety, materials with more durable and non-slip properties should be preferred, Cracks and deformations around the campus should be addressed through regular maintenance and repairs, ● Implementing waterproofing techniques to prevent water accumulation during rainy periods, ● Increasing tactile surfaces that guide the visually impaired, ● Using a floor color/texture palette that reflects the campus identity, ● Adding floor lines/symbols that provide direction to common areas.	

Table 8 Evaluation of handrails and design recommendations

Evaluations





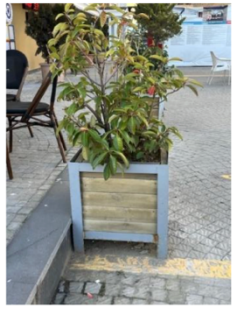

- Use of stainless steel material with high resistance to external factors and corrosion,
- Compliance with safety standards at a height of approximately 1m,
- Providing adequate support and safety for pedestrians on sloped areas,
- In some areas, the steepness of the ramps makes them unsuitable for use by people with disabilities (This situation reduces accessibility and conflicts with Universal Design principles).

Recommendations

Ensure that ramp slopes throughout the campus are less than 8.33% (ADA, 2010)

Evaluation of Flower Beds and Design Recommendations

Evaluations



Use of flowerpots in different types, colors, and materials.
Recommendations
• Preference for flowerpots made of easy-to-maintain, monotypic, durable materials.

Table 10 Evaluation of Sculptures and Artworks and Design Recommendations

Evaluations
  
• The presence of the IAU statue, which has symbolic value, • Insufficient use of statues and artworks that express campus identity and vitality, • Lack of maintenance of existing statues.
Recommendations
• Maintenance of sculptures on campus, • Selection of materials that will prevent weather-related wear and tear, • Addition of lighting innovations that will enhance their visual appeal, • Design of open-air art spaces including outdoor sculpture areas, murals, and exhibition halls.

CONCLUSION

This study reveals that certain urban furniture elements on the Istanbul Aydın University campus need to be improved in terms of functionality and aesthetics. Key recommendations include improving the types and variety of seating areas, selecting slip-resistant flooring materials, planning an effective signage system, and incorporating smart systems into lighting and litter bin designs. Taking these recommendations into account will contribute to improving the quality of use around the campus. It will enable the creation of a more advanced and modern campus. Monitoring current statistics on student and faculty numbers in planning and design will support sustainable planning and ensure that the campus infrastructure is in line with the real needs of the university community.

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Evaluation for Children Hospital Environmental Design Criteria

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ABSTRACT

This article aims to investigate spatial design criteria that may be important in the design of children's hospital environments. Based on the work of Cooper Marcus and Francis on space design for children in hospital environments, the study determined which issues should be considered. In this context, criteria such as accessibility, safety, ease of orientation, play areas, and the presence of natural elements, which are considered effective in outdoor space arrangements that meet the physical, psychological, and social needs of child users, were taken as a basis. The criteria identified were then examined at Respublika Clinic, No. 9 Children's Hospital, and Karayev Children's Hospital in Azerbaijan, as well as international examples such as Lurie Hospital, Pittsburgh Hospital, Rady Hospital, Randall Hospital, Boston Garden, and Gold Coast hospitals. The examples were evaluated using on-site identification, photography, and observation methods. The study concluded that fundamental criteria such as accessibility, guidance, and safety were largely overlooked in the outdoor design of children's hospitals in Azerbaijan, that green spaces and shaded areas were mostly natural but irregular, and that play and recreation areas specifically for children were largely lacking. In this context, it was concluded that user-centered and child-focused design principles should be applied more systematically in the landscaping of children's hospitals.

Keywords: Children hospital, environment design, healing, space quality

INTRODUCTION

The Council of Europe (2011) defines child-friendly healthcare as “a healthcare policy and practice that focuses on children's rights, needs, characteristics, existence, and developing capacities and takes their views into account.” This concept emphasizes that, in addition to ensuring high medical quality, children must have the right to be informed, consulted, and listened to according to their age groups, as well as the right not to be separated from their families. In their work, Gür and Yalçınkaya (2022) discuss the importance of considering cognitive

discovery, the fulfillment of physical needs, the need for security, belonging to a group (love, being loved, helpfulness), aesthetic values, and the desire for self-actualization in the environment of children's hospitals. In the design of children's hospitals, importance should be given to areas that provide nature experiences and include natural ecosystems (Arslan et al., 2022). When designing spaces for children, features that stimulate their sense of discovery and curiosity are very important for their physical and mental development (Figure 1). Children who are in close contact with nature develop emotional responses such as love, freedom, trust, and unity with nature (Kals et al., 1999). It has been proven that easy access to a view, rather than brick walls, reduces the length of hospital stays, painkiller doses, and postoperative complications (Ulrich, 1984).



Figure 1 Children's Hospital Garden, Oxfordshire (Sally Bower Landscape Design, 2025)

Open natural spaces allow children to feel free and comfortable, increasing their sense of wonder about living things in nature (Figure 2) (Hodgkin, 1985; Moore, 1997). Design should aim to bring the natural environment together and provide easy access to the outdoors, fresh air, and sunlight. It is important to raise awareness about the existence of gardens; to facilitate access for physically disabled children; or to provide physical activities for healing in the garden or to intensify educational and play activities (Pinhao, 2016). Lack of privacy, poor wayfinding, physical barriers, and poor communication will intensify the feeling of lack of control. Furthermore, it has been proven that this feeling causes an increase in blood pressure, passivity, and depression, and suppresses the immune system (Ulrich, 1991). The use of clinical terminology may be confusing for children, but the use of colors to distinguish areas seems appropriate for all ages. Color can be easily applied to various materials and can elicit specific emotional and physical responses (Mahnke, 1996).

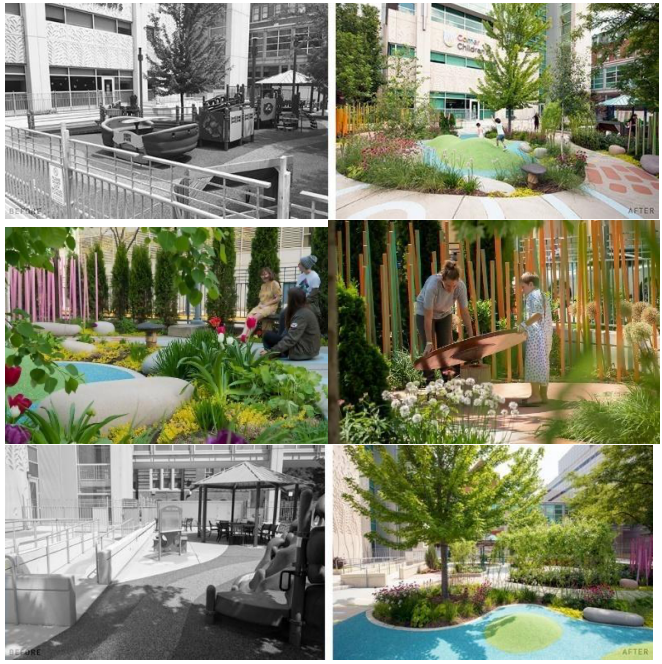


Figure 2 Before and After, Comer Children's Hospital Play Garden, Chicago (SITE, 2025)

The results of Allahyar and Kazemi's (2021) study show that children in hospital environments prefer colors, topiary types, animal shapes, and cartoon characters; combinations of flowers and grass in plant beds; and combinations of flower beds with water fountains rather than water fountains alone. Colorful artworks, graphics, and signs inspired by nature will enrich interiors, serving as a visual distraction while helping patients, parents, and staff navigate the hospital (B+H, an SJ Company, 2025). Interactive technologies have become an increasingly important tool for positive distraction. According to Biddiss et al. (2013), children prefer Screenplay over aquariums, music, television, video games, and toys (Figure 3). Lim et al. (2019) compared wall paintings, a virtual pond, and a TV screen installed in the reception area of a children's hospital and found that the virtual pond was a beneficial and positive distraction for children of all age groups. Children hospitalized should also be given the opportunity to play. Play areas for hospitalized children can be similar to those for healthy children, "but they must provide special play opportunities for children in stretchers, wheelchairs, and casts (Lindheim et al., 1972, 50).



Figure 3 Sheffield Children's Hospital, Joy Garden © Morag Myerscough. Photography: Gareth Gardner (Carter, 2022)

Supervision (Monitoring) is particularly important for pediatric patients in outdoor settings. The design of child-friendly healthcare environments should focus not only on the quality of medical services but also on meeting children's physical, psychological, and social needs (Council of Europe, 2011). International literature shows that the healing effect of hospital environments is directly related to the presence of natural elements, opportunities for social interaction, and areas for play and exploration (Pasha & Shepley, 2013; Ulrich, 1984; Whitehouse et al., 2001). In children's hospitals, biophilic design, contact with nature, access to sunlight, and clean air are reported to accelerate the healing process, reduce anxiety levels, and facilitate children's adaptation to the environment (Arslan et al., 2022; Kals et al., 1999). Gür and Yalçınkaya (2022) emphasize the importance of cognitive discovery, safety, a sense of belonging, and aesthetic values in children's hospitals, while Nourmusavi Nasab et al. (2020) found that colorful and interactive environments, the presence of green spaces, and family participation have positive effects on children. Similarly, Read (2019) emphasized that children's gardens play an important role in enhancing well-being and strengthening the sense of renewal.

Lindheim et al. (1972) noted that adolescent patients are more likely to experience boredom than other patients and are particularly concerned about the effects of illness or injury on their physical appearance and bodily functions. Shepley and Pasha (2013) found in their studies that the availability of opportunities for children, fun activities, and a settlement layout, along with various plantings and good shading, are associated with higher levels of physical activity. It is now possible to say that variable air ventilation, comfortable parent and family accommodation, creative and color-coded wayfinding initiatives, the judicious use of time-appropriate interior lighting, directional art, varied and age-appropriate play facilities, and numerous gardens and outdoor recreation areas are potentially characteristics of a child-friendly hospital environment and may have a significant impact on the recovery process. Recent studies have shown that

interactive technologies and virtual environments have gained importance as positive distractions in children's hospitals. For example, Lim et al. (2019) found that a virtual pond application created positive emotional effects in children of all age groups. Furthermore, it has been found that the level of safety and privacy of the space, supported by the use of color and wayfinding systems, is one of the determining factors in children's hospital experience (Berg & Medrich, 1980; Mahnke, 1996).

This study aims to examine the outdoor and landscape designs of children's hospitals within the framework of user-centered criteria, highlighting the differences between international best practices and the current situation in Azerbaijan. In this context, criteria such as accessibility, safety, ease of navigation, diversity of play and rest areas, presence of natural elements, and use of interactive technologies have been evaluated. The findings obtained from the research are intended to contribute to future planning, design, and improvement efforts for child-friendly hospital design.

METHOD

Research Method

In this qualitative study, the physical environments of selected children's hospitals were examined comparatively based on defined landscape design criteria using the document analysis method. Document analysis is a qualitative data collection and analysis technique based on the systematic examination and interpretation of written and digital materials (Bowen, 2009). Six children's hospitals that stand out for their healing environment approach were identified for the study: Ann & Robert H. Lurie Children's Hospital of Chicago, Children's Hospital of Pittsburgh, Rady Children's Hospital (San Diego), Randall Children's Hospital (Portland), Boston Children's Hospital (rooftop healing garden), and Gold Coast University Hospital Children's Health Precinct (Queensland). In addition, three children's hospitals in Azerbaijan that stand out were identified for the study: Respublika Clinical Children's Hospital, No. 9 Children's Hospital, and Karayev Children's Hospital.

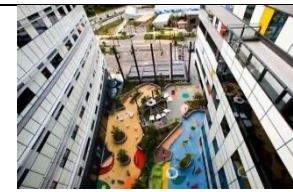
The criteria for a successful children's hospital environment were developed based on the work of Cooper and Carolyn (1997), taking into account sources such as Ulrich et al. (2008) and Whitehouse et al. (2001). Previous studies have shown that the identified criteria represent elements that reduce stress and support recovery in healthcare environments (Ulrich et al., 2008; Whitehouse et al., 2001). Accordingly, documents such as architectural reports, design guidelines, academic publications, and websites related to each hospital were collected; the data were analyzed using content analysis, and the levels of compliance of hospital gardens and open spaces with the criteria were evaluated comparatively.

Research Areas

The sample for this study consists of six children's hospitals that stand out for their international-level design and user-centered approaches, along with three children's hospitals in Azerbaijan. The international examples were selected from hospitals located in the United States and Australia that have drawn attention in architectural reports, design documents, and academic studies for their "healing environment" approach. The Azerbaijani examples were determined based on their accessibility, capacity, and importance in children's health services across the country (Table 1). In international examples, regular and planned green spaces, shaded areas, and themed play areas are prominent in landscape design; however, in Azerbaijani hospitals, natural but mostly irregular green spaces, limited play opportunities, and inadequate shading are observed (Table 2). The specified criteria were evaluated according to a 5-point Likert scale. 5 indicates very adequate, while 1 indicates very inadequate.

Table 1 Research Areas (Aurecon, 2025; Mikyoung kim design, 2025; PPG, 2021; ZGF, 2025; ZGF Architects, 2025)

Ann & Robert H. Lurie Children's Hospital, Chicago, Illinois, ABD	Children's Hospital of Pittsburgh Pittsburgh, Pennsylvania, ABD	Rady Children's Hospital – San Diego
		
		
Randall Children's Hospital	Boston Children's Hospital – Rooftop Healing Garden	Gold Coast University Hospital – Children's Health Precinct

		
 Photos: Nick Merrich		
Karayev Children Hospital	Respublika Clinical Children's Hospital	Children's Hospital No. 9
		
		

RESULTS

As a result of the evaluations conducted; Lurie, Pittsburgh (Figure 4), Rady, Randall, Boston Garden, and Gold hospitals were found to meet the majority of the specified environmental design criteria at a high level; These hospitals were found to have well-organized and planned garden areas, easily visible open spaces, direct access from the children's unit to the play area, interactive technologies, shaded and seating areas, play opportunities suitable for different age groups, and widespread arrangements for children with disabilities. Boston Garden and Randall Hospital scored highly on almost all criteria. These hospitals were also

found to make balanced use of seasonal plant diversity, water features, art and color applications, and adventure play areas (Table 3).

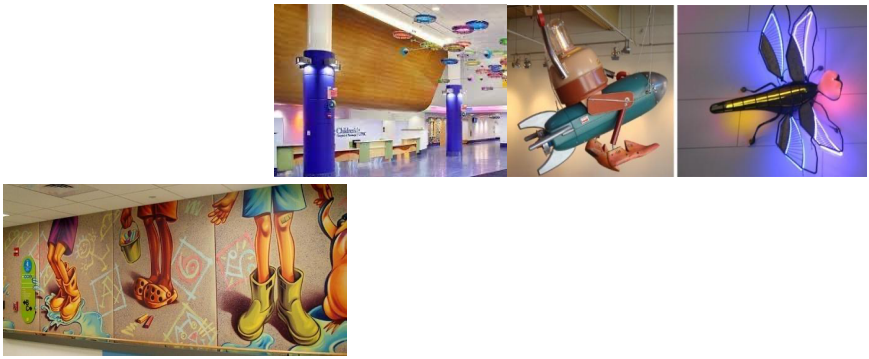


Figure 4 Pittsburgh Children Hospital, Game Zone

The three children's hospitals in Azerbaijan (No. 9, Karayev, and Respublika Clinic) (Figure 5) scored low on many criteria. These hospitals lacked regularly planned gardens and play areas, had limited use of interactive technology, insufficient accessibility features for children with disabilities, and limited shade and seating areas. Green areas were mostly found in their natural state, neglected or unplanned, resulting in reduced functionality.



Figure 5 Poorly Organized and Planned Garden Areas, left: No. 9, middle: Karayev, right: Respublika Clinic

Furthermore, the lack of elements such as signage systems, safe physical boundaries, night lighting, and creative play features indicates that these hospitals do not adequately meet the physical and psychological needs of children. Respublika Clinic Children's Hospital (Figure 6) stood out as the hospital with the most organized garden design among the three hospitals. The fact that the garden is visible at a glance makes it easy for users to find their way around, while the

level of maintenance of the green areas and the sheltered structures also left a positive impression.



Figure 6 Respublika Clinic Children's Hospital Garden Design

In Karayev and No. 9 Children's Hospitals, however, the gardens are small, irregular, and visually inadequate. It was observed that issues such as direct access from the children's unit to the playground and the visibility of open areas from inside were addressed at a high level in No. 9 Hospital. It was determined that these issues were addressed to a limited extent at Karayev Hospital, while access and visibility were quite poor at Hospital No. 9. This situation is a significant shortcoming in terms of child safety and staff supervision.

It has been determined that the Respublika Children's Hospital is partially equipped with paths, seating areas, and shaded areas designed for children using wheelchairs or stretchers. In the other two hospitals, accessibility was found to be significantly inadequate. In particular, it was observed that Hospital No. 9 did not offer any architectural arrangements for children with disabilities.

The richest content in terms of seasonal plant use, the presence of natural shade, and unobstructed views of the sky and horizon was observed at Respublika Hospital. The presence of various tree species, shrubs, and flowers is a significant advantage in terms of landscape aesthetics. Green areas in other hospitals were found to be natural but unplanned and lacking in aesthetics. These areas need to be organized both visually and functionally. Respublika Hospital was found to be adequate in terms of the availability of seating areas, shaded waiting areas, and rest areas for visitors. In particular, some seating areas were found to have tables

and shade structures. At Karayev and Hospital No. 9 (Figure 7), it was determined that the seating arrangement is quite limited both in terms of number and location. This situation creates discomfort for patients' relatives during long waits. All hospitals received low scores in terms of guidance systems, circular paths, and areas where children can move, run, or explore. In particular, creative solutions such as interactive technologies, colored paths, acoustic play areas, musical elements, and art structures were not effectively implemented in any hospital.

	
No 9 Children Hospital Local Area	Karayev Children Hospital Garden Area

Figure 7 Limited Seating Ares in No 9 and Karayev Children Hospitals

Criteria such as separate areas for adolescent patients, adventure play areas or play areas offering sensory diversity have generally been overlooked. Only at Respublika Clinic Children's Hospital has such differentiation been observed to a limited extent; at the other two hospitals, all users are directed to shared, uniform spaces. This situation shows that age-specific needs and child development principles are not sufficiently reflected in the environmental design. Overall, it was observed that Respublika Clinic Children's Hospital exhibited a more planned, accessible, and user-friendly structure in terms of physical environment design compared to the other two hospitals. However, it was determined that this hospital also falls short of fully meeting all internationally recommended criteria. The No. 9 and Karayev Children's Hospitals were found to have serious deficiencies in terms of both physical infrastructure and landscape quality; it was observed that the design process needs to be reconsidered, particularly considering children's needs for movement, play, safety, and psychological comfort.

Criteria	Lurie Hospital	Pittsburgh Hospital	Rady Hospital	Randall Hospital	Boston Garden	Gold Coast	Children's Hospital No. 9	Karayev Children Hospital	Respublika Clinical Children's Hospital
Is the garden small but well organized?	5	4	4	4	5	5	1	1	3
Can the entire garden be easily seen at a glance?	4	5	4	5	5	3	3	1	2
Is there direct access from the children's unit to the play area?	5	4	4	5	3	5	1	3	2
Can the play area be clearly seen from inside?	4	3	3	5	5	3	2	3	4
Are the indoor and outdoor children's facilities located on the ground floor?	3	4	3	5	4	4	3	2	3
Is there a covered veranda area connecting the indoor space and the outdoor play area?	4	5	3	5	4	5	1	2	3
Is interactive technology used?	4	5	3	4	4	4	1	1	2
Movement and exercise	3	5	3	4	5	4	2	2	3
Are there paths for walking around the space?	3	3	3	3	5	5	2	2	4
Is there a signage system?	4	3	4	3	5	3	1	1	3
Are there short or long looped paths?	4	5	4	3	4	3	2	1	3
Are there paths designed for spending time, such as a maze?	3	4	3	4	3	4	1	1	2
Are there places where children can run?	3	4	3	4	5	3	2	2	3
Are the paths colorful?	5	5	5	3	5	3	1	1	2
Are there opportunities to sit alone or with others?	3	5	4	5	4	3	2	2	4
Are there movable or fixed furniture?	4	4	3	5	3	4	1	1	3
Are there areas with protective roofing elements?	3	5	4	3	3	5	1	2	3
Are there comfortable places for staff or visitors to sit while watching children play?	5	4	3	3	4	5	2	2	4
Plantings with seasonal variability	5	4	5	5	5	3	2	2	4
Have grass and leaf types that move with a light breeze been selected?	3	5	4	5	3	4	1	1	3
Is there a view of the sky and horizon?	4	4	3	5	3	4	2	2	3
Are there water features?	3	5	4	3	3	4	1	1	2
Is the garden visible?	3	5	4	5	3	3	2	3	4
Is there a space suitable for people and homes?	3	4	3	4	3	4	2	2	3
Have water, sand, and garden areas been created that a child in a stretcher or wheelchair can use?	4	3	3	3	5	4	1	1	2
Is there a place to sit in the sun or shade?	4	5	4	4	3	4	2	2	4
Have children with disabilities been considered?	4	4	5	5	3	5	2	1	3
Are the physical boundaries of the playground safe?	5	4	5	4	4	3	2	2	4
Is the playground adequately lit at night?	4	4	3	4	3	5	1	1	3
Are there any artistic elements around the playground?	5	5	3	5	4	4	1	1	2
Are there any colorful mosaics around the playground?	5	4	4	4	5	5	1	1	2
Are there any musical instruments around the playground?	3	3	4	3	3	5	1	1	1
Is acoustic comfort provided around the playground?	5	3	4	4	3	4	1	1	2
Is there space for creative and imagination-based play as well as physical play?	5	3	5	5	3	5	2	2	3
Do climbing structures or tree houses offer a variety of access routes?	4	4	3	4	5	5	1	1	3
Have changes in height been used to provide a variety of opportunities?	4	4	3	4	5	4	1	1	2
Are there various trees, shrubs, and flowers in the space?	4	4	3	5	5	5	2	2	4
Are there elements that offer different sensory experiences?	5	5	5	4	4	4	1	1	3
Is there space for wheelchairs/stretchers next to the seating areas?	3	5	3	4	5	5	1	1	3
Are there tables in some of the seating areas?	3	3	3	3	4	5	1	1	3
Are there seating areas that allow children with disabilities to participate?	4	3	5	4	4	4	2	1	3
Is there an adventure play area?	3	5	4	5	5	3	1	1	2
Is there a storage area for supplies?	5	3	5	3	4	3	1	1	2
Is there a separate outdoor area for adolescent patients?	5	4	5	4	4	5	1	1	3
Is there a rainwater storage facility for watering the garden?	4	5	3	4	4	4	1	1	2

References: (Cooper, Carolyn, 1997; CRC for Water Sensitive Cities, 2020; Pinhao, 2016; The Future Forward, 2025)

DISCUSSION

The research findings reveal that environmental design criteria are largely met in international examples, but there are shortcomings in Azerbaijan's hospitals in

terms of accessibility, safety, wayfinding, and play area diversity. This situation is consistent with the work of Gür and Yalçınkaya (2022), which emphasizes the importance of cognitive exploration, safety, sense of belonging, and aesthetic values in children's hospitals; as these missing elements directly affect children's connection to the space and ease of use.

The findings also show that seasonal plant diversity, art and color applications, water elements, and interactive technologies are common in international hospitals (Figure 8). This parallels the findings of Nourmusavi Nasab et al. (2020), who state that children prefer colorful, nature-integrated, and interactive environments. In the Azerbaijani examples, the limited presence of such elements can be considered a factor that may reduce children's interest in the space.

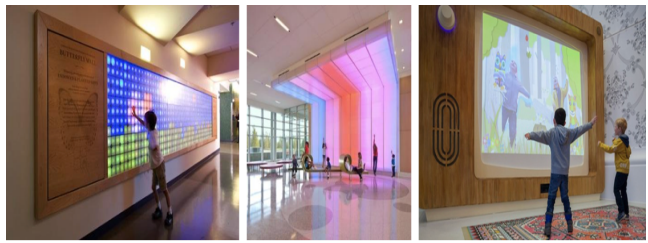


Figure 8 Left: Interactive panel, Dell Children's Medical Center; Austin, Texas, U.S.A.; middle: Nemours Children's Hospital; Orlando, Florida, U.S.A., right: Royal London's Children Hospital; London, U.K. (MHA, 2025)

While accessibility for children with disabilities is commonly provided in international examples, the low scores for this criterion in Azerbaijani hospitals contradict the findings of Ulrich (1991) and Pasha and Shepley (2013) regarding the positive effects of inclusive design in healing environments on the recovery process. Considering the results of Mahnke's (1996) study, which emphasizes that colors and markings used in an age-appropriate manner strengthen spatial perception, the inadequate guidance systems identified in the analyses need to be improved (Figure 9).



Figure 9 Sydney Children's Hospital, Left: Mobility Therapy and OT Courtyard, Right: Mental Health Rooftop Healing Garden (360, 2025).

Research shows that amenities such as playgrounds, sculptures, and child-sized furniture in gardens designed for children increase physical activity levels (Nasab et al., 2020; Pasha & Shepley, 2013). In this context, the study observed that the planned landscape arrangements, shaded seating areas, and creative play opportunities seen in international hospitals corresponded with the best practice examples defined in the literature.

As Read (2009) points out, making green spaces accessible and arranging them in a way that gives children a sense of renewal is critical to improving well-being (Figure 10). The study shows that while such gardens are common in international examples, green spaces in Azerbaijani hospitals are mostly natural but neglected and disorganized, failing to meet the quality design criteria recommended in the literature. Woo and Lin's (2025) findings reveal that young children show more interest in hospital gardens. According to the analyses, there is a need to increase creative and inclusive spaces that appeal to this age group.

Berg and Medrich's (1980) study, which revealed that children need safe spaces to feel privacy and control, directly aligns with the findings of this study; while safe and secure corners were provided in international examples, such spaces were largely absent in the Azerbaijani examples. Furthermore, as noted by Clark et al. (2019), drawings and artwork are critically important elements that provide psychological and emotional support for children. The active use of such artistic elements in the international hospitals examined is encouraging; however, the local examples need improvement.



Figure 10 Children Intrigued with a Stream of Running Water at the Children's PlayGarden. Copyright Michael Rogol, courtesy of Johansson Design Collaborative; right: Children learn through their senses, and there were many ways to experience kinesthetic pleasure, touch, and hearing throughout the garden, Photo by Gwenn Fried (Marcus, Sachs, 2014).

Similarities and differences with the literature are also noteworthy in terms of color usage (Figure 11). Haines and Johnston (2001) noted that young patients preferred blue and green tones, while Nourmusavi Nasab et al. (2020) stated that children preferred light blue, light green, and light yellow tones and responded positively to natural light. In international examples, the active use of this color palette and natural light in design facilitates children's adaptation to the space; however, in local examples, the limited use of color and its frequent lack of aesthetic integrity is a negative factor. This indicates that the user-centered design approach recommended in the literature is not fully implemented, particularly in the Azerbaijani examples.



Figure 11 Left: Perth Children's Hospital, Melbourne, Sdyney (Arundell, 2018); middle, right, The Kids' Bridge, Perth Children's Hospital (Elliot, 2011)

Finally, the lack of diversity and safety in playgrounds stands out as an important area for improvement when compared to Read's (2019) findings, which emphasize the impact of children's gardens on feelings of renewal and well-being. From this perspective, it can be said that comprehensive adjustments are needed in the landscape and open space design of children's hospitals in Azerbaijan, based on the best practice examples mentioned in the literature.

CONCLUSION

This study presents a comparative analysis of six international and three Azerbaijani examples within the framework of established criteria for the environmental design of children's hospitals. The findings reveal that environmental arrangements play a critical role in meeting children's physical, psychological, and social needs, and that spatial design must possess not only aesthetic but also functional and healing characteristics. In general, international examples offer high standards in criteria such as accessibility, safety, guidance systems, shaded seating areas, seasonal plant diversity, interactive technologies, and creative play areas. These hospitals have adopted an inclusive design approach that allows both disabled and healthy children to benefit equally, ensuring that spaces are psychologically supportive using artistic elements and color. Furthermore, the planned integration of natural elements into the landscape design has strengthened children's contact with nature. In contrast, in the three

hospitals in Azerbaijan, it was found that green areas were mostly natural but neglected and disorderly, play and recreation areas were limited, and interactive technologies were almost non-existent. The lack of accessibility for children with disabilities, limited safety measures, and inadequate guidance systems indicate that these hospitals do not meet child-friendly design standards. This situation reveals that the inclusive and user-centered design approach emphasized in the literature (Ulrich, 1991; Gür & Yalçınkaya, 2022) has not yet been sufficiently implemented in the local context.



Figure 12 Olson Family Garden, St. Louis Children's Hospital, The lawn and famous rolling granite sphere; Photo Courtesy Kelly Luckett, middle: Pumpkins herald in the Autumn; Photo Courtesy Kelly Lucke; right: Summertime photo of the Olson Family Garden Rooftop at the St. Louis Children's Hospital; Photo Source: Mackey Mitchell Associates (Greenoofs.com, 2025)

- Based on the findings, the following priority steps can be recommended to improve the environmental design of children's hospitals in Azerbaijan.
- Accessibility and inclusivity: Planning ramps, wide paths, special play equipment, and seating areas for children with disabilities.
- Play and recreation areas: Creating safe and creative play areas, shaded seating areas, and spaces that encourage family interaction for different age groups.
- Landscape planning: Integrating seasonal plant diversity, water features, colorful mosaics, and artwork into the design.
- Wayfinding systems: Use of color-coded signs, information boards, and visual guides appropriate for children's age groups.
- Technology integration: Addition of distracting and educational elements such as interactive screens, virtual nature elements, and education-focused digital games.
- In conclusion, environmental design in children's hospitals is not merely an aesthetic preference but a factor that directly affects children's health, recovery process, and psychosocial development. Adapting international best practices to the local context and applying science-based design criteria will significantly improve the service quality and user satisfaction of children's hospitals in Azerbaijan.

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The Effects of the New Metropolitan Law No. 6360 on Forest Villages and Villagers: The Example of Aydin Province in Türkiye

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ABSTRACT

This study aims to examine the impact of the transformation of villages into neighborhoods on the lives of villagers in the context of the 6360 law in the province of Aydın. The study involved a literature review of the subject to examine the legal and administrative aspects of the law, followed by a survey of villagers in the selected forest villages in Aydın province. The survey method was used to evaluate the participants' demographic profile, their level of knowledge about the law, and the changes in the social and economic situation of the villages. The results show that the law has had a positive impact on access to services and infrastructure but has had a moderate negative impact on official procedures and the loss of legal personality. The study shows that, although the social and economic life of the villages has generally improved, there are still some limitations in the administrative and economic areas. Overall, the study reveals that the 6360 law has had significant economic, social and administrative effects on the forest villages in the Aydın province, but that the villagers have experienced difficulties in terms of information and adaptation during this process. The study contributes to our understanding of the social and economic effects of legal applications in rural areas.

Keywords: Law No. 6360, local administration, forest villages, conversion to neighborhoods, Aydın Province

INTRODUCTION

Urbanization is rapidly increasing worldwide, especially in developing countries. This rapid and unplanned growth has led to the addition of new areas to existing

urban fabrics and has led to various problems in the management of these new areas. Therefore, the need to develop different models for the management of large-scale metropolitan areas has arisen. In parallel with global practices, the management of metropolitan areas in Turkey has required a different organizational structure than other urban settlements; within this framework, a new administrative system, distinct from classical municipal structures, has been established for areas designated as metropolitan areas (Adıgüzel and Tek, 2014).

The metropolitan municipality model was first implemented in Turkey in 1984. Regulations implemented until the 2000s have introduced minor changes to the system. In the final phase, a significant transformation occurred with Law No. 6360, "On the Establishment of Metropolitan Municipalities and Twenty-Six Districts in Thirteen Provinces and Amendments to Certain Laws and Decree Laws," adopted on November 12, 2012 (Çelikyay, 2014). Under this law, approximately 47% of 16,082 villages were stripped of their legal personality and transformed into neighborhoods (Güler, 2012). Villages, especially forest villages, gained special rights thanks to their legal personality and served as local administrative units, protecting their own assets and the privileges of using forests and pastures. However, neighborhoods lack such legal personality (Güler, 2012).

Parallel to global developments, changes in the understanding of governance in Turkey have also occurred. With the growth of metropolitan areas, the need to consider the plans and management models implemented in these regions with an approach that encompasses the entire city and shapes macro policies has arisen. Therefore, the metropolitan municipality model has undergone a rapid and dynamic transformation over time. The expansion of cities has led to the emergence of new administrative problems (Çelikyay, 2014).

Law No. 6360 introduced a new administrative system, aiming to address these emerging problems. With the law, the understanding of urban governance in Turkey has undergone radical changes; the number of metropolitan municipalities has increased, villages have been converted to neighborhood status, and administrative authority has been extended to the provincial administrative boundaries. In these provinces, special provincial administrations have been abolished, and the electoral system has been restructured. In provinces with metropolitan status, voters now vote directly for metropolitan municipalities within their provincial borders. With the implementation of the law, approximately 77% of Turkey's population and 51% of its land area have been governed by metropolitan municipalities (Çelikyay, 2014).

This study demonstrates the social, economic, and technical transformations the law has wrought in forest villages through village studies. In addition, the rights of forest villagers to benefit from forest resources were evaluated and the changes that occurred in the lives of villagers from the perspective of rural development were discussed (Akyol et al., 2014; Tolunay and Akyol, 2006; Tolunay et al., 2007; Tolunay et al., 2008; Tolunay et al., 2009).

MATERIAL AND METHOD

The data for this research was collected using a survey method. The study group includes people living in the forest villages of Aydın province.

The questionnaire had 21 questions in total. The first 5 questions asked about the participants' demographic characteristics (such as gender, education, age, income, and occupation). Questions 6 and 16 collected information about the villages and villagers. Questions 17 to 20 asked about knowledge of the new metropolitan law. Question 21 included 10 statements about perceptions of the law, which were answered using a 5-point Likert scale: strongly disagree, disagree, neutral, agree, strongly agree. The data was analyzed with the SPSS 20 statistics program, using a significance level of 0.05. Cronbach's Alpha was used to measure reliability, and the value was 0.767. A value between 0.80 and 1.00 shows high reliability (Akgül & Çevik, 2005). The survey was carried out face-to-face in 2018 with 134 people living in Aydın's forest villages. To decide which statistical tests (parametric or non-parametric) should be used for analyzing the survey data, normality tests such as Kolmogorov-Smirnov and Shapiro-Wilk were applied.

Since the results of these tests showed values smaller than 0.05, it was determined that the data were not normally distributed at the 95% confidence level. For this reason, frequency and percentage values were used to explain the results, and factor analysis was applied to evaluate participants' perceptions.

FINDINGS AND DISCUSSION

Participants' assessments indicate that the transformation of their village into a neighborhood and the changes implemented under Law No. 6360 have generally had positive impacts on access to services, infrastructure, and quality of life. The new services have contributed to the village's economic and social development, and a partial increase in its prestige has been observed. However, the tax and duty obligations arising from official procedures, as well as the need to travel to the provincial/district centre for some transactions, were perceived by participants as moderately negative. While the village's loss of legal entity status also had some negative impact, no significant decrease in forest-based needs was observed. These findings suggest that the transformation of the village into a neighborhood and the changes under the law have had positive impacts, particularly in services and infrastructure, but moderately negative impacts on economic and administrative practices.

CONCLUSION AND RECOMMENDATIONS

This study examined the effects of Law No. 6360 on forest villages and villagers in Aydın province. The survey results showed that many villagers did not have enough information about the law. Important issues such as new taxes, participation fees and the removal of village legal status were either not known or

misunderstood. While some villagers expressed satisfaction with municipal services like health and social aid, problems remained with transportation, infrastructure, and environment. Also, cooperatives were not effective enough, and economic support was limited. Based on these results, villagers should be informed in a clear and simple way about the law. Village headmen should receive training so they can help in this process. Municipal services should be delivered equally to all neighborhoods, with improvements in transportation and infrastructure given priority. Special support should be given to forest villagers' sources of income, and cooperative activities should be encouraged. Finally, more time should be given to villagers for adjusting to new financial obligations, and the transition should be made easier.

Statements: This article has received ethical committee approval. This article has not received financial support.

Disclosure

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Spor Endüstrisinde Çevresel Sürdürülebilirlik: Olumsuz Etkiler Ve Yeşil Çevre Politikalarinin Önemi

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ÖZET

Çevresel sürdürülebilirlik, sürdürülebilir kalkınma hedefleri içerisinde en önemli bileşenlerinden birisidir. Sınırsız insan ihtiyaçları, sınırlı doğal kaynakları her geçen gün tüketmekte, bu tüketim sürecinde ortaya çıkan zararlı gazlar çevre üzerinde yıkıcı etkiler bırakmaktadır. Dolayısı ile çevre ve doğal kaynakların korunması, gelecek nesillere aktarılması insanlığın çözüm bulması gereken sorunların başında gelmektedir. Endüstriyelleşme sürecinin çevreye olumsuz etkileri ile sürdürülebilir dünya hedefini riske attığı söylenebilir. Gerekli tedbirler alınmadığı için, tüm sektörlerde üretim, tüketim ve ulaşım süreci olumsuz çevresel etkileri ile gündeme gelmektedir. Nitekim bu sektörlerden birisi de endüstriyelleşen spordur. Spor etkinlik ve organizasyonları ile tesisleşme adımları olumsuz çevresel etkiler barındırmaktadır. Spor organizasyonlarına kitlesel katılımın, çevresel ve doğal kaynakların tüketim sürecini hızlandırdığı söylenebilir. Tesisleşme sürecinde ise plansız yapılaşma, toprak ve su kirliliğine sebep olacak kimyasalların kullanımı, yüksek enerji tüketimi nedeniyle karbondioksit ve sera gazı salınımları çevresel sürdürülebilirlik hedeflerini tehdit etmektedir. Bu çalışma, sürdürülebilir kalkınma hedefleri için ortaya konulan üç ana başlıktan birisi olan çevresel sürdürülebilirlik ile sınırlı tutulmuştur. Ve spor endüstrisinin çevre üzerindeki olumsuz etkileri mevcut literatür ışığında değerlendirilmiştir. Bu araştırmanın amacı, spor endüstrisinde çevresel sürdürülebilirlik ve yeşil çevre hedeflerinin önemini derleme niteliğinde ele almak ve mevcut literatür çerçevesinde kavramsal bir değerlendirme sunmaktır. Çalışmada öncelikle spor endüstrisinin çevresel etkilerine odaklanılmış, daha sonra yeşil çevre hedeflerinin bu etkilerin azaltılmasında oynadığı rol tartışılmıştır. Yöntemsel kurgu olarak nitel bir derleme yaklaşımı benimsenmiş; spor tesisleri, organizasyon yönetimi, spor ürünleri ve taraftar davranışları üzerine yoğunlaşan güncel akademik çalışmalar, uluslararası politika belgeleri ve sektörel raporlar incelenmiştir. Spor endüstrisinin, küresel çevre kirliliğinin en önemli aktörlerinden birisi olduğu söylenebilir. Bu tehlikeli sürecin kontrol altına alınabilmesi için sporda stratejik yönetim becerileri ve yeni politikaların geliştirilmesi gerekmektedir. Çünkü dünya genelinde spora yoğun ilgiye bağlı olarak çevresel tehditler artmaktadır. Araştırmalar doğal dengenin bozulmasının temelinde insan aktivitelerinin olduğunu ortaya koyarken, spora katılan insanların

büyük miktarlarda karbondioksit emisyonu ürettiği ifade edilmektedir. Özellikle küresel ölçekte ilgi ve talebin spora yönelmesi de bu çevresel etkileri her geçen gün artmakta doğal dengeyi bozacak seviyeye ulaşmaktadır. Spor organizasyonlarının yanı sıra spor tesislerinin çevresel etkileri de sürdürülebilir dünya amaçlarını sekteye uğratabilmektedir. Tesislerdeki fosil kaynaklı enerji tüketimi, kullanılan araç gereç ve kimyasallar toprak ve su kaynaklarını kirletmektedir. Yine enerji kullanımına bağlı karbondioksit ve sera gazı salınımları da hava kirliliğine neden olmaktadır. Spor, modern dünyanın en önemli figürlerinden birisidir. Sosyal, kültürel ve ekonomik varlığı ile gelecek nesillere de ulaşacak bir toplumsal kurumdur. Ancak sporun sürdürülebilirliği çevresel sürdürülebilirlik ile doğru orantılıdır. Dolayısı ile spor kaynaklı olumsuz çevresel etkilerin azaltılması, çevresel sürdürülebilirliğe büyük katkılar sağlayacaktır. Bu sayede gelecek kuşaklara hem doğal çevrenin hem de sporun aktarılabilmesi mümkün olacaktır.

Anahtar Kelimeler: Çevresel Sürdürülebilirlik, spor, karbon ayak izi, sürdürülebilirlik, sürdürülebilir kalkınma

Environmental Sustainability in the Sports Industry: Negative Impacts and the Importance of Green Environmental Policies

ABSTRACT

Environmental sustainability constitutes one of the most crucial components within the framework of the Sustainable Development Goals. While unlimited human needs continue to consume limited natural resources, harmful emissions generated during this process exert devastating effects on the environment. Therefore, protecting natural resources and ensuring their transfer to future generations stands among the most pressing challenges facing humanity. The adverse environmental consequences of industrialization are widely acknowledged to endanger the global goal of sustainability. In the absence of adequate measures, the processes of production, consumption, and transportation across all sectors increasingly contribute to environmental degradation. The sports industry, which has undergone an accelerated process of industrialization, is no exception. Sports events, organizations, and facility construction projects inherently produce negative environmental impacts. Mass participation in sporting events intensifies the consumption of environmental and natural resources. Furthermore, unplanned facility development, the use of environmentally harmful chemicals that cause soil and water pollution, and the high levels of energy consumption that contribute to carbon dioxide and greenhouse gas emissions significantly threaten environmental sustainability goals. This study, therefore, confines its focus to environmental sustainability—one of the three pillars of sustainable development—and evaluates the negative environmental impacts of the sports industry in light of the existing literature. The primary aim of this research is to conceptually review the importance of environmental sustainability and green environmental goals within the sports industry by adopting a literature-based approach. The study first explores the environmental impacts of the sports sector and subsequently discusses the role of green environmental objectives in mitigating these effects. Methodologically, a qualitative review design was employed, drawing upon contemporary academic studies, international policy documents, and industry reports that address sports facilities, event management, sports products, and fan behaviors. Findings suggest that the sports industry is among the key contributors to global environmental pollution. To mitigate this alarming trajectory, the development of strategic management skills and innovative environmental policies within sports management is necessary. Given the increasing global interest in sports, the scale of environmental threats is expanding. Research indicates that the disruption of ecological balance primarily stems from human activity, with sporting participation generating substantial amounts of carbon dioxide emissions. The

growing global attention to sports further amplifies these effects, pushing them toward levels that jeopardize ecological balance. In addition to sporting events, the environmental impacts of sports facilities also hinder the pursuit of a sustainable world. Fossil-based energy consumption, combined with the use of equipment and chemicals, pollutes soil and water resources, while the resulting carbon dioxide and greenhouse gas emissions contribute significantly to air pollution. As one of the most prominent institutions of modern life, sport possesses enduring social, cultural, and economic value that will continue to reach future generations. However, the sustainability of sport is closely linked to environmental sustainability. Reducing the negative environmental impacts associated with sports will contribute significantly to environmental sustainability, thereby ensuring the transmission of both natural ecosystems and sport itself to future generations.

Keywords: Environmental sustainability, sport, carbon footprint, sustainability, sustainable development

GİRİŞ

Toplumsal yaşamın hızlanması ile birlikte insanların sergiledikleri tutum ve davranışların olumsuz çevresel sonuçlar doğurduğu bilinmektedir. Özellikle nüfustaki hızlı artışlar buna bağlı kent nüfuslarının artması ile şehirleşme, artan ve çeşitlenen tüketim ihtiyacı doğal kaynaklar üzerindeki baskıyı artırmakta ve kullanımı da hızlanmaktadır. Bu durum isim küresel iklim sorunlarını, iklim değişikliklerini ve nihayetinde küresel ısınmayı beraberinde getirmektedir (Özsoy, 2015). İklim değişikliği, muhtemelen bu yüzyılda insanlığın karşı karşıya kaldığı en büyük zorluğu temsil etmektedir (Eichinger, 2019). Çevre, toplum, ekonomi ve insan sağlığı için karmaşık sonuçlarının olduğu bilinmektedir. (Townsend vd., 2003). Özellikle yaşanılan çevrenin bizzat insanlar tarafından tahrip edilmesi sürdürülebilir çevre hedeflerini tehdit etmektedir. İklim değişikliği, küresel ısınma, karbon ayak izi vb. çevresel sorunlar son yıllarda sıklıkla tartışılmakta ve çözüm önerileri üzerine bilimsel çalışmalar yürütülmektedir. Dolf ve Teehan (2015), insanların tutum ve davranışlarından kaynaklanan iklim değişikliği sorunlarının gelecekte sosyal, ekonomik ve ekolojik bozulmaya neden olabileceğini ifade etmektedir. The Intergovernmental Panel on Climate Change (IPCC) (2007) raporunda da insan faaliyetlerinden kaynaklanan sera gazı salınımlarının son yıllarda hızla arttığı ve bu durumun çevre ve doğal kaynakları tehdit ettiği belirtilmektedir. Dolayısı ile giderek artan çevresel sorunlar ve çevresel sürdürülebilirlik endişeleri dünyada toplumların karşılaştığı en önemli sorunlardan biri haline gelmiştir (Shahroh vd., 2020).

YÖNTEM

Geleneksel bir sistematik derleme ve meta-analizde, en iyi mevcut kanıt aranır, sistematik olarak belirlenir, eleştirel bir biçimde değerlendirilir ve sentezlenir;

böylece belirli bir klinik veya araştırma sorusuna yanıt aranır (Murad vd., 2014). Sistematik derlemeler ve meta-analizler aynı zamanda giderek artan bir şekilde araştırma programları bağlamında da kullanılmaktadır. Bu durumda, sürecin ilk adımını oluşturarak, ek bilgiye ihtiyaç duyulan belirsizlikleri ve yanıtlanmamış araştırma alanlarını belirlemek için kullanılmaktadır (Scoglio & Fichera, 2014).

Araştırma Haziran-Temmuz 2025 tarihleri arasında yürütülmüş olup, 2000–2024 yıllarını kapsayan literatürü içermektedir. Bu bağlamda şu anahtar kelimeler kullanılmıştır: "Sürdürülebilir kalkınma", "çevresel sürdürülebilirlik", "spor ve çevresel sürdürülebilirlik", "spor tesisleri". Araştırmada kullanılan anahtar kelimeler, çalışmanın amacı analiz edilerek belirlenmiştir. Birden fazla arama terimi, farklı arama terimi kombinasyonları ve eş anlamlıların kullanılması, elektronik literatür taramasının etkinliğini artırmaktadır (Bown & Sutton, 2010). Nitelikli bir sistematik derleme, nitelikli literatür taramaları ve bu taramaların doğru raporlanmasını gerektirir. Tek bir veri tabanında yapılan aramalar, ilgili makalelerin en fazla üçte birini ortaya çıkarırken, birden fazla veri tabanında yapılan taramalar ise mevcut makalelerin yalnızca yarısını tespit edebilmektedir (McManus vd., 1998). Biz, geniş bir kaynak grubuna ulaşmak için en uygun ortak terimlerle üst düzey bir tarama başlattık. Yukarıda belirtilen her bir anahtar kelime farklı veri tabanlarına uygulanmıştır. Bu veri tabanları: Scopus, EBSCO, ResearchGate, Academia, Google Scholar ve Web of Science'tır. İlgili literatüre bu veri tabanları aracılığıyla erişilmiş ve sınıflandırılmıştır.

BULGULAR

Çevresel Sürdürülebilirlik

Sınırlı kaynaklarla sınırsız ihtiyaçların karşılanması sorunu elbette iktisadi bir çalışma alanını ifade etmektedir (Önder ve Ağca, 2018). Ancak bu sorun günümüzde sadece iktisadi alanı ilgilendiren bir sorun olmaktan çıktığı ve çevre biliminin de ana sorunlarından birisi haline geldiği söylenebilir. Çünkü dünyanın sınırlı kaynakları tükenirken bu süreci salt iktisadi bir çerçeve ile ele almak yetersiz kalmakta, ortaya çıkan sorunlar çevresel olumsuz etkileri de belirginleştirmektedir. Günümüzde sınırsız ihtiyaçların karşılanması gayreti, çevresel sürdürülebilirlik kavramını ortaya çıkarmış, başta iklim değişikliği olmak üzere birçok çevresel sorunun temel sebebi haline gelmiştir.

Çevresel sürdürülebilirlik, Birleşmiş Milletler'in Bruntland Raporunda mevcut ve gelecek nesiller için doğal çevrenin korunması ve miras bırakılması olarak tanımlanmıştır. 1997 yılında imzalanan Kyoto Protokolü ile de işlerlik kazanan uluslararası bir kavram haline gelmiştir (World Economyc and Social Survey, 2015). Diğer taraftan çevresel sürdürülebilirlik, gıda ve beslenme gibi hayati önem arz eden ürün ve hizmetlerin, temiz, yaşanabilir bir dünyanın sonraki kuşaklara bırakılması ve günümüzdeki mevcut doğal kaynakların tüm toplumlar içerisinde eşit bir şekilde ulaşılabilir olması şeklinde değerlendirilmektedir (Fantana & Ferruci, 2014). Çevresel sürdürülebilirlik hem günümüz insanlığının hem de gelecek kuşakların önemli bir sorunu olarak ele alınabilir. Yukarıda da

ifade edildiği üzere mevcut doğal kaynakların adil ve dengeli kullanımı hem de bu kaynakların yarınlara aktarılabilmesi çevresel sürdürülebilirlik anlayışının merkezinde yer almaktadır. Dolayısıyla çevrenin ve doğal dengenin korunması, sınırlı kaynakların dengeli bir şekilde işlenmesi yaşanabilir bir dünyanın temel şartı olarak kabul edilebilir. Bunun için Morelli (2011), doğanın devamlılığı ve gelecek nesillere aktarımı için çevresel sürdürülebilirlik anlayışına daha çok önem verilmesi gerektiğini belirtmiştir. Bu amaç için de çevresel sürdürülebilirliği destekleyen 5 ana prensibi ortaya koymuştur. Bu prensipler aşağıda yer alan görselde sunulmuştur (Morelli, 2011).

Tablo 1 Çevresel Sürdürülebilirliği Destekleyen Prensipler

Toplumsal İhtiyaçlar	● Sonraki nesillerin ihtiyatlı davranmasına neden olacak hiçbir şey üretmemek, ● Sürdürülebilir ekonomiye katkı sağlayacak ürün ve hizmetler tasarlamak, ● Lokal iş gücünü desteklemek, ● Eşit rekabeti desteklemek, ● Yeni ürün ve hizmetlerde çevresel sürdürülebilirliği gerekli görmek.
Biyoçeşitliliğin Korunması	● Biyoçeşitliliği koruyan doğal kaynakların seçilmesi, ● Çevreye duyarlı ve sürdürülebilir enerji kaynakları kullanmak, ● Enerji verimliliğini iyileştirmek.
İyileştirme Kapasitesi	● Üretimde yenilenebilir kaynak girdisini artırmak, ● Yenilenebilir kaynak ikamesini artırmak
Yeniden Kullanım ve Geri Dönüşüm	● Yeniden kullanım ve geri dönüşüm tasarımları geliştirmek, ● Üretim ve iş süreçlerinde emisyon ve atıkları sıfıra indirmek ve bunun için tasarımlar geliştirmek.
Yenilenemez Kaynak ve Atık Kısıtlaması	● Çevreye zarar noktasında en iyi ulaşım sistemi ve alt yapının oluşturulması, ● Atık emisyonlarını kabul edilebilir seviyede tutmak, ● Düşük etkili ulaşım sistemleri için kriterler geliştirmek, ● Tüm üretim süreçlerinde çevresel etkileri dikkate alan bir yaklaşım geliştirmek.

Günümüz teknolojisi, yapılaşma ve modernizasyon akımları insan yaşamını kolaylaştırmakla birlikte olumsuz çevresel etkileri ile de gündemdedir. Mann vd. (2017), insan aktivitelerine bağlı karbondioksit salınımlarının doğal çevre ve kaynakların kötüleşmesine sebep olduğuna değinirken iklim bilimcilerin bu

duruma dikkat çekmeye çalıştığını ifade etmektedir. Bireysel ve toplumsal eylem ve aktivitelerin tamamında olumsuz çevresel etkilerin ortaya çıktığı söylenebilir. Kullanılan plastik şişe ve malzemelerden, fosil yakıtlara; bireysel ve toplu taşıma araçlarından devasa üretim tesislerine kadar tüm yaşamsal eylemler yaşamın sürdüğü çevreye büyük zararlar vermektedir. Tüm bu yaşamsal süreçlerin sonunda küresel ölçekte enerji kaynaklarının hızlı bir şekilde tükenmeye başladığı, dolayısı ile çevre ile ilgili sorunların artması ekoloji ve enerji sorunlarını gündeme getirmektedir (Civan, 2006).

Son yıllarda çevresel sürdürülebilirlik ve iklim değişikliği sorunları tüm toplumlarda kamuoyu tarafından tartışılan bir konu haline gelmiştir (Mallen & Chard, 2011). Çünkü insanlığın ortak ve temel sorunlarının başında iklim değişikliği ve buna bağlı olarak bozulan çevresel doku gelmektedir. Klein (2011:159), iklim değişikliğinin küresel ısınmayı beraberinde getirdiğini ifade ederken, bu durumun gezegen üzerinde birçok olumsuz etkiye sahip olduğunu da belirtmektedir. Nitekim günümüz toplumları daha önce görülmemiş bir çevresel değişimle karşı karşıyadır (IPCC, 2007) ve bu değişimin toplumlara söylediği en önemli şey dünyanın kaynaklarının sınırsız olmadığıdır (Diamond, 2005:497). Aslına bakılırsa bu durum çevresel sürdürülebilirlik kavramının öneminin anlaşılmasına yönelik ciddi bir uyarı niteliğindedir. Çevre üzerindeki bu olumsuz değişim ve dönüşüm acil çözümleri zorunlu kılmakta (Fraj-Andres vd., 2009:268), bu süreçte de en önemli çözüm kaynağının çevreye karşı tutumda köklü ve temel değişimler olduğu belirtilmektedir (Senge vd., 2008:59). Üretim ve tüketim kültürünün baskın olduğu bir dönemde yaşamaktayız. Bu baskın kültürün sonuçları dünyanın giderek tükenmesine sebep olmakta ve gezegenin sürdürülebilirliğine karşı önemli bir tehdit teşkil etmektedir (Şenocak & Bursalı, 2018).

Spor Sektörü ve Olumsuz Çevresel Etkiler

Spor sektörü sahip olduğu küresel etki gücü sebebi ile birçok ülkenin organizasyonlara ev sahipliği yapma yarışı hız kazanmış ve önemli bir hal almıştır. Ancak artan bu talep beraberinde çevresel endişe ve kaygıları beraberinde getirmiş olumsuz çevresel etkiler belirginleşmiş ve doğal olarak spor sektörü iklim değişikliği sorunun önemli bir parçası haline gelmiştir. (Manfredi vd., 2009). Bu sebeple çevresel sürdürülebilirlik ile ilgili tehditlere karşı tedbirlerin alınması gereken sektörlerin başında spor gelmektedir. Nitekim bu tehditlerin başında karbon ve sera gazı salınımlarının giderek yoğunlaşması diğer bir ifade ile karbon ayak izinin büyümesi anlamına gelmektedir. Günümüzde karbon ve sera gazı salınımlarının en önemli kaynaklarından biri de spor sektörüdür. (Pereira vd., 2017). Spor, sahip olduğu özellikleri nedeni ile toplumun tüm kesimleri ve çevre üzerinde olumsuz etkilere sahip olan insan davranışlarının katalizörüdür (Mann & Kump, 2008:43). Spor sektörünün bu olumsuz etkilerine ilişkin Birleşmiş Milletler, spor etkinlikleri, spor tesisleri, spor aktiviteleri ve spor malzemeleri üretimi sebebi ile spor sektöründe karbon ayak izinin giderek

büyüdüğünü bildirmektedir (United Nations Environment Program, 16 December 2022).

Küresel ölçekte spor sektörü ile iklim değişikliği ve çevre sorunları arasındaki ilişkinin güçlenmesi ile birlikte akademik literatür oluşmaya başlamış ve bu konuda araştırmalar çeşitlenmiştir. Bu duruma bağlı olarak özellikle Uluslararası Olimpiyat Komitesi önemli adımlar atmaya başlamıştır. Artan kaygıların giderilmesi adına "IOC Sustainability Strategy" belgesini yayınlamıştır (International Olympic Committee, 2017). Uluslararası Olimpiyat Komitesi ile birlikte çevresel endişelerin giderilmesi adına üye ülkeler de gerekli adımları atarak sporda çevresel sorunların giderilmesine yönelik girişimlerde bulunmaktadır. Bu ülkelerden biri İtalya'dır. Uluslararası Olimpiyat Komitesi'nin teori ve uygulamadaki adımlarına eşlik etmeye çalışan "İtalya Herkes İçin Spor Birliği" 2012 yılından bu yana "sporda sürdürülebilirlik" adı altında kapsamlı raporlama çalışmaları yapmaktadır. Bu raporlama sürecindeki temel hedeflerden biri de spor sektörünün çevresel sürdürülebilirlik için nasıl bir tehdit oluşturduğunu belirlemeye yöneliktir. Birlik, spor sektöründe çevresel sürdürülebilirliğe ilişkin kapsamlı bir değerlendirme yapmış ve sporda çevresel risk kaynaklarını iki temel başlıkta toplamıştır. Bunlar sporda tesisleşme ve düzenlenen organizasyonlardır.

Spor ve çevresel etkiler üzerine kapsamlı çalışmaların yürütüldüğü İtalya'da Herkes için Spor Birliğinin hazırladığı raporda spor ve çevresel sürdürülebilirlik arasındaki ilişki iki başlık altında toplanmıştır. Bunlardan ilki spor sektörünün devamlılığının sağlanması için gerçekleştirilen tesisleşme faaliyetleridir. Diğeri ise ulusal ve uluslararası seviyede düzenlenen etkinlik, turnuva ve faaliyetlerdir. Tesisleşmeye bağlı olarak hava, su ve toprak kirliliği ile yapı süreçlerinin ortaya çıkardığı atıklar öne çıkmaktadır. Ayrıca bu tesislerde kullanılan enerji de sebep olduğu karbon salınımı sebebi ile çevre için bir risk unsuru olarak değerlendirilmiştir. Düzenlenen etkinlik ve turnuvaların çevresel etkileri ise seyahat, konaklama ve gıda tüketimine bağlı atık üretimi ve yine enerji tüketimi olarak değerlendirilmektedir (Sorrentini, 2021).

Spor Sektörü Özelinde Yeşil Çevre Politikalarının Önemi

Çevre dostu bir düşünceye sahip spor ve etkinlik yöneticilerinin, spor turistleri ve izleyicilerle birlikte, "ekosentrik" yönetim ilkelerini somutlaştırmak için daha uyumlu çabalarla spor endüstrisi içerisindeki uygulama sınırlarını genişletmesi gerekmektedir (Sartore-Baldwin & McCullough, 2018). Dünya çapında spor organizasyonlarında yer alan yöneticiler açısından çevre konusu günümüzde, spor tesislerinin bakım ve onarımı, estetik kaygılar ve gelir yaratma süreçleri gibi genel stratejik planlamaların temel bir unsuru olarak karşımıza çıkmaktadır. (Casper vd., 2012). Ancak bu noktada çevresel süreçlerle ilgili farkındalık önemli bir konu haline gelebilmektedir. Spor ve rekreasyon organizasyonlarında çevresel süreçlere ilişkin konuları sağlıklı bir şekilde ele almak için spor yöneticilerinin çevre konularına ilişkin farkındalık ve bilgi düzeylerinin yüksek olması

beklenmektedir (Macnaghten, 2003). Çünkü spor yöneticilerinin farkındalık ve bilgi düzeyleri, eylemlerin başarı ya da başarısızlığında oldukça belirleyicidir (Nicolaides, 2006).

Uluslararası çatı spor örgütlerinin başında gelen Uluslararası Olimpiyat Komitesi' de (IOC) sporda çevresel sürdürülebilirlik hedefleri doğrultusunda Yaz ve Kış Oyunlarının planlanması ve sahnelenmesinde çevresel hususların önemini vurgulamakta ve organizasyonların tamamında çevre dostu bir anlayış sergilemeye çalışmaktadır (Collins vd., 2007). Örneğin, Los Angeles'ta düzenlenen 1984 Yaz Olimpiyat Oyunları ile başlayan spor ve çevresel sürdürülebilirlik anlayışı, spor organizasyonlarının, tesislerin ve organizasyonla ilgili tüm aktivitelerin olumsuz çevresel etkilerinin azaltılmasına yönelik atılan adımlar ile spor ve çevresel sürdürülebilirlik hedefleri yan yana gelmiştir (Hiller, 1998; Lenskyj, 2002:64). Spor ve çevresel sürdürülebilirlik hedeflerine ilişkin atılan somut adımlardan biri Tokyo Olimpiyat Oyunlarıdır. Tokyo'daki 2020 Olimpiyat ve Paralimpik Oyunlarına ev sahipliği yapan 37 spor tesisinden 15'i daha önceden var olan tesislerdir. Mevcut tesislerin kullanımının teşvik edilmesinin ardında çevresel kaygılar bulunmaktadır. Oyunlar için yeni tesis yapımı sayısını sınırlayarak, inşaat ve arazi kullanımıyla ilgili zararlı çevresel sonuçların (ve ek maliyet) en aza indirilmesi hedeflenmiştir (Martin, 2013). Uluslararası Olimpiyat Komitesi'nin attığı somut adımlar üye ülkelerde de karşılık bulmuş ve sporda çevresel etkilerin azaltılmasına yönelik ülkelerde tedbirler almaya başlamıştır. Özellikle başta futbol stadyumlarının çevre dostu dizayn edilmesi öncelik kazandı (Hershkowitz, 2013). Örneğin, Delhi'de bulunan "Thyagaraj Stadyumu", Nisan 2013 tarihinde Hindistan Yeşil Bina Konseyi'nden tarafından altın derece aldı. Avrupa'da Dublin'de ve Cardiff'te bulunan Croke Park ve Millennium stadyumları düzenlenecek olan müsabaka ve etkinlikler için İngiliz Standartları Enstitüsü tarafından geliştirilen "İngiliz Sürdürülebilirlik Yönetim Sistemleri Standardını" (BS 8901) karşılan stadyumlar olmuştur (British Standards Institution, 2013).

SONUÇ

Çevreye yönelik uygulama ve politikaların temel amacı; insanların sağlık ve mutluluk içinde sürdürülebilir bir çevrede yaşamalarını sağlamak, ekosistemi ve biyolojik çeşitliliği korumak ve insanların tutum ve davranışlarından kaynaklanan olumsuz çevresel etkileri ortadan kaldırmaktır (Budak, 2000:36). Bu bağlamda, her düzeyde spor etkinliği yönetiminin, çevresel performansı dikkate alarak çevresel sürdürülebilirliği etkin bir biçimde ele alması ve buna bağlı olarak etkili eylem ve girişimleri belirlemesi beklenmektedir (Dolf & Teehan, 2015). Etkinliklerin içeriği, stadyum dışında yeşil konaklama, atık ve su arıtma tesisleri ile tüm yeşil altyapının varlığına odaklanmaktadır (Daddi vd., 2021). Bu amaçla, ülkeler spor yatırımlarını şekillendirirken enerji verimliliğini ve sürdürülebilirliği artırma hedefleri doğrultusunda hareket etmeye çalışmaktadır. Spor faaliyetlerine aktif ya da pasif katılım gösteren bireylerin, içinde yaşadıkları doğal çevrenin önemini ve değerini bilerek ve anlayarak tutum ve davranış sergilemeleri büyük

önem taşımaktadır. Bu nedenle, spora katılan bireylerin ve spor tesislerinin çevreye duyarlı, en az zararı veren ve spordan kaynaklanan karbon ayak izini azaltmayı hedefleyen bir şekilde davranmaları amaçlanmaktadır (Beyhan & Ünügör, 2005).

Sporun paydaşları, artan çevresel kaygılar sebebi ile farklı uygulamaları hayata geçirmeye çalışmaktadır. Sonuç alınabilmesi için belirli bir zaman dilimine ve tecrübeye ihtiyaç duyulmaktadır. Ancak sürdürülebilir bir çevre ve spor adına ortaya çıkan sonuçlar kaygı vericidir. Özellikle müsabaka takvimlerinin çok yoğun olması ve artan tesisleşme hamleleri ile olumsuz çevresel çıktılar söz konusudur. Yukarıda farklı çalışmaların da işaret ettiği gibi yoğun seyahatler, enerji, tüketimleri, kitlesel katılımlar ve atık üretimi gibi temel olumsuzluklar çevreyi tehdit etmekte ve doğa üzerinde yıkıcı etkiler bırakabilmektedir. Sporun tüm paydaşlarının, olumsuz çevresel etkileri azaltmaya ilişkin sorumluluğu sahip oldukları söylenebilir. Özellikle, yeni spor tesislerinin inşasında ve mevcut tesislerin bakım ve onarım süreçlerinde olumsuz çevresel etkilerin en aza indirilmesi ve karbon ayak izinin azaltılması gerektiği ifade edilebilir.

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TARİHİ, KÜLTÜREL VE SİYASİ BAĞLAMDA SÖZSÜZ TÜRK DÜNYASI DEVLET SEMBOLLERİNİN SÖYLEM ÇÖZÜMLEMESİ: SSCB DÖNEMİ TÜRK CUMHURİYETLERİ ÖRNEĞİ

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ÖZET
Çalışmamızda SSCB devlet armasının ana şablonunu oluşturan sembollerin eski Sovyet Türk cumhuriyetlerinin devlet armalarında nasıl yerelleştirilerek yeniden anlam kazandırıldığı incelenmektedir. Tek bir ideolojik yapının her cumhuriyetin yerel ürünleri, coğrafi özellikleri, dil dizilişleri ve ülkelerin iktisadi yapılarının işlenmesi ile farklılaşan bir görsel söyleme dönüştüğü ortaya konmaktadır. Böylece ideolojik birlik korunurken bölgesel çeşitlilik üretilmiştir. Çalışma sonucunda sembollerin tek tek değil, birlikte işleyen ve birbirine anlam kazandıran bir morfem zinciri olarak okunması gerektiği vurgulanmaktadır. Çalışma sadece Sovyet dönemi Türk Cumhuriyetlerinin nihai armaları ile sınırlandırılmıştır.

Anahtar kelimeler: Sovyet armacılığı ikonografi, sözsüz göstergeler, kültürel bellek, Sosyalist Türk Cumhuriyetleri, Türk Dünyası

A DISCOURSE ANALYSIS OF NONVERBAL STATE SYMBOLS OF THE TURKISH WORLD IN HISTORICAL, CULTURAL AND POLITICAL CONTEXT: THE CASE OF THE TURKISH REPUBLICS OF THE USSR

ABSTRACT
This study examines how the core symbols of the USSR state emblem were localized and re-signified in the state arms of the former Soviet Turkish republics. It shows that a single ideological template was transformed into distinct visual discourses through the incorporation of each republic's local products, geographical features, ordering of languages, and representations of economic structures—thus preserving ideological unity while producing regional diversity. The findings emphasize that these symbols should be read not in isolation but as an interacting morphemic chain that mutually generates meaning. The scope of the study is limited to the final (definitive) arms of the Soviet-era Turkish republics.

Keywords: Soviet heraldry, iconography, nonverbal signs, cultural memory, Socialist Turkish Republics, Turkish World

. GİRİŞ

Politik söylemde göstergebilimsel alan üç temel grupta ele alınmaktadır. Yazılı olarak kullanılan tüm ifadeler, hanedan isimleri, devlet isimleri, sloganlar sözel göstergeler, bayrak, amblem, portreler, büstler, binalar sözel olmayan göstergeler, her ikisinin birlikte yer aldığı hanedan, asalet, devlet işaretlerinin sözel sloganla birlikte yer aldığı göstergeler ise karışık göstergeler olarak adlandırılır. Çalışmamızın temelini eski Sovyet Cumhuriyetlerinin devlet sembollerindeki sözsüz göstergelerdir, ancak bu devlet armaları içerisinde yer alan slogan nedeniyle çalışmamız karışık semboller sınıfına da sokulmaktadır. Bizim çalışmamızda SSCB ve eski sosyalist Türk cumhuriyetlerinin devlet armalarının içerisinde bulunan semboller temel araştırma konumuzu oluşturacaktır. Sözel olmayan göstergelerin analizinde nesnelerin kültürel arka planı ve mitolojik anlamı belirleyicidir. Modern politik söylemler bu derin birikimden beslenir ve pragmatik etki üretir (Büyükkutlu, 2019, s.v-vi)

Devlet, hanedan arması bir devletin resmi olarak kullandığı para, mühür ve resmi belgeler üzerinde kullanılan her türlü kalıcı grafik simgelerdir. Bu simgeler bayrak ve milli marşla birlikte ait olduğu devleti niteler. Bu devletin sosyo-politik durumunun bir göstergesi olmasının yanı sıra kolektif bilincin de sembolüdür. Armanın bu tanım vasıtasıyla sadece bir işaret olmadığını, devletin varlığını kamusal ortamda yeniden üretme metodu olduğunu gösterir. Bu da devletin ritüel ve hukukla kurumsallaşan bir meşruiyet vasıtası haline geldiğinin göstergesidir.

2. RUS-SOVYET ARMACILIĞI

Rus-Sovyet alan yazınında arma teorik-pratik-tarihsel üçlü katmanla ele alınır. Teorik katman kurallar ve terimleri, pratik katman arma yapımı ve tasviri, tarihsel katman ise kurumların armaların ve disiplinin tarihini ifade eder (Naumov, 2013, s.79). Çalışmamızda SSCB dönemi devlet armalarını incelerken bu üç katmanı birlikte işleyerek kompozisyon kurallarının yanı sıra her cumhuriyetin tarihsel-kurumsal bağlamı görünür kılınacaktır.

Sovyet armacılığı, sadece Rus armaları ile modern bölgesel kimlik arasında bir geçiş aşamasıdır. Yalnız kronolojik olarak değil, aynı zamanda temel olarak da farklar taşır. (Maslov, 2023, s.67). Bu geçiş arma dilinin hanedan nişanı olmaktan çıkarak SSCB'de ideolojik kamusal ikonolojiye dönüşmesi anlamına gelir. Sovyetler birliğinde monarşiye karşı verilen savaş içerisinde armacılık alanında yapılan radikal reformlar sosyalist (komünist) armacılık için özel bir dil getirmiş ve bu arma dili diğer sosyalist ülkelere de yayılmıştır. Bu yeni sosyalist arma dili ile birlikte kanonik kurallar önemini yitirmiştir (Maslov, 2023, s.65) SSCB'nin görsel repertuarı içerisinde yer alan beş köşeli yıldız, orak-çekiç, buğday çelengi veya farklı tarımsal ürünler, yükselen güneş ve güneş ışınları bu yeni sosyalist arma dilinin çekirdek morfemleridir.

Emeğin değerini ve işçi-köylü birliğini vurgulayan orak-çekiç, sosyalizmin inşası için temel birlik fikrini görünür kılar; buğday pamuk gibi tarımsal ürünler bereket ve üretkenlik imgeleri ile birlikte kullanılır (Platoff, 2023, s.20). Bu semantik çekirdek yerel tarımsal mahsuller olan pamuk, üzüm, buğday ve coğrafi peyzajla birlikte yerelleştirilmiş varyantlar üretir. Cumhuriyet armalarındaki tipik şema, örnek olarak Tacik SSC'nin 1936 varyantında şöyle tasvir edilmektedir: Sağda

buğday başakları, solda pamuk dallarında çelenk; alt bağda orak ve çekiç, çevresinde "Tüm dünya emekçileri birleşin!" sloganı iki dilde; armanın ortasında traktör, hidroelektrik santrali, petrol kulesi, dağlar ve dağların ardından doğan güneş; tepede beş köşeli yıldız (Burkov, 2015, s.69-70). Bu ayrıntılı tanım Sovyet sosyalist armacılık şemasını oluşturan temel unsurlar: emek ittifakı, bereket, üretkenlik, kozmik evrensel ufuk ve uluslararası dayanışma düşüncesini tek bir kompozisyonda bir araya getirmektedir. Sözel olmayan göstergelerin toplum üzerindeki etkisi zamanla değişebilir. SSCB arması, orak çekiç, kızıl yıldız gibi işaretler bir kuşak için coşku ve başarı anlamı taşırken, başka bir kuşak için olumsuz ve itici algılanabilir (Büyükkutlu, 2019, s.12) Bu durum sembollerin halkın belleğinde her dönem farklı bir şekilde anlam kazandığını ve dönemsel bağlamın düşünceleri belirlediğini ortaya koyar.

Orak ve Çekiç

Sovyetler Birliği'nin kullanmış olduğu en önemli ideolojik işaretlerden biri olan orak ve çekiş sembolü 1918 yılında SSCB devlet arması üzerinde kullanılmaya başlanmıştır. Sovyetler Birliği ve dünyanın farklı bölgelerindeki komünist parti amblemlerinde kullanılmaktadır. İşçi sınıfının "proletariat" sembolü olan çekiç, hasat ve ürünün sembolü olan orak 1918 yılında İşçilerin Dayanışma günü kutlamaları için Yevgeniy Kamzolkin tarafından hazırlanan bir afişte ilk kez kullanılmış (Büyükkutlu, 2019. s.54) ve böylece farklı bir düşünceyi, bir ideolojiyi temsil etmeye başlamıştır. İşçi ve köylü birliğini vurgulayan orak-çekiç**,** sosyalizmin inşası için temel birlik fikrini görünür kılar (Platoff, 2023, s. 52). Çok beğenilen bu tasarım daha sonra SSCB devlet armasının en önemli unsurlarından biri olmuştur.

Orak-çekiç yalnız başına değil; güneş, yerküre, başak, yıldız ve slogan ile birlikte bir "morfemler zinciri" içinde okunmalıdır. Orak-çekicin gücünü yeryüzünün üzerindeki konumu ve yazılı kurdele üzerinde yazan slogan daha da güçlü kılmaktadır.

Beş köşeli yıldız (kızıl yıldız)

Sovyet devlet armacılığının tepe unsuru olarak yerleştirilen beş köşeli yıldız, iki başlı kartalın üstündeki haçın yerine kondu (Kulabuhov ve Galushko, 2022, s.105) Bu değişiklik devrimci-sosyalist meşruiyetin çarlık-monarşik-dinî meşruiyettin yerine geçtiğini simgeler. Kızıl yıldız 18 Kasım 1918 de alınan kararla Kızıl Ordu ile filonun birliğinin ifadesi olarak kullanılmaya başladı (Kulabuhov ve Galushko, 2022, s.104). Bu sembol arma ve bayraklarda Sovyet aidiyetini ve devlet ideolojisinin ve ordunun birliği gösterir.

Yükselen Güneş

SSCB devlet armasında**,** güneş ışınları içinde tasvir edilen yerküre üzerinde orak ve çekiçten oluşur. Üstte beş köşeli yıldız yer alır (Kharichev, Polosin ve Selezneva, 2024 s. 26). Bu tasvir armayı oluşturan kompozisyonun tamamını aydınlatan ve yeni ideolojinin kurduğu yeniçağı aydınlatma anlamı taşıyan kozmik arka plan işlevindedir. Kompozisyon içerisinde altta yer alarak yükselen güneş, ufukta doğan gelecek fikrini, yeni bir şafağı temsil eder. Sovyet arma dilinde ilerleme- aydınlanma ve yeni başlangıç mesajını verir. Bu düşünce Türk cumhuriyetlerinin armalarında da aynı şekilde yansımaktadır.

Yerküre (Dünya)
SSCB armasında ana figür muhtemelen yerküre'dir, ancak klasik armacılıkta böyle bir figürü kullanılmaz. Bu, Sovyet armacılığı'nın bir yeniliğidir (Platoff, 2023, s. 104**).** SSCB devlet armasındaki yerküre sembolü fiziksel olarak dünya ve üzerinde yaşayan tüm halkları temsil etmektedir. Farklı dillerde yazılan "Dünya emekçileri, birleşin!" çağrısı da dünya üzerindeki insanlara yöneliktir. Orak ve Çekiç'in dünyanın üzerine yerleştirilmesi, komünist ideolojinin tüm dünya üzerinde hâkimiyetinin vurgusudur.

Buğday başağı–pamuk çelengi
Buğday başağı ve pamuk dalından oluşan çelenkler Sovyet armacılığında tarımı üretimi ve bereketi temsil etmektedir. Bu sembol ayrıca Sovyet aidiyetini de gösterir. Sovyet devletinin temelini oluşturan köylünün emeğinin yapmış olduğu üretimin ve toprakların bereketinin göstergesi olarak devlet armasına yerleştirilen tarımsal ürünler bu anlamların sürekli görünürlüğünü sağlar. Güneş, hayat ve ışığın gelişini simgeler; buğday başakları ve pamuk dalları ise ülkenin tabiî zenginliklerini ifade eder (Burkov, 2015, s. 78). Türkistan coğrafyasında pamuk, başağın yanına eklemlenerek çelengin yerel ekonomi ve doğal zenginlik katmanını açığa çıkarır. Sadece Kazak SSC armasında pamuk bulunmamaktadır.

Çok dilli kurdele ve slogan
Kırmızı kurdele birliği oluşturan cumhuriyetlerin dil sayısı kadar kıvrımla çelengi sarar. Her kıvrımda "Dünya emekçileri, birleşin!" yazısı yer alır. Bu düzen, devlet armasını yalnız görsel değil, sözlü bir sloganla da kurar. Kurdele-slogan, işçi-köylü ittifakını (orak-çekiç) uluslararası dayanışma çağrısıyla birleştirerek 'sosyalist kardeşlik' ve **'**ideolojik birlik' fikrini görünür kılar. **(**Kulabuhov ve Galushko, 2022**,** s. 104**).**

SSCB arması farklı dönemlerde tasarlanan sürümlerinde sloganların sayısı ve sırası**,** ilk tasarımlarda birliğe katılma sırasına göre oluşturulmuşken, nihai sürümde "anayasal sıra" izlenir ve Rusça konumlandırma birlik dili rolünü vurgular. Tüm sürümlerde kurdele, cumhuriyetlerin resmi dillerindeki şekliyle yer alır, nihai sürümde diller anayasanın 71. maddesinin sırasıyla düzenlenir. Rusça önde ortadadır (Platoff**,** 2023**,** s. 20). Birlik içindeki her cumhuriyetin armasında bulunan slogan ulusal dil ve Rusça olmak üzere iki dilde verir. Bu, eşit cumhuriyetlerin tek ideolojik birlikte birleşmesini yansıtır (Balkovaya, s. 12–13**)**. SSCB arma dilinde çok dilli sloganlı kurdele**,** uluslararası emek dayanışması çağrısını çok dillilik üzerinden somutlaştıran ideolojik bir bağlayıcıdır**.**

Sanayi ikonografisi (fabrika blokları, petrol kulesi, ulaşım)
Klasik armacılık geleneğinde yeri bulunmayan bir diğer yenilik de fabrika, elektrik santralleri, petrol kuleleri ve traktör gibi unsurlardır. Sosyalist armacılık dilinde sanayileşme, gelişme, enerji, doğal kaynakların üretime katılması ve mekanikleşme gibi hedefleri göstermesinin yanı sıra, doğmakta olan güneşle birleşerek sosyalist ekonomik düzenin üretim gücünün simgesidir.

Petrol kulesi ülkenin yeraltı zenginliğinin endüstriyel üretime aktarıldığını, iktisadi modernleşmeyi gösterir Traktör gibi araçlar tarımdaki modernleşmeyi ve kırsal ve kentsel üretim arasındaki bağı kurar. (Burkov, 2015, s. 75).

Kırmızı renk

Kırmızı, özellikle Sovyetler Birliği döneminde öne çıkan Rus-Sovyet politik kültürünün rengidir. Sovyet sembol dilinde ideolojik birliğin ve uluslararası emek dayanışmasının temel rengi olmuştur. Görsel- sözlü ideoloji taşıyıcısı olarak kırmızı kurdele ile armada bulunan buğday başakları üzerinde bulunan dil sayısı kadar sarılır. Böylece ideolojinin sembol rengi olan kırmızı renk slogana eşlik ederek uluslararası emek dayanışmasının renk koduna dönüşür. Yine aynı şekilde devlet amblemleri arasında yer alan kızıl yıldız da Rus kızıl ordusunu temsil eder. Yıldızın kızıl olarak nitelendirilmesinin sebebi kırmızının askeri-devrimci kökenle ve birliğin ideolojik bütünlüğü ile özdeşleştiğini doğrular (Naumov, 2017, s. 286).

SSCB devlet arması

SSCB devlet arması**,** güneş ışınları içinde tasvir edilen yerküre üzerinde orak ve çekiçten oluşur. Buğday başağı çelengi ile çevrilidir. Kırmızı kurdele üzerinde "Dünya emekçileri, birleşin!" sloganı yer alır. Tepede beş köşeli yıldız bulunur (Kharichev, Polosin ve Selezneva, 2024, s. 26). SSCB devlet arması, birliği oluşturan diğer cumhuriyet armaları için bir ön model işlevi görmüş, sembolik öğeler birliği ve enternasyonalizmi pekiştirmek üzere kodlanmıştır.



Şekil 1. SSCB Devlet arması

Devlet armasının kompozisyonu; alt bölümünde yükselen güneş tasviri bulunur, bütün kompozisyon ise buğday başağından oluşturulmuş çelenk ve onu saran kırmızı kurdele ile çevrelenir. Her kıvrımda birliği oluşturan cumhuriyetlerin dilinde "Dünya emekçileri, birleşin!" sloganı yer alır. Armada yer alan yerküre sembolü, yeryüzünü ve tüm halkları temsil eder; sloganın farklı dillerde yazımı bu çağrının dünya ölçeğini vurgular, orak ve çekicin yerküre üzerine yerleştirilmesi, ideolojinin küresel iddiasını işaret eder (Büyükkutlu, 2019, **s.** 60–61). Kurdele üzerince cumhuriyetlerin dillerinde yazılmış olan slogan birlik ideolojisinin göstergesidir. 1924 Anayasasıyla onanan ilk tasarımda (Kulabuhov ve Galuşko, 2022, s. 92–95) kurdele üzerindeki dil sayısı altıdır, birlik genişledikçe burada 15 farklı dilde slogan yer almıştır. 1977 sonrası anayasal sıra mantığı, sloganlı şeritte cumhuriyet dillerinin dizilişini standartlaştırmıştır. Sembolün en ikonik göstergeleri olan Orak-çekiç ve beş köşeli (kızıl) yıldız, genel

devlet amblemlerindendir, bir armanın Sovyet işaret sistemine aidiyetini gösterir (Naumov, 2017, s. 286).
SSCB devlet armasında bulunan sembollerden orak ve çekicin birlikteliği ile 'emek ittifakını', buğday başağı sembolüyle 'bereket ve üretimi', yükselen güneş tasvirinin 'yeniçağı', yerkürenin 'ideolojinin evrenselliğini', çok dilli slogan ve kızıl yıldızın ise 'ideolojik birliği' sembolize ettiğini söyleye biliriz.

Azerbaycan SSC devlet arması

Azerbaycan SSC devlet armasının ilk tasarımlarında önce Arap, daha sonra Latin alfabesi ile yazılar bulunmakta ve hilal ve beş köşeli yıldız birlikte orak ve çekicin üzerinde yer almaktaydı: **"**Altın orak ve çekiç, kızıl hilâlin içinde beş köşeli yıldız ile birlikte, etrafında altın başak tacı, üstte Azerbaycan'ca (Arap yazısı ile) ve Rusça "Dünya emekçileri, birleşin!" yazılı kırmızı kurdele. Diğer bazı cumhuriyetlerin aksine cumhuriyet adını içermiyordu." (Gasimova, 2020, s. 38–39**).** Bu çalışmalarda hilal ve beş köşeli yıldızın birlikte kullanılması yerel dinsel unsurlarla Sovyet sınıf ittifakının birlikteliği vurgulanmaktaydı. Ara geçiş dönemi tasarımlarında coğrafi özellikler ve ekonomik gücü temsil eden dağlar, hazar denizi ve traktör gibi semboller de kullanılmıştır. Daha sonraki çalışmalarda Arap yazısı ve hilal gibi yerel ve dini unsurlar çıkarılmış, 1931 yılından sonra kullanılan tasarımda tam olarak Sovyet semantiğine yerleştirilmiştir.



Şekil 2. Azerbaycan SSC devlet arması

Azerbaycan SSC'nin devlet arması, orak ve çekiç ile yükselen güneş zemininde bir petrol kulesi görüntüsünden, pamuk dalları ve buğday başaklarından oluşan bir çelenkle çevrili kompozisyondan, üstte beş köşeli yıldızdan ve Azerbaycan dili ile Rusça yazılmış ad ve "Dünya emekçileri, birleşin!" sloganından ibarettir (Zagoruyko, 2014, s.99). Bu tasarım Sovyet armacılığının çekirdek unsurları olan orak-çekiç, kızıl yıldız, çok dilli şerit korunurken, çelenkte cumhuriyetin tarımsal ürünleri olan pamuk ve buğday yer almakta, güneşin önünde petrol kulesine yer verilerek ülkenin ekonomik gücüne vurgu yapılmaktadır. Azerbaycan SSC arması petrol ve pamuk temelli iktisadî kimliğiyle birleştiren bir yerelleştirilmiş sosyalist armadır.

Kazak SSC devlet arması

Resmî tanıma göre arma, kesişen altın orak-çekici**,** kızıl zemin üzerinde güneş ışınları ve buğday başağı çelengi**,** tepede beş köşeli yıldız bulunur. "Dünya emekçileri, birleşin!" yazısı Kazakça ve Rusça verilir (Zagoruyko, Zagoruyko ve Andreeva, 2015, s. 43**)**. Bu birliktelik işçi ve köylü bütünlüğünü, devrimin kızıl

rengini Sovyet ideolojik kimliğini aynı kompozisyonda ortaya koyar. Tasarıda yer alan buğday başağı ve güneş Kazak bozkırlarının tarımsal zenginliğini ve bereketli topraklarına sosyalist armacılık çerçevesinde vurgu yaparken yerel iktisadi kimlik ve Sovyet emek ittifakı aynı armada birleştirilmiş olur. Kazak armasında da alfabe sisteminde ve yerel dini sembollerde 1939 sonrasında değişiklikler yapılarak sosyalist armacılığın çekirdek yapısına uyarlanmıştır.



Şekil 3. Kazak SSC devlet arması

Kazak SSC arması kızıl yıldız, orak ve çekiç, Rusça ve kazakça slogan, güneş, buğday başağından çelenk ile Sovyetler Birliği'nin ideolojik birliğini, işçi köylü dayanışmasını yansıtırken tarımsal üretim ve bozkırların bereketini bir araya getirir. Türk cumhuriyetleri içerisinde sadece Kazak SSC devlet armasında pamuk dalı bulunmaz. Ayrıca diğer cumhuriyetlerin tasarımlarıyla kıyaslandığında bu armada hiçbir yerelleştirme unsuru bulunmamaktadır.

Kırgız SSC devlet arması

23 Mart 1937'de, sanatçı Oksana Trofimovna Pavlenko'nun çiziminden yapılan Kırgız SSC'nin devlet arması kabul edilmiştir. Arma, mavi bir daire içinde kırmızı bir orak ve çekiçten oluşuyordu ve altın süslemelerle çerçevelenmişti. Armanın üzerinde, mavi bir kemer içinde altın süslemelerle yükselen güneşin üzerinde uzanan bir dağ silsilesi yer alıyordu. Kemer, buğday başakları ve pamuk dallarından yapılmış çelenklerle çerçevelenmişti. Çelenkler, Kırgızca ve Rusça "Dünya emekçileri, birleşin!" yazan kırmızı kurdelelerle bağlanmıştı. Armanın alt kısmında, kırmızı kurdele üzerinde Kırgızca "Kırgız SSC" yazısı yer alıyordu (Burkov, 2015, s.72).



Şekil 6. Kırgız SSC devlet arması

Kırgız SSC devlet armasında yer alan kompozisyonu SSCB ana modelinin yerelleştirilmiş bir yorumu olarak diğer Sosyalist Cumhuriyetlerde de olduğu gibi işçi ve köylü dayanışmasını orak ve çekiç, sosyalist partinin rehberliğini beş köşeli yıldız, devrimin açtığı yenidünya ve toplumsal refahı yükselen güneş, tarımsal üretim ve ülkenin ekonomik zenginliklerini buğday ve pamuk çelengi, Sovyet enternasyonalizmini ve birlik ideolojisini ise çok dilli kurdele ve üzerindeki slogan vurgular. Kırgız SSC armasında yer alan ülkenin coğrafi özelliklerinden dağ silsilesi ve armanın merkezini çevreleyen mavi çerçevenin içine altın işlemelerle geleneksel Kırgız motifleri tasarıma yerleştirilerek kültürel bağlarla devlet ideolojisinin simgeleri bir araya getirilmiştir. Özellikle merkezde dağ silsilesinin arkasından doğan güneş ülkenin verimli topraklarına yeni ideolojinin aydınlatması şeklinde yorumlanır. Ayrıca orak ve çekicin konumu diğer cumhuriyetlerin armalarından farklı olarak armanın alt bölümüne yerleştirilmiş, ancak bu alanın arka zemini de altın işlemeli geleneksel motiflerle süslenmiştir. Bu motiflerin üzerinde konumlanan orak ve çekiç gelenekleri ile beslenen Kırgız halkının işçi ve köylü dayanışmasına olan bağlılığını ifade eder.

Özbek SSC devlet arması

Özbek SSC devlet armasının merkezinde üst üste yerleştirilerek kesişen orak-çekiç ve armanın en üst noktasındaki beş köşeli kırmızı yıldız**,** Sovyet ideolojisinin temelini oluşturan işçi-köylü birliği ve Sovyet iktidarı mesajını taşır. Resmî tanımda bu unsurlar güneş ışınları önünde verilmiştir (Mukhammadiev, 2023, s. 32).



Şekil 4. Özbek SSC devlet arması

Özbek SSC arması, orak ve çekiç, kızıl yıldız, çok dilli slogan ile birlikte Sovyet ideolojik birliği ve enternasyonalizmini, pamuk ve buğday çelengi gibi tarımsal ürünler ve yükselen güneş ile de cumhuriyetin tarımsal bereketini ve ülkenin aydınlık gelecek vurgusunu bir araya getirir, dünya tasviri bu mesajı uluslararası seviyeye genişletir.

Türkmen SSC devlet arması

Türkmenistan'ın ilk sosyalist devlet arması 1926 yılında oluşturulmuştur. Bu armanın merkezi dört parçaya bölünmüş bir kalkan şeklindedir ve kalkanın bölmelerinin kesiştiği noktada Sapora gölü yer almaktadır. Kalkanın sol üst yarısında dut ağacı yaprağı, ipekböceği ve kozası, altta üzüm salkımı, sağ üstte deve ve traktör, altta pamuk dalları resmedilmiştir. Armanın çevresini, altı kez sloganlı kurdele ile sarılmış ve alttan bu kurdele ile bağlanmış tahıl başaklarından oluşan bir çelenk ile çerçevelenmiştir. Kurdelenin yan kısımlarında, her kıvrımda bir yazı yer almaktadır. Kurdelenin yan kısımlarında, sol tarafta Rusça ve Ermenice, sağ tarafta Türkmence ve Farsça; "Dünya emekçileri, birleşin!" sloganı, alt kısımda buğday başakları, orak ve çekiç yer alıyordu. Armanın üst kısmında, buğday başaklarının üst uçları arasında kırmızı beş köşeli bir yıldız bulunuyordu (Burkov, 2015, s. 79). Bu armada dikkat çeken İpekböceği ve dut yaprağı ipekçilik, üzüm ve pamuk bahçe-tarla ürünlerini ve traktör ile deve ikilisi modern mekanizasyon ile yerel göçer-nakliye yöntemlerini birlikte temsilini, tarım-sanayi sentezini yerelleştirir.



Şekil 5. Türkmen SSC devlet arması

Son tasarımlar sosyalist armacılık diline uygun bir şekilde düzenlenmiş, SSCB'nin çekirdek tasarımından farklı olarak ekonomik zenginliği simgeleyen fabrikalar ve petrol kulesinin yanı sıra tarımsal ekonomiyi ve köylü işçi birlikteliğini yansıtan buğday başağı ve pamuğun yanına armanın en alt kısmında çelenk, üzüm salkımları ve omca yaprağı ile bağlanmıştır. Yine aynı şekilde ülkenin ekonomik gücünün ve üretiminin sembollerinden olan geleneksel Türkmen halısı da merkez alanın alt kısmında armaya dâhil edilerek, ülkenin geleneksel iş alanları da modern iktisadi kalkınma araçları ile birlikte sunulmuştur. *Bu yerel halı işareti, Sovyet arma şablonuna folklorik-etnografik bir katman*

ekleyerek sosyalist yurttaşlık olgusuyla birlikte Türkmen kültürel belleğinin tek bir kompozisyonda buluştuğunu gösterir.

SONUÇ

Yapmış olduğumuz çalışmada Sovyet arma dilinin çekirdeğini oluşturan morfemlerinin; orak-çekiç, beş köşeli yıldız, yükselen güneş, buğday-pamuk çelengi, çok dilli kırmızı kurdele, yerel ve sanayi ikonografisi, SSCB'nin ana modelinden başlayarak Türk cumhuriyetlerinin yerel okumalarına doğru ilerleyen bir yöntem izlendi. Ortaya konmak istenen ideolojik bir şablonun her cumhuriyetin tarihsel, coğrafi ve iktisadi farklılıkları içerisinde yeniden 'yerelleşerek' tek bir görsel söylem kompozisyonu içerisinde hem birlik hem de çeşitlilik ürettiğini göstermekti.

Çalışmamızın temelini oluşturan sözsüz semboller sadece birer grafik resim değil, ritüel, gelenek, eğitim, hukuk gibi bir çok kurumsal yönleriyle 'hafıza medyaları' dır. Bu açıdan bakıldığında armalar sadece bir kimlik işareti olmaktan çıkarak belleği kalıcılaştıran ve her dönem farklı bir şekilde yeniden yorumlanan bir kamu metnidir. Çalışmamızda incelenen sözsüz morfemlerin nasıl her cumhuriyette sabit kalırken, konum, vurgu ve eşlikçi unsurlar olan yerel ürünleri, coğrafi silueti, sanayi unsurları, dil düzeni gibi farklılıklarıyla değişerek her cumhuriyete özgü anlam derinlikleri kattığını ortaya koymuştur.

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