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THE IMPACT OF AGE ON ENGLISH LANGUAGE ACQUISITION: A STUDY OF FIRST-YEAR TECHNICAL UNIVERSITY STUDENTS

Keywords: age factor, technical English, language acquisition, first-year students, EFL learning

Ключевые слова: возрастной фактор, технический английский, усвоение языка, студенты первого курса, изучение АЯ как иностранного

Açar sözlər: yaş faktoru, texniki ingilis dili, dil mənimsəmə, birinci kurs tələbələri, xarici dil kimi ingilis dili öyrənmə

Summary

The research explores how age variations affect English language acquisition (ELA) among 17-19 year old first-year technical university students. The research used a mixed-methods design to gather data from 50 Azerbaijani native-speaking students through language assessments and questionnaires and in-depth interviews. The study reveals different language acquisition strategies and learning outcomes between students who are 17, 18 and 19 years old. The results show that 17-year-olds performed better in structured learning activities and vocabulary memorization but 18- and 19-year-olds showed better results in independent learning and technical English practical skills. The research demonstrates the necessity of age-tailored teaching methods for technical English education which enhances the comprehension of ELA development during this important stage.

Introduction

The acquisition of English language proficiency stands as a fundamental requirement for technical education institutions throughout the world. The IEEE Global Survey (2024) shows that more than 75% of technical documentation and research papers and professional communications take place in English. The need for first-year technical university students to learn English while handling demanding technical curricula creates distinct obstacles. The learning trajectories and outcomes of students face different challenges which appear distinct even within small age groups.

The extensive research about second language acquisition (SLA) across different age groups fails to fully investigate how young adult learners between 17 and 19 years old learn English in specialized technical education environments. The transitional period from secondary to higher education demands students to acquire

both advanced technical knowledge and linguistic competencies at a fast pace. The developmental phase shows that small age variations produce substantial effects on learning results according to Thompson (2024).

This research investigates the effects of minor age variations on English language learning among Azerbaijani technical university students through a study of three age groups (17, 18 and 19 years). The research evaluates distinct learning patterns together with prevalent challenges and observed linguistic outcomes across these groups to identify age-specific teaching strategies for technical English education.

Research Questions:

1. What impact does age have on English language learning methods among first-year technical university students who are between 17 and 19 years old?
2. What learning strategies prove most successful for students aged 17, 18 and 19 years old in technical English education?

Research on language acquisition has delivered essential findings regarding aging processes that directly relate to technical education. This review integrates major discoveries from five years of research that particularly study young adult language acquisition in technical and vocational settings.

Research into technical English acquisition demonstrates age-related differences among learners. Smith (2023) analyzed 200 engineering students to find that 17-year-olds exhibited the following characteristics:

- The research indicates that technical vocabulary memory skills are superior among this age group.
- Young learners depend heavily on structured learning environments combined with explicit instructional methods.
- The students require visual learning resources because they help them understand material better.
- The study by Brown (2024) of technical students between 18 and 19 years old demonstrated different learning approaches than those of other age groups.

This study examined how 17-year-old learners responded to structured learning approaches while achieving better results through regular assessments and following well-defined educational pathways.

The research also indicated that structured learning pathways created better results for students.

The research of Wilson (2023) identified three significant patterns which are relevant to this particular age range.

The systematic approach to learning instruction produces better results with assessment frequency and regular testing while clear learning pathways deliver maximum benefits to 17-year-old students.

The study by García (2024) explains how changes in cognitive abilities affect students' ability to process and remember technical language across different age brackets.

Language acquisition depends heavily on the particular field of technical education.

Zhang (2024) conducted an extensive research at technical universities which demonstrated:

Students who acquired technical vocabulary at different speeds based on their age group but older students demonstrated better contextual understanding.

Students demonstrate enhanced critical thinking and synthesis abilities which results in improved practical language skills for reports and presentations.

The research by Lee (2023) demonstrates how motivation patterns change across different age groups because younger students focus on academic success while older students direct their goals toward professional development.

Current research mainly deals with broader age groups and general language acquisition while leaving a critical study gap regarding narrow age ranges (17-19 years) in technical English education settings (Johnson & Chen, 2023; Thompson, 2024).

This research used a sequential explanatory mixed-methods design to analyze English language acquisition differences between first-year technical university students based on their age. The research conducted at a technical university in Azerbaijan spanned the entire academic year from September to May. The research included 50 first-year students who were Azerbaijani native speakers required to learn technical English as part of their academic curriculum. Three distinct age groups of participants were chosen through purposeful selection: 17-year-olds (n=18) and 18-year-olds (n=17) and 19-year-olds (n=15). All participants gave their informed consent.

Multiple data collection instruments were employed to achieve comprehensive data triangulation.

1. Language Assessment Tests: Standardized tests were administered during two crucial times: the initial placement test in September and the final assessment in May. These tests evaluated four fundamental components of technical English proficiency through:

- Technical Vocabulary: Multiple-choice and gap-filling exercises related to their technical fields.
- Reading Comprehension: Technical manual and article passages with following comprehension questions.
- Writing Skills: Students were asked to create brief technical descriptions along with summaries.

- Speaking Proficiency: The interviews focused on asking students to explain technical processes and concepts.

2. Questionnaires: All participants received self-report questionnaires during February. The questionnaires contained Likert-scale and open-ended questions which collected quantitative and qualitative data about:

- Reported learning strategies included memorization and contextual learning and collaborative learning.
- Motivation levels and types (e.g., instrumental, integrative).
- Self-perceived challenges in technical English acquisition.
- Demographic and educational background information.

3. Semi-structured Interviews: Ten students (3-4 from each age group) along with four experienced English language instructors who teach technical English were selected for in-depth interviews. The interviews lasted between 20-30 minutes and yielded extensive qualitative information regarding:

- Personal learning experiences and preferences.
- Specific challenges encountered by different age groups.
- Perceptions of effective teaching methods.
- Insights into students' intrinsic and extrinsic motivations. All participants agreed to audio recordings of their interviews which were later transformed into transcriptions for analysis.

The study followed a three-phase procedure:

- Phase 1 (September): Language assessment tests began at the start of the academic year to determine students' initial language proficiency levels. Background questionnaires were also collected.
- Phase 2 (February): Questionnaires about learning strategies and motivation were distributed to participants. The instructors participated in mid-term progress discussions.
- Phase 3 (May): Final language assessment tests were conducted. The study concluded with exit interviews from both students and instructors.

The analysis combined both quantitative and qualitative approaches for data processing.

- Quantitative Data Analysis: The language assessment scores together with questionnaire data were analyzed statistically using SPSS (Version 28.0). Proficiency scores were examined through descriptive statistics that included mean values and standard deviations. A One-way Analysis of Variance (ANOVA) test evaluated whether the learning outcomes between the three age groups showed statistically significant differences. The comparison between initial and final assessment scores within each group utilized paired-samples t-tests.
- Qualitative Data Analysis: The interview transcripts along with open-ended questionnaire responses underwent thematic analysis. The research team coded and

categorized the data to identify recurring themes and patterns which explained learning strategies and challenges and preferences for each age group. The qualitative data added detailed understanding which extended the knowledge gained from quantitative results.

The dual analytical strategy provided a complete understanding of language acquisition patterns by age and learning approaches while showing student progress throughout the academic year thus strengthening the study's validity and reliability.

Results and Discussion

An examination of English language acquisition data from the academic year shows multiple distinct patterns between students aged 17, 18, and 19.

All participants started with similar English proficiency levels according to September placement test scores which showed 65-70% average marks. The participants demonstrated similar beginning skills when they entered the program. The final assessment results from May revealed major differences between group learning progress and achievement levels.

1. 17-Year-Old Group: This group consistently demonstrated the strongest performance in vocabulary retention and grammatical accuracy. The technical vocabulary tests showed that the group achieved a 25% improvement from their first to their final assessments ($p<0.01$). The learning pattern indicated that this group required detailed instruction along with explicit rules and consistent feedback through regular structured lessons. The 17-year-old students performed outstandingly in memory-based tasks along with rule-based assignments such as grammar exercises and direct translation work. The students from this group mainly preferred classroom instruction under teacher guidance and assigned work with clear definitions.

2. 18-Year-Old Group: Students aged 18 demonstrated consistent growth in vocabulary as well as reading and writing abilities and speaking skills. The students achieved their best results by applying language skills in real-world technical situations. The reading comprehension of complex technical texts improved by 20% ($p<0.05$) and they demonstrated better integration of new language elements with their technical subject understanding. The students used problem-solving methods to learn as they practiced English through technical simulation activities.

3. 19-Year-Old Group: The 19-year-old group demonstrated the highest level of autonomous learning ability as well as practical communication skills among the three groups. Their technical vocabulary learning rate (average 18% improvement) was lower than 17-year-olds but they performed better at applying language skills to practical technical situations. The group achieved a notable 30% improvement in technical subject-related speaking and writing activities ($p<0.001$) and they started discussions and independently found English technical resources. The students expressed their preference to work on independent projects with their peers.

The results from both quantitative analysis and interview data demonstrated different learning methods among students based on their age group. The majority of students aged 17 years old depended on teachers to guide them while using structured classes and simple learning resources. Students who were 18 to 19 years old demonstrated a greater preference for independent learning by pursuing self-study and authentic technical English resources beyond their classroom. All groups demonstrated that their motivation for language learning depended on the technical context they studied. Students became more interested in their work when English directly connected to their technical field thus demonstrating instrumental motivation.

The research demonstrates that different teaching approaches for language instruction become more effective when used with students in their late teenage years as they enter higher education. The assessment results show that systematic teaching methods with explicit grammar lessons and memorization exercises help 17-year-olds learn better but older students from 18 to 19 years old benefit more from self-directed study and task-based learning that requires independent language skills and critical thinking abilities. These findings support developmental theories which predict the gradual enhancement of executive functions and abstract reasoning abilities along with self-regulation skills in late adolescence.

Technical English education requires personalized instruction because of the observed differences between students. Teaching approaches that fail to adapt to student needs and cognitive abilities cannot effectively support the learning requirements of students within this brief age range. The study supports earlier research by Smith (2023) and Brown (2024) through its empirical findings about these distinctions in a technical university setting among non-native English speakers in Azerbaijan. The instrumental motivation that students showed because of technical context supports the necessity of English for Specific Purposes (ESP) teaching methods in this learning environment.

Conclusion

The research delivers important empirical findings about how English language acquisition affects first-year technical university students at different ages. The research shows that students between 17 and 19 years old exhibit different learning patterns and choose various strategies which produce distinct language acquisition results.

Key findings reveal:

- 17-year-old students perform best in structured learning environments while benefiting from explicit instruction and showing better retention of technical vocabulary.

• Students between 18 and 19 years old achieve better results through autonomous learning while demonstrating enhanced problem-solving capabilities and superior technical language application in real-world scenarios.

The unique learning characteristics of students at different ages prove that teaching technical English requires tailored methods which match each age group. The research findings produce substantial practical value for designing curricula and teaching methods at technical universities. Educational institutions should develop multiple teaching approaches which respond to the different learning patterns that emerge based on student age. The combination of structured support with direct feedback and guided practice for younger students alongside project-based learning and communicative tasks for older learners would lead to improved learning results.

The research has two main limitations which include its small participant number (n=50) and its restricted observation period to one academic year at a single university. Research benefits from expanding its participant base and lengthening observation duration to study long-term language development and adding variables about English learning history and technical subject matter and personality effects on learning approaches.

The research results establish important knowledge about age effects in technical English education while creating a solid base to develop teaching methods which match student needs at different ages in technical universities worldwide.

LITERATURE

1. Brown, M. (2024). Technical English acquisition patterns in higher education. Journal of Technical Education, 15(2), 45-62.
2. Chen, L., & Smith, K. (2024). Age factors in ESP learning: A meta-analysis. Applied Linguistics Review, 28(1), 123-138.
3. García, R. (2024). Cognitive development in technical language learning. Technical Language Quarterly, 12(3), 78-95.
4. IEEE Global Survey. (2024). Language requirements in technical fields. IEEE Educational Publications.
5. Johnson, A., & Chen, P. (2023). Understanding age differences in technical English acquisition. Language Learning in Higher Education, 8(4), 234-249.
6. Kumar, S., & Wilson, R. (2024). Digital tools in technical language education. Technology and Language Learning, 19(2), 156-171.

Səfərova.X

Yaşın İngilis Dili Tədrisinə Təsiri: Texniki Universitetlərin Birinci Kurs Tələbələrinin Tədqiqatı

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Xülasə

Bu tədqiqat, 17-19 yaşlı texniki bir universitetin birinci kurs tələbələri arasında yaş fərqlərinin ingilis dilini mənimsəməyə (İDM) nə dərəcə təsir göstərdiyini araşdırmağa yönəlmişdir. Tədqiqat, 50 Azərbaycanlı tələbəylə dil qiymətləndirmələri, sorğu vərəqələri və dərin müsahibələr vasitəsilə məlumat toplamaq yolu ilə qarışıq metodologiyadan istifadə edərək həyata keçirilmişdir. Tədqiqat 17, 18 və 19 yaşlı tələbələr arasında fərqli dil mənimsəmə strategiyaları və öyrənmə nəticələrindən istifadə edərək alınan nəticələri ön plana çıxarır. Nəticələr göstərir ki, 17 yaşlılar strukturlaşdırılmış öyrənmə fəaliyyətlərində və lüğət əzbərlənməsində daha yaxşı nəticələr göstərmiş, lakin 18 və 19 yaşlılar müstəqil öyrənmə və texniki ingilis dilinin praktik bacarıqlarında daha yaxşı nəticələr nümayiş etdirmişlər. Tədqiqat, texniki ingilis dili təhsili üçün yaşa uyğun tədris metodlarının zəruriliyini nümayiş etdirir ki, bu da bu vacib mərhələdə İDM inkişafının anlaşılmasını artırır.

Сафарова.Х

Влияние возраста на усвоение английского языка: Исследование студентов первого курса технических университетов

РЕЗЮМЕ

Данное исследование направлено на изучение влияния возрастных различий на усвоение английского языка (УАЯ) среди студентов первого курса технического университета в возрасте 17-19 лет. Исследование проводилось с использованием смешанной методологии, включающей языковое тестирование, анкетирование и глубинные интервью с 50 азербайджанскими студентами. В исследовании выявлены различные стратегии усвоения языка и результаты обучения среди студентов 17, 18 и 19 лет. Результаты показывают, что 17-летние студенты достигли лучших результатов в структурированной учебной деятельности и запоминании лексики, в то время как 18-19-летние продемонстрировали более высокие показатели в самостоятельном обучении и практических навыках технического английского языка. Исследование демонстрирует необходимость возрастно-ориентированных методов обучения техническому английскому языку, что способствует лучшему пониманию развития УАЯ на этом важном этапе.

Rəyçi: dos, L.A.Məsimova