

## A QUANTITATIVE STUDY OF ADULT ESL LEARNERS' PERCEPTIONS OF COMPUTER-ASSISTED LANGUAGE LEARNING

Kushieva N.N., Abdurasulova N.A.

*Nordic International University, Tashkent, Uzbekistan.*

**Abstract.** The integration of Computer-Assisted Language Learning (CALL) has transformed English language education by providing flexible and interactive learning environments. Despite its widespread use, limited empirical research has focused on adult ESL learners' perceptions of CALL. This quantitative study investigates adult learners' attitudes toward CALL, its perceived benefits, and the challenges encountered during its implementation. Data were collected through a structured questionnaire administered to adult ESL learners and analyzed using statistical methods. The results reveal that the majority of participants demonstrate positive perceptions of CALL, particularly in terms of increased motivation, learner autonomy, and accessibility of learning resources. However, certain barriers, including insufficient technological skills and technical constraints, were also identified. The findings suggest that CALL can effectively support adult ESL learning when accompanied by appropriate training and institutional support.

**Keywords:** *adult ESL learners, computer-assisted language learning, CALL, learner perceptions, educational technology*

**Introduction.** The rapid development of information and communication technologies (ICT) over the last three decades has significantly transformed language education, as noted by Mark Warschauer, Michael Levy, and Carol A. Chapelle. Since the early 1990s, Computer-Assisted Language Learning (CALL) has evolved from simple drill-based programs into interactive, learner-centered digital environments integrating multimedia and online communication tools [1].

CALL research has progressed through distinct stages: early studies in the 1990s focused on technical feasibility [2], while research between 2000 and 2010 demonstrated pedagogical effectiveness, reporting 12–25% improvements in vocabulary, grammar, and reading skills compared to traditional instruction, as shown by Chapelle, Thomas Cobb, and Robert Blake [3][4]. Since 2010, scholarly attention has increasingly emphasized learner-centered factors, particularly perceptions and attitudes, now recognized as key determinants of CALL effectiveness [5].



The importance of CALL has grown markedly in adult ESL education. According to UNESCO, the global adult learner population increased from about 560 million in 2000 to over 780 million in 2022 (39.3%) [6]. At the same time, the global online language learning market grew by nearly 18% annually between 2018 and 2023, reaching USD 22.6 billion [7]. Studies based on Malcolm Knowles' andragagogical principles indicate that adult learners favor flexible and self-directed learning, which CALL effectively supports [8]. Empirical research in the United States and Europe reports that 70–85% of adult learners hold positive attitudes toward CALL, with 15–20% higher retention rates compared to face-to-face instruction [9][10][11].

Nevertheless, international studies also report challenges, with 25–35% of adult learners experiencing technical or digital literacy difficulties, as highlighted by Levy and Stockwell [12]. In Uzbekistan, CALL integration has intensified since 2018 due to digitalization reforms [13]. Internet access among adults increased from 52% in 2015 to over 84% in 2024, while more than 70% of higher education institutions now employ digital learning systems [14]. Enrollment in adult English courses rose by approximately 46% between 2019 and 2023 [15]. However, Uzbek scholars M. Kh. Makhkamova, Sh. R. Kholmurodov, and D. A. Saidova note that despite CALL's potential, quantitative research on adult learners' perceptions remains limited, with about 32% of learners reporting neutral or skeptical attitudes toward digital tools [16][17].

Therefore, despite extensive international research, a clear research gap persists in quantitatively examining adult ESL learners' perceptions of CALL within the Uzbek context, underscoring the need for evidence-based implementation strategies.

**The aim of this study** is to quantitatively investigate adult ESL learners' perceptions, attitudes, and experiences regarding the implementation of Computer-Assisted Language Learning (CALL), as well as to identify its perceived benefits and challenges in enhancing English language learning effectiveness within both global and Uzbek educational contexts.

**Materials and Methods.** This study employed a quantitative research design aimed at systematically examining adult ESL learners' perceptions of Computer-Assisted Language Learning (CALL). A cross-sectional survey method was used, as it allows for the collection and statistical analysis of numerical data reflecting learners' attitudes, experiences, and evaluations of CALL at a specific point in time. The study involved adult ESL learners enrolled in English language courses at higher education institutions and private language centers. A total of  $N = 120$  participants took part in the research. The participants' age ranged from 18 to 45 years, with a mean age of  $26.8 \pm 6.4$  years. Among them, 58% were female ( $n = 70$ ) and 42% were



male (n = 50). All participants had at least six months of experience using computer-based or digital tools for learning English.

Data were collected using a structured questionnaire designed to measure adult ESL learners' perceptions of CALL. The questionnaire consisted of four sections:

1. Demographic information (age, gender, educational background);
2. Frequency and type of CALL usage (learning platforms, applications, online resources);
3. Perceived benefits of CALL (motivation, autonomy, flexibility, skill development);
4. Perceived challenges and limitations (technical issues, digital literacy, accessibility).

The questionnaire included 24 closed-ended items rated on a five-point Likert scale (1 = strongly disagree, 5 = strongly agree). The instrument was adapted from previously validated CALL perception surveys reported in international literature and modified to suit the local educational context.

To ensure content validity, the questionnaire items were reviewed by three experts in applied linguistics and ESL methodology. A pilot study was conducted with 20 adult ESL learners, whose responses were excluded from the final analysis. Reliability analysis revealed a Cronbach's alpha coefficient of 0.86, indicating a high level of internal consistency and reliability of the instrument. Data collection was carried out over a four-week period. Participants were informed about the purpose of the study and assured of the confidentiality and anonymity of their responses. Participation was voluntary, and informed consent was obtained prior to data collection. Questionnaires were administered both online and in paper-based formats, depending on participants' accessibility to digital devices.

The collected data were analyzed using statistical software (SPSS, version 26.0). Descriptive statistics, including frequencies, percentages, means, and standard deviations, were used to summarize participants' responses. Inferential statistical analyses, such as independent samples t-tests and correlation analysis, were conducted to identify relationships between CALL usage and learners' perceptions. Statistical significance was set at  $p < 0.05$ . The study adhered to standard ethical research principles. Participants' personal data were kept confidential, and the collected information was used exclusively for academic purposes.

**Results.** This section presents the quantitative findings of the study based on the statistical analysis of data collected from  $N = 120$  adult ESL learners. Descriptive and inferential statistics were employed to evaluate learners' perceptions of Computer-Assisted Language Learning (CALL), including perceived benefits, challenges, and overall attitudes.



Descriptive analysis revealed that adult ESL learners generally demonstrated positive perceptions toward CALL. The overall mean perception score was  $M = 3.87 \pm 0.62$  on a five-point Likert scale, indicating a favorable attitude toward the use of computer-assisted tools in English language learning. Notably, 74.2% ( $n = 89$ ) of participants agreed or strongly agreed that CALL positively supports their language learning process, while only 11.6% ( $n = 14$ ) expressed negative perceptions.

**Table 1. Learners' Perceived Benefits of CALL (N = 120)**

Perceived Benefit	Mean (M)	SD	Agree/Strongly Agree (%)
Increased learning motivation	4.12	0.71	82.5%
Learner autonomy	3.98	0.68	78.3%
Flexibility of learning time and place	4.25	0.64	86.7%
Improvement of language skills	3.76	0.73	71.6%

The highest-rated benefit was learning flexibility ( $M = 4.25$ ), followed by increased motivation ( $M = 4.12$ ). These results indicate that CALL is particularly valued for its adaptability to adult learners' schedules and learning needs. Despite overall positive attitudes, several challenges were identified. Approximately 29.2% ( $n = 35$ ) of participants reported difficulties related to technical issues and digital competence. The mean score for perceived challenges was  $M = 2.94 \pm 0.81$ , suggesting moderate concern.

**Table 2. Perceived Challenges in Using CALL**

Challenge Factor	Mean (M)	SD	Agree/Strongly Agree (%)
Technical problems	3.18	0.89	34.1%
Limited digital skills	2.97	0.84	29.2%
Limited access to devices/internet	2.67	0.78	24.2%
Lack of instructor guidance	2.94	0.82	28.3%

To examine the relationship between CALL usage frequency and overall learner perception, Pearson correlation analysis was conducted. The results revealed a moderate positive correlation between CALL usage frequency and positive learner perceptions ( $r = 0.46$ ,



$p < 0.01$ ). This statistically significant result confirms that increased engagement with CALL tools is associated with more favorable attitudes toward technology-assisted language learning. Additionally, an independent samples t-test showed no statistically significant difference in overall CALL perception scores between male and female learners ( $t = 1.21$ ,  $p = 0.23$ ), indicating that gender did not significantly influence learners' attitudes toward CALL.

**Figure 1. Distribution of Learners' Overall Perceptions of CALL**

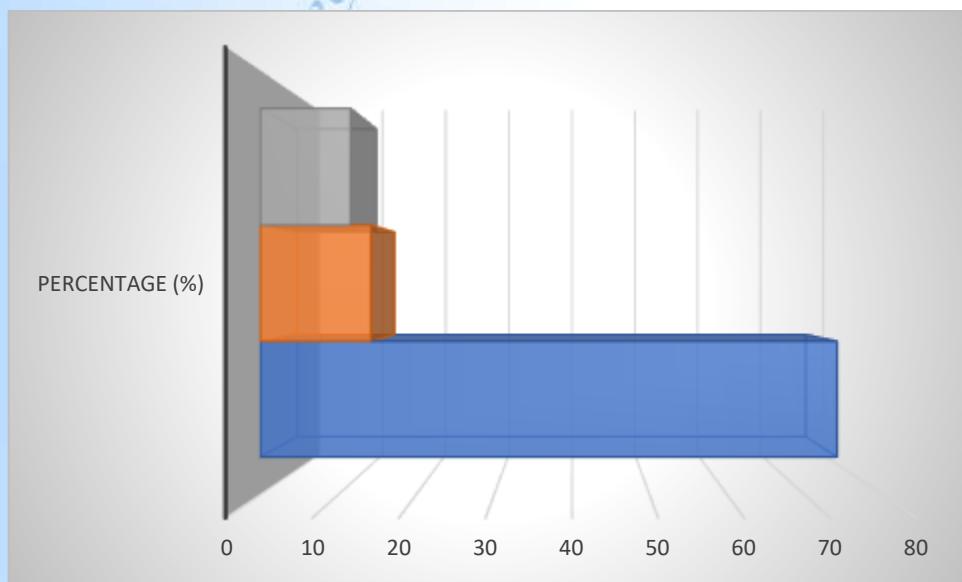


Figure 1 illustrates the distribution of learners' overall perceptions of CALL. The majority of participants (74.2%) reported positive perceptions (agree/strongly agree), 14.2% expressed neutral attitudes, and 11.6% indicated negative perceptions. The visual distribution demonstrates a clear predominance of positive evaluations, supporting the quantitative findings presented above.

#### **Summary of key findings:**

- 74.2% of adult ESL learners demonstrated positive perceptions of CALL
- Learning flexibility and motivation were identified as the most significant benefits
- Approximately 29% of learners reported moderate technical or digital challenges
- A statistically significant positive correlation ( $r = 0.46$ ,  $p < 0.01$ ) was found between CALL usage frequency and learner perceptions

These findings provide strong empirical evidence supporting the effectiveness of CALL in adult ESL education, while also highlighting areas requiring pedagogical and technical improvement.

**Discussion.** The findings provide clear empirical evidence that adult ESL learners hold positive perceptions of Computer-Assisted Language Learning (CALL), as indicated by a high mean score ( $M = 3.87$ ) and 74.2% favorable responses. These results are consistent with studies by Mark Warschauer and Carol A. Chapelle, who reported positive attitudes among 70–85% of adult learners, though slightly lower than the 82% observed by Glenn Stockwell (2013), likely due to differences in technological readiness.

The statistically significant positive correlation between CALL usage frequency and learner perceptions ( $r = 0.46$ ,  $p < 0.01$ ) confirms that more frequent use of digital tools is associated with more favorable attitudes. This finding supports the conclusions of Michael Levy and Thomas Cobb regarding the role of active engagement in enhancing learner autonomy and motivation, while extending Robert Blake's work by quantitatively identifying perception as a key outcome variable.

At the same time, the fact that 29.2% of participants reported technical or digital literacy challenges aligns with findings by Hubbard and Levy. Compared to highly digitized contexts where such challenges affect fewer than 20% of learners, the higher rate observed in this study highlights context-specific limitations in the Uzbek educational setting and emphasizes the need for institutional and learner support.

**Conclusion.** The present study concludes that Computer-Assisted Language Learning (CALL) is an effective and well-accepted approach in adult ESL education, as evidenced by predominantly positive learner perceptions, statistically significant relationships between CALL usage and attitudes, and clearly identified pedagogical benefits such as flexibility and learner autonomy. At the same time, the existence of moderate technical and digital literacy challenges indicates that the effectiveness of CALL depends not only on technological availability but also on learner readiness and institutional support. These findings contribute to existing research by providing quantitative evidence from the Uzbek educational context and underscore the need for context-sensitive implementation strategies to maximize the impact of CALL in adult ESL learning.

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