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Telegram Research and Its Educational Applications: A Bibliometric Analysis and Systematic Review

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ABSTRACT

Telegram has evolved from a general-purpose messaging app into an increasingly popular educational tool, yet research on its educational use remains fragmented. This study combines a bibliometric analysis and a systematic review, following PRISMA 2020, to map the global research landscape on Telegram and synthesise evidence on its educational applications and learning outcomes. Records were retrieved from Scopus, Web of Science Core Collection, PubMed, ERIC and IEEE Xplore; 1,018 records were analysed bibliometrically and 23 studies were included in the systematic review. The bibliometric results show that research on Telegram has grown markedly since 2020, forming a multidisciplinary field linking educational technology, language learning, social media, health communication and artificial intelligence. Research output is concentrated in a few, mainly Asian, countries, with limited international collaboration, and education-focused journals achieved higher citation impact than the dominant computer-science conference series. The reviewed studies show that Telegram has been used mainly in higher education and English language learning, where groups, channels, multimedia sharing and chatbots enhanced interaction, engagement, motivation and collaboration. Quasi-experimental studies reported better vocabulary, reading and writing outcomes than traditional instruction, although small samples, short interventions and self-reported measures limit the evidence. Overall, Telegram's educational value appears to lie in the collaborative pedagogy it enables rather than in the technology itself.

KEYWORDS

Telegram; mobile-assisted learning; educational technology; bibliometric analysis; systematic review.

ARTICLE INFORMATION

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1. Introduction

The digital revolution in higher education has redefined teaching and learning processes and collaborations, making digital technologies an integral part of contemporary educational systems rather than an optional enhancement (Tang et al., 2025; Zou et al., 2025). Educational technologies have facilitated the adoption of mobile-based learning (m-learning) that promotes ubiquitous learning experiences, flexible and learner-centred modes of study, and collaborative learning beyond the confines of traditional classrooms (Chen & Tang, 2025; Moya & Camacho, 2024). The prevalence of smartphones and internet access has prompted educators to utilise social media and instant messaging tools to engage students, share information, network, communicate, and teach (So, 2016; Wang et al., 2023). Such technologies have been increasingly applied to support blended, online, and distance learning to promote student involvement and enhance interaction and communication between participants (Su et al., 2024).

Amongst the many mobile communication technologies, Telegram Messenger has attracted global interest as an emerging educational technology that supports collaborative and interactive learning through its cloud-based storage, large-scale discussion groups and channels, chatbots, multimedia sharing, data storage, and multi-platform accessibility features (Isidori et al., 2023; Sevnarayan, 2023). The messenger service has several advantages over other communication technologies in supporting education through its larger group sizes, asynchronous and synchronous communication features, collaborative content creation tools, and faster sharing of messages (Kumar & Eisenberg, 2023), with applications in diverse educational settings (Nkanu et al., 2023). Recent studies suggest that Telegram-based learning can support language acquisition, writing and reading skills, engagement, motivation, collaboration, technology acceptance, and academic performance across educational contexts. Most findings are

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favourable, although they vary across outcomes and settings (Mohammad, 2026; Pudyastuti et al., 2023; Rezaee & Farahian, 2026; Sevnarayan, 2023; Yusof & Abdullah, 2025). More recent work has extended this line of research to Telegram-assisted extensive reading, flipped English for Specific Purposes (ESP) courses, and Telegram-based chatbots for vocabulary practice (Borasheva, 2026; Mohamad Shah et al., 2025; Rezaee & Farahian, 2026).

However, research on Telegram-based education remains fragmented across populations, settings, and study designs (Isidori et al., 2023; Valencia-Arias et al., 2024). Current evidence syntheses have covered the broad topic of mobile learning in higher education (Naveed et al., 2023) or general mobile messaging applications, with a focus mainly on WhatsApp and SMS. Jordan (2023) mapped the potential of messaging applications to support learning and Masalimova et al. (2025) scoped the use of mobile instant messaging in STEAM education. None of these scoping reviews looked specifically at Telegram, and no previous study has combined a bibliometric analysis of the research landscape with a systematic review of Telegram-based learning. An integrated approach has been informative in other areas of educational research (Ma & Ismail, 2025). Thus, the global distribution and thematic organization, and collaborative structure of Telegram research, as well as the nature and consistency of reported educational outcomes are unclear. The present study aims to: (1) map the global scientific production on Telegram through bibliometric analysis; (2) systematically synthesise its educational applications, contexts and reported learning outcomes; and (3) identify research gaps to inform future research and evidence-based adoption of mobile learning technologies in education.

2. Methodology

2.1 Study Design and Reporting Guidelines

This study combined a bibliometric analysis and a systematic literature review to map global trends in Telegram research and synthesise the evidence on its educational applications. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analysis (PRISMA 2020) statement (Page et al., 2021).

2.2 Search Strategy

The first step was to electronically search the global literature for relevant scholarly works. The selected databases were: Scopus, Web of Science Core Collection, PubMed, ERIC and IEEE Xplore. Searches were performed in databases from inception until May 31, 2026. The search strategy was developed for each database using keywords related to the topic of inquiry such as Telegram, education, learning, students, e-learning, online learning, mobile learning, academic performance, and educational technologies. Boolean operators, truncation, and phrase search tools were used to develop the search query following the specific syntax of each database. Where the database allowed, searches were limited to title, abstract, and keyword fields (TITLE-ABS-KEY in Scopus; Topic, TS=, in Web of Science; Title/Abstract in PubMed), and the full search string for each database is provided in Table 1.

Table 1: Employed Search Strategy

Database	Keywords
Scopus	TITLE-ABS-KEY (("Telegram" OR "Telegram Messenger") AND (education OR teaching OR learning OR university OR college OR "higher education" OR school OR classroom OR "online learning" OR e-learning OR "mobile learning" OR m-learning OR student* OR learner* OR teacher* OR instructor* OR lecturer*))
Web of Science	TS=(("Telegram" OR "Telegram Messenger") AND (education OR learning OR teaching OR instruction OR pedagogy OR classroom OR school OR university OR college OR "higher education" OR "online learning" OR "distance learning" OR "mobile learning" OR m-learning) AND (student* OR learner* OR teacher* OR lecturer* OR faculty OR instructor*))
ERIC	("Telegram" OR "Telegram Messenger") AND (education OR learning OR teaching OR classroom OR school OR university OR college OR "higher education" OR "online learning" OR "mobile learning") AND (student* OR learner* OR teacher* OR lecturer*)
IEEE Xplore	("Telegram" OR "Telegram Messenger") AND (education OR learning OR teaching OR classroom OR school OR university OR "mobile learning" OR e-learning OR "online learning") AND (student* OR learner* OR teacher*)

Database	Keywords
PubMed	("Telegram"[Title/Abstract] OR "Telegram Messenger"[Title/Abstract]) AND (education[Title/Abstract] OR learning[Title/Abstract] OR teaching[Title/Abstract] OR classroom[Title/Abstract] OR school[Title/Abstract] OR university[Title/Abstract] OR "higher education"[Title/Abstract] OR "online learning"[Title/Abstract] OR "mobile learning"[Title/Abstract]) AND (student*[Title/Abstract] OR learner*[Title/Abstract] OR teacher*[Title/Abstract] OR lecturer*[Title/Abstract])

2.3 Bibliometric Data Processing, Science Mapping and Visualisation

The retrieved articles were uploaded to the Zotero reference manager (version 7.4; Ahmed & Al Dhubaib, 2011), where the duplicate articles were removed by using the built-in algorithm for detection of duplicates. The deduplicated articles were then exported from Zotero in two formats depending on the analysis to be performed. One file in (.CSV) format (n = 1,370) was uploaded to SciVal (Elsevier) to perform bibliometric analysis. Publications lacking a DOI (n = 281) were manually excluded, whereas publications with no match in the Scopus database (n = 71) were automatically excluded during the upload procedure. In SciVal (n = 1,018), the bibliometric indicators of productivity, citation, Field-Weighted Citation Impact (FWCI), publication source, institution, country, and visibility metrics were analysed until 20 September 2026.

Another file of deduplicated records (n = 1,370) was exported from Zotero in (.RIS) format and uploaded into the VOSviewer software (version 1.6.20; van Eck & Waltman, 2010) to generate the network visualisation. The co-occurrence of author keywords, co-authorship, and keywords' geographical distribution were visualised using the association strength algorithm and the default layout. To further explore the data (keywords n = 608 & authors n = 29), (.NET) network files with co-occurrence of keywords and co-authorship were uploaded to R statistical Mauri et al., 2017).

Because the VOSviewer maps and the R centrality analyses were based on all 1,370 deduplicated records (RIS file), whereas the SciVal performance indicators were based on the 1,018 records matched in Scopus, values derived from the two datasets differ, and the data source is stated for each result. Furthermore, because the search retrieved Telegram research from all subject areas, the bibliometric analyses describe Telegram research in general rather than educational research alone, whereas the systematic review was restricted to educational studies.

2.4 Study Screening and Quality Assessment

Studies were eligible if they examined Telegram as the primary educational platform or learning tool, whether through its messenger, groups, channels, chatbots or other functions, among students, educators or academic staff in formal or non-formal educational settings. Empirical studies of any design (experimental, quasi-experimental, cross-sectional, qualitative or mixed-methods) were included if they reported at least one educational outcome, such as learning achievement (vocabulary, reading comprehension, writing performance), engagement, motivation, interaction, attitudes or technology acceptance. An exclusion was applied for studies using Telegram only partially or in combination with other tools with no separable effects, non-empirical studies (e.g., reviews, commentaries or descriptive reports), studies not reporting relevant educational outcomes and studies without sufficient methodological detail.

Following deduplication, two reviewers independently screened and appraised the studies using the Mixed Methods Appraisal Tool (MMAT) (Hong et al., 2018) and disagreements were resolved by a third reviewer. Overall quality of evidence base was moderate to high. Quantitative descriptive studies had the highest scores on sampling and analysis but completeness of outcome data was often unclear. Non-randomised and experimental studies were rated as moderate for unconfirmed randomisation, baseline comparability or unaddressed confounding. Conversely, qualitative and mixed-methods research showed strong rigour with coherent designs and analysis. Taken together, these findings on methodological quality give a reasonable degree of confidence in the final conclusions of the review.

2.5 Data Extraction and Synthesis

The characteristics of the included studies (n = 23) in the systematic review were extracted and are summarised in Appendix A. Given the considerable variation in the design (experimental, quasi-experimental, cross-sectional, qualitative and mixed-methods), comparison conditions and outcome instruments of the included studies, findings were synthesised narratively, rather than statistically (Campbell et al., 2020). Studies were grouped by outcome domain (vocabulary, reading comprehension, writing, and affective and engagement-related outcomes), and the direction and consistency of the reported findings were summarised within each domain, taking into account each study's design and methodological quality (Section 3.9).

3. Results

3.1 Descriptive analysis

From the five selected databases, initial searches retrieved 1,838 records. After deduplication in Zotero, 1370 unique records remained and were imported into SciVal for scientometric analysis. Of these, 281 records were without doi. 71 additional records were excluded during the import into SciVal as they could not be matched within the Scopus/SciVal database. Thus, a total of 1,018 records were analysed for bibliometric performance in SciVal.

Data from SciVal report show a significant growth and increasing international visibility of Telegram research landscape in the last 10 years. This dataset comprises research on Telegram in general, not only educational research. The literature is very multidisciplinary and many studies are cross-indexed in SciVal report. The most prominent field in the corpus is Computer Science (50.0%), followed by Social Sciences (31.3%), Engineering (26.8%) and Medicine (22.1%). Other areas are analytical and humanistic. Decision Sciences comprise 14.4% of the output, Mathematics 12.5%, Arts and Humanities 9.1%, and Physics, Energy and Business ≤ 6.0% each. This distribution demonstrates the great applicability of Telegram in a wide variety of technical, social and scientific domains (Figure 1).

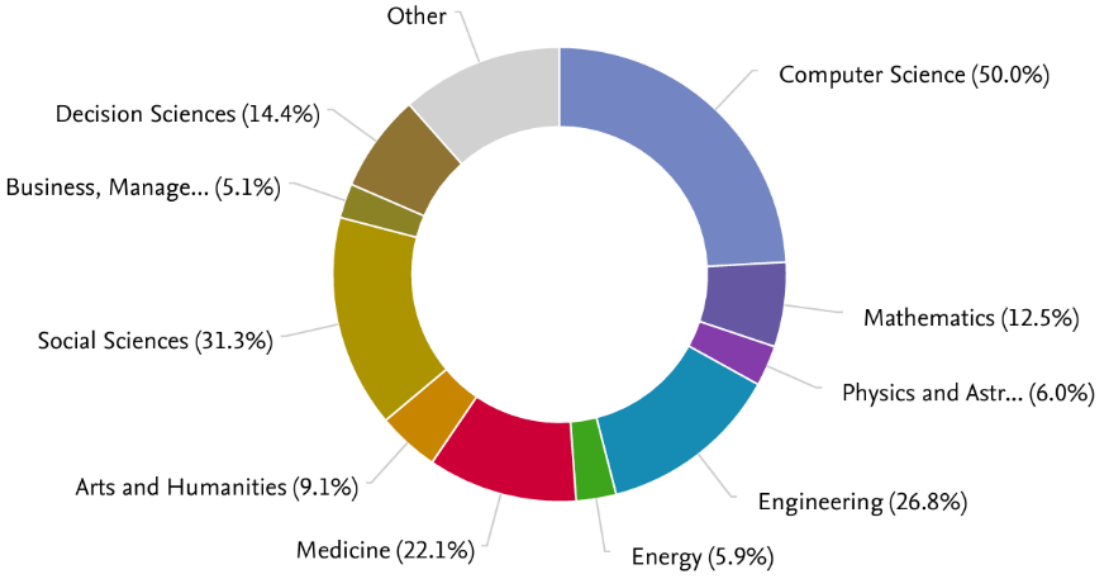


Figure 1: Research Output Across Subject Fields (Source: SciVal report)

Collectively, these publications (n = 1,018) received 8,519 citations, an average of 8.4 citations per publication, which indicates a moderate level of citation impact. The overall Field-Weighted Citation Impact (FWCI) was 1.10, meaning that Telegram-related publications were cited 10% more often than the world average for similar research, which reflects a slightly above-average scholarly influence. Furthermore, 117 publications (11.5%) were ranked among the top 10% most-cited publications worldwide, while 83 publications (13.3% of the approximately 625 publications in journals with a CiteScore) appeared in the top 10% journals by CiteScore percentiles. In addition, a third of publications (n = 326, 33.2%) were among the top 10% most viewed publications worldwide. These indicators reflect the growing volume of high-impact research published in prestigious journals.

Among the most influential publications, Kaur and Sharma (2023) reported the highest citation count (263 citations) and the highest FWCI (17.1) for their study on deep learning-based consumer sentiment analysis, a further indication that the bibliometric corpus extends beyond educational applications. Other notable contributions with high citation counts include Furió et al. (2015) on mobile learning (192 citations; FWCI = 7.55), Kumar (2021) on educational chatbots (176 citations; FWCI = 7.95), Akour et al. (2021) on machine learning for mobile learning adoption (158 citations; FWCI = 16.23), and Marengo et al. (2022) on social media addiction (156 citations; FWCI = 14.25). The findings show that the study of Telegram is not only for educational purposes, but a multidisciplinary field which is increasingly influenced by artificial intelligence.

3.2 Publication Trend

The bibliometric analysis shows a marked increase in research output on Telegram. The publication trend presented in Figure 2 is based on the 1,370 deduplicated records exported from Zotero, whereas the performance indicators reported in Section 3.1 are based on the 1,018 records matched in SciVal; annual counts therefore differ between the two sources.

Multidisciplinary research on the platform has been conducted since the launch of Telegram in 2013 (Telegram, n.d.). During the first three years after launch, publications were infrequent, averaging about nine per year (Figure 2). Annual publications increased to 3-5 times the previous rate between 2016 and 2018, and output started to rise. The research activity increased in 2019 (n = 74 publications) and exceeded 100 publications in 2020 (n = 109). Output rose from 159 to a high of 235 between 2021 and 2025, and was 199 in 2024. The lower number for 2026 (n = 117 records) is because only the first five months of the year are captured

(up to 31 May 2026). These numbers generally show the increasing interest of researchers to Telegram and its increasing visibility as an object of applied research, including in the area of education.

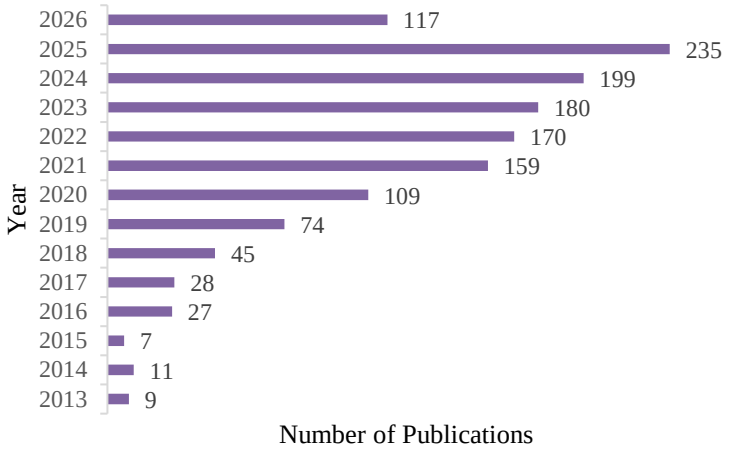


Figure 2: Publication Trend (Microsoft Excel 2016)

According to the SciVal report, out of 625 publications in Scopus journals with CiteScore quartile, 208 (33.3%) were published in Q1 journals, 161 (25.8%) in Q2, 141 (22.6%) in Q3, and 115 (18.4%) in Q4 journals. The research garnered substantial attention across the whole corpus, with 35,176 Scopus views (34.6 views per publication) and a Field-Weighted Views Impact of 2.10, suggesting more than twice the expected readership worldwide.

3.3 Keywords Analysis

The co-occurrence analysis of keywords indicated that the knowledge structure of the research on Telegram was highly interconnected and multidisciplinary, including educational technology, social media, artificial intelligence, and health issues (Figure 3). The network was partitioned into four clusters. Cluster 1 (education) is shown in blue and the core keywords are education, teaching, online learning, training and survey. One of the main focuses of the Telegram research was education. The second cluster (social media and public health) in green contained keywords such as social media, human, adult, questionnaire, knowledge, and COVID-19. It showed the extensive use of Telegram for health-related purposes and in social media research. The third cluster (artificial intelligence and information systems) displayed in red was centred on machine learning, learning systems, natural language processing, classification, and Internet of Things. This reflects a growing interest in integrating Telegram into artificial intelligence applications, such as learning analytics systems, natural language processing tools, and Internet of Things-based solutions. The fourth cluster (educational technology and language learning), shown in yellow, comprised keywords such as electronic learning, educational technology, higher education, foreign countries, English (second language), and vocabulary development, underscoring the frequent use of Telegram in educational technology and language-learning contexts.

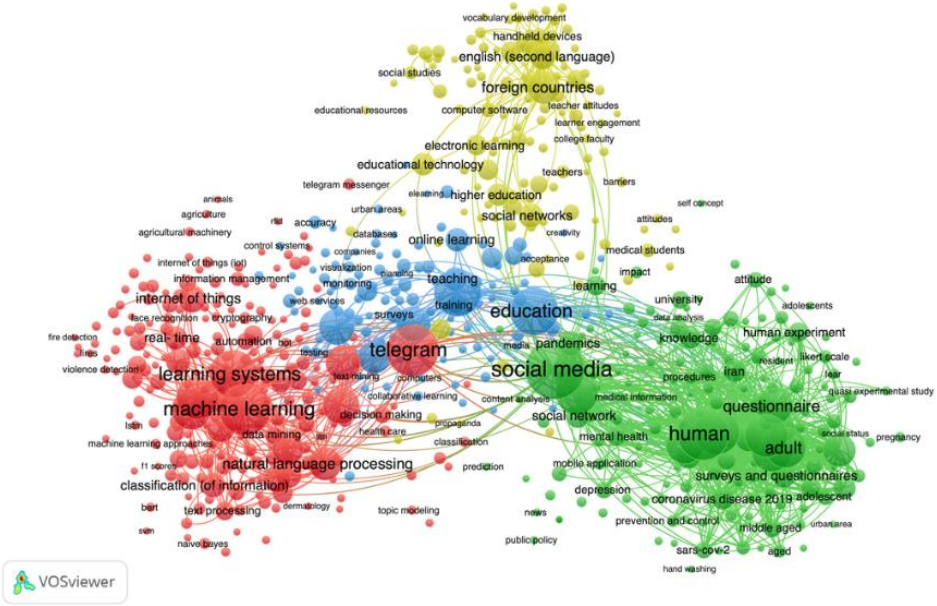


Figure 3: Keyword Co-Occurrence Network Clusters (Software: VOS)

Keywords were ranked using centrality measures performed in R (igraph package) on the keyword network derived from the 1,370 deduplicated records, rather than the 1,018 records analysed in SciVal. The network identified several keywords lying at the centre of the network with the highest centrality scores as shown in Table 2. Indeed, social media ranked first in terms of degree centrality (415), alongside a moderate eigenvector centrality (0.6162) and closeness centrality (0.5513). This suggests that social media had a far-reaching influence as it was greatly connected to many other keywords with high centrality. Telegram was one of the most central bridging concepts with the second-highest degree centrality (392), and it had the highest betweenness centrality and closeness centrality among the major educational keywords (0.0383) and (0.5842), respectively.

Table 2: Top 10 Keywords Based on Centrality Assessment

Rank	Keyword	Degree Centrality	Betweenness Centrality	Closeness Centrality	Eigenvector Centrality
1	Social media	415	0.0177	0.5513	0.6162
2	Telegram	392	0.0383	0.5842	0.1594
3	Students	379	0.0259	0.5710	0.1859
4	Education	347	0.0221	0.5668	0.3287
5	Machine learning	310	0.0119	0.5464	0.0776
6	Learning systems	306	0.0107	0.5478	0.0587
7	COVID-19	303	0.0176	0.5600	0.3824
8	Human	290	0.0040	0.5306	1.0000
9	E-learning	278	0.0230	0.5743	0.0679
10	Artificial intelligence	270	0.0282	0.5798	0.0578

The temporal overlay visualisation is presented in Figure 4. It shows that research attention gradually moved from the use of Telegram in electronic learning and educational technology (2016–2018) towards its integration with machine learning, natural language processing, and the Internet of Things (2022–2024). In other words, the research agenda on Telegram gradually moved from simply seeing it as a means of communication to utilising it as part of a suite of modern smart educational technologies.

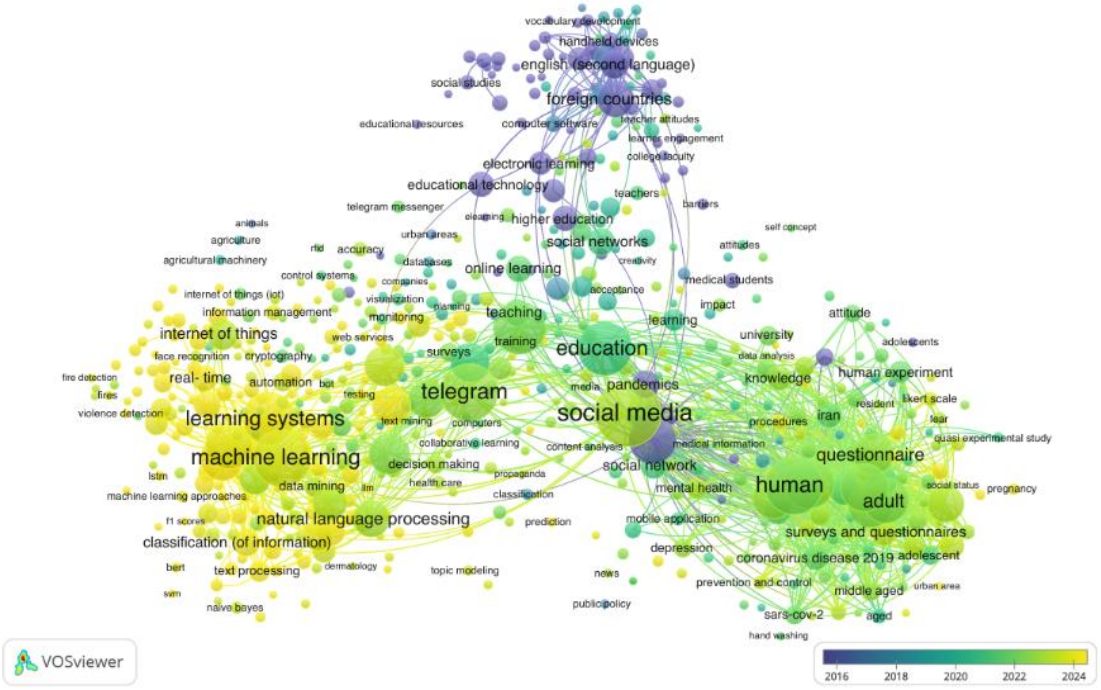


Figure 4: Temporal Overlay Visualisation on Keywords over Time (Software: VOS)

3.4 Authors Analysis

The co-authorship analysis, conducted in VOSviewer on the RIS file compiled from all five databases, showed that research on Telegram is characterised by limited collaboration between authors: most researchers worked individually, and very few collaborated with others (Figure 5).

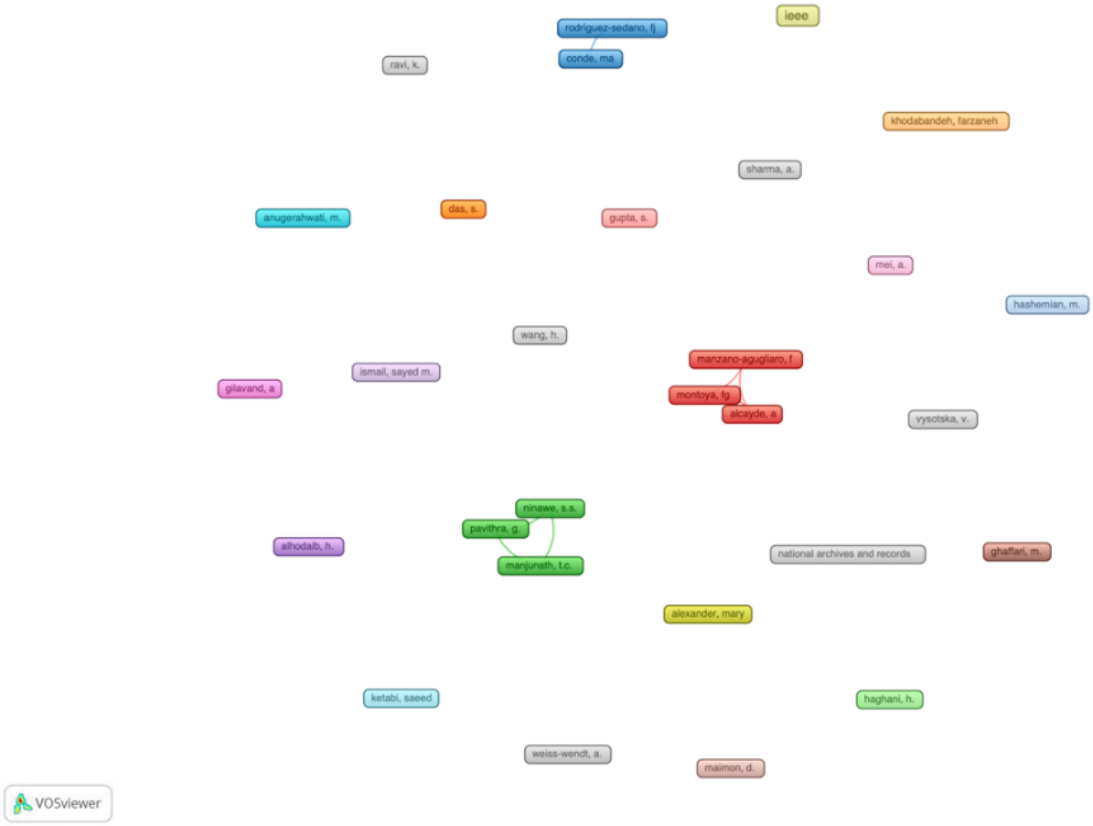


Figure 5: Network Plot on the Authors (Software: VOS)

Of the 5,073 authors in the dataset, 29 met the minimum threshold of three documents, and centrality was calculated for this network. Only eight of these authors (27.6%) had any co-authorship link, whereas the remaining 21 were isolated nodes. The connected authors formed three small, mutually disconnected groups: Rodríguez-Sedano and Conde (e.g., Conde et al., 2021); Manzano-Agugliaro, Alcayde, and Montoya (e.g., Alcayde et al., 2017); and Ninawe, Pavithra, and Manjunath (e.g., Murthy et al., 2025). The groups discussed a variety of topics: team communication through Telegram, classroom m-learning bots and engineering applications outside the field of education. This is a reflection of the general (not education-specific) nature of the bibliometric dataset. No evidence of a large-scale international collaboration community. The highest degree centrality (2.000) was obtained for Alcayde, Manjunath, Manzano-Agugliaro, Montoya, Ninawe and Pavithra, which indicates that they were the most collaborative authors in their immediate neighbourhood. Manzano-Agugliaro had the highest closeness centrality (0.500), which is the shortest average distance to the other authors in his component, while Alcayde and Montoya had a closeness centrality of 0.400. Manjunath, Ninawe and Pavithra had the highest eigenvector centrality (1.000). Eigenvector centrality is calculated on connected components, so this value is how these individuals are placed within their own small group, rather than the whole network. Crucially, all authors had a betweenness centrality of zero, indicating that no author served as a bridge between collaborative groups.

The author–keyword–country Sankey diagram shown in Figure 6 reveals the structure of Telegram-related research by identifying the key authors, keywords, and countries involved. The diagram shows that researchers have devoted considerable attention to social media, followed by machine learning, natural language processing (NLP), students, education, e-learning, artificial intelligence, COVID-19, and deep learning, which reflects the diverse topics of the analysed field of study. These themes were explored by authors including Alhodaib, Gupta, Ravi, Sharma, Vysotska, and Wang, among others. In turn, the authors' distribution was led by Iran, India, the United States of America, Spain, and Saudi Arabia, followed by Ukraine, Germany, China, and Bangladesh. Because the Sankey diagram is limited to the most productive authors, this country order differs from the SciVal ranking of all publications (India, Iran, Indonesia, the Russian Federation, and the United States; Section 3.6). Finally, the number of connections between authors, keywords, and countries indicates that research on Telegram tends to shift from being primarily education-focused to covering a wide range of topics, such as artificial intelligence, machine learning, and the use of the messenger in medical settings. Overall, although the field draws contributions from authors in many countries, these contributions are largely produced in parallel rather than through sustained international collaboration.

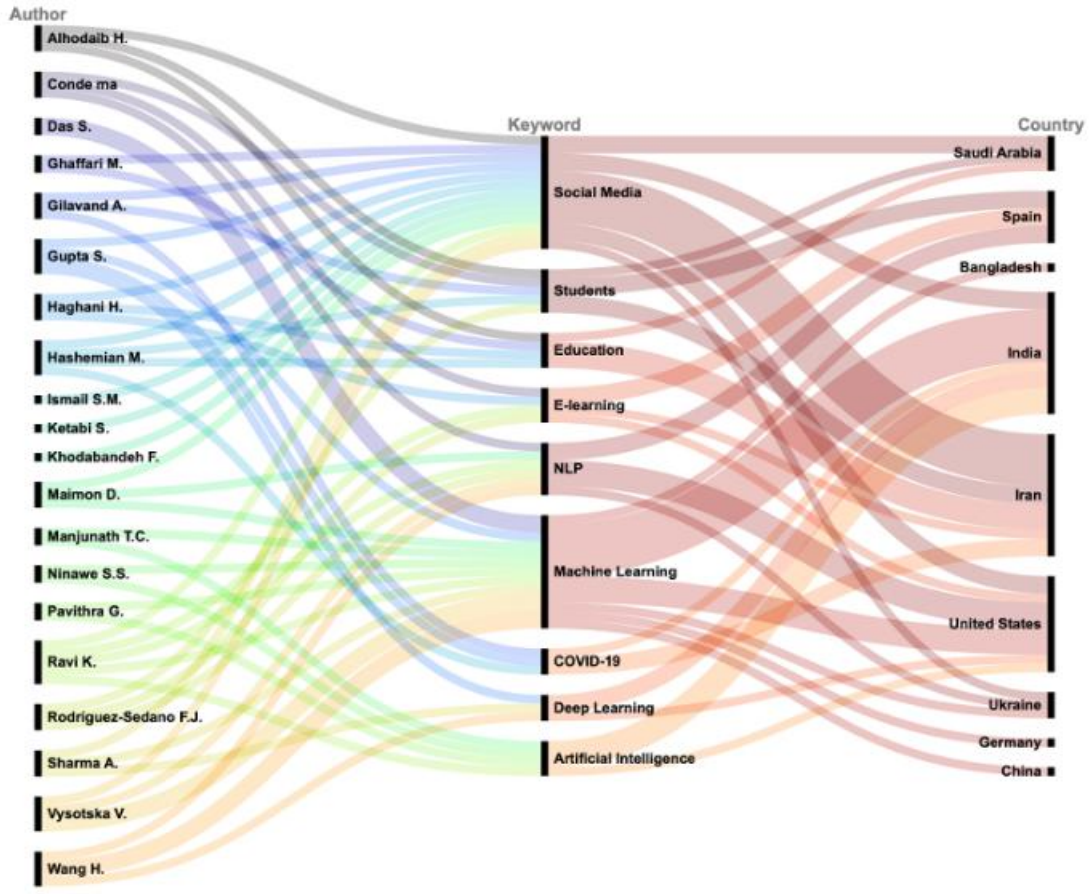


Figure 6: Sankey Diagram on Top Authors with Keywords and Related Countries of Origin (Software: RAWGraphs)

3.5 Sources Analysis

To complement the journal quartile distribution reported in Section 3.2, the publication sources of the 1,018 records analysed in SciVal were examined. The SciVal report shows that conference series in computer science and engineering are the most frequent publishers in specific publishing venues, with Lecture Notes in Networks and Systems being the most popular (n = 30 publications). Then, the Lecture Notes in Computer Science with 15 publications (n = 15) and the AIP Conference Proceedings with 13 publications (n = 13) were listed. Other important outlets contributing to this research cluster are Communications in Computer and Information Science (n = 8 publications), Lecture Notes in Electrical Engineering (n = 8 publications), IOP Conference Series: Materials Science and Engineering (n = 7 publications) and Procedia Computer Science (n = 7 publications) as well as multidisciplinary journals like PLOS ONE and Sustainability (Switzerland) with 6 publications each. Computer Science and Engineering dominate the subject-area distribution, as shown in Section 3.1 and Figure 1. But some venues with only two publications had much higher impact, such as JMIR Medical Education (FWCI = 8.63), Proceedings of the 2nd International Conference on Electronics and Sustainable Communication Systems, ICESC 2021 (FWCI = 6.28), Convergence (FWCI = 4.20), and Computer Assisted Language Learning (FWCI = 4.07). Overall, the results indicate that more published papers do not lead to higher academic impact since the specialised venues with fewer articles have outperformed the main conference series by a large margin in terms of FWCI. Two of these high impact venues, Computer Assisted Language Learning and JMIR Medical Education, are notable and correspond to the language-learning and medical-education contexts identified in the systematic review (Section 3.8). However, as with the country-level indicators reported in Section 3.6, values of the FWCI based on only two publications are unstable, so these venue-level comparisons should be taken with with caution.

3.6 Geographical and Institutional Distribution of Research

Figure 7 presents the geographical distribution of Telegram-related research, showing contributions from Asia, Europe, North America, South America, Africa, and Oceania. According to the SciVal report, India had the highest scholarly output (n = 174, 13.9%), whereas almost two-fifths of the publications were distributed across 88 countries (n = 483, 38.6%). Geographically, the research is quite dispersed, but clearly concentrated in Asia: India, Iran, Indonesia, Malaysia and Saudi Arabia together account for 508 publications, or about half (49.9%) of the 1,018 records analysed. This ratio should be considered as a rough one, since publications with co-authors from different countries are attributed to each of the countries involved.

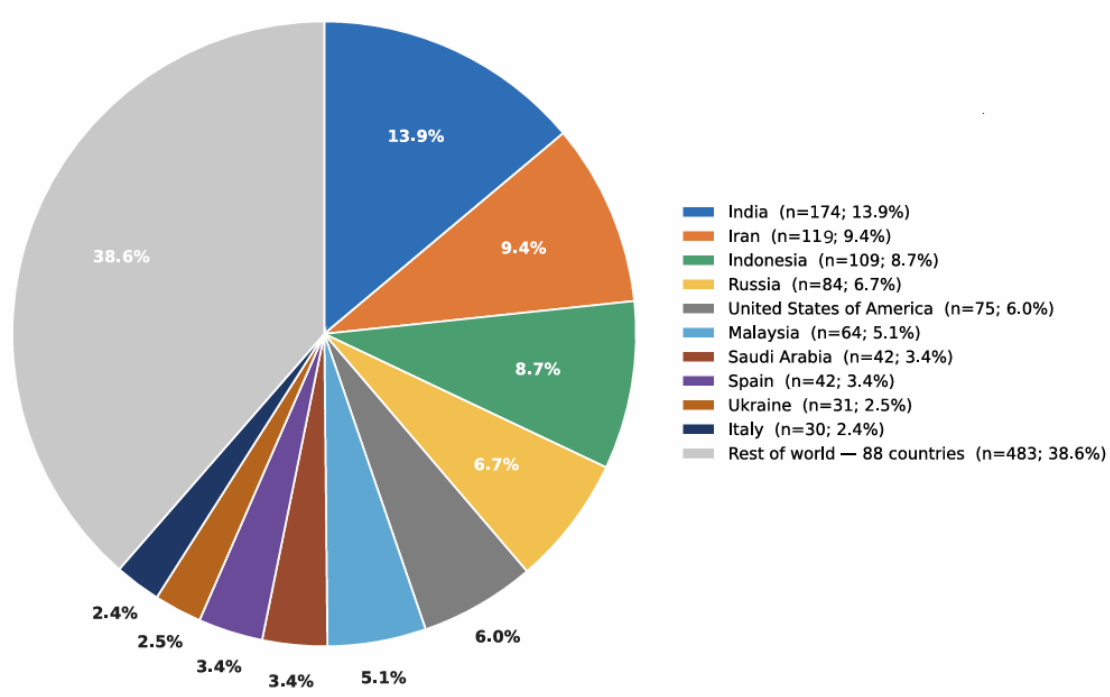


Figure 7: Geographically Identified Scholarly Outputs on Telegram (Microsoft Excel 2016)

India also had the highest number of citations (1,286) followed by Iran (1,024), Spain (779), Italy (683) and Malaysia (566) indicating significant scholarly impact of some of the most productive countries. Importantly, scholarly productivity did not consistently correspond to citation impact. Among countries with at least five publications, Jordan had the highest FWCI (3.81, from five publications), followed by the United Arab Emirates (3.22), Brazil (2.40), Hong Kong (2.36), Poland (2.34), and Italy (2.29). Higher FWCI values were recorded for some countries with very small outputs, such as Cambodia (10.78, from two publications) and Lithuania, the Democratic Republic of the Congo, and the Dominican Republic (3.70, 2.57, 2.57, respectively, with one publication each); because such values are unstable, they were not used for comparison. By contrast, India, despite having the largest scholarly output and citation count, recorded an FWCI of 1.80.

Institutional productivity was concentrated in a small number of universities and research organisations (Figure 8). Because several top productive institutions were tied at eight publications, the most productive institutions were defined as those with at least eight publications in the SciVal dataset (n = 13), rather than as a fixed top ten. Islamic Azad University ranked first (n = 17 publications), whereas five institutions ranked last (n = 8 publications each). Nine of these 13 institutions were based in Iran (n = 4), Malaysia (n = 3), and the Russian Federation (n = 2). Citation impact was assessed using the Field-Weighted Citation Impact (FWCI), which compares the citations received by an institution's publications with the world average for publications of the same subject area, publication type, and year (FWCI = 1.00 indicates the world average). Only three of the 13 most productive institutions exceeded the world average: the Russian Academy of Sciences (FWCI = 1.47, n = 195 citations), the National University of Singapore (FWCI = 1.38, n = 182 citations), and Universiti Kebangsaan Malaysia (FWCI = 1.13, n = 68 citations). By contrast, the most productive institution, Islamic Azad University, had the lowest FWCI in this group (0.31), whereas Iran University of Medical Sciences, despite a below-average FWCI (0.86), recorded the highest citation count (n = 221) in this group, and the highest number of Scopus views (n = 1,145) among all institutions.

Figure 8: Top Institutions based on Scholarly Output counts (Microsoft Excel 2016)

A few institutions with less than eight publications had a significantly higher impact, such as the SRM Institute of Science and Technology (FWCI = 13.38, n = 14 citations), the Symbiosis International University (FWCI = 3.18, n = 273 citations), the Sapienza University of Rome (FWCI = 3.13, n = 194 citations), and the Polytechnic University of Valencia (FWCI = 1.77, n = 235 citations), each with six publications. To summarise, these findings indicate that the research output on Telegram is concentrated in a limited number of countries and institutions, and that citation impact does not correlate with productivity.

3.7 Systematic Review

Figure 9 shows the study selection process according to the PRISMA 2020 statement. From inception of the database to 31 May 2026, the database searches identified 1,838 records: Scopus (n = 1,179), Web of Science (n = 352), IEEE Xplore (n = 125), ERIC (n = 123) and PubMed (n = 59). Because Telegram was launched in 2013, records published before that year were excluded prior to screening (n = 124). 1089 records were screened after removing duplicates in Zotero (n = 344) and excluding records without a DOI (n = 281). Of these 71 records were not matched in SciVal as they did not have publication identifiers thus leaving 1,018 reports to retrieve. Full texts were not available for 485 reports, so 533 reports were screened for eligibility. Of the 510 reports excluded at full-text review, 258 were excluded due to an ineligible study design, 139 because Telegram was not the main

intervention or was only partially used, and 113 because they did not report relevant educational outcomes. Twenty-three studies were included in the systematic review according to the eligibility criteria.

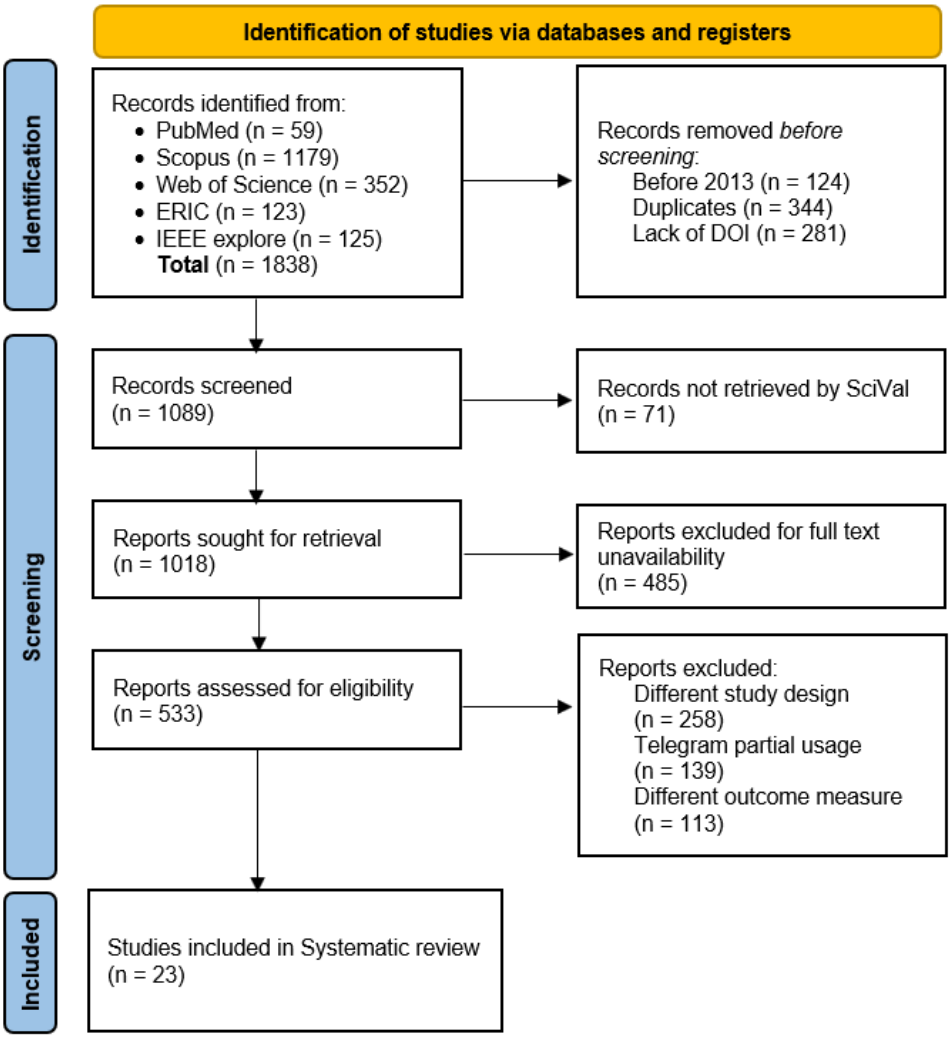


Figure 9: PRISMA Flow Chart (Source: Author's own elaboration)

3.8 Characteristics of the Included Studies

The 23 studies reviewed here varied in their research methods, educational contexts, participants, fields of study, theoretical perspectives, and how Telegram was used. Appendix A and Figure 10 describe this variation. The most frequent field of study was language learning (n = 16, 69.6%), followed by general education without specific specialisation (n = 5, 21.7%), medical education (n = 1) and teacher education (n = 1). Almost half of the studies (n = 11, 47.8%) did not have an explicit theoretical framework. Sociocultural or constructivist theories were the most frequently identified theoretical approaches (n = 5, 21.7%), followed by technology acceptance theories (n = 2, 8.7%), including the Technology Acceptance Model and Unified Theory of Acceptance and Use of Technology, while multiple theoretical perspectives were referenced in two studies with 8.7%. Behaviourism, student engagement theory, and the Community of Inquiry framework were each represented in one study (n = 1, 4.3% each). Regarding research methods, nearly half of the studies (n = 11, 47.8%) were experimental and quasi-experimental in nature, followed by the quantitative survey studies (n = 5, 21.7%). Four studies (17.4%) used qualitative methods, and few studies employed mixed-methods designs (n = 2, 8.7%). One study was a case study. In the educational context, the most frequent setting was higher education (n = 16, 69.6%), followed by language institutes or other non-formal language learning settings (n = 5, 21.7%). K–12 education and vocational education were each the focus of one study (n = 1, 4.3% each). Participants' characteristics varied. Most of them were university students (n = 13, 56.5%), that is, students with unspecified level of study (n = 9), undergraduates (n = 3) and postgraduates (n = 1). The second largest group was that of adult English as a Foreign Language (EFL) learners (n = 5, 21.7%). One study included school students aged 10–14 years, faculty members, undergraduate students and lecturers together, and vocational college students, while one study did not report on the type of participant (n = 1, 4.3% each). Telegram was primarily used through the general Telegram application or messenger service (n = 13, 56.5%), followed by Telegram groups (n = 6, 26.1%). One study each used multiple Telegram features, stickers, channels, or chatbots (n = 1, 4.3% each). To summarise, the

characteristics show that the evidence base is focused primarily on language learning in higher education and in adult learners. There is a fair degree of methodological diversity and relatively little explicit use of theoretical frameworks.

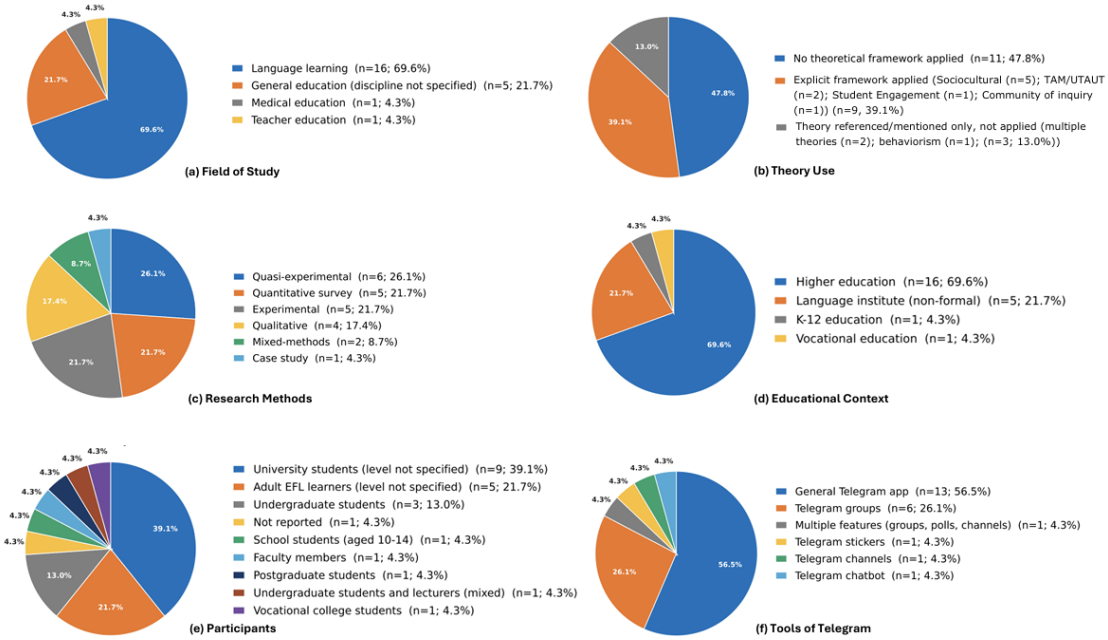


Figure 10: Characteristics and Proportion of the Included Studies (Microsoft Excel 2016)

3.9 Synthesis of Reported Educational Outcomes

Most of the reviewed studies were language learning focused (Figure 10) and, thus, most of the data were on English skills such as vocabulary, reading comprehension, and writing. All of these studies found that the students who used Telegram for learning performed better than the students who received traditional instruction. The reported differences varied greatly in magnitude, and differed between studies in outcome instruments, intervention durations and comparison conditions.

3.9.1 Vocabulary Learning

The most frequently studied outcome was vocabulary. Studies on Iranian EFL learners have shown that vocabulary gains have been associated with the use of Telegram to deliver multimodal word-learning materials such as stickers (Ghobadi & Taki, 2018), vocabulary instruction for beginners (Heidari Tabrizi & Onvani, 2018), and scaffolding by peers or teachers within a process approach (Mansouri & Mashhadi Heidar, 2019). Learners in survey studies likewise perceived vocabulary development as one of the main benefits of using the application (Abu-Ayfah, 2020; Al Maharma & Abusa'aleek, 2023).

3.9.2 Reading Comprehension

For reading comprehension, Telegram groups used to share texts, tasks, and feedback were associated with better reading performance than conventional instruction among Iranian EFL learners (Naderi & Akrami, 2018) and EFL learners at a Jordanian university college (Al Momani, 2020). Vocational students also perceived Telegram as helpful for their online reading comprehension (Suci et al., 2022). Nevertheless, part of the evidence for this outcome came from learners' perceptions rather than from controlled comparisons.

3.9.3 Writing Performance

Writing outcomes were examined in fewer studies. Online cooperative learning through Telegram improved EFL students' writing performance and attitudes (Aghajani & Adloo, 2018). In a 10-week Malaysian study with 60 distance education students, the Telegram experimental group achieved a substantial mean score increase in argumentative writing (53.70 to 79.40), vastly outperforming the control group's minimal growth from 50.87 to 53.13 (Yusof & Abdullah, 2025). However, that study reported only within-group tests, and the interviewed students mentioned distractions from notifications, unbalanced participation, and off-topic posts.

3.9.4 Affective and Engagement-Related Outcomes

Telegram-based instruction was also associated with affective benefits. Among Iranian EFL learners, it was linked to higher foreign language motivation, lower foreign language anxiety, and more positive attitudes towards learning (Zhao et al., 2022), as well as to greater academic buoyancy, better academic emotion regulation, and higher English achievement (Zheng et al., 2023). Survey studies showed that university students generally held positive views of Telegram as a tool for learning English (Abu-Ayfah, 2020; Al Maharma & Abusa'aleek, 2023), and other studies examined medical students' perceptions of Telegram as an e-learning tool (Awad et al., 2025) and the determinants of students' use of messaging applications for learning support (Elom et al., 2025). Overall, the direction of the reported findings was consistently favourable across outcome domains. However, because most intervention

studies were quasi-experimental, used small samples and researcher-developed instruments, and rarely assessed delayed retention, and because the survey studies relied on self-reported perceptions, the strength of this evidence should be regarded as moderate.

4. Discussion

Research on Telegram has expanded rapidly over the past decade, with a marked increase in publications since 2020, and more than one third of the records analysed in SciVal (369 of 1,018) appeared in Q1 and Q2 journals, reflecting growing scholarly recognition of Telegram as a research subject across disciplines, including education. The bibliometric analysis found a multidisciplinary field on educational technology, mobile-assisted language learning, social media and artificial intelligence, although international collaboration was limited despite the growth in research activity overall. The systematic review indicated that Telegram has been extensively used in higher education and language learning. In these domains, discussion groups, channels, multimedia resources, chatbots and collaborative tools were used to engage learners and facilitate communication, collaboration and learning. In turn, most studies reported a positive attitude on the use of Telegram among students, improved motivation and increased chances for collaborative learning. Intervention studies reported better vocabulary, reading and writing skills than traditional methods. Interpretation of these findings is limited by diversity of included studies, which may be due to differences in educational contexts and participants, instructional interventions and technologies, and assessment tools and outcomes. The results of the review, however, showed that Telegram can be used as a mobile-assisted educational tool. The study also identified several areas for further research.

The findings of this study suggest that Telegram is a promising educational technology, as evidenced by the increasing volume of research output on Telegram since 2020, indicating increasing international interest in mobile-assisted learning and digital pedagogy. The findings are in line with a wider body of evidence suggesting that mobile devices and digital technologies can improve learning and support a more flexible, learner-centred education (Sung et al., 2016; Timotheou et al., 2023). A bibliometric analysis showed a multidisciplinary research landscape across educational technology, language learning, social media, and artificial intelligence, but still limited collaboration among researchers, in line with previous observations that the evidence base on mobile messaging applications in education is still fragmented (Masalimova et al., 2025). The systematic review also showed that Telegram has been used primarily in higher education and English language teaching, with single studies in teacher education and medical education, and that it was generally related to enhanced student engagement, motivation, interaction, and collaborative learning, findings consistent with previous studies and reviews of mobile messaging applications in education (Isidori et al., 2023; Jordan, 2023). Interestingly, the reviewed intervention studies consistently found that Telegram-assisted instruction was superior to conventional instruction in improving vocabulary acquisition, reading comprehension and writing performance (Ghobadi & Taki, 2018; Naderi & Akrami, 2018; Yusof & Abdullah, 2025). This pattern is consistent with recent meta-analytic evidence on mobile-assisted vocabulary learning which found a large overall effect, reducing to a medium effect after adjustment for publication bias, with larger effects for tertiary level learners and out-of-class learning (Zhou & Zhou, 2026). These conditions are very close to the usual Telegram interventions identified in this review. Therefore, differences in educational context, intervention design and learner characteristics are a more plausible explanation for the variation in the reported size of gains than inconsistency in the direction of the effect.

This review confirms the educational potential of Telegram, and also presents insights beyond a single-method synthesis. It presents a clear gap between the volume of research on Telegram and the robustness of its pedagogical evidence through the triangulation of bibliometric mapping and systematic review evidence. Of a large and rapidly growing body of publications, only 23 eligible educational studies were identified, about half of them controlled interventions, most of them addressing English-language instruction in a few countries. Source analysis confirms the same trend: research on Telegram has been mostly published in computer science and engineering conference series, while education-specific venues contributed few publications but with considerably higher citation impact. Several included studies were cross-sectional survey designs and consequently reported self-reported, not measured, learning gains. This pattern does not detract from the findings, but rather contributes to comprehending their meaning. The gains observed appear to be less a function of Telegram as technology, and more a function of the collaborative, interactive and learner-centred pedagogies it enables. Therefore, the evidence so far should be viewed as a credible signal of promise, not a definitive proof of efficacy.

This positive finding could also be explained by affordances that set Telegram apart from many other messaging apps. Large groups, public channels, persistent cloud-based message histories, and programmable bots enable teachers to organise course content, maintain asynchronous interaction, and provide feedback outside of class time (Isidori et al., 2023; Sevnarayan, 2023). Comparative studies have begun to examine whether such affordances matter by contrasting Telegram with WhatsApp in terms of student engagement (Molina, 2022) and undergraduates' micro-teaching performance in collaborative learning settings (Mohammed et al., 2024). More specifically, empirical evidence from mobile instant messaging suggests that it can improve students' behavioural and cognitive engagement, compared to asynchronous online discussion forums, but its effects on emotional engagement are not as clear (Tang & Hew, 2022). From the sociocultural and constructivist perspectives most prevalent in the included studies, Telegram may be considered a mediating space for peer interaction, scaffolding, and repeated exposure to the

target language. This may account for why collaborative and process-oriented designs most frequently reported improvements (Aghajani & Adloo, 2018; Mansouri & Mashhadi Heidar, 2019).

It is also important that the evidence is concentrated geographically in Asia and the Arab region. Telegram is popular here because it is cheap and can be used on regular smartphones. This makes it attractive where there are no institutional learning management systems or stable access to computers (Awad et al., 2025; Elom et al., 2025). Similarly, recent studies from Yemen, Iraq and Malaysia indicate that learners value the flexibility, accessibility and constant exposure to English provided by Telegram, while highlighting typical problems such as unreliable internet access, distracting non-academic material, uneven participation and difficulties in platform navigation (Al-Zakari & al-Sabayee, 2025; Idris et al., 2025; Mohammad, 2026; Yusof & Abdullah, 2025). The research corresponds to the perspective that Telegram is most effective as a supplementary tool to classroom instruction within a well-structured blended learning framework, facilitated by teachers (Al-Zakari & al-Sabayee, 2025; Mohammad, 2026). This is in line with the recent integration of Telegram in flipped ESP classrooms (Borasheva, 2026).

Finally, the bibliometric shift towards machine learning, natural language processing, and chatbots has not yet been matched by educational intervention research, as only one of the included studies focused on Telegram chatbots. A systematic review of chatbot-supported language learning concluded that chatbots can offer on-demand practice but are constrained by technological limitations, novelty effects, and cognitive load (Huang et al., 2022). In addition, a recent evaluation of a Telegram vocabulary chatbot similarly found high usability but limited long-term appeal because of repetitive exercises (Mohamad Shah et al., 2025). As generative artificial intelligence becomes embedded in messaging platforms, pedagogically informed frameworks for AI-powered mobile learning (Moya & Camacho, 2024) provide a basis for designing and evaluating Telegram-based bots that move beyond content delivery towards adaptive feedback and learner support.

4.1 Implications

The findings have implications for practice, policy, and research, as they show that Telegram can support a range of educational settings, including higher education, language learning, and collaborative learning, by enhancing communication and learning opportunities. First, Telegram can be integrated into blended, online, and face-to-face instruction, as its discussion groups, channels, multimedia resources, synchronous and asynchronous communication, and chatbots enable educators to engage students and support teaching and learning (Molina, 2022; Nosenko et al., 2022; Pudyastuti et al., 2023). The use of Telegram can be especially beneficial for students and educators in low- and middle-income countries, where the use of smartphones is widespread, but access to technology and online learning resources is limited (Awad et al., 2025; Elom et al., 2025).

Secondly, the reviewed studies indicate that Telegram-assisted education may support improvements in language learning, writing, reading, and vocabulary, as well as enhanced student engagement and collaborative learning, which are critical for developing students' communicative competence and achieving positive educational outcomes (Aghajani & Adloo, 2018; Ghobadi & Taki, 2018; Mansouri & Mashhadi Heidar, 2019; Molina, 2022; Naderi & Akrami, 2018; Pudyastuti et al., 2023; Yusof & Abdullah, 2025). Therefore, it is essential to consider the inclusion of Telegram in the learning environment with the use of collaborative learning, flipped classroom, problem-based learning, and formative assessment strategies to achieve substantial improvement in language learning, writing, and reading, as well as enhance student engagement (Borasheva, 2026; Mohammed et al., 2024). For policymakers, the findings may inform decisions regarding integrating secure messaging into the educational ecosystem to ensure the use of appropriate technologies to optimise educational outcomes, as well as establish relevant policies governing digital learning and social media use in education (Aladsani, 2021; Iqbal & Bhatti, 2020).

4.2 Limitations

This study has several limitations, which may affect the reliability and generalisability of the findings. First, the systematic review included articles indexed in selected databases, which may have led to the exclusion of relevant studies published in regional databases or outside peer-reviewed journals. In addition, records without a DOI or without a match in SciVal were excluded during bibliometric processing, a criterion that was carried over into the systematic review and may have removed eligible studies indexed in ERIC, PubMed, or regional journals; moreover, full texts were unavailable for 485 reports (approximately 48% of those sought), which may have introduced selection bias. Second, most of the included intervention studies used quasi-experimental designs, which limits causal conclusions about the effects of Telegram on educational outcomes. Moreover, several included studies were cross-sectional surveys that relied on learners' self-reported perceptions rather than on measured learning outcomes. Third, most of the included studies were conducted among similar populations in comparable settings, using similar interventions and outcome measures, which limits the generalisability of the findings to other populations, settings, and disciplines. Fourth, the bibliometric dataset covers Telegram research in general, including substantial proportions of computer science, engineering, and medical publications, so the bibliometric indicators do not describe educational research alone. Likewise, venue- and country-level FWCI values derived from very small numbers of publications are unstable and were therefore interpreted descriptively. Fifth, author-level bibliometric analyses may be affected by name ambiguity, as the source databases record author names in different formats (full names versus initials); although a thesaurus file was applied to harmonise name variants and remove non-personal entries, some splitting or merging of author identities cannot be fully excluded, which may have led to an underestimation of collaborative links. Finally, the diversity of the included studies in design, comparison conditions, and outcome instruments did not permit a

quantitative estimate of the magnitude of Telegram's effects, so the findings represent a narrative synthesis and should be regarded as preliminary evidence.

4.3 Future Research

Future studies should concentrate on the implementation of Telegram-assisted education in diverse settings by engaging a larger sample of participants and utilising rigorous quasi-experimental and experimental designs, including randomised controlled trials. The impact of Telegram-assisted education on long-term learning outcomes, including student retention, knowledge translation and sustainability, and digital literacy, should also be investigated in larger, multinational studies. More research is needed to compare the effectiveness of Telegram-assisted education and other digital learning interventions, including the use of various digital technologies, to optimise educational outcomes. Future studies should also aim to explore the impact of various features of Telegram, including chatbots, multimedia tools, discussion groups, and other collaborative learning technologies, on diverse educational outcomes, as well as report the benefits and challenges of implementing such interventions. The bibliometric analysis also revealed a lack of international collaboration, and future multinational studies should utilise standardised intervention designs and outcome measures to facilitate the pooling of evidence and generate more reliable findings. Because education-focused venues achieved higher citation impact than the high-volume conference series, researchers are also encouraged to disseminate rigorous Telegram studies through specialised, peer-reviewed education journals to strengthen the visibility of this evidence. In addition, the growing integration of artificial intelligence into messaging platforms calls for rigorous evaluations of Telegram-based chatbots and AI-assisted feedback, including their effects on learner autonomy, data privacy, and academic integrity. Lastly, as more comparable controlled studies accumulate, future systematic reviews should examine how specific intervention features, learner populations, and implementation conditions shape educational outcomes.

5. Conclusion

This study is the first to integrate bibliometric and systematic review methods in the area of Telegram research and its educational applications. It extends previous scoping reviews of messaging apps in education. It considers the nature of the field of research and the reported results of Telegram-assisted education. The results imply that Telegram has evolved from a simple communication tool to a multi-purpose application that can be used in different educational environments such as higher education to enhance learning and engagement using different educational technologies and pedagogical strategies.

The bibliometric study showed that the body of knowledge on Telegram research including its educational applications has been growing rapidly during the last few years. More than one third of the analysed records have been published in Q1 and Q2 journals, showing the increasing interest toward the topic among researchers, practitioners and educators. Simultaneously, the analysis also indicated that the research field is multidisciplinary, but the extent of international collaboration is limited. The source analysis also revealed that this research has been mainly published in computer science and engineering conference series, while specialised education journals with fewer publications had a higher citation impact. The systematic review has proven the benefits of Telegram in educational environments, especially in higher education and language learning. It was helpful in many aspects of the students' learning and participation. These findings were reinforced by the intervention studies, which reported that Telegram-assisted instruction was associated with improvements in vocabulary, reading, and writing among language learners compared with conventional instruction, although their methodological limitations call for cautious interpretation. Thus, the study findings suggest that Telegram can be used in different contexts as an educational tool to assist students in language learning, writing and reading, and in their participation and collaborative learning. However, more studies are needed to investigate the effectiveness of Telegram-assisted education in different populations, settings, and interventions and to optimise the use of the app's features to maximise its impact on educational outcomes.

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Appendix A: Characteristics of the Included Studies (n = 23)

Author et al. (Year)	Study Design	Country	Sample Size	Field	Telegram Tool Used	Outcomes Assessed	Key Variables	Key Findings
Abu-Ayfah (2020)	Quantitative survey	Saudi Arabia	300 EFL students	English language learning	Telegram application	Perceptions of learning, vocabulary learning	Perceived usefulness, satisfaction	Students perceived Telegram positively, particularly for vocabulary learning.
Aghajani & Adloo (2018)	Quasi-experimental, pre-post control group	Iran	70 university ESP learners	ESP / English Writing	Telegram cooperative learning groups	Writing performance, attitudes	Writing score, content, organization, vocabulary, language use, mechanics, attitudes	Telegram cooperative learning improved writing performance and generated positive attitudes; significant within-group improvements observed.
Al Maharma & Abusa'aleek (2023)	Quantitative survey	Jordan	600 EFL students	English language learning	Telegram app	Opinions toward Telegram for learning English	Vocabulary learning, grammar learning, perceptions	Majority viewed Telegram as useful for English learning, especially vocabulary and grammar acquisition.
Aladsani (2021)	Qualitative study	Saudi Arabia	77 university students	Higher education	Telegram groups, polls, channels	Educational interaction, perceptions	Learner–learner interaction, learner–instructor interaction	Telegram enhanced educational interaction and was perceived positively despite some limitations.

Author et al. (Year)	Study Design	Country	Sample Size	Field	Telegram Tool Used	Outcomes Assessed	Key Variables	Key Findings
Awad et al. (2025)	Cross-sectional survey	Libya	299 medical students	Medical education	Telegram-based e-learning	Perceptions, benefits, challenges	Attitudes, internet access, technical issues	Students showed generally positive attitudes; internet connectivity was the main challenge.
Borasheva (2026)	Mixed-methods	Uzbekistan	Not yet extracted from full text	ESP / Flipped classroom	Telegram integrated with flipped learning	Engagement, language skills, technology acceptance	TAM, satisfaction, engagement, speaking, listening	Telegram supported engagement, motivation, participation, and communicative skills.
Dange (2025)	Quasi-experimental, control vs intervention	Nigeria	200-level English students (sample reported in full text)	English Writing	Telegram-based writing instruction	Essay writing performance	Content, organization, expression, mechanics	Experimental group significantly outperformed the control group after Telegram intervention.
Elom et al. (2025)	Cross-sectional quantitative survey	Nigeria	206 university students	Higher Education	Telegram and WhatsApp	Learning support usage	Performance expectancy, effort expectancy, social influence, facilitating conditions	Students perceived Telegram positively for learning support; adoption influenced by demographic and contextual factors.
Ghobadi & Taki (2018)	Experimental	Iran	60 EFL learners	English Vocabulary	Telegram Stickers	Vocabulary acquisition	Vocabulary scores	Telegram stickers significantly enhanced vocabulary learning compared with conventional instruction.

Author et al. (Year)	Study Design	Country	Sample Size	Field	Telegram Tool Used	Outcomes Assessed	Key Variables	Key Findings
Heidari Tabrizi & Onvani (2018)	Quasi-experimental	Iran	31 EFL learners (aged 10–14)	English Vocabulary Learning	Telegram App	Vocabulary acquisition	Vocabulary achievement	Vocabulary learned through Telegram was significantly more effective than traditional classroom instruction.
Iqbal & Bhatti (2020)	Qualitative study (interviews)	Pakistan	22 faculty members	Higher Education	Smartphones including messaging/social media tools	Perceptions of mobile learning	Benefits, barriers, attitudes	Faculty viewed smartphones positively for communication and learning but highlighted distraction and technical barriers.
Mansouri & Heidar (2019)	Experimental (3-group design)	Iran	120 EFL learners	Vocabulary Learning	Telegram-based peer and teacher scaffolding	Vocabulary learning, self-regulation	Vocabulary achievement, self-regulation	Both peer- and teacher-scaffolding via Telegram significantly improved vocabulary learning relative to control conditions.
Mohammed et al. (2024)	Comparative quasi-experimental study	Nigeria	282 undergraduates	Teacher Education / Micro-teaching	Telegram Collaborative Learning Groups	Achievement, retention	Academic performance, retention	Both Telegram and WhatsApp improved performance; WhatsApp showed slightly greater gains.

Author et al. (Year)	Study Design	Country	Sample Size	Field	Telegram Tool Used	Outcomes Assessed	Key Variables	Key Findings
Molina (2022)	Mixed-methods experiment (pre/post control group)	Cuba	229 postgraduate students	Online Higher Education	Telegram Groups, Surveys, Media Sharing	Student engagement	Emotional, social, cognitive, behavioural engagement	Telegram significantly increased engagement levels compared with control groups.
Momani (2020)	Case study / Educational intervention	Jordan	EFL university learners	English Reading	Telegram Messenger Channels	Reading skills	Reading performance	Telegram channels improved students' reading skills and supported mobile-assisted learning.
Naderi & Akrami (2018)	Quasi-experimental (pre-test/post-test control group)	Iran	103 EFL learners	English Reading	Telegram Groups	Reading comprehension	Reading achievement, gender	Telegram-group instruction significantly improved reading comprehension compared with traditional instruction; no gender differences observed.
Nosenko et al. (2021)	Experimental + Survey Study	Ukraine	Survey: 112 students; Experiment: 112 intervention, 110 control	Higher Education	Telegram Messenger & Telegram ChatBot	Learning outcomes and educational support	Learning achievement, educational interaction, satisfaction	Telegram successfully supported learning during COVID-19 quarantine with no decline in learning quality and positive student evaluations.

Author et al. (Year)	Study Design	Country	Sample Size	Field	Telegram Tool Used	Outcomes Assessed	Key Variables	Key Findings
Pudyastuti et al. (2023)	Descriptive Qualitative Study	Indonesia	66 university students	ESP (English for Specific Purposes)	Telegram Groups and Discussions	Student engagement	Engagement, interaction, motivation, collaboration	Telegram fostered active participation, collaboration, interaction, and increased engagement in ESP classrooms.
Sevnarayan (2023)	Qualitative Interpretive Study	South Africa	13 participants (4 lecturers, 9 students)	Academic Writing	Telegram Groups	Motivation and interaction	Student motivation, student interaction	Telegram was perceived as a useful pedagogical tool that enhanced motivation and interaction in academic writing modules.
Suci et al. (2022)	Quantitative Survey + Reading Test	Indonesia	104 vocational students	Reading Comprehension	Telegram for Online Reading Activities	Reading comprehension and perceptions	Student perceptions, reading comprehension	Students reported positive perceptions of Telegram; perception correlated weakly but significantly with reading comprehension (r = .364).
Yusof & Abdullah (2025)	Quasi-experimental + Qualitative Feedback	Malaysia	60 ODL students	Argumentative Writing	Telegram Messenger	Writing performance	Argumentative writing achievement, engagement	Telegram significantly improved argumentative writing performance and increased student engagement and participation.

Author et al. (Year)	Study Design	Country	Sample Size	Field	Telegram Tool Used	Outcomes Assessed	Key Variables	Key Findings
Zhao et al. (2022)	Experimental (control vs intervention)	Iran	60 EFL learners	English Language Learning	Telegram-based instruction	Motivation, anxiety, attitudes	Foreign language motivation, foreign language anxiety, attitudes	Telegram increased motivation, reduced foreign language anxiety, and generated positive attitudes toward language learning.
Zheng et al. (2023)	Experimental (MANOVA design)	Iran	79 EFL learners	English Language Learning	Telegram-based instruction	Academic achievement and psychological outcomes	Academic buoyancy, academic emotion regulation, foreign language anxiety, English achievement	Telegram instruction significantly improved academic buoyancy, emotion regulation, anxiety management, and English achievement.