RESEARCH PAPER

Mapping the Landscape of Task-Based Learning Research: A Bibliometric Analysis and Visualization of Trends and Collaborations

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ABSTRACT
Task-Based Learning (TBL) is an instructional methodology that emphasizes learning through the completion of real-world tasks, fostering meaningful skill development beyond rote memorization. This study presents a comprehensive bibliometric analysis of TBL research using data retrieved from the Scopus database. Bibliometric tools, including Biblioshiny, VOSviewer, and CiteSpace, were employed to map scientific outputs, research networks, and thematic trends in the field. The analysis shows an increasing trend in annual scientific output with an intensification of scholarly interest in TBL research. The dominant contributors of TBL research were mapped using the most relevant author analysis and co-citation networks of citing authors. Journal co-citation mapping further discovered the most influential sources of TBL research discussion. The global of research in TBL was portrayed through region-wise scientific production and global networking of international collaborations. The co-occurrence of keywords as well as bursts of citations indicated new areas of growing research interest, while thematic evolution as well as mapping documented the intellectual landscape and development of the TBL research sphere of interest. Bibliographic coupling helped cluster related documents and trace influential publications. This study also identifies key research gaps and offers practical implications for enhancing TBL pedagogy, instructional design, and future research trajectories.
Keywords: *Task-Based Learning, bibliometric Analysis, Biblioshiny, VOSviewer, Citespace*
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1. INTRODUCTION

Task-Based Learning (TBL) has emerged as a prominent approach within language education and other pedagogical fields due to its emphasis on meaningful communication and learner engagement (Mudinillah et al., 2024; Sholeh et al., 2020). Rooted in the principles of communicative language teaching, TBL centres learning around the completion of tasks that reflect real-life language use (Richards & Rodgers, 2001; Turan, 2015). Unlike traditional, form-focused instructional methods, TBL encourages students to use the target language as a vehicle to achieve clearly defined outcomes, thereby enhancing both linguistic competence and communicative efficacy (Huang & Singh, 2024; Wenas et al., 2023).

The theoretical foundation of TBL is anchored in interactionist and sociocultural perspectives of language acquisition, particularly those emphasizing the role of interaction, negotiation of meaning, and collaborative learning (Baralt, 2023). It posits that learners acquire language most effectively when they are focused on achieving communicative goals rather than merely learning grammatical rules (Moore, 2018; Wang, 2010). This shift from instruction-led to task-led learning has led educators and researchers to explore new strategies that prioritize learner autonomy, motivation, and contextual relevance (Sholeh et al., 2020).

TBL has been used in all types of learning environments and subjects, such as foreign language learning, medicine, professional development, and the sciences (Burdujan, 2024; Sholeh et al., 2020). Its ability to fit different learning environments lends it to be an adaptable teaching methodology (Costa, 2016). The research has always reported its advantages in creating learners' problem-solving skills, critical thinking skills, cooperation skills, as well as intercultural awareness, which are consonant with 21st-century learning objectives (Zhou et al., 2013).

Despite its advantages, TBL is not without challenges. Implementing effective tasks requires careful planning, alignment with learning outcomes, and assessment mechanisms that go beyond rote memorization (Huang & Singh, 2024; Moore, 2018). Teachers must be adequately trained to design and facilitate task-based activities, manage group dynamics, and provide appropriate feedback (Lu, 2024). These complexities have driven a growing body of research that investigates best practices, theoretical frameworks, learner perceptions, and outcomes of TBL across educational domains (Sholeh, 2021).

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Over the past two decades, Task-Based Learning has received considerable scholarly interest (Qin & Lei, 2022). As publication numbers increased and there was empirical research on its effectiveness, implementation policies, and theories behind it, the research in TBL has increased vastly (Qin & Lei, 2022). Even so, in spite of narrative reviews as well as meta-analyses efforts to synthesise findings, there is limited systematic bibliometric research that quantitatively charts the evolutionary trajectory, trends, and intellectual structure of TBL literature. A bibliometric analysis can fill in the gap by pointing to notable authors, universities, nations, and new research themes (Bota-Avram, 2023; Joseph, Jose, Jose, Ettaniyil, & Nair, 2024).

This study aims to conduct a comprehensive bibliometric analysis of Task-Based Learning research published in peer-reviewed journals over the last two decades. The analysis includes studies from diverse disciplines where TBL has been adopted, focusing primarily on English-language publications indexed in major academic databases. By examining bibliographic metadata such as author networks, co-citation patterns, keyword trends, and temporal evolution, the study seeks to uncover structural and thematic developments within the TBL scholarly community (Anuja et al., 2024; Cherian et al., 2024).

Bibliometric analysis is an analytic method that utilizes quantitative instruments to explore scholarly communication habits and publication patterns (Ali et al., 2022; Bales et al., 2020; Joseph, Jose, Jose, Ettaniyil, Cyriac, et al., 2024). Applied in the TBL domain, bibliometric analysis provides an overall view of the way in which the discipline has evolved, the key contributors, as well as the prevailing themes in the discourse (Dehbi et al., 2022; Rajimol et al., 2024). Contrary to qualitative reviews that offer in-depth narrative information, bibliometric analysis is useful in the identification of large-scale patterns, impact of citations, as well as collaborative groupings that influence TBL knowledge production (Qin & Lei, 2022). This dual focus enhances the validity and breadth of academic inquiry into TBL.

Three powerful and commonly used tools are used to perform this bibliometric analysis: VOSviewer, Bibliometrix R package's web interface known as Biblioshiny, and CiteSpace (John, Joseph, Joseph, et al., 2024; John, Joseph, Mathew, et al., 2024; Mathew et al., 2024). Exploratory data analysis, thematic evolution, co-word mapping, and trend analysis are all made easy through the use of Biblioshiny's interactive dashboards and graphical presentation through a customizable graphic tool that is available without the need for any coding knowledge (Fahamsyah et al., 2023; Guofang et al., 2024; Jose et al., 2024; Komperda, 2017). It is apt for investigators new to bibliometric methods because of its interactive dashboards and customizability of the graphics (Thangavel & Chandra, 2023).

VOSviewer and CiteSpace supplement Biblioshiny with sophisticated network visualization and citation analysis capabilities (Kuriakose et al., 2024; Lukose et al., 2025). VOSviewer is particularly suited to building and visualizing bibliometric maps of co-authorship, co-occurrences, and co-citation information (JOSEPH et al., 2023; Kumar et al., 2024; Maryanti et al., 2023; Van Eck & Waltman, 2010). Its clustering algorithm is useful for identifying thematic patterns in the literature. CiteSpace is tailored for the purpose of identifying research fronts and intellectual turning points based on citational bursts and timeline visualisation (Babu Panackal et al., 2025; J. Yang et al., 2017; Li et al., 2022). It is able to monitor changes in topics over time and emphasize the most impactful studies. The simultaneous use of these tools facilitates multidimensional and detailed analysis of the TBL research landscape.

The main goal of this research is to visualize the knowledge structure and thematic patterns of the discipline of Task-Based Learning (TBL) through an overall bibliometric analysis with the aid of tools like Biblioshiny, VOSviewer, and CiteSpace. In particular, the research aims to determine the most productive authors, institutions, and nations publishing work in TBL research; explore the network of co-authorship and collaborations in order to know scholarly collaborations; examine co-occurrences of keywords in order to reveal new themes and shifting research agendas; point out the most highly cited works and prominent journals; and explore the temporal development of the literature in order to foretell future research paths. In tackling these objectives, the research aims to provide data-driven evidence that can be used to guide as well as inform future scholarly research, syllabus planning, instructional design, as well as policy decision-making in the area of Task-Based Learning.

2. MATERIALS AND METHODS

The bibliometric dataset for this study was obtained from the Scopus database, renowned for its extensive coverage of high-quality, peer-reviewed scientific literature (Gavel & Iselid, 2008; Harzing & Alakangas, 2016; Mongeon & Paul-Hus, 2016). A targeted search strategy was employed using the query TITLE-ABS-KEY ("Task-Based Learning") to ensure a thorough collection of relevant publications. The search was inclusive across languages and document types, initially retrieving 523 records comprising journal articles, conference papers, and book chapters. To maintain dataset integrity, a rigorous screening process was applied to eliminate irrelevant formats such as reviews, notes, erratum, editorials, letters, and books, resulting in the exclusion of 54 records. The remaining 469 documents (324 journal articles, 93 conference papers, and 52 book chapters) formed the final corpus for analysis, as outlined by the PRISMA framework.

The cleaned dataset was exported in CSV and RIS formats for a more in-depth analysis via Biblioshiny (Bibliometrix R package), VOSviewer, and CiteSpace (version 6.2. R3 Advanced). These applications were used to perform a multi-faceted scientometric analysis, such as citation tracing, mapping of keyword co-occurrences, and network representation of co-authorship. Biblioshiny offered

interactive statistical information about author productivity, impact of sources, and publication trend development. Bibliographic network clustering and visualisation were done with VOSviewer, and burst tracking and thematic evolution were tracked with CiteSpace. The three applications collectively provided an in-depth analysis of major contributors, collaborative behavior, and new research emerging in the area of eDNA-based biodiversity.

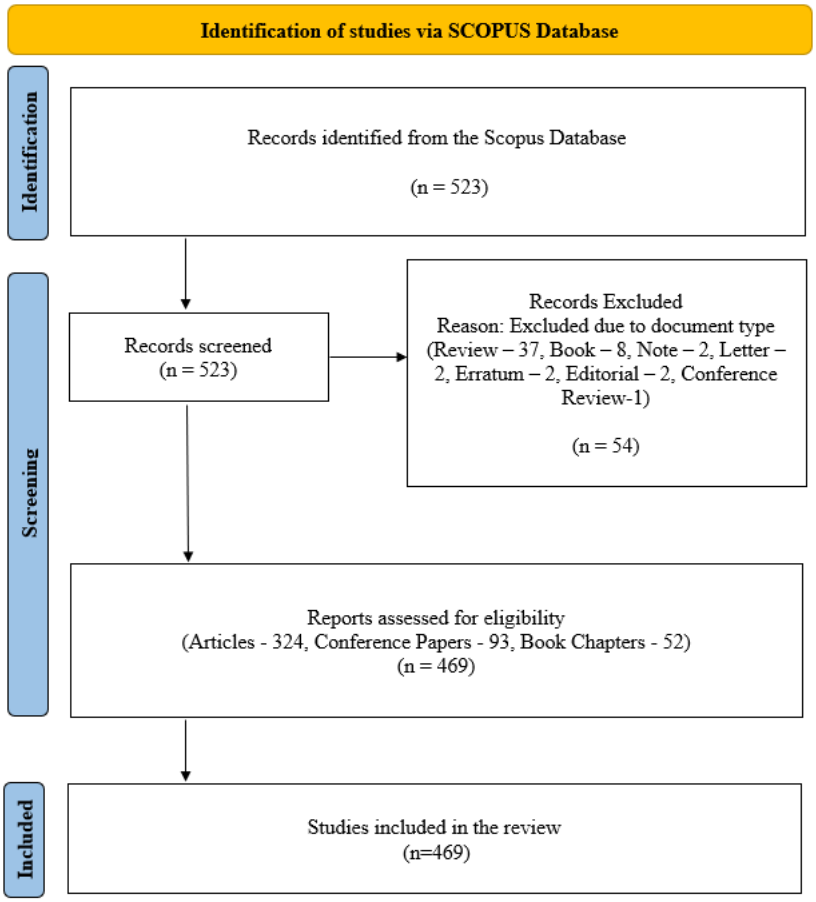

Figure 1. PRISMA flow diagram used to identify, screen, and include papers in the bibliometric analysis.

3. FINDINGS

3.1. Main information of the investigation

The bibliometric analysis spans a wide period of time, between 1990 and 2025, which shows that the research on Task-Based Learning has taken place over three decades. The analysis of 469 documents has been done, based on 328 journals, books, and other academic sources, which proves the increasing and varying interest in the subject matter among the different sources of publication. The publication growth rate per year stands at 9.37 which shows a steady and sound growth in publications. The median age of documents is equal to 8.68 years, which indicates that the discipline is still developing, and older and less recent works are the most important in it. The average number of citations per document was 13.21, which was moderate and high academic impact and involvement in the field. Moreover, all 15456 references are mentioned in these documents, which indicates a high level of interconnection with the previous studies and the developed body of knowledge.

3.2. Annual Scientific Productions

Figure 1 displays annual scholarly production in the period of 1990-2025, with a clear trend of increasing production, showing that there is more scholarly interest and recognition of the pedagogical importance of the same. The period of 1990-2000 production was minimal and scattered, as it was during the stage of formation of the TBL scholarship. This started to gain momentum in the first decade of the 2000s with the beginning of the accumulation of publications, which peaked in 2004 with 11 publications marking the beginning of the discipline. The active period of publication between 2015 and 2024 was an intensive publishing period with more proliferation in 2024 of 41 articles--the highest of any one year. This is the period of consolidation and expansion, 2015-2024, with the total number of publications also being high and exceeding 30 articles per year. The partial information that can be collected about 2025, from 23 articles by May, appears to suggest that the present year may be a continuation of this trend in terms of publication records. The cumulative 9.37% yearly growth represents the growing world attention to the field of TBL research and its growth in a fully evolved and prolific scholarly field.

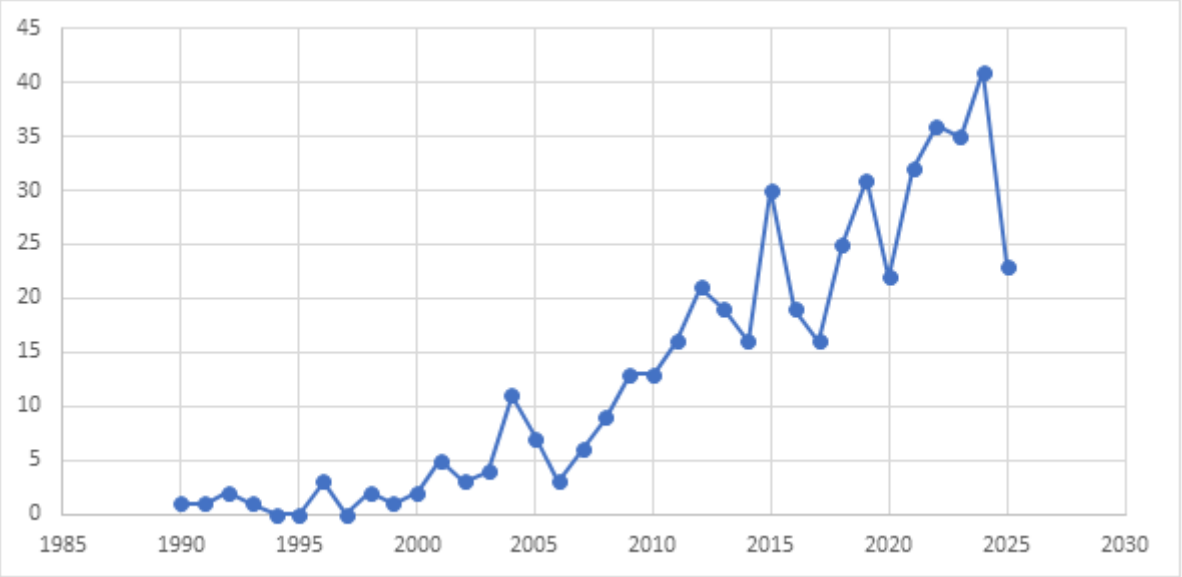

Figure 2. Annual scientific production from 1990 to 2025

3.3. Most Relevant Authors

Table 1 shows the most pertinent authors in the field according to the count of published articles and points out the prominent contributors who have contributed largely to the academic discourse. Tsai, Shu-Chiao has the highest number of publications, 6, which puts her second in the dataset since Lan, Yu-Ju, and Chen, Gwo-Dong and Harden, R.M., have 4 publications each, signifying a long-term interactions with the academic field. There was a steady representation with a number of authors who produced 3 articles, such as Bellotti, Francesco, Berta, Riccardo, De Gloria, Alessandro, Fetaji, Bekim, Fetaji, Majlinda, and Gobel, Peter. This team of scholars is an influential and engaged community that adds to the theoretical work, implementation plans, and empirical assessment of TBL in different educational and cultural settings.

Table 1. Most relevant authors

Authors	Articles
TSAI, SHU-CHIAO	6
LAN, YU-JU	5
CHEN, GWO-DONG	4
HARDEN, R.M.	4
BELLOTTI, FRANCESCO	3
BERTA, RICCARDO	3
DE GLORIA, ALESSANDRO	3
FETAJI, BEKIM	3
FETAJI, MAJLINDA	3
GOBEL, PETER	3

3.3. Most Relevant Sources

Figure 3 displays the most applicable journals in the area regarding the quantity of articles that it publishes. The journal System is the most prominent publication area as it has 12 articles suggesting that it is the key to presenting TBL research. This is trailed by ReCALL which has 9 publications and Language Learning and Technology and ELT Journal with 8 and 7 publications respectively. Other highly rated journals are Computer Assisted Language Learning containing 6 articles and Asian EFL Journal, Foreign Language Annals, Medical Teacher, Recherche et Pratiques Pedagogiques en Langues de Specialite, and Teachers Exploring Tasks in English Language Teaching, with 5 articles each. These journals are varied in representation of TBL research, covering both applied linguistics and language technology, teacher education, and even medical education, making it clear that TBL is widely applicable and has academic appeal.

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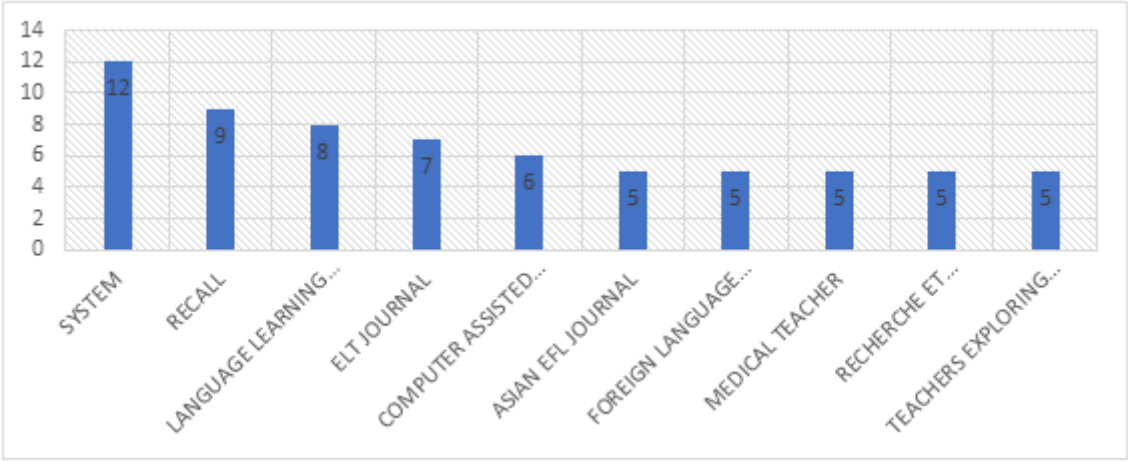

Figure 3. Most Relevant Sources

3.4. Countries' Scientific Productions

Table 2 shows the scientific output by country in the area of Task-Based Learning, showing the distribution of researches in the world. The United States has the highest number of 45 publications with Taiwan and the United Kingdom coming close behind with 44 each, which means that there is a good amount of research conducted in both the Western and East Asian settings. China is another prominent country with 42 publications as it is rapidly becoming a major force in the education research. Spain follows with 32 documents, and Japan provides 24, which also underscores the contribution of the Asian nations to develop TBL scholarship. The growing contributions of many countries, including Indonesia (19 publications), Australia (17), and Saudi Arabia and Thailand (15 each) are indicators of the growing international interest in the Task-Based Learning, as various parts of the world are also involved in the creation and sharing of task-based concepts of teaching and learning.

Table 2. Countries Scientific Productions

Country/Territory	Documents
United States	45
Taiwan	44
United Kingdom	44
China	42
Spain	32
Japan	24
Indonesia	19
Australia	17
Saudi Arabia	15
Thailand	15

3.5. Timeline Network Visualization of Countries' Collaborations

Figure 4 is a network visualization of collaborations showing that there are five largest clusters, each of which corresponds to a specific collaborative group of countries interested in research connected to task-based learning and educational practices. Cluster 0: OL PARA LO is the biggest one comprising 8 countries, the most influential one being the United States (45 citations), Spain (32), and Australia (17). This group is based on the multilingual and domain-specific language teaching, including English English as an Academic Purposes and Spanish as a Specific Purposes. Brazil and Singapore indicate that the research on the pedagogical strategies in the non-Western and bilingual settings, such as the translanguaging pedagogy and military English education, might have been considered. The cooperation in this context is an expression of general concern with globalized, intent-driven language teaching.

Cluster 1: There are also 8 members of Cluster 1, whose countries of origin are Taiwan (43 citations), Indonesia (18) and Thailand (15). This cluster indicates robust regional scholarly interconnections in Southeast and East Asia, which investigate such themes as digital learning, textbook change, and the use of cognitive linguistics to support classroom education. Cluster #2: Longitudinal RSfMRI Study, is the third cluster, where interdisciplinary intersections of cognitive neuroscience and educational research are greatly represented, with Germany, Turkey and Iran being highly represented. Cluster 3 and 4 are more narrow in their applications: Cluster #3: Discipline-Specific English Course demonstrates coordinations by China (42), Japan (24) and Hong Kong (12), specialising in English language teaching in specialized and academic language teaching. Meanwhile, Cluster #4: Old Age

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includes the United Kingdom (42 citations) and France (10) as its leaders, indicating the research in the area of ageing, neuroscience, and educational interventions. Collectively, these groups highlight the spatial heterogeneity and the cross-disciplinary nature of task-based research on learning.

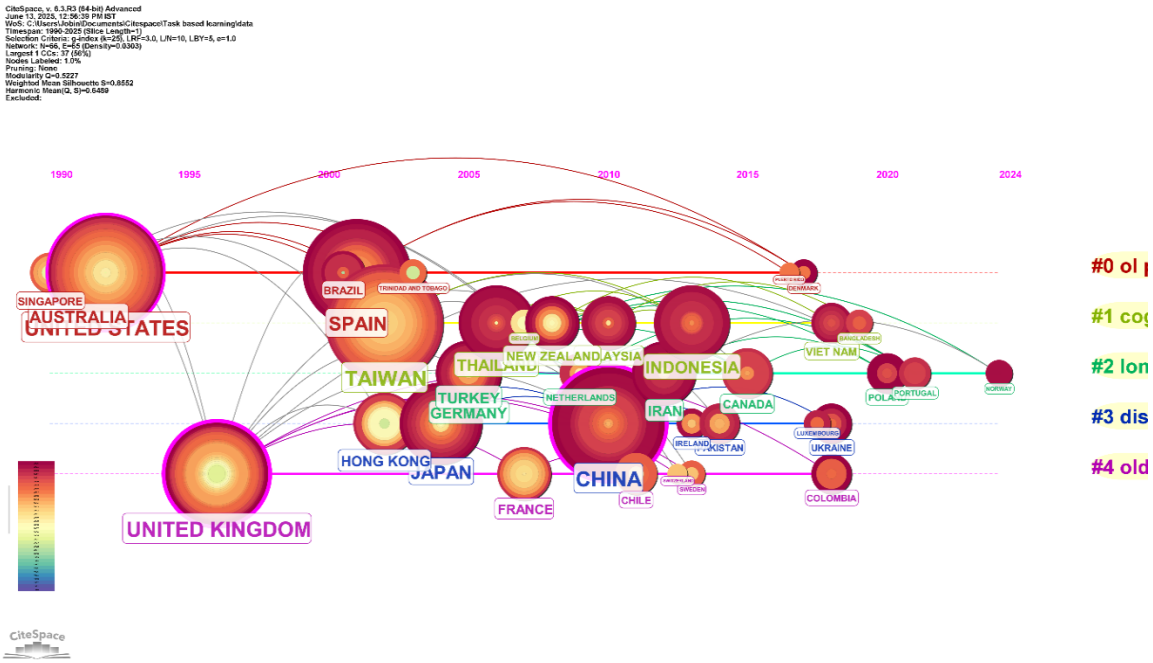

Figure 4. Timeline Network visualization of countries' collaborations

3.6. Most Cited Documents

The articles most frequently cited are listed in Table 3, highlighting key works that significantly contributed to its development and theory, and which have had the most substantial impact in terms of citations. The 254 citations of Robinson's 2011 publication in second language complexity of tasks and the Cognition Hypothesis lead the pack, indicating its prominence in theory building. Hsu's 236 citations in 2017 for learning English through augmented reality in Computers and Education point out interest in leveraging new technologies within language acquisition. 232 citations in Mak's and Coniam's 2008 article on utilizing wikis to improve writing skills in high school students show the significance of collaborative technologies in learning environments. Chowdhury's 211 citations in 2013 in the neuroscience discipline signal the cross-disciplinary nature of cognitive research in learning. Other highly cited works include Burston's 2014 discussion of pedagogical issues in language learning with mobiles with 175 citations, Gao's 2020 paper on deep relation networks with 153 citations, and Bellotti's 2012 paper on serious games for cultural preservation with 145 citations. The works collectively reflect main areas of research activity in cognitive theory, educational technology, mobile learning, and serious games that are indicative of the depth of diversity in the scholarship in Task-Based Learning.

Table 3. Most Globally Cited Documents

Authors	Title	Year	Source title	Cited by
(Robinson, 2011)	Second language task complexity, the Cognition Hypothesis, language learning, and performance	2011	Task-Based Language Teaching	254
(Gao et al., 2020)	Deep relation network for hyperspectral image few-shot classification	2020	Remote Sensing	153
(Hsu, 2017)	Learning English with Augmented Reality: Do learning styles matter?	2017	Computers and Education	236
(Chowdhury et al., 2013)	Dopamine restores reward prediction errors in old age	2013	Nature Neuroscience	211
Burston J.	MALL: The pedagogical challenges	2014	Computer Assisted Language Learning	175
(Kiernan & Aizawa, 2004)	Cell phones in task based learning are cell phones useful language learning tools?	2004	ReCALL	136
(Harden et al., 2000)	Task-based learning: The answer to	2000	Medical Education	115

	integration and problem-based learning in the clinical years			
(Mak & Coniam, 2008)	Using wikis to enhance and develop writing skills among secondary school students in Hong Kong	2008	System	232
(Révész, 2011)	Task Complexity, Focus on L2 Constructions, and Individual Differences: A Classroom-Based Study	2011	Modern Language Journal	124
(Bellotti et al., 2012)	A serious game model for cultural heritage	2012	Journal on Computing and Cultural Heritage	145

3.7. Network visualization of co-citation of cited authors

The visual representation of the network of co-citation among the cited authors in the field is shown in figure 5. The analysis charts the intellectual landscape of the field by putting together those authors regularly cited alongside each other, implying thematic or conceptual connections. There are 13 big clusters that comprise the network where each cluster corresponds to a specific area of interest or subfield of TBL research. Cluster 0 is the biggest with 95 members and the theme of the cluster is mobile phone, which contains quite active authors such as Ellis R (161 citations), Nunan D (101), and Long MH (53). These pillars have influenced the theoretical frameworks of TBL, particularly in the learning of second languages. The fact of Vygotsky and Krashen indicates the solid background of sociocultural theory and input-based learning.

Cluster 1 which is task-based language has 92 members and concentrates on cognitive difficulty and task design when learning a language. Skehan P (70 citations) heads this cluster and there are other influential scholars in the group including Willis D, Long M, Bygate M and Swain M, who have helped in the refining of models of TBL, especially through the models such as the Cognition Hypothesis. Cluster 1 represents the development of classroom-based TBL research, where significant reference materials such as Revesz (2011) and Robinson (2011) form the basis of the discussion regarding the complexity of tasks and the variable of learners. This cluster is rather indicative of an empirical classroom research and implications of this research to the pedagogy.

Cluster 2 is associated with nursing student education and includes 60 members and is characterized by a heterogeneous mixture of science and healthcare educators using TBL principles in clinical situations. The most prominent of these authors like Prabhu NS (32 citations) and Carless D (31) indicate the movement towards competency-based learning in medical and nursing education. E.g.: Clusters like Cluster 5 (problem-based learning) and Cluster 6 (collaborative teaching venture) also bring out the ways TBL principles have now extended into other areas of language teaching other than language training into interdisciplinary, vocational, and professional education. To illustrate this point, TBL is cross-sectorally flexible, with Harden RM (8 citations) in Cluster 5 relating it to medical educational reform.

Subsequent clusters, like Cluster 8 (second life) and Cluster 9 (multiview meta-metric learning) are more technologically-oriented. Cluster 8, the leader of which is Godwin-Jones and Krashen, deals with virtual learning environments, and Cluster 9, which is more peripheral, deals with AI-based applications in sign language recognition. These signalize the digital diversification of TBL and the combination with the augmented reality and the gaming. In the meantime, Cluster 10 (communicative competence) and Cluster 12 (variable effect) make one revert to the principles of communicative intention and learner differences. These clusters combined indicate the multi-dimensional and changing nature of TBL research, both in its theoretical foundations and practical and technological advances.

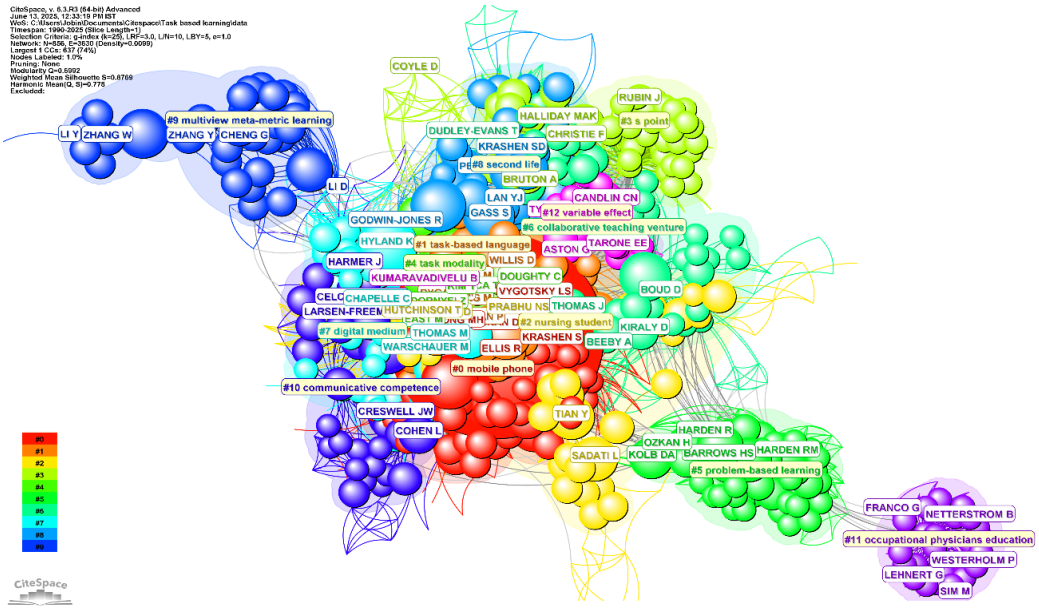

Figure 5. Network visualization of co-citation of cited authors

3.8. Timezone network visualization of Co-citation of Cited Journals

Fig. 6 can be used as a general co-citation analysis of the journals used in studies on Task-Based Learning (TBL), and it forms 14 clusters that include 14 distinct thematic or disciplinary bases. The largest cluster is Cluster #0 (Task Modality) containing 114 members which is typified by journals who are much engaged in empirical and theoretical activity in terms of the complexity of language tasks. The major journals in this cluster of 97 citations, 90 citations, and 69 citations reflects the central placement of this cluster in the conventional research of TBL. The articles of these sources typically introduce the classroom practice, task design and learner performance research articles, so the fact that this cluster bases the pedagogical and cognitive core on TBL research becomes obvious.

Cluster #1 (Communicative Competence), consisting of 85 members, is the second-largest cluster that is characterised by journals focusing on interactions, the use of language in the world, and communicative efficiency. English for Specific Purposes and Applied Linguistics (97) are among the journals that have had very high citation in this cluster as a measure of the influence of the journals in the communicative facet of TBL. The journals of this cluster are observed to connect TBL to simulation, real-life situations, and instructor preparation also. The trend of rapid progress in the creation of digital and immersive learning spaces is reflected in Cluster #2 (Trends Advantage), which has 74 members. The journals in the first cluster and groups 35 and 19 are Computers & Education and British Journal of Educational Technology and, in addition to them, the development of MALL, augmented reality, and game-based learning in TBL environments has become of interest to many journals.

Another notable cluster points out the interdisciplinary application and conceptual complexity in TBL. Cluster #4 (Problem-Based Learning) consists of 56 members, and its journals include such sources as Medical Education and Educational Researcher. Cluster #12 (Task Complexity Focus) is an emphasis on conceptual sophistication in such journals as Handbook of Second Language Acquisition and Cognition and Second Language Instruction. Minor subfields, such as content design and mobile software solutions, have been formed by small groups, such as Cluster #10 (Learning Materials Design) and Cluster #13 (Trayectoria). Taken together, these clusters portray TBL as a dynamic field that is shifting towards interdisciplinary bases of learning through cognitive science and digital technology, as well as cross-disciplinary collaboration, as a shift in linguistic foundation.

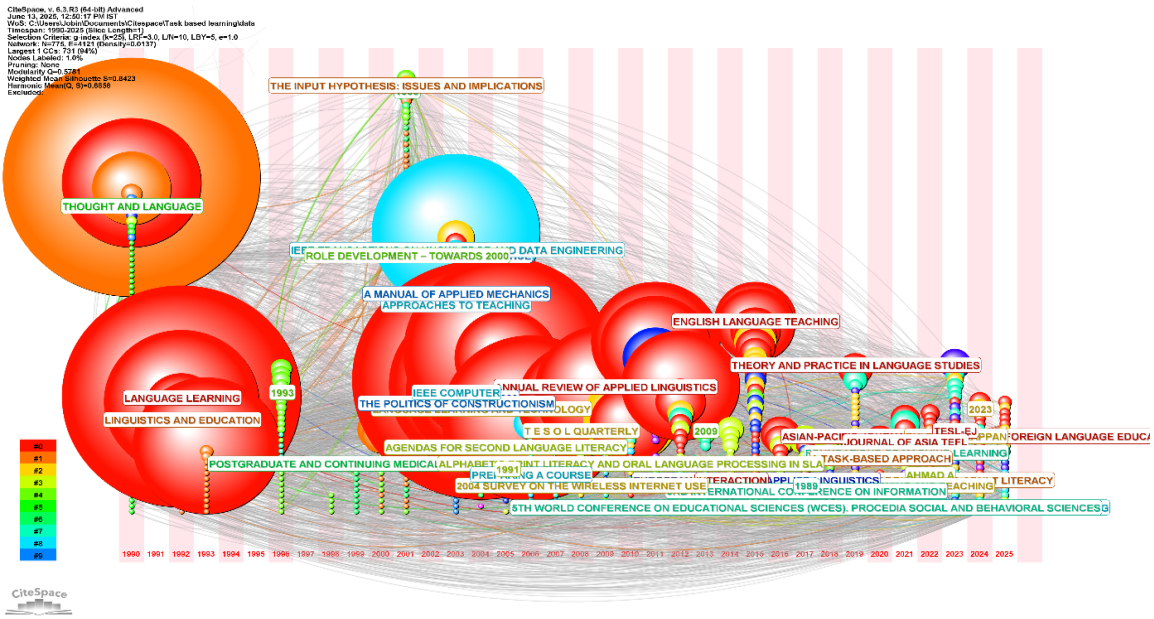

Figure 6. Timezone Network visualization of co-citation of cited journals

3.9. Network Visualization of bibliographic coupling of Documents

The visualization of figure 7 represents the bibliographic coupling of documents in the Task-Based Learning (TBL) research with a threshold of minimum citation of 10 citations per paper. Of all the 469 documents, 130 reached this threshold and the network which results is 110 documents sorted into 12 clusters meaning that the field has a lot of intellectual and thematic clusters. Bibliographic coupling in this case will indicate the extent to which various studies reference the shared references, indicating how close the studies are in relation to research interest and academic bases. Cluster 1 (Red) seems to be one of the easiest to identify and interconnected, where Harden (2000) works along with related research on the topic, like Qing (2010) and Susomrith (2019). This cluster probably reflects a study of the medical education and professional training settings with the utilisation of the task- or problem-based learning. The thick networks imply an advanced and cooperative research line in this topical field.

The group of green works (Cluster 2) contains Mak (2008), Garcia-Carbonell (2001), and Danan (2010). It seems that this group is attracted to the collaborative and technology-enriched language learning settings and they may include the immersion strategies such as simulations and game-based learning. The close bibliographic connections give the indication of common conceptual bases in the task design and interactive methods of learning. Cluster 5 (Purple) has the most frequently referred work of Robinson (2011), which shows that it is at the center of developing the theoretical background, especially regarding task difficulty and the Cognition Hypothesis. This group probably contains the studies aiming at studying cognitive and linguistic components of task designing and execution, which is a theoretical foundation of TBL researches.

Cluster 7 (Orange) contains Burston (2014), which implies focusing on mobile-assisted language learning (MALL). Its comparatively middle location and a solid networking to other clusters is indicative of its impact in both theoretical and practical fields of research on TBL. Other clusters, like Cluster 3 (Blue) with Hsu (2017), are most likely to be dealing with new or niche topics in TBL, including instructional media, preferred learning and mobile use. Generally speaking, the bibliographic coupling map reveals a multi-clustered and comprehensive knowledge base of research in Task Based learning. The 12 clusters will represent various but interrelated sub-domains of medical education and mobile learning to cognitive theory and immersion tech. The network indicates that the TBL research is not only theory based but application based with the synthesis of both classical work and the work based on the latest technological advances.

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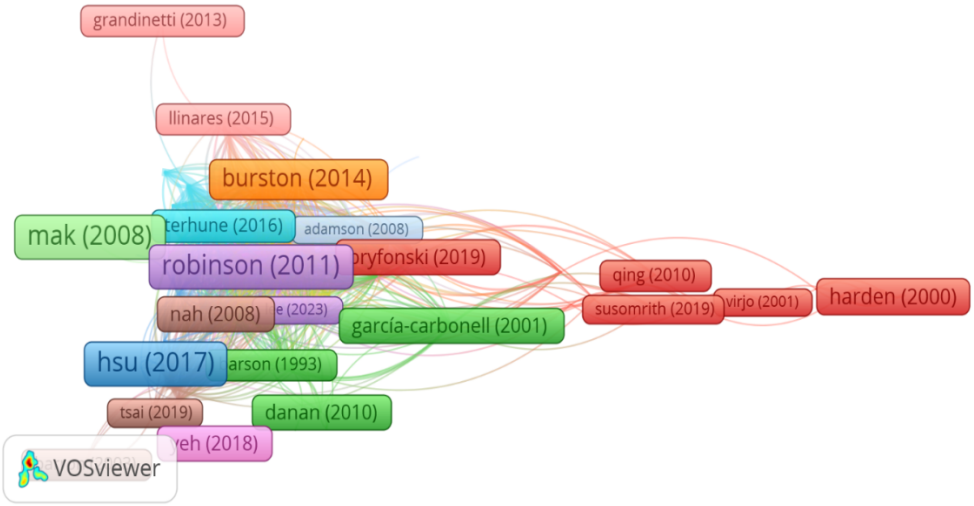

Figure 7. Network visualization of citation of documents

3.10. Network Visualization of Co-occurrence of all keywords

Figure 8 illustrates a co-occurrence network of author keywords in the domain of Task-Based Learning (TBL), derived from 1376 keywords with a minimum occurrence threshold of five. Out of these, 33 met the criteria, forming a network of 240 items categorised into 14 colour-coded clusters. At the center of the map, the keyword "task-based learning" dominates with 152 occurrences, establishing it as the core concept linking most of the thematic areas. Closely surrounding it are related high-frequency terms like "task-based language teaching", "language learning", and "EFL" (English as a Foreign Language). This concentration signifies that language acquisition, especially in foreign language contexts, remains the primary focus of TBL research.

The clusters reveal thematic groupings that show how TBL interacts with diverse pedagogical and technological domains. For instance, the yellow cluster includes terms such as TBLT, task-based learning and teaching, and speaking, which reflect methodological and practical applications in language classrooms. Meanwhile, the red cluster centers on social interaction and communicative learning, including keywords like communication, collaboration, and communicative approach, highlighting the socio-constructivist underpinnings of TBL that emphasize real-life communication tasks and learner interaction. These clusters represent core teaching strategies that have matured in the literature over time.

Emergent themes and specialized uses are apparent as well. The blue cluster presents contemporary teaching innovations with keywords such as augmented reality, serious games, and collaborative learning to signal higher integration of virtual and digital learning tools in TBL designs. The green cluster captures the trend of hybrid teaching methods with keywords such as blended learning, grammar, and ICT to imply changing pedagogical formats that blend TBL with digital and inverted learning designs. The implied theory is that TBL is shifting beyond the conventional language instruction to meet new pedagogical technologies and flexible learning environments.

The co-occurrence network discloses that while task-based learning is an underlying theme, it is complemented and supplemented with a broad selection of associated methods and novelties. The high density of intercluster interconnections signals an active and inter/transdisciplinary research domain crossing language pedagogy in its traditional form with collaborative learning as well as with technology-enhanced learning. With problem-based learning, simulation, CLIL, and intercultural competence occurring within and between clusters as keywords, it is apparent that research on TBL is increasingly extending its horizon in order to meet higher-order learning objectives in multiple globalizing contexts.

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Figure 8. Co-occurrence of author keywords

3.11. Thematic Evolution

Figure 9 shows the thematic development of Task-Based Learning (TBL) research from 1990 to 2025 over four temporal intervals of major significance: 1990–2012, 2013–2018, 2019–2022, and 2023–2025. Dominant themes of the initial period (1990–2012) are task-based learning, problem-based learning, and computer-mediated communication, epitomizing the foundational interest of the discipline in instructional pedagogy and initial cyber interaction in the learning milieu. The period involved broad pedagogical themes like curriculum and task that represent conceptual foundations and pedagogical structurings. In 2013–2018, the discipline broadened to incorporate more specific as well as practical research interests like language learning, language teaching using tasks, augmented reality, CLIL (Content and Language Integrated Learning), and cooperation, which signal an integration of technology use and interdisciplinary methods in the discipline. The several variations of TBL-related keywords in this period represent heightened experimentation and streamlining of the TBL model.

During the 2019–2022 period, task-based learning remained prevalent alongside the development of task-based approach, blended learning, grammar, and teaching English as a foreign language. These reflect an intensification of language acquisition components, heterogeneous learner environments, and blended learning formats. The constancy of language learning signals continuity in the core concern of the field, while new themes reflect adjustment to current pedagogical requirements. The latest phase (2023–2025) reflects consolidation and continuity with language learning, task-based approach, and task-based language teaching dominant. Intercultural competence is now an emergent theme that reflects a turn to global competence and the socio-cultural facets of learning. The ongoing visibility of CLIL and task-based learning reflects continued allegiance to integrated and communicative pedagogical models in the field. The overall evolution of themes reflects Task-Based Learning's development from an initial pedagogical method to an active, interdisciplinary domain that integrates technology, cooperation, hybrid modalities, and intercultural awareness in response to the evolving demands of global education.

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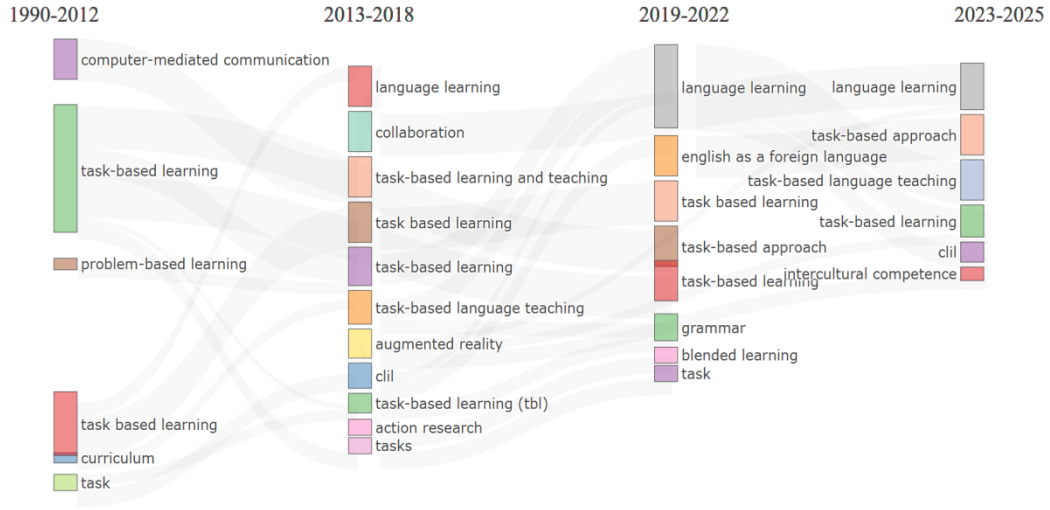

Figure 9. Thematic evolution of research in Task-Based Learning (TBL)

3.12. Thematic Map

Figure 10 shows a thematic map that plots research themes on two axes: centrality, which indicates relevance to the field, and density, which reflects the degree of internal development. Motor themes are highly central and dense, meaning that these are well-developed and core subjects in the research domain's architecture. In this quadrant are core, mature subjects in TBL literature like task-based learning, problem-based learning, simulation, language learning, and task-based language teaching. These are the core subjects driving research in this domain with high internal development along with external connectedness. Blended learning, learning, and TBL are present in this quadrant as well, indicative of how integration of technology along with blended environments of learning has become the pressing need with task-based teaching methods.

Basic themes are extremely core but less elaborated upon, meaning that they are core to the TBL domain but continue to be developing in complexity and inner cohesion. This quadrant comprises terms such as collaborative learning, communication, CLIL (Content and Language Integrated Learning), augmented reality, task-based learning, and medical education. They are common terms that are core to TBL research but potentially need to be conceptually refined further or explored in greater depth. The repeated mention of communication and collaborative learning is an indication of the enduring significance of social integration and interaction in TBL environments, while themes such as intercultural competence and group work reflect increased interest in global and cooperative learning paradigms.

Niche themes are those with high density but low centrality, that is, well-developed within subdomains but with less linkages to the overall domain. Some of the themes in this category are machine learning, artificial intelligence, oral communication, and communicative competence supplemented by specific topics such as medical students and courseware implementation. They could be specialist or emergent research topics within TBL that are building depth but are not integrated in the mainline discussion yet. Their emergence indicates building interdisciplinary use of TBL with new technologies and with targeted learner groups.

Themes in this quadrant have both low density and low centrality, indicating either nascent areas of research or topics losing relevance. This includes terms like deep learning, meta-learning, flipped classroom, authentic learning, and project-based learning. These may be recent inclusions in the TBL context or concepts that haven't yet matured into stable research directions. Alternatively, they could be overshadowed by more dominant or newer themes. The presence of task modality and conversation analysis suggests ongoing efforts to explore finer-grained elements of TBL design and implementation, though these themes have yet to solidify their importance within the broader field.

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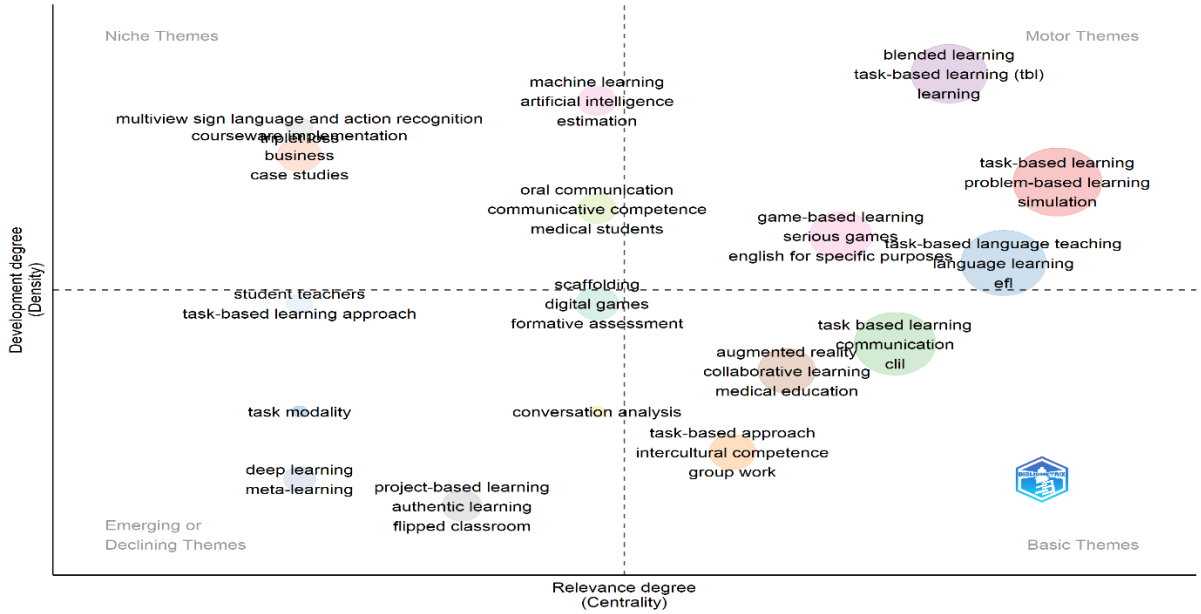

Figure 10. Thematic visualization of keywords

4. DISCUSSIONS

The Task-Based Learning (TBL) domain has witnessed growing scholarly interest in its work with a sustained annual 9.37% increase and with an increased global diversity in its authors. The encouraging publication trend in recent times since 2015 reflects an emergent research field with both historical roots and contemporary pertinence. Authors such as Tsai, Lan, and Ellis, along with journals such as System and ReCALL, have had roles of prominence in setting the cornerstone of the discussion while nations such as the United States of America, Taiwan, and China form the forefront of contributors to the research. This development reflects that TBL has progressed from an exclusive pedagogical approach to an established pedagogical paradigm as it is taken to an increasingly heterogeneous set of environments beyond its linguistic roots.

The five key country clusters identified by collaborative networks reflected thematically interconnected research foci that were regionally different. An example would be East and Southeast Asian partnerships on cognitive linguistics and digital integration compared to Western countries on domain specific and interdisciplinary applications, such as medical and military education. Co-citation and bibliographic coupling analyses also revealed intellectual makeup of TBL, as works on Cognition Hypothesis and mobile-assisted learning appeared to create the theoretical foundation. It is a multi-clustered network that not only confirms the well-developed theoretical framework in TBL, but also highlights its practical flexibility in disciplines and technologies.

The thematic evolution and keyword co-occurrence indicate a research environment that is both evolutional and prospective. The main themes continue to be task-based language teaching, communication, and collaboration, whereas recent ones such as augmented reality, serious games, blended learning, and intercultural competence demonstrate the responsiveness of the field to technology and other changes in the world of teaching and learning. This direction is supported by the thematic map, the motor themes of simulation and problem-based learning are placed in the core, mature positions, and the niche themes of AI and oral communication are indicative of exploratory directions. At the same time, the less advanced topics indicate the available research opportunities, in particular, in hybrid and active learning classrooms.

Altogether, these reviews show a rich and growing TBL research ecosystem with both theoretical richness and methodological heterogeneity and interdisciplinary growth. Nevertheless, the discipline continues to struggle especially to perfect poorly developed themes and incorporate advanced technologies in pedagogically effective means. The results suggest that there are prospects of future research to represent unexplored settings, diversify the learner population, and build empirical models that link TBL with new fields that are emerging, e.g. artificial intelligence and global competence education. Essentially, the bibliometric terrain of TBL does not just chart the territory through which the field has traversed but also sheds light on future strategic directions in which it can be heading in future.

5. RESEARCH GAPS AND PRACTICAL IMPLICATIONS

The thematic evolution and thematic map analyses indicate that there are a number of research gaps in the TaskBased Learning (TBL) landscape. Whilst the motor themes include language learning, task-based instruction, and simulation are highly established, basic themes, like augmented reality, CLIL, intercultural competence, and

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collaborative learning are undeveloped even though they are highly central. These subjects are important to the developing educational environment that still does not have deep theoretical basis and empirical research to substantiate its assimilation into mainstream TBL practices. On the same note, niche topics like machine learning and artificial intelligence are well-established within their own silos, but have not been meaningfully linked to the rest of the TBL discussion, which suggests there should be interdisciplinary bridges between the language pedagogy and emergent technologies.

Practically, the persistence of hybrid and digital modalities of learning provides an argument in favor of the fact that teachers must be technologically proficient in teaching using technology. The recent emergence of the issues like blended learning and intercultural competency can be regarded as the sign that the TBL teaching environment that is digitally responsive and can be implemented internationally is highly important. Possible solutions that can be put into practice are the establishment of TBL model with the use of AI-based personalization, virtual reality media, and culturally responsive pedagogy. The Teacher training programs and curriculum development programs must focus on these relatively unexploited yet potential spaces as the object of development to ensure that TBL is responsive to the 21 st century teaching needs.

6. CONCLUSION

This bibliometric analysis shows the visualization of the impressive growth and diversification of Task-Based Learning (TBL) literature and evidence of intensive interest of researchers around the world, leading authors and publications, and the trend of the interdisciplinary and technology-mediated research streams. Although classical learning-related themes and task-based instruction remain well-developed, emerging concepts of augmented reality, intercultural competency, and artificial intelligence are finding their own way, and require empirical and theoretical growth through research. The study attracts attention to the necessity to address the gaps that exist in the research to advance the practical value of TBL in terms of the modern pedagogical settings. To advance the research forward, further studies must establish elaborate models of using new technologies, the teachers must be educated in both digital and intercultural pedagogies, and interdisciplinary scholarship should be encouraged to generalize TBL to various groups of learners.

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