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Intellectual mapping of the sign language role in deaf education: forecasting future reforms

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ABSTRACT

Over the five decades, debatable approaches on deaf education are tangled in the issues of oralism and manualism. The later has valued sign language as the significant factor in the effort of providing quality deaf education. This research aims at mapping the intellectual reports on sign language position in deaf education from 1972 until 2023 including 1,000 documents from Web of Science database. This research use VOS Viewer by implementing co-citation analysis, bibliographic coupling and co-occurrence analysis to see the development of the research, the network and the emerging topical focus. The results suggest that sign language plays the pivotal role in deaf education that predict the future reforms of education for the deaf in form of bilingual education and technology integration. Other significances related to the top discussed themes, the leading authors, the influential publishers are also discussed to seek the interweaving connection among the sub-emergent research foci.

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1. INTRODUCTION

Education for deaf people have grappled with the historical and cultural perception throughout the history that affects the quality of educational services. Despite the fact that deaf people have been experiencing language deprivation due to different language modality, educational instructions for deaf pupils have primarily concentrated on the communication and vocational skills [1]. Additionally, deaf students have underperformed in academic performance compared to their hearing peers across the countries, specifically in terms of literacy and written language performances [2]–[8]. Research done in Sweden involving 2,144 deaf people revealed that deaf population has a lower-level educational achievement compared to hearing people [1]. Similar situation also found in Indonesia as most of deaf college students are struggling in literacy performance including lexical, morphological, and syntactical [3]–[6], [7].

Furthermore, a literature review on morphological knowledge of deaf/ hard of hearing (HoH) students report that they have low competency in the reading skills specifically in the areas of vocabulary, reading comprehension, reading fluency and the grapheme-phoneme relation [8]. Not only in the area of reading, deaf/HoH students are also struggling in the writing skills covering the structure of phrases into sentences, they tend to produce lower sentences and unacceptable sentence structures, they are also reported having challenges in narrative writing [3], [4], [9]–[13]. The aforementioned review on the previous research have generally reported that deaf students are still facing challenges in education, thus, educational reforms for deaf students are important and unavoidable.

Entailing the significance of educational reforms for deaf students not only requires the education improvement, moreover, changing the cultural perspective toward deaf people. As mentioned earlier that the educational services for deaf people is closely influenced by historical and cultural context on how society regard deaf people. Previous literatures describe how the historical and cultural context framed up deaf identity as a suppressed linguistic group over hearing people in favor of language modality [14]. Accordingly, hearing orientation have affected the educational opportunities for deaf students. Oralism or educating through speech have been forced on deaf students across the countries. Oralism has been acknowledged as the chosen method to educate deaf children with sense of hearing perception, they are forced to go in hearing world by teaching them to communicate in hearing people way through the training of phono-articulatory system (the practice to pronounce the phoneme) with drilling method and lip reading [15], [16]. The oralism approach has been reclaimed as the effective method to educate deaf children specifically deaf children who have residual hearing function, however, deaf children with profound or total hearing loss will not have benefits from this method [17]. Besides the tendency that oralism is not effective for deaf children with profound and total hearing loss, it is also viewed as the act of hearing normalization over deaf people that affect their identity.

Deaf people have identified themselves as cultural minority group instead of part of disability. It affects the work of terminology and labelling toward deaf people which also affect how culture and society treat deaf people. Deaf activists tend to find it more comfortable with the term "Deaf" (with capital D) and hard of hearing (HoH) compared to hearing impaired/impairment [14]. This emancipatory cultural identity has shaped Deaf people as linguistic minority group, it refers to sign language as the main modality of their communication [18]. Sign language is considered as the natural language of the Deaf people that has different linguistic properties from verbal or written language [19]. With the advancement of Deaf studies and activism, natural sign language has been proposed as the alternative instructions in Deaf education.

Addressing the issues of the sign language position in Deaf education, this paper aims at mapping the researchers and studies on Deaf education for the past decades until present time. Implementing bibliometric analysis, this paper highlighted three specific research objectives viz: i) the development of Deaf education and sign language research; ii) the intellectual network of the Deaf education and sign language research; and iii) intellectual mapping of Deaf education and sign language research. VOS viewer software version 1.6.19 was used to analyze metadata from 1,000 journal articles crafted from Web of Science database. The Web of Science database was selected for its reputable and credibility journals as well as the number of related papers that is quite numerous compared to Scopus database. To address those aforementioned research objectives, some analysis was applied including co-citation analysis, co-occurrence analysis and bibliographic coupling analysis employing various unit of analysis including authors, countries, publishers, and authors' keywords. The result of this research would be the basis to forecast and discuss the future direction of the position of sign language in Deaf education.

2. METHOD

This research employed Bibliometric analysis using VOS Viewer software version 1.6.19 to review the literatures on the role of sign language toward Deaf education based on the metadata mined from the Web of Science database over decades since 1972 until 2023 amounted to 1,000 documents. The determination of the dataset is not limited since the research related to the sign language and Deaf education is still less explored. To gain many insights, the number and type of publications extracted for analysis might include relevant journal articles, books or proceedings. This research applied the Boolean operator for three keywords as shown in Table 1.

Table 1. Boolean operator

Keywords	Boolean operator
Deaf	'Deaf' OR 'hard of hearing' OR 'D/DHH'
Education	'Education' OR 'school' OR 'training'
Sign language	'Sign language'

The data analysis of this research elaborates the number of analyses provided in VOS Viewer version 1.6.19. This software is ideal to construct and visualize the bibliometric mapping based on the network of the data [20]. VOS Viewer set out the analysis unit of the publication that comprises the authors, countries, keywords, citations, journal, and cited references that develop clusters represented by the colorful nodes connected by lines. The lines connect the nodes based the colors that represent each cluster, the length of the lines signifies the inter-relatedness of the nodes, the shorter the lines reflect the stronger inter-

relatedness. Additionally, the line thickness represents the strength of the relationship between the nodes [20]. This paper applied three analyses in VOS Viewer to map and cluster the most current literature to get a more detailed picture of the scholarly network through some analysis in VOS Viewer such as co-authorship, bibliographic coupling and co-occurrence analysis [20].

To begin with, the co-authorship analysis was applied to map the networks of the collaboration of the scholars in the topic of sign language and Deaf education. The network is represented by the nodes links that denote the authors and the countries. The nodes' colors represent the clusters of each author links that show the co-authorship of a pair of authors. The co-authorship strength is identified based on the numbers of the co-authored publication. The next analysis is the bibliographic coupling that aims to disclose the influencing schools in the issue of the role of sign language to Deaf education. The bibliographic coupling analyses the prominent references through the most common references cited by two authors. Through this analysis, scholars can map the schools of thought as it is mostly cited by two authors, it implies that those authors are in the similar schools regarding the issue of sign language role toward Deaf education. Lastly is the co-occurrence analysis based on the article' keywords. This analysis aims at elaborating the focus of topic of the research related to sign language role toward Deaf education for over 10 years. The focus of the topic can be seen from the nodes, the more often the keywords emerge together in the similar publication implies that they are highly related. The co-occurrence clusters of keywords also imply the current research topics that indirectly reflect the basis knowledge of sign language role toward Deaf education [21].

3. RESULTS AND DISCUSSION

3.1. The development of sign language and deaf education research

This research involved 1,000 documents from Web of Science data based for five decades range from 1072 until 2023. As displayed in Figure 1, it can be seen that the research on sign language and Deaf education significantly increased in the last two decades as the number of publications increase in the third decade (period 1992 to 2002 with 38 publication) to the fourth decade became 203 publications in the period 2003 to 2012 and the last decade reach its peak with 750 publications in the period 2013 to 2023. The trend of research of sign language and Deaf education research increases year by year although the number is quite minimum compared to the research related to Deaf education, for instance the bibliometric research on health education for Deaf using technology that gathered in total 3,367 documents [22].

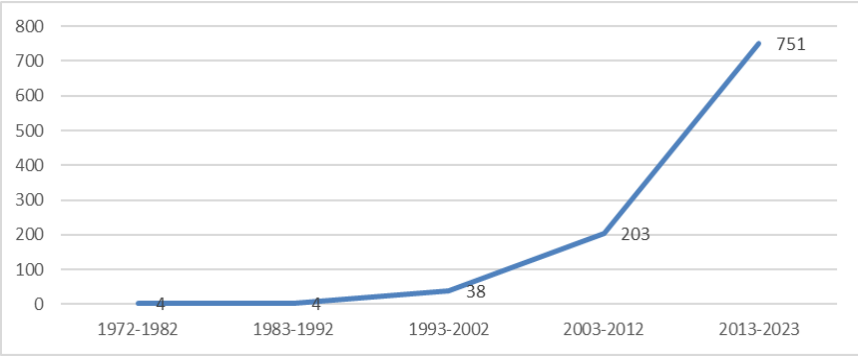


Figure 1. Trends in publication for the period 1072 to 2023

Furthermore, the documents were crafted from 606 different sources, which implies that the field of sign language and Deaf education research is still categorized minimum. Among those 606 sources, there are only 14 core journals that consistently published research on sign language and Deaf education with the minimum 5 cited references as seen in Table 2. The top three of core journal that published research related to sign language and Deaf education are specifically addressing Deaf studies and Deaf education such as Journal of Deaf Studies and Deaf Education, American Annals of The Deaf, and Deafness and education international. The top cited references were coming from Journal of Deaf Studies and Deaf Education with 1009 citation for 49 documents. In addition, the top documents on sign language and Deaf education research were published by American Annals of The Deaf with 62 articles that also placed the second top most cited sources. The third source is Deafness and education international with 26 documents and 172 cited references. Additionally, there are two journal that specifically publish research related to sign language that

is the journal of sign language studies that published 14 documents with 91 citation and journal of Deaf education and challenges for bilingual/multilingual students with five publications and still have zero citation. The rest of the sources are not specifically addressing sign language and Deaf students yet it covers the study of language, bilingual education, communication, psychology, and access information.

Table 2. Core journal publishing on sign language and deaf education

Journal	Number of documents	Citation
Journal of Deaf Studies and Deaf Education	49	1009
American Annals of The Deaf	62	717
Deafness and Education International	26	172
International Journal of Bilingual Education and Bilingualism	11	133
Sign Language Studies	14	91
International Journal of Inclusive Education	9	68
Frontiers in Psychology	8	63
Communication Disorders Quarterly	7	56
Education Sciences	6	39
Educar em revista	8	36
Universal Access in the Information Society	5	22
Languages	6	5
Revista ibero-Americana de estudos em educacao	7	4
Deaf Education and Challenges for Bilingual/Multilingual Students	5	0

Furthermore, this paper reports the most influential authors through citation analysis. The citation analysis only includes authors with five or more publication, from 2,509 authors, only 24 authors met the threshold. Table 3 displays the data of 10 most cited authors in the field. Marschark is apparently the most cited authors with 327 citations within 9 documents, while Snoddon is the most productive authors with 11 documents.

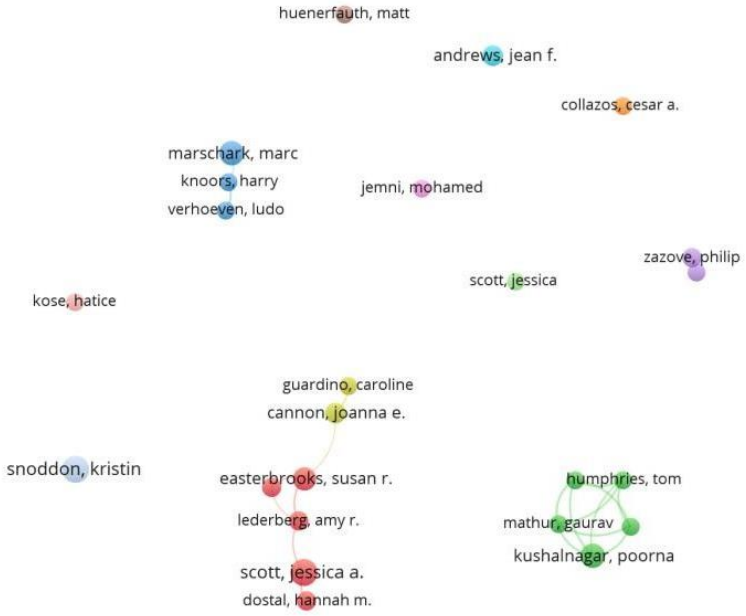
Table 3. Top 10 most cited authors on sign language and deaf education

No.	Authors	Link	Total links	Documents	Citation
1	Marschark, Marc	4	10	9	327
2	Lederberg, Amy R.	14	36	6	292
3	Mckee, Michael M.	2	9	5	211
4	Kushalnagar, Poorna	10	28	9	204
5	Zazove, Philip	2	8	6	187
6	Easterbrooks, Susan R.	6	23	8	166
7	Mathur, Gaurav	8	30	5	158
8	Napoli, Donna Jo	8	30	5	158
9	Rathmann, Christian	8	30	5	158
10	Snoddon, Kristin	9	14	11	122

3.2. The network of collaborative research on sign language and Deaf education

Research network is crucial to sustain and develop the quality of a research in a specific field. Issues on sign language and Deaf education for the past decades has developed collaborative system across the countries. This research applied co-authorship analysis to map the collaborative work between authors across the countries. The data included in the co-authorship analysis was the authors with five or more publication (N=24), additionally, authors with no link with other authors were also included in the analysis to see the research that out of the network. The result reported 12 clusters of networks with 5 clusters with link among the authors and 7 clusters with no link with other authors as illustrated in Figure 2. It reveals that authors with the research foci on Deaf language and literacy are mostly already connected and have a solid network except Andrews. Similar to the previous cluster, authors network on Deaf culture and communication are already connected as well as health literacy for Deaf people. However, authors with research topics on technology and sign language are still not connected to each other.

Furthermore, Table 4 offers details information of the collaborative networks. Generally, there are five big themes emerged in the research networks namely Deaf language and literacy development as discussed by the authors network in cluster 1, 3, 4, 6, Deaf culture and communication emerges in cluster 2, Deaf health literacy and education that is found in cluster 5, technology for Deaf education in cluster 7,9, 10 and American sign language in cluster 11 and 12.



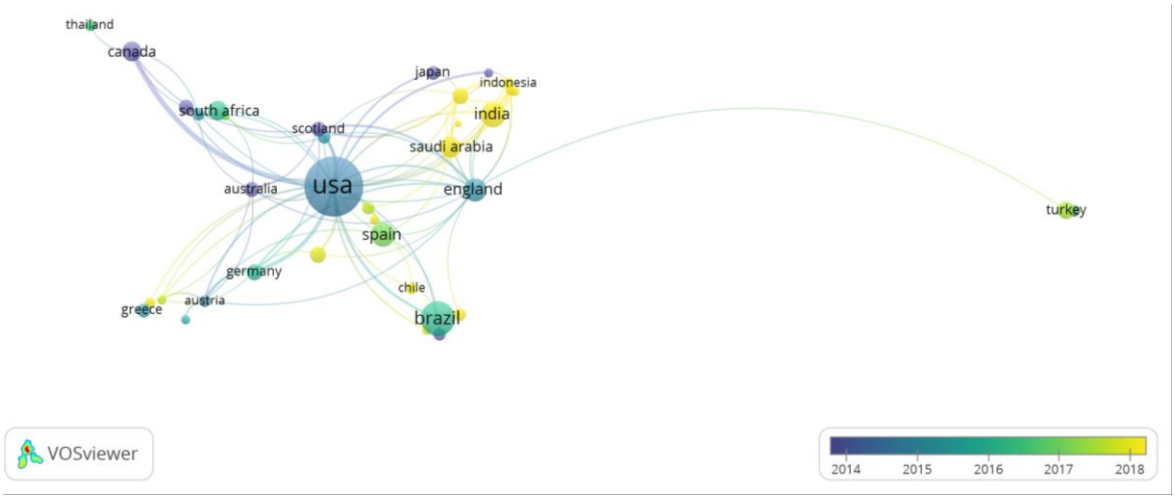
Note: the data includes authors with 5 or more publication (n=24 of 2,509 authors)

Figure 2. The network of collaborative authors

Table 4. Authors networks on sign language and deaf education

Authors	Cluster	Research themes	Affiliation	Country	Documents	Citation
Beal-Alvarez, Jennifer S	1	Sign language and literacy of the Deaf/HoH	Valdosta State University	USA	6	98
Dostal, Hannah M.	1		NEAG School of education	USA	6	107
Easterbrooks, Susan R.	1		Georgia State University	USA	8	166
Lederberg, Amy R.	1		University of Minnesota	USA	6	292
Scott, Jessica A.	1		University of Arkansas	USA	11	91
Humphries, Tom	2	Deaf culture and communication	University of California San Diego	USA	5	118
Kushalnagar, Poorna	2		Gallaudet University	USA	9	204
Mathur, Gaurav	2		Gallaudet University	USA	5	158
Napoli, Donna Jo	2		Swarthmore College	USA	5	158
Rathmann, Christian	2		University of Hamburg	Germany	5	158
Knoors, Harry	3	Deaf education, language and cognition	Radboud University	Netherlands	5	62
Marschark, Marc	3		Rochester Institute of Technology	USA	9	327
Verhoeven, Ludo	3		Radboud University	Netherlands	5	35
Cannon, Joanna E.	4	Language and literacy	University of British Columbia	UK	7	95
Guardino, Caroline	4	acquisition of Deaf students, Deaf education	University of North Florida	USA	5	68
Mckee, Michael M.	5	Health literacy in Deaf ASL users	University of Michigan Health System	USA	5	211
Zazove, Philip	5	health services for Deaf people	University of Michigan	USA	6	187
Andrews, Jean F.	6	Deaf literacy education	Eastern Kentucky University	USA	7	51
Collazos, Cesar A.	7	Technology support for Deaf	Universidad del Cauca	Colombia	5	17
Huenerfauth, Matt	8	ASL translation technology	Rochester Institute of Technology	USA	5	34
Jemni, Mohamed	9	E-accessibility for Deaf education	University of Tunis	Tunisia	5	51
Kose, Hatice	10	Humanoid robots to teach sign language	Istanbul Technical University	Istanbul	5	35
Scott, Jessica	11	ASL and academic reading	Georgia State University	USA	5	26
Snoddon, Kristin	12	ASL intervention	Toronto Metropolitan University	USA	11	122

Briefly, most of research foci seem centered in USA which collaborate with the authors from UK, Germany and Netherlands specifically research topic in the areas of Deaf language and literacy education, Deaf culture and communication, health education for Deaf and American sign language. Whereas the research topic related to technology integration for Deaf education mostly conducted by the authors from Tunisia and Istanbul. Despite the fact that USA is the center of research on Deaf education and sign language, apparently the collaborative network has encouraged some other countries in Southeast Asia such as Japan, Indonesia, India, Thailand and Middle East countries such as Saudi Arabia and Turkey, Australia, South Africa, Canada, Austria, Germany, Greece, Spain, Chile, and Scotland. As seen in Figure 3, research on Deaf education and sign language still in early development in the countries represented by the small dots with yellow colors.



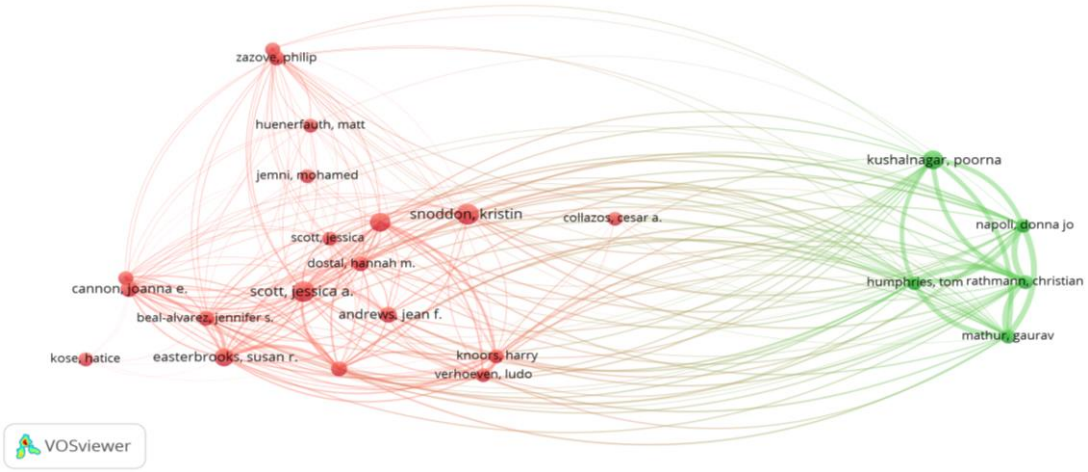
Note: the data includes countries with 5 or more publication (n=38 of 88 countries)

Figure 3. The network of the countries on sign language and deaf education

3.3. Intellectual mapping of Deaf education and sign language

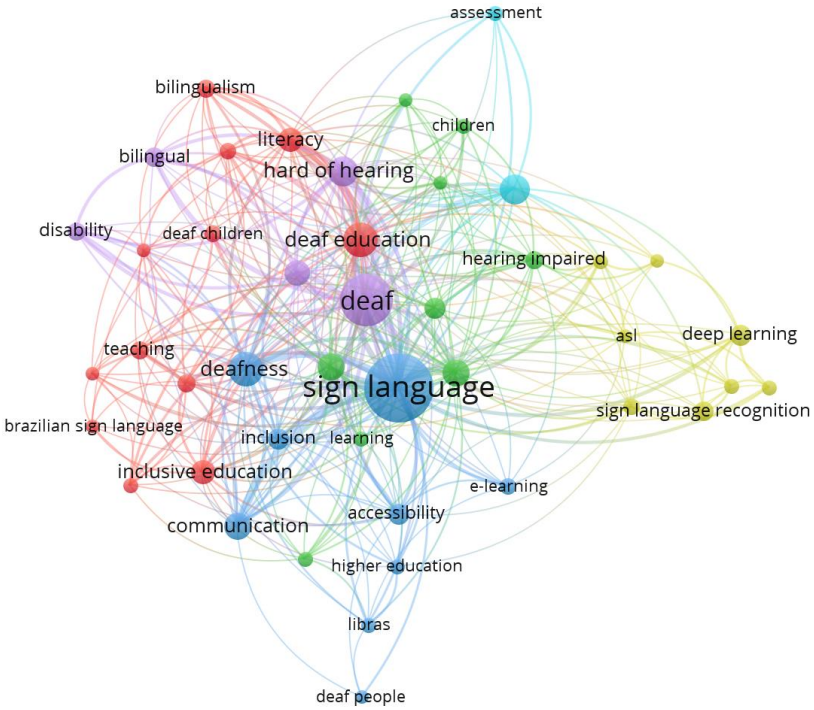
Mapping the intellectual structure of Deaf education and sign language research was addressed by implementing a bibliographic coupling of the authors. The bibliographic coupling is beneficial to identify the school of thought in the Deaf education and sign language research. This analysis provides the information related to the links between publications, co-authorship, and co-occurrences between the terms [21]. The bibliographic coupling in this research was done by including authors with minimum 5 publication (N=24 of 2,509 authors). As seen in Figure 4, the results advise the presence of two main schools of thought represented by red and green nodes. The red clusters represent research in the areas of sign language and Deaf literacy education that include 14 authors, such as Dostal, Scott, Snoddon, and Marschark. Compared to red clusters, green cluster that represents research in the area of Deaf culture and communication only include five authors such as Kushalnagar, Napolli, Humphries, Mathur, and Rhatmaan. Based on the bibliographic coupling analysis, there are only two schools that are connected through similar cited references, while the other cluster of research including health education for Deaf, technology for Deaf education, technology for sign language and American sign language are not included in the bibliographic coupling result which indicate that these clusters are not connected to each other in terms of references.

This research applied co-occurrence analysis of the authors' keywords to explicate the current trends of topical focus addressed in the literatures of Deaf education and sign language with 10 minimum occurrences. The result shows that there are three primary research focus that represents by the large nodes that has been explored in the literature displayed in Figure 5. The biggest one addresses the study of sign language with concentration topics related to accessibility, higher education, e-learning, inclusion, and communication. The second focus addresses Deaf and Deafness that concentrate on the issues of bilingualism, sign language, American sign language, Brazilian sign language, and sign language recognition as seen in purple clusters. The third relates to Deaf education that involves the studies on bilingualism, literacy, reading, assessment, assistive technology, sign language, inclusive education and communication. Additionally, the result also suggests the other small topical focus on hard of hearing and deaf children.



Note: The data includes authors with 5 or more publication (n=24 of 2509 authors)

Figure 4. Bibliographic coupling



Note: The data includes author keywords with 10 or more occurrences (N=96 of 2186 author keywords)

Figure 5. The topical focus on sign language and deaf education

3.4. Forecasting the future reforms of Deaf education

Quoting Foucault that every form of power creates its own form of resistance, discourse on Deaf cultural emancipatory has been progressing over the past decades [14], [18], [23], [24] that also affect the progress of Deaf education indicated by the development of research related to Deaf education and sign language that reached its peak to 300% in the last past decade as shown in Figure 1, it implies that this topic has invited scholars and practitioners along with the shifting view on Deaf people. Debatable discourse on how placing Deaf people in the society lies on two polar construction, social and cultural. Within the social construction of disability model, Deaf people are seen as having impairments and are then disabled [14]. Otherwise, cultural construction sees Deaf people as part of linguistic minority honoring the preservation of sign language as their natural language [14]. The later view has placed sign language as the pivotal facet in Deaf education.

The position of sign language in Deaf education is also exposed in the result of the 5 big themes research networks that all of them have integrated sign language as part of deaf education. The most occurred themes are related to the language and literacy development, language and cognition, and health literacy for Deaf education, while the other two covering the themes on technology integration in Deaf education and American sign language are promising themes although the network of its author has not well been established at least based on the web of science database. The focus on literacy skills and language development of the Deaf was discussed from many viewpoints, for instance, Beal-Alvarez mostly focus on how linguistics features are comprehended by Deaf students who use American sign language. Despite her findings that base the challenges facing Deaf students in developing literacy skills including the low of phonological and semantic competences, one of the premises she proposed dealt with the urgency of integrating American sign language as part of instructional strategies to address the Deaf students unique language and literacy needs [25]–[28].

Additionally, Miller *et al.* argued that sign language did not interfere the development of Deaf students spoken phonological awareness, which is in contrast with general view that sign language may interrupt Deaf students' skills in understanding spoken language structures, it is proven based on their research findings that students who use American sign language perform similar performance on spoken phonological task. These findings shed a light on the potential use of pattern perception activity to teach Deaf students with spoken phonological structures that will help them in decoding words while reading [29]. Besides proposing the needs of spoken phonological intervention for Deaf students to help them increase their reading skills, Trussell and Easterbrooks also enacted the need of morphological knowledge intervention for Deaf students. Their literature review reported that most of Deaf students experienced delayed morpho-graphic knowledge both in inflectional and derivational morphology that affect their reading comprehension skills. Therefore, high quality intervention of explicit morphological instructions is a promising practice [8]. Above and beyond the referential researches on challenges facing Deaf students in the area of literacy, Dostal *et al.* propose a vivid teaching strategy to accommodate Deaf students in inclusive classroom. Her research on differentiated instruction in teaching writing for Deaf students has offered practical instruction that would be very beneficial for teachers, one of it is the language zone flowchart as a tool to analyze the kind of task and instructional option that tailor the students' needs. The language zone flowchart has included American sign language as one of the teaching facets [30]. Additionally, Dostal also proposed two principles of instructions that help Deaf learn literacy. First principle is optimizing access by considering the language history of Deaf students and accommodate all type of communication preferred by Deaf students including hearing aids and sign language. The second principle is making the content and thinking visible by providing visual cues for word learning, providing visual representations, visualizing the thinking proses and building rapport with Deaf students by extending conversation to improve their word knowledge [2].

Language and cognition of Deaf students also influence the research on Deaf education. Marschark is the learning author in the field as his writing was the most cited article as shown in Table 3. Marschark has contributed many research reports that became the basis knowledge of other researchers working in the field. His works covers the ability of Deaf students related to the ability of Deaf students to perform more consistent typicality ratings compared to hearing peers that predicts their capacity in conceiving the substructures of typicality such as word or sign characteristics, which suggests further investigation in relation with Deaf language and literacy development [31].

The role of sign language has been addressed long ago in the beginning mid-nineteenth century until now that experiences dynamic changing. The perspective of sign language as negative influence toward deaf language competence has changed to today postulation that offers better both theoretical and practical basis of how sign language predicts Deaf children language competence both in naturalistic and controlled research situation [32]. The third most common discussed topic is accessible health literacy for Deaf people. There are only two authors that include to the analysis with minimum 5 publication namely McKee and Zazove. Both of the authors are collaborating in addressing the urgency of accessible health literacy for Deaf people by adapting and translating the mental health tools into American sign language that bring positive impacts on Deaf health literacy, although there are also some challenges related to the professional's health officers that is required to master American sign language [33], [34]. Beside those aforementioned topics, topics on technology integration on Deaf education and sign language is potentially emerging. Research on technology integration in deaf education is mostly covering the topic of e-accessibility learning tools and digitization of American sign language [35]–[37]. Additionally, Snoddon's works has also highly contributed to the development of sign language integration in Deaf education, as Deaf researcher, she is firmly committed in researching the benefits of American sign language intervention to support Deaf literacy skills. She contends that Deaf children have a right to have bilingualism education that give them access to both of community-based sign language and majority signed language [38].

The research of sign language in Deaf education is also positively reinforced by the top publishers in the field. This research reported top 2 journal that published research related to the filed namely Journal of Deaf Studies and Deaf Education and American Annals of The Deaf and deafness. Both of journals are not only well known for its academic reputation but also serve as a token of academic commitment to the Deaf studies that honor the unique characteristic of the Deaf people. Journal of Deaf Studies and Deaf Education (JDSDE) published by Oxford Press is the most cited journal among the three that scope the topic on both basic and applied research about deaf people covering topics on culture, development, linguistics and education. JDSDE has openly commit to honor the diversity of Deaf community by welcoming research that acknowledge the wisdom of Deaf people. The first publication was in 1996 and currently has 2.0 impact factor with Dostal as its current chief editor. The next journal is American Annals of The Deaf that has published intellectual reports since 1847 published by Gallaudet University, it is renowned as the oldest journal in the field that also acknowledge the diversity of Deaf people. The Annals is the official part of the Council of American Instructors of the Deaf (CAID) that actively advise the Deaf inclusion in the society.

The bibliographic coupling analysis has reported that there are two big schools in the research field that is the language and literacy of Deaf children and Deaf culture and communication as shown in Figure 4. It indicates that these two clusters have been well connected by similar citation of referential sources. It implies that the development of research related to language and literacy of the Deaf are closely related to the research on Deaf culture and communication. Recalling the urgency of literacy and communication skills of Deaf children, researchers have put concern on the use of sign language as the promising approach to enhance their language performance. The vital point is how the language deprivation have affected Deaf children not only in terms of language delay but also affect to their social skills [39] that includes the cognitive delays, mental health difficulties, and limited health literacy [40]. Therefore, educating deaf children with the fully-accessible first language foundation such as natural sign language is important to help them optimally developed a healthy developmental domain [22], [34], [41], [42].

Last but not least, the co-occurrence analysis on authors' keywords have forecasted the emerging research topics in this field. Sign language took the biggest nodes in the authors keyword correlated with Deaf and Deaf education that connect to other small nodes with bold link that refers to the topic on bilingualism, inclusive education, communication, accessibility, sign language recognition, higher education and deep learning. The issues of Deaf students in inclusive school has been well discussed culturally and practically covering the issues of accessibility provision, innovation teaching instructions, and technology to enhance Deaf students participation as well as sign language intervention and integration in the educational instruction [26], [36], [37], [43]–[46]. In addition, bilingualism is also promising alternative approaches to educate Deaf children for its effectiveness in bridging the language transfer from sign language to written language in both British sign language and American sign language that is potential to maxims the Deaf literacy's learning prospects [38], [44], [47], [48].

4. CONCLUSION

Researches on the position of sign language in Deaf education for the past five decades has shown us the pattern that forecast the direction of the future reforms to provide more effective education for Deaf children. Learning from the findings on the top authors, top publishers, intellectual networks and top most occurred keywords has elicited the promising approaches on educational reforms for Deaf education that highlights the cultural-oriented approaches by incorporating sign language integration. Bilingualism and technology integration in favor to sign language incorporation become the two most promising facet in both of literacy education and health education. It implies that the current research has prompted sign language as the pivotal factor in the development of Deaf education. This research gratefully suggests for the researchers, parents, teachers and practitioners to honor sign language as the natural language for Deaf and preserving sign language means widening educational opportunities that is honoring Deaf people cultural emancipatory rights as a person that has right to their natural language.

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