

Demystifying the Specific Roles and Challenges of Educational Audiologists: A Narrative Review †

Mohd Fadzil Nor Rashid ¹, Tian Kar Quar ², Nashrah Maamor ², Foong Yen Chong ², Mohd Normani Zakaria ¹, Mazlina Che Mustafa ^{3,4} and Hasrul Hosshan ^{3,4,*}

¹ Audiology Programme, School of Health Sciences, Health Campus, Universiti Sains Malaysia, Kubang Kerian 16150, Malaysia

² Audiology Programme, Center for Rehabilitation & Special Needs, Faculty of Health Sciences, Universiti Kebangsaan Malaysia, Kuala Lumpur 50300, Malaysia

³ National Child Development Research Centre, Universiti Pendidikan Sultan Idris, Tanjung Malim 35900, Malaysia

⁴ Faculty of Human Development, Universiti Pendidikan Sultan Idris, Tanjung Malim 35900, Malaysia

* Correspondence: hasrul.hosshan@fpm.upsi.edu.my; Tel.: +60-1548797642

† Presented at the International Academic Symposium of Social Science 2022, Kota Bharu, Malaysia, 3 July 2022.

Abstract: Educational audiology is a critical subspecialty in the field of audiology. An educational audiologist is responsible for providing services to hearing-impaired children in educational settings. Despite their responsibilities in performing their roles, they also encounter challenges. Therefore, the aim of this literature review was to demystify the specific roles of educational audiologists and challenges faced by them in real school environments. **Materials and Methods:** A search of the Scopus and Web of Science (WoS) databases was conducted in February 2020, and 17 relevant articles were identified. The inclusion criteria were educational audiology studies conducted in all countries or regions, and articles written in English. **Results:** The review identified six main themes concerning the roles of educational audiologists, and five main themes concerning the challenges that are faced by them. The findings from this review provide essential information on current educational practices in the audiology field. **Conclusions:** School-age hearing-impaired children have specific needs and require specific services to be provided to them by educational audiologists. In this review, the knowledge gaps in the roles and the challenges faced by educational audiologists are revealed accordingly. As a result, several recommendations are highlighted based on the review results. Notably, school-based audiological data for evidence-based practice in school settings are required and should be the focus of future research.

Keywords: educational audiologist; roles and challenges; literature review; narrative review



Citation: Rashid, M.F.N.; Quar, T.K.; Maamor, N.; Chong, F.Y.; Zakaria, M.N.; Mustafa, M.C.; Hosshan, H. Demystifying the Specific Roles and Challenges of Educational Audiologists: A Narrative Review. *Proceedings* **2022**, *82*, 17. <https://doi.org/10.3390/proceedings2022082017>

Academic Editor: Mohamad Rahimi Mohamad Rosman

Published: 8 September 2022

Publisher's Note: MDPI stays neutral with regard to jurisdictional claims in published maps and institutional affiliations.



Copyright: © 2022 by the authors. Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).

1. Introduction

To increase the likelihood of having adequate speech and language development among infants and young children with hearing impairments, hearing assessments and respective interventions must take place as early as possible. This is further facilitated by the advancements in technology (e.g., sophisticated hearing aids, cochlear implants etc.) and the availability of services related to hearing, speech, and language specialties. Hearing-impaired children who have been appropriately receiving intervention by audiologists and speech language pathologists (SLPs) may then enroll in specific educational institutions.

Provided with adequate academic background and appropriate clinical competency licenses, audiologists are able to work in various settings, including hospitals, private practices, hearing aid companies, universities, schools, and others. Educational audiologists who work in educational settings may play important roles in supporting the educational management of students with hearing impairments. As defined by the Educational Audiology Association (EAA), educational audiologists are a member of the school

multidisciplinary team who deliver a full spectrum of hearing services to all children, particularly those in educational settings [1]. To provide guidelines related to the roles of educational audiologists, suggestions have been made by three prominent associations, including the EAA [1], the British Association of Educational Audiologists (BAEA) [2], and the American Speech-Language-Hearing Association (ASHA) [3]. The roles of educational audiologists provided by these associations are summarized in Table A1. It is worth noting that there are several acts and laws in the United States that support audiological services in schools such as the Disabilities Education Act (IDEA, 2004), Rehabilitation Act 1973 (No Child Left Behind Act, 2001), and Americans with Disabilities Act (1990) [1].

It is imperative to have educational audiologists to provide essential services to hearing-impaired school children so that their educational aims can be achieved. Nevertheless, there are many factors to be considered with regard to this specialized service delivery. As such, information on the specific roles of educational audiologists and challenges faced by them in real school settings should be made available. For example, the number of certified educational audiologists must be sufficient to provide optimal services to school children. Herein, the EAA stated that an educational audiologist should provide services to 10000 registered students at local education agencies [4]. In line with this, in a survey study conducted by Richburg and Smiley, the full-time educational audiologist to the general student population ratio in the United States ranged from 1:10,000 to 1:15,000 [5]. This “good” ratio, nevertheless, may not be achieved in other countries due to a limited number of audiologists available in both clinical and educational settings.

As shown in Table A1, there are some disagreements between the three associations, in which some roles of educational audiologists are not emphasized by the others. As such, it is essential to ascertain the suggested roles and identify the main elements based on the research evidence. The challenges faced by educational audiologists in the actual school environments should be unveiled to provide essential information on improving the existing services. In this paper, we performed a literature review to demystify the specific roles and challenges faced by educational audiologists. See Table A1 here.

2. Methods

A literature review was performed using the two main journal databases: Scopus and Web of Science (WoS). Scopus is the main database of peer-reviewed literature that supports the Elsevier Research Intelligence and has been used by more than 5000 corporate, academic, and government institutions worldwide. The second database used in the review was WoS and has been established by Clarivate Analytics Company. The authors conducted the selection process focusing on a narrative review, not a systematic literature review. In line with this, Green et al. suggested that the literature search should include at least two databases related to the study in order to provide a reasonable scientific discussion [6]. Furthermore, grey literature searches through an internet web engine such as Google and Google Scholar were also conducted to identify any related publications, with the first five pages of results examined.

The review process was conducted in February 2020, and the identified keywords were used in the search process. Based on the previous studies and thesaurus, keywords which are similar and related to educational audiologist, roles, and challenges were used (Table A2). The selection process was carried out based on the method suggested by Moher et al. [7]. The inclusion criteria were educational audiology research conducted in all countries or regions, and articles in English. The exclusion criteria were articles not relevant to the topic, review articles, and those with unavailable abstract or full text. With regard to the timeline, the period between 2000 and 2020 (20 years) was selected and considered appropriate to gather related publications and information on the changes of scope of practices. Table A2 here.

The first stage of the review process was the identification. That is, 136 articles were found based on the keywords used in the search process. Of these, four duplicate articles were removed (based on EndNote X7 software, Clarivate Analytics, Philadelphia,

US). In the second phase (i.e., screening), the 132 articles were screened by the authors. Subsequently, 102 articles were excluded as some of them did not focus on educational audiology, they were non-English articles, as well as systematic or scoping review articles. In the third stage (i.e., eligibility), the full text of 30 articles was thoroughly examined by the authors. Of these, 17 articles were found to be eligible and included in this review (Figure A1). Based on the categories, a content analysis was conducted to identify specific themes. A qualitative content analysis is typically carried out for evaluating the semantic content in the text of the data [8,9]. Figure A1 here.

3. Result and Discussion

The review of the 17 articles resulted in two main categories: educational audiologists' roles and the challenges faced by educational audiologists. Within these categories, specific themes were identified. Therefore, the subsequent discussion is based on these two categories and their specific themes supported by related articles.

3.1. Roles of Educational Audiologists

Findings from the previous studies are useful to provide the essential information with regard to the roles of educational audiologists in the actual school environment. This review resulted in six main themes related to the roles of educational audiologists. These were collaboration, (re)habilitation, support personnel, audiological assessments, managing hearing instruments, and monitoring classroom acoustics. Each theme is discussed accordingly in the subsequent paragraphs.

3.1.1. Developing Professional Collaboration

The dynamic nature of the educational audiologist role requires strong collaboration with other professionals and paraprofessionals in order to deliver the optimum (evidence-based) service to hearing-impaired students in school settings [10]. In line with this, Welling and Ukstins stated that the medical and healthcare service providers and the school-based professionals should develop a bidirectional relationship [11,12]. For example, guidelines for service provision to students with otitis media with effusion (OME) must include school nurses, teachers, classroom paraprofessional staff members, speech-language pathologists, and educational audiologists. Furthermore, audiologists in clinical settings and school-based audiologists who are able to work collaboratively on behalf of students will create an efficient partnership to fulfil students' needs [11–13].

Richburg and Knickelbein conducted a study to determine whether school-based speech-language pathologists (SLPs) had access to the services of educational audiologists [14,15]. This study used a 36-item survey titled "How Can Educational Audiologists Assist Speech-Language Pathologists and Special Educators" to measure collaboration outcomes. It consists of four sections: (i) demographics; (ii) basic knowledge of audiological practices; (iii) access, benefit, and responsibility; and (iv) collaboration with educational audiologists. The findings from this study revealed that more than half of the SLPs (61.5%, $n = 126$) reported that they had access to audiologists, and 113 of these SLPs (89.7%) answered that they did receive the benefits. The authors then concluded that a notable avenue for building collaborative efforts was the involvement of educational audiologists in the individualized educational program (IEP) teams of students who need an auditory (re)habilitation.

Teachers are the other professionals who are involved in assisting hearing-impaired students in academic settings. In this regard, educational audiologists must find ways to shift their workload to include more time for collaboration with the classroom teachers [11,13]. In fact, around 79% of 110 special educators reported that they had benefited from collaboration with educational audiologists [16]. Likewise, Richburg and Goldberg shared their opinions regarding this collaboration and its impact on managing students with minimal hearing loss (MHL) [17]. Apart from providing the essential information about MHL and its educational consequences, they also found that the teachers felt more confident in dealing

with difficulties experienced by students with MHL when working with the educational audiologists [17].

In addition to the collaborations mentioned above, educational audiologists should also collaborate with architects to ensure that new building projects comply with their acoustic specifications [14]. In fact, to ensure students with hearing problems receive appropriate interventions, the educational audiologist should also be involved with the school multidisciplinary team to design clinical and educational programs [18]. In line with this, Welling and Ukstins added that in school settings, recommendations for educational modifications and accommodations should be achieved in collaboration with the SLPs, educational audiologists, and teachers [12].

3.1.2. Providing Audiological (re)Habilitation

Loss of hearing sensitivity is the most common consequence of auditory disorders. In this regard, it is useful to have educational audiologists for providing aural (re)habilitation to school-age children, particularly if the hearing impairment cannot be medically treated. The aim of (re)habilitation is to help and ameliorate the effect of hearing loss on communication, psychological, and social aspects [19].

According to Soman and Nevins, hearing aid function assessment, appropriate hearing aid fitting, and periodic speech perception testing (using sounds, words and/or sentences) should be conducted by audiologists [20]. They emphasized the evidence-based principles of listening and spoken language (LSL) intervention and the involvement of practitioners such as SLPs, educational audiologists, and teachers when dealing with hearing-impaired school-age children. The proposed LSL interventions were: (i) learning through listening; (ii) language and literacy development; (iii) individualized, systematic, and multidimensional; (iv) interprofessional practice, and (v) family involvement [20]. They also stated the importance of collaboration and consultation with educational audiologists to maximize the auditory ability in all learning environments and the listening needs of students.

Meanwhile, according to Stach, the (re)habilitation should be carried out based on a patient-centered approach which includes communication needs, self, and family assessment of disability, selection of goals, and non-auditory needs assessment (physical abilities, psychosocial status, and financial status) [20–23]. In this regard, educational audiologists may consider this approach as a guideline for providing the respective (re)habilitation.

3.1.3. Managing Hearing Instruments

The hearing instrument technology has made a great deal of headway in the audiological field. The benefits of having hearing instruments for hearing-impaired children are obvious. By using appropriately prescribed hearing aids, assistive listening devices, or cochlear implants, they are able to improve their hearing and communication skills. Therefore, the selection and management of appropriate hearing instruments, and linking hearing instruments with the school's technological facilities are important roles for educational audiologists [13]. In this regard, the educational audiologists must perform validation assessment to ensure the effectiveness of the amplification in the actual classroom setting.

Salathiel et al. suggested that educational audiologists need to provide in-service training for hearing amplification and should be aware of students' high-tech needs [14]. The teacher's responsibilities will be more challenging when hearing-impaired students attend his/her class. Therefore, comprehensive hands-on demonstrations of hearing instrument usage by an educational audiologist would be beneficial to teachers. In line with the advancement of technology, educational audiologists have to be knowledgeable in hearing technology to meet students' communication needs. For example, high-tech-literate students may request to build connectivity between the hearing instruments and other devices such as computers, iPods, cell phones, and recreational devices. Thus, educational audiologists should have the supplementary essential information regarding frequency modulated systems and class settings, compared to audiologists working in clinical settings [24–26].

3.1.4. Monitoring Classroom Acoustics

Given the nature of room acoustics, the variables that can interfere with speech perception are background noise, signal to noise ratio, reverberation time, the distance between the talker and the listeners, and interactions among these variables [27–29]. For classroom acoustics, educational audiologists are the competent personnel to utilize these concepts and maximize learning adaptations to classroom environments [17]. This view is in agreement with those of Smaldino et al. [30], Johnson et al. [13], and Johnson [31] who suggested that educational audiologists were often the first professionals to assess classroom acoustics and student performance.

Providing the “best” room acoustics for conducive learning environments requires specific financial planning. The optimal listening in the classroom and educational audiologists’ responsibilities in financial planning were discussed in-depth by Salathiel et al. [17]. For example, educational audiologists must be aware of the financial issues and work cooperatively with the local education agency staff to update technology and improve listening facilities in classrooms (including the application of acoustic modifications of the rooms). It would also be advisable to have proper planning in consultation with educational audiologists, contractors, architects, teachers, and school management team before the construction of the building.

3.2. Challenges Faced by Educational Audiologists

The educational audiologists may encounter clinical or non-clinical challenges while performing their roles in the educational settings. Their ongoing challenge is to maintain flexibility without sacrificing their professional ethics and the standard of care delivered to the children, youth, and families they serve [27]. Five themes have emerged from this review aiming to demystify the challenges faced by educational audiologists, namely the personnel shortage, high workload, limited understanding by school personnel, financial constraints, and limited collaboration. Each theme is discussed accordingly in the subsequent paragraphs.

3.2.1. Personnel Shortage

As mentioned earlier, the full-time educational audiologist to the general student population ratio in the United States ranges from 1:10,000 to 1:15,000 [5], which is in line with the EAA recommendations [4]. Nevertheless, Johnson et al. stated that most educational audiologists need to travel to multiple school districts and do not see students in a single location because of personnel shortage [13]. The issue of personnel shortage is perhaps more prominent in developing and underdeveloped countries, and research in this area is greatly warranted.

Fitzpatrick and Olds conducted a qualitative study using a semi-structured focus group interview with 28 professionals to gain understanding of the functioning of school-age children who use cochlear implants [32]. The interview findings were divided into two categories of professionals’ perspectives on the functioning of school-age children and how to support the needs of children with cochlear implants. Under the category of supporting the needs of children, three themes emerged, i.e., specialized support and integration of school-based services, parental and family support, and service provider recommendations. They also found that some professionals reported that it would be an advantage to have educational audiologists because none of the participating school districts had educational audiologists in place.

3.2.2. High Workload

According to the school survey by The American Speech-Language-Hearing Association (ASHA) in 2018, the workload approach was based on all activities required and performed by educational audiologists [33]. The response rate for this survey was 41.3%, and 61.6% of respondents reported a high workload. ASHA also produced a school survey report regarding the trend in educational audiology from 2010 to 2018 (every two-year

survey) and found that high workload was reported by 42% to 51% of the respondents [33]. In line with this, Richburg and Smiley shared their concerns regarding the workload of educational audiologists (which was too high) because many states did not have enough full time equivalent (FTE) audiologists working in school settings [5].

Several factors that contributed to high workloads among the educational audiologists were thoughtfully discussed by Johnson et al. [13]. Firstly, the educational audiologists need to spend more time educating the school personnel in managing students with multiple disabilities and complex communications needs. Secondly, the use of the hearing instruments that require specialized service (lacks the ease of plug and play). Thirdly, the educational audiologists need to travel to several districts to meet their students, and the travel time is a contributing factor that increases their workload. Finally, due to the success of early hearing detection and intervention (EHDI) programs and inclusion agendas, the educational audiologists are also required to support students in the general education settings.

While many studies found the workload of educational audiologists to be high due to several factors [5,13,34], a contradictory outcome was reported by Blood and colleagues [34]. That is, in their survey study involving 332 members of the EAA, job burnout was assessed using the Maslach Burnout Inventory (MBI) [34]. It was then found that the job burnout among educational audiologists was low compared to other educators' normative samples [35]. In particular, only 16% of the participants reported high burnout (the other 84% scored in the average and low burnout ranges) [34]. Nevertheless, the authors stated that their findings must be interpreted with caution due to a very low response rate. Other than this, factors such as the backgrounds of samples, the FTE ratio of audiologist to general student population, the type of questionnaire used, and the availability of adequate support personnel may also influence the study outcomes. Further studies are warranted to shed light on this area of educational audiology.

3.2.3. Limited Understanding by School Personnel and Financial Constraints

In this review, only one article emphasized that some school personnel believed that educational audiologists were diagnosticians [13]. Consequently, this may affect the educational audiologists' roles, especially for collaboration and (re)habilitation tasks. In the worst situation, this may impede the effort to add more positions for educational audiologists and school personnel may suggest eliminating a few tasks such as consultation, collaboration, and counselling. Furthermore, this article also stated that financial constraints may cause the elimination of an educational audiologist position when he/she retires or leaves the position. That would not only affect the career path of educational audiologists, but the students' outcomes may also be jeopardized.

3.2.4. Limited Collaboration

As mentioned earlier, collaboration plays an important role in expanding audiological services in school settings. In the survey study carried out by Knickelbein and Richburg involving SLPs, collaboration was not widely achieved [16]. Some respondents expressed a lack of satisfaction with the services provided by educational audiologists because the information provided was already known. Other respondents reported that the information provided was insufficient, particularly in the preparation of the student's IEP [13].

4. Limitation of the Review

In this paper, a narrative review was employed to understand the roles of educational audiologists and the challenges faced by them in academic settings. Since different countries have different educational regulations and laws, educational audiology practice may differ across the countries. This factor, nevertheless, was not highlighted in this review. Additionally, this review included eligible articles regardless of the study type. Perhaps better review outcomes would be obtained if the study type is categorized with more specific discussions.

5. Conclusions

Audiologists should provide continuous support to hearing-impaired children. As such, school-age hearing-impaired children have specific needs and require specific services from educational audiologists. This paper provides a literature review of the specific roles of educational audiologists and the challenges faced by them in real educational settings. Six main themes related to roles, including collaboration, (re)habilitation, support personnel, audiological assessments, managing hearing instruments, and monitoring classroom acoustics, were identified and discussed accordingly. This information may serve as a guideline for audiologists working in academic settings. For challenges faced by educational audiologists, five themes (personnel shortage, high workload, limited understanding by school personnel, financial constraints, and limited collaboration) were identified and discussed as intended.

Several recommendations are highlighted based on the review results. Notably, school-based audiological data for evidence-based practice in school settings are required and should be the focus of future research.

Author Contributions: Conceptualization, M.F.N.R., T.K.Q. and N.M.; methodology, M.F.N.R.; T.K.Q. and F.Y.C.; formal analysis, M.F.N.R. and T.K.Q.; investigation, M.F.N.R.; resources, M.F.N.R. and H.H.; data preparation, M.F.N.R.; writing—original draft preparation, M.F.N.R.; writing—review and editing, M.F.N.R., T.K.Q., M.N.Z., M.C.M. and H.H.; visualization, H.H.; supervision, T.K.Q. and N.M.; project administration, M.F.N.R. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: Not applicable.

Acknowledgments: Special thanks to School of Health Sciences, Universiti Sains Malaysia for the financial assistance.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

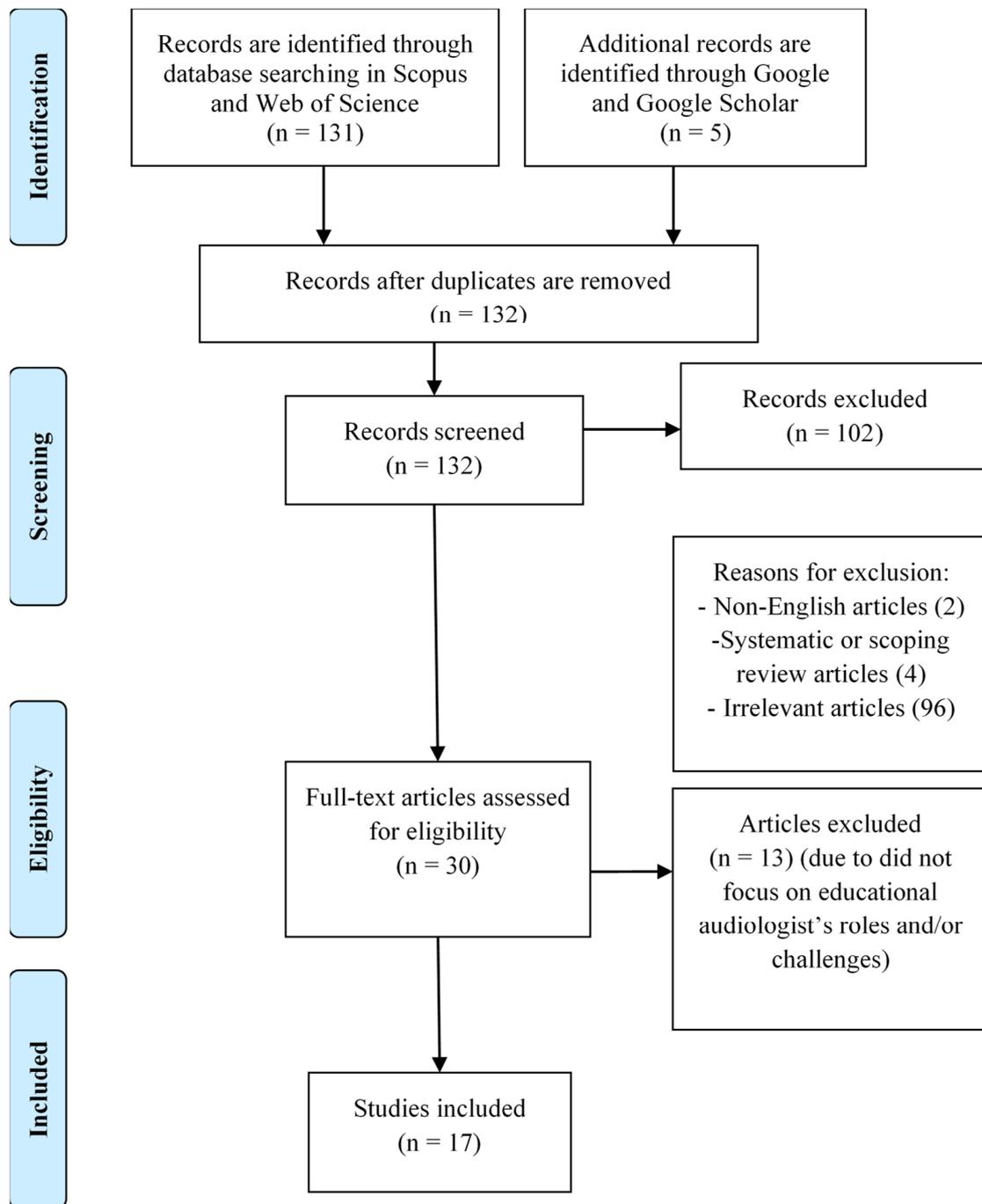


Figure A1. The flow chart of the literature review.

Appendix B

Table A1. A summary of educational audiologists’ roles according to Educational Audiology Association (EAA, 2019), American Speech-Language-Hearing Association (ASHA, 2002) and British Association of Educational Audiologists (BAEA, 2016).

Educational Audiologists’ Role	EAA	ASHA	BAEA
Identification of hearing problems and referrals	✓	✓	
Hearing assessment and classroom acoustic measurement	✓	✓	✓
Evaluating, fitting and managing amplification	✓	✓	✓
Facilitating and/or providing support for (re)habilitation	✓	✓	✓
Providing counselling and training to teachers, parents and students	✓	✓	✓
Organising program for hearing loss prevention	✓	✓	
Education management (collaboration, consultation etc)	✓	✓	✓
Demonstrate understanding of education law		✓	
Involvement in early hearing detection and intervention (EHDI) program		✓	
Serve as advocate and community resource liaison	✓	✓	✓
Comply with continuing education requirement		✓	✓

Table A2. The search string used for the literature review process.

Databases	Keywords Used
Scopus (117)	TITLE-ABS-KEY (educational AND audiology) OR TITLE-(audiology AND in AND school) OR (educational AND audiologist) OR (audiologist AND in AND school) OR (pediatric AND audiologist) AND (role) OR (task) OR (responsibility) OR (function) OR (duty) OR (job) OR (contribution) AND (challenge) OR (problem) OR (trouble) OR (obstacle) OR (issue) OR (difficulty) OR (trouble) AND DOCTYPE (ar OR re) 2000–2020
Web of Science (14)	(TS = (“educational audiologist”) OR (“audiology in school”) OR (“educational audiologist”) OR (“audiologist in school”) OR (“pediatric audiologist”) AND (role OR task OR responsibility OR function OR duty OR job OR contribution) AND (challenge OR problem OR trouble OR obstacle OR issue OR difficulty OR trouble)) AND Language: (English) AND Document Types: (Article) Indexes = SCI-EXPANDED, SSCI, A&HCI, CPCI-S, CPCI-SSH, BKCI-S, BKCI-SSH, ESCI Timespan = 2000–2020

References

1. Educational Audiology Association. Educational Audiology Scope of Practice. Available online: www.edaud.org/pdf/scope-of-practice.pdf (accessed on 26 February 2020).
2. Webster, G. The Role of the Educational Audiologist. Available online: <http://www.educational-audiologists.org.uk/index.php> (accessed on 25 February 2020).
3. American Speech Language Hearing Association. Guidelines for Audiology Service Provision in and for Schools (Guidelines). Available online: www.asha.org/policy (accessed on 15 February 2020).
4. Educational Audiology Association. Recommended Professional Practices for Educational Audiology. Available online: <https://edaud.org/educational-audiologist-role-defined/> (accessed on 26 February 2020).
5. Richburg, C.; Smiley, D.F. The “State” of Educational Audiology Revisited. *J. Educ. Audiol.* **2009**, *15*, 63–73.
6. Green, B.N.; Johnson, C.D.; Adams, A. Writing Narrative Literature Reviews For Peer-Reviewed Journals: Secrets Of The Trade. *J. Chiropr. Med.* **2006**, *5*, 101–117. [CrossRef]
7. Moher, D.; Liberati, A.; Tetzlaff, J.; Altman, D.G. Preferred Reporting Items for Systematic Reviews and Meta-Analyses: The Prisma Statement. *Ann. Intern. Med.* **2009**, *151*, 264–269. [CrossRef] [PubMed]
8. Knudsen, L.V.; Laplante-Levesque, A.; Jones, L.; Preminger, J.E.; Nielsen, C.; Lunner, T.; Hickson, L.; Naylor, G.; Kramer, S.E. Conducting Qualitative research in audiology: A tutorial. *Int. J. Audiol.* **2012**, *51*, 83–92. [CrossRef] [PubMed]
9. Hosshan, H. Perspectives of Teachers on Supporting the Participation of Students with Learning Disabilities in Inclusive Secondary Schools: A Qualitative Study. *Asia Pac. J. Educ. Educ.* **2022**, *37*, 47–60.

10. Lee, W.Y.; Tan, J.T.A.; Kok, K. The Educational Experiences of Deaf Students in Ipoh, Malaysia. *J. Pendidik. Bitara UPSI* **2021**, *14*, 9–17.
11. Masnan, A.H.; Mustafa, M.C.; Hosshan, H. New preschool teachers and implementation of inclusive classes issues in Malaysia. *Int. J. Acad. Res. Bus. Soc. Sci.* **2017**, *7*, 644–652. [[CrossRef](#)]
12. Welling, D.R.; Ukstins, C.A. Otitis Media: Beyond the Examining Room. *Pediatr. Clin.* **2018**, *65*, 105–123.
13. Johnson, C.D.; Cannon, L.; Oyler, A.; Seaton, J.; Smiley, D.; Spangler, C. Shift Happens: Evolving Practices in School-Based Audiology. *J. Educ. Audio.* **2014**, *20*, 48–62.
14. Salathiel, K.; Steele, J.; Edwards, D. Advocating for Optimal Listening in the Classroom. *Sem. Hear.* **2010**, *31*, 241–251. [[CrossRef](#)]
15. Richburg, C.M.; Knickelbein, B.A. Educational Audiologists: Their Access, Benefit, and Collaborative Assistance to Speech-Language Pathologists in Schools. *Lang Speech Hear. Serv. Sch.* **2011**, *42*, 444–460. [[CrossRef](#)]
16. Knickelbein, B.A.; Richburg, C.M. Special Educators' Perspectives on the Services and Benefits of Educational Audiologists. *Commun. Disord. Q* **2012**, *34*, 17–28. [[CrossRef](#)]
17. Richburg, C.M.; Goldberg, L.R. Teachers' Perceptions About Minimal Hearing Loss: A Role for Educational Audiologists. *Commun. Disord. Q* **2005**, *27*, 4–19. [[CrossRef](#)]
18. Schery, T.K.; Peters, M.L. Developing Auditory Learning in Children with Cochlear Implants. *Top Lang Disord.* **2003**, *23*, 4–15. [[CrossRef](#)]
19. Hull, R.H. *Introduction to Aural Rehabilitation: Serving Children and Adults with Hearing Loss*; Plural Publishing: San Diego, CA, USA, 2019.
20. Soman, U.; Nevins, M.E. Guiding Principles and Essential Practices of Listening and Spoken Language Intervention in the School-Age Years. *Top Lang Disord.* **2018**, *38*, 202–224. [[CrossRef](#)]
21. Ibrahim, H.; Mokhshein, S.E.; Anal, A.; Jabar, S.A. Assessment for children with special educational needs. *J. Pendidik. Bitara UPSI* **2019**, *7*, 9–15.
22. Wai Leng, A.P.; Hui-Shen, C.L.; Dhamotharan, M.; Mustafa, M.C. Preschool teachers' beliefs and classroom practices of child-centred learning at private preschools in central region, Malaysia. *Southeast Asia Early Child. J.* **2021**, *10*, 69–83.
23. Stach, B. *Clinical Audiology: An Introduction*; Nelson Education: San Diego, CA, USA, 2008.
24. McKay, S. Management of Young Children with Unilateral Hearing Loss. *Volta Rev.* **2006**, *106*, 299–319. [[CrossRef](#)]
25. Richburg, C.M.; Imhoff, L. Survey of Hearing Screeners: Training and Protocols Used in Two Distinct School Systems. *J. Educ. Audio.* **2007**, *14*, 31–46.
26. Berg, A.L.; Ip, S.C.; Hurst, M.; Herb, A. Cochlear Implants in Young Children: Informed Consent as a Process and Current Practices. *Am. J. Audiol.* **2007**, *16*, 13–28. [[CrossRef](#)]
27. Johnson, C.D.; Seaton, J.B. *Educational Audiology Handbook*, 2nd ed.; Delmar Cengage Learning: Clifton Park, NY, USA, 2012.
28. Tang, T.P.; Mcpherson, B.; Yuen, K.C.; Wong, L.L.; Lee, J.S. Auditory Neuropathy/Auditory Dys-Synchrony in School Children with Hearing Loss: Frequency of Occurrence. *Int. J. Pediatr. Otorhinolaryngol.* **2003**, *68*, 175–183. [[CrossRef](#)] [[PubMed](#)]
29. Smaldino, J.; Crandell, C.; Kreisman, B.; John, A.; Kreisman, N. Room Acoustics and Auditory Rehabilitation Technology. In *Handbook of Clinical Audiology*; Katz, J., Ed.; Lippincott Williams & Wilkins: Philadelphia, PA, USA, 2009.
30. Smaldino, J.J.; Doggett, F.; Thunder, T. The Complimentary Roles of Audiologists and Acoustic Consultants in Solving Classroom Acoustic Problems. *Sem. Hear.* **2004**, *25*, 179–188. [[CrossRef](#)]
31. Johnson, C.D. Making a Case for Classroom Listening Assessment. *Sem. Hear.* **2010**, *31*, 177–187. [[CrossRef](#)]
32. Fitzpatrick, E.M.; Olds, J. Practitioners' Perspectives on the Functioning of School-Age Children with Cochlear Implants. *Cochlear Implant. Int.* **2015**, *16*, 9–23. [[CrossRef](#)]
33. American Speech Language Hearing Association. Schools Survey Report: Trends in Educational Audiology, 2010–2018. Available online: www.asha.org/research/memberdata/schoolssurvey/ (accessed on 23 February 2020).
34. Blood, I.M.; Cohen, L.; Blood, G.W. Job Burnout, Geographic Location, and Social Interaction among Educational Audiologists. *Percept Mot Ski.* **2007**, *105*, 1203–1208. [[CrossRef](#)] [[PubMed](#)]
35. Maslach, C.; Jackson, S.E.; Leiter, M.P. *Maslach Burnout Inventory*, 3rd ed.; Consulting Psychologists Press: Palo Alto, CA, USA, 1996.