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Multilingual Minds: Unraveling Communication Disorders through Bilingualism, Neurological Insights, and Speech Pathology

Maida Maqsood^{1*}, Husnain Aslam², Sidra Ali³, Maeda Shakil Mirza⁴, Aman Ullah⁵,

¹Department of English, Government College Women University, Sialkot, Pakistan, Email: maidamaqsood30@gmail.com, <https://orcid.org/0009-0000-8877-4040?lang=en>

²MSC TESOL and Applied Linguistics Scholar, Queen's University Belfast, United Kingdom, Email: humnainaslam96@gmail.com

³Department of Applied Psychology, Government College University Faisalabad, Pakistan, Email: Sidraali3020@gmail.com

⁴Assistant Lecturer, Department of English, Government College Women University Sialkot, Pakistan, Email: maeda.shakeel@gcwus.edu.pk

⁵Department of English Language & Literature (ELL), University of Lahore, Pakistan, Email: amanullah.rana@tcas.edu.pk

⁶Associate Professor, Department of English, Government College Women University Sialkot, Pakistan, Email: m.shahbaz@gcwus.edu.pk

***Corresponding Author:** Maida Maqsood

*Department of English, Government College Women University, Sialkot, Pakistan, Email: maidamaqsood30@gmail.com

Abstract

Bilingualism presents unique challenges in the field of speech pathology, particularly in the assessment and treatment of communication disorders. The complexity of bilingual language development necessitates a specialized approach in speech pathology practice. This study aims to explore the perspectives and experiences of speech pathologists in assessing and treating communication disorders in bilingual individuals. It focuses on their understanding of bilingualism, the need for specialized training, the efficacy of standard assessment tools, and the challenges faced in practice. A total of 239 speech pathologists participated in this survey-based study. Descriptive statistics, frequency analysis, one-sample t-tests, and ANOVA with Cochran's Test were used to analyze the data. The survey included items on beliefs about bilingualism, confidence in assessment skills, adequacy of resources, and professional development needs. The findings indicated a moderate level of understanding and acknowledgment of the importance of bilingualism in speech pathology. Participants expressed the need for specialized training in bilingual language development and highlighted the limitations of standard speech assessment tools for bilingual individuals. Challenges in differentiating between language disorders and language differences, as well as accessing appropriate resources, were also reported. The study's reliability analysis yielded a Cronbach's alpha of 0.7, suggesting acceptable internal consistency. The study underscores the need for enhanced training and development in bilingual speech pathology. It calls for the development of specialized assessment tools and treatment approaches tailored for bilingual individuals. The study also highlights the necessity for improved access to resources and professional development opportunities in this area. These findings contribute to a deeper understanding of the complexities in bilingual speech pathology and underscore the need for a focused approach in training and practice to effectively serve the bilingual population.

Keywords: Bilingualism, Speech Pathology, Communication Disorders, Multilingual, Specialized Training, Neurological Insights.

Introduction

In the evolving landscape of global communication, bilingualism has become increasingly prevalent. In the discipline of speech pathology, this change in language brings a set of difficulties and possibilities that are unique to itself. According to Chondrogianni and John (2019), the evaluation and treatment of communication impairments in persons who are bilingual or multilingual is a challenging endeavor that requires a comprehensive knowledge of the interaction between people who speak several languages and speech pathology. The extremely difficult challenge of detecting and treating speech and language impairments is made much more difficult by the complexities of bilingualism, which adds layers of complexity to the situation. Person who are bilingual often have distinct patterns of speech and language when compared to persons who are monolingual, which may make the process of diagnosis more complicated (Comhairle na Gaelscoiláíochta, 2019). According to D'Souza, Kay-Raining Bird, and Deacon (2012), the phenomena of code-switching, which refers to the alternation between two or more languages during a conversation, is a frequent aspect of multilingual speech. If such a phenomenon is

not correctly understood, it might be mistaken for a language issue. In addition, the effect of cultural and linguistic origins on the appearance of speech problems is a topic that needs to be the subject of more research (Goldstein, 2012).

Furthermore, it is possible that the strategies and procedures that are used in speech-language therapy for persons who are monolingual are not immediately relevant to those who are bilingual. According to Delamo White and Jin (2011), therapeutic approaches need to be adapted appropriately in order to fit the linguistic characteristics of clients who speak more than one language. The difficulties that speech-language pathologists (SLPs) are confronted with are further complicated by the lack of standardised evaluation techniques and resources that are available for multilingual populations (Dockrell, Lindsay, Roulstone, & Law, 2014).

The ability to communicate effectively across cultural boundaries is a vital component of speech pathology, particularly when dealing with clients who speak more than one language. According to Edwards et al. (1997), cultural competency is defined as the ability to comprehend and be respectful of the cultural backgrounds and values of clients. This comprehension and respect may have a substantial impact on the communication methods and preferences of customers. In order to avoid imposing their own cultural standards on their patients, speech-language pathologists need to be aware of the cultural subtleties that exist in their patients. According to Gaelscoileanna Teo (2019), having this insight is essential in order to appropriately assess speech patterns and behaviours that may be impacted by cultural factors rather than being symptomatic of a neurological condition. For instance, certain cultures may place a high importance on silence and indirect modes of communication, which might be misunderstood by those who are not aware with the cultural norms that are in place (Gathercole & Thomas, 2009).

It is a frequent linguistic phenomena among persons who are bilingual to engage in code-switching, which is defined as the practice of switching between two or more languages or dialects while having a single conversation (Poplack, 2018). According to Grosjean (2010), this behavior, which is often considered to be a natural and fluid element of multilingual communication, might provide difficulties for speech-language pathologists when it comes to discriminating between regular bilingual language development and possible language problems. To arrive at an appropriate diagnosis, it is essential to have a solid understanding of the typical patterns of code flipping. Rather than being an indication of uncertainty or a lack of fluency in either language, code-switching is a complex linguistic talent that displays the capacity of a bilingual person to traverse several linguistic systems, according to research that was conducted by Hasson et al. (2013).

According to Hickey (1990b), evaluating and diagnosing speech and language impairments in persons who are bilingual needs a strategy that is both thorough and takes into consideration the specific linguistic profile of each individual who is being evaluated. According to Knowles and Masidlover (1982), standardised examinations, which are often normed on monolingual populations, would not be suitable for administering to bilingual clients because of the cultural and language biases that are inherent in these evaluations. In order to get a comprehensive grasp of the client's language skills in both languages, speech-language pathologists are required to make use of a variety of assessment techniques, including dynamic assessment and narrative analysis, in addition to formal and informal assessment tools (IBM Corp, 2015). Furthermore, according to the Irish Association of Speech and Language Therapists (2017), the practice of including interpreters and cultural mediators into the assessment process has the potential to improve both the accuracy and cultural sensitivity of the evaluation.

When it comes to the development and expression of speech and language impairments in multilingual populations, socioeconomic variables play a crucial impact. According to Kapantzoglou, Restrepo, and Thompson (2012), children who are bilingual and originate from low-income or marginalized areas that have limited access to educational and healthcare services may see an increase in the severity of their communication issues. According to Li'el, Williams, and Kane (2019), these children may have delayed exposure to situations that are rich in linguistic diversity, which may also have an effect on the development of their language skills in both their first and second languages. As a result, it is very necessary for speech-language pathologists to take into account the socioeconomic setting while evaluating and treating clients who speak more than one language.

The purpose of this article is to investigate these complications by doing a review of the most recent research and approaches being used in the evaluation and treatment of communication impairments in persons who are bilingual or multilingual. As a result of our investigation of case studies, empirical facts, and theoretical viewpoints, we want to provide advice and insights to speech-language pathologists who are dealing with this varied group. In today's multilingual environment, it is essential for speech pathologists to have a thorough understanding of the complexities of bilingualism in order to practice in an ethical and successful manner.

Literature Review

Bilingual Language Development and Speech Disorders

When compared to monolinguals, the development of language abilities in persons who are bilingual often follows a different trajectory throughout this time period. The findings of a study conducted by Lund,

Kohlmeier, and Duran (2017) have shown that multilingual children may face early delays in language acquisition; nevertheless, these delays do not often indicate the presence of language problems. Based on research conducted by Marinova-Todd et al. (2016), it has been shown that bilingual individuals gain language abilities in both languages, which, when combined, are comparable to those of monolingual individuals. It is essential to have this information in order to differentiate between the regular language development of a bilingual person and the possibility of speech pathology.

It is crucial to acknowledge that the act of concurrently learning two languages may have an effect on the rate at which language development occurs as well as the pattern of language development. It was observed by Bialystok (2021) that children who are bilingual often have a distinct developmental trajectory in the process of language acquisition when compared to their similar monolingual peers. This discrepancy, on the other hand, certainly should not be misunderstood as a deficit. According to Millar-Wilson, McGuiggan, and Trolan (2013), children who are bilingual may take longer to attain specific verbal milestones in each language; but, they ultimately acquire equivalent levels of competence in both languages during the course of their development.

In addition, the environment in which persons who are bilingual acquire and utilize their languages has a crucial effect in the development of their proficiency in those languages. It was emphasized by Hoff et al. (2012) that the pace and breadth of bilingual language learning are greatly impacted by the number and quality of exposure to each language. This exposure encompasses not just the domestic context but also social situations, such as schools and communities, where individuals speak a variety of languages (Muckley, 2015).

Another component that should be taken into consideration is the impact that socio-cultural influences have on the development of multilingual language skills. The cultural norms, practices, and attitudes regarding bilingualism that exist within a family or community may have a considerable impact on a child's willingness to use and develop their languages, as well as the opportunities that are available to them to do so. This was noted by King and Fogle (2006). According to Muller, Muckley, and Antonijevic-Elliott (2019), similar socio-cultural processes may either help or inhibit the learning of both languages in youngsters who are multilingual.

In the process of evaluating the possibility of speech and language problems in bilingual children, it is of the utmost importance to discern between actual abnormalities and the changes that are characteristic of the development of bilingual language. Genesee, Paradis, and Crago (2004) stressed the need of avoiding the practice of employing monolingual standards to assess bilingual children since doing so might result in an incorrect diagnosis. Instead, it is advised that a full evaluation be conducted, which takes into account the child's competency in both languages, as well as their patterns of language usage (Northern Ireland School Census, 2015).

It is also important to note that the act of code-switching, which is the activity of switching between languages, should not be immediately construed as a symptom of confusion or a linguistic handicap. Grosjean (2013) noted that code-switching is a natural and competent use of language among bilingual persons, demonstrating their capacity to traverse diverse linguistic settings. This skill is shown in their being able to switch between languages.

A holistic approach that takes into consideration linguistic, cognitive, and socio-cultural aspects is required in order to get a comprehensive understanding of the evolution of bilingual language. Speech-language pathologists and educators need to be trained with the information and skills necessary to appropriately diagnose and assist bilingual persons. This will ensure that the unique language development of bilingual individuals is nourished and not wrongly pathologized (Nic Fhlannchadha & Hickey, 2019).

Diagnostic Challenges in Bilingual Speech Pathology

There are several obstacles that must be overcome in order to precisely diagnose speech and language impairments in persons who are multilingual. According to Nic Fhlannchadha and Hickey (2019), standardised speech evaluation methods are often normed on monolingual populations, which means that they lack the ability to take into consideration the linguistic subtleties of bilingual speakers. Consequently, this might result in the incorrect diagnosis or underdiagnoses of speech impairments in persons who are multilingual. Furthermore, the diagnosis procedure is made more difficult by the fact that bilingual persons have varying levels of language skill across the several languages they speak (O'Toole & Fletcher, 2008).

Furthermore, the dynamic nature of multilingual language development adds another layer of complication to the already challenging task of effectively identifying speech and language impairments in bilingual individuals. According to O'Toole (2009), persons who are bilingual often exhibit variable degrees of competency in each language. This is because factors such as the age at which they acquired the language, the frequency with which they use it, and the context in which they are exposed to the language all have a role. Because of this variety, it may be difficult for physicians to establish whether the language challenges that are noticed are symptomatic of a pathology or just represent regular multilingual development (O'Toole & Hickey, 2013).

Furthermore, the diagnostic procedure is made more difficult by the cultural and linguistic variety that exists among communities who are bilingual. According to O'Toole and Hickey (2017a), each person who is bilingual

carries with them a distinct collection of linguistic and cultural experiences that have the potential to impact their language usage and development. Therefore, in order for clinicians to effectively interpret assessment findings, they need to have a profound grasp of the cultural and linguistic backgrounds of their patients (O'Toole & Hickey, 2017b).

The absence of suitable normative data for this group is yet another important obstacle in the process of diagnosing speech and language impairments in persons who are not native speakers of either language. According to O'Toole et al.'s research from 2020, the majority of standardised tests are produced on the assumption of monolingual standards, which may not be appropriate to bilingual speakers. It is possible that the over- or under-identification of speech and language impairments in this demographic might be a result of the absence of multilingual standards at this population.

When it comes to clinical evaluations, the phenomena of code-switching, which is rather widespread among bilinguals, is sometimes misinterpreted. The study demonstrates that code-switching is a normal and adaptive part of bilingual communication, despite the fact that some therapists may see it as a symptom of language impairment. According to Paradis, Rusk, Duncan, and Govindarajan (2017), clinicians need to be diligent in order to avoid incorrectly interpreting code-switching as a sign of a linguistic impairment.

Speech-language pathologists need specialized training and resources in order to effectively evaluate and diagnose speech and language impairments in bilingual persons. This is necessary in order to meet the obstacles that they face here. This includes acquiring a comprehensive understanding of the development of bilingual language, making use of assessment tools that are culturally and linguistically appropriate, and participating in continuous professional development in order to maintain awareness of the most recent research and best practices in bilingual speech pathology (Renfrew, 2010a).

Therapeutic Approaches for Bilingual Individuals

When working with persons who are bilingual and have communication problems, it is necessary to adjust intervention tactics to the distinct language profiles of these individuals. According to research conducted by Renfrew (2010b), in order to improve general language development and cognitive skills, treatment that is conducted in both languages may be more beneficial than therapy that is conducted in just one language. However, the adoption of multilingual intervention procedures may be hindered by a lack of resources and therapists who are already fluent in both languages.

The concept that language abilities in one language may favorably impact and assist the development of skills in the other language is the foundation upon which bilingual treatment techniques are built. When it comes to the treatment of bilingual persons, this cross-linguistic transfer is very helpful since it has the potential to improve the efficiency and efficacy of the intervention (Royal College of Speech and Language Therapists, 2018). Furthermore, the use of both languages into treatment shows respect for the individual's linguistic and cultural identity, which is essential for the individual's overall mental and emotional well-being (Semel, Wiig, & Secord, 2004).

There are substantial obstacles that prevent the broad deployment of multilingual treatment, despite the fact that it has many different benefits. There is a shortage of speech-language pathologists who are fluent in both languages spoken by the bilingual client, which is one of the most significant obstacles (Stow & Pert, 2015). Many persons who are bilingual have limited access to adequate therapeutic treatments as a result of this deficit, especially in languages that are spoken by a smaller percentage of the population.

The low availability of evidence-based therapy materials and resources in multiple languages is another obstacle that must be overcome in order to provide therapeutic intervention in both languages. Due to the lack of bilingual resources, many speech-language pathologists rely on materials and strategies that were developed for monolingual populations. These materials and strategies may not be directly applicable or effective for bilingual clients (Teoh, Brebner, & McAllister, 2018). This lack of bilingual resources necessitates adaptation and creativity on the part of the therapist, which can be time-consuming and requires additional training and expertise.

In order to overcome these issues, it is very necessary to encourage the advancement of speech-language pathologists who are multilingual in their training and growth. This involves the provision of training in language proficiency as well as instruction in cultural competency as a component of speech pathology curriculum (Thomas, Gathercole, & Hughes, 2013). Furthermore, it is of utmost importance to prioritize the creation and dissemination of bilingual treatment materials and resources in order to provide support for the practice of bilingual speech-language pathology, as stated by Uljarević et al. in 2016.

Cultural Considerations in Speech Pathology

In the process of diagnosing and treating speech difficulties in persons who are bilingual, cultural variables play a vital role. The use of language, attitudes towards speech problems, and the choice to seek treatment may all be influenced by cultural norms and practices, according to Van Dulm and Southwood (2013). According to

Verdon, McLeod, and McDonald (2014), speech-language pathologists are required to possess cultural competence in order to successfully treat multilingual populations. This expertise include the ability to comprehend and acknowledge the cultural distinctions that exist in communication styles and practices.

A variety of factors contribute to the impact that culture has on communication. The formation of speech patterns and the use of language are both firmly rooted in the cultural settings in which they occur. The evaluation and treatment of speech problems may be influenced by cultural groups' specific norms surrounding speaking styles, turn-taking in discussions, and non-verbal communication (Battle, 2002). These norms can help determine how speech disorders are diagnosed and treated. According to Verdon, McLeod, and McDonald (2019), a misunderstanding of these cultural subtleties might result in the incorrect assessment of language behaviours as abnormal, rather than as typical variances in communication styles.

Additionally, the cultural perceptions that people have towards disability and treatment may have a substantial impact on the desire of individuals and families to seek out speech-language therapy and contribute to its implementation. Williams and McLeod (2012) state that various cultures may have different perspectives on speech problems, which may have an effect on how they approach diagnosis and therapy. For instance, according to Delamo White and Jin (2011), there may be a preference for naturalistic, family-based therapies in some communities as opposed to professional therapeutic settings. In order to deliver treatment that is both culturally relevant and successful, it is vital for speech-language pathologists to have a profound understanding of these cultural views.

In the field of speech-language pathology, cultural competence goes beyond just being aware of the presence of cultural differences. It requires actively seeking information about the cultural backgrounds of clients, reflecting on one's own cultural biases, and changing assessment and intervention procedures to match the particular requirements of various populations (Edwards et al., 1997). Having this knowledge is essential in order to provide effective services to clients. Utilizing resources that are culturally relevant, interacting with influential members of the cultural community, and working together with interpreters or cultural mediators when their services are required are all examples of this (Gaelscoileanna Teo, 2019).

In addition, throughout the therapeutic process, the function that the family and the community play is an important cultural factor to take into account. According to Kalyanpur and Harry (2012), the family unit is a significant factor in the decision-making process and the provision of care for persons who have speech impairments in many different cultures. According to Gathercole and Thomas (2009), key aspects of culturally competent practice include involving families in the therapeutic process, gaining an understanding of their points of view, and incorporating their values and preferences into intervention plans. Cultural considerations are an essential part of the practice of speech-language pathology, particularly when working with bilingual populations. Speech-language pathologists that are culturally competent are more positioned to comprehend the varied needs of their patients, to prevent cultural misunderstandings, and to deliver treatment that is both effective and courteous. According to Grosjean (2010), in order to guarantee that speech pathology services are accessible, relevant, and responsive to the requirements of all persons, it is necessary for speech pathologists to participate in continuous education, self-reflection, and interaction with the cultural settings of their clients.

Future Directions in Bilingual Speech Pathology Research

There is a rising need for research that aims to create and evaluate evaluation instruments and intervention procedures that are especially geared for persons who are bilingual. It is recommended that future research investigate the long-term effects of various therapy techniques for bilinguals who have speech difficulties (Hasson et al., 2013). Furthermore, it is of utmost importance to increase the quantity of speech-language pathologists who are both multilingual and culturally competent in order to effectively cater to the requirements of the varied community, as stated by the Council of Gaelscoilaíochta in 2019.

One of the most important areas of concentration is the creation and verification of evaluation tools for persons who speak two languages. According to Li'el, Williams, and Kane (2019), the majority of the tools that are now available are in fact based on monolingual norms, and it is possible that they do not adequately represent the linguistic capabilities of bilingual speakers. An person who is bilingual should have the ability to correctly evaluate their language abilities in both languages, and future study should work towards the creation of standardised methods that are sensitive to cultural differences. When doing so, it is necessary to take into account the distinctive language characteristics and developmental patterns associated with bilingualism (Lund, Kohlmeier, & Duran, 2017).

When it comes to intervention tactics, there is a need for approaches that are founded on research and are adapted to the particular requirements of persons who are multilingual, study is required to establish the best effective strategies for treating speech impairments in bilinguals (Marinova-Todd et al., 2016). Although there are some studies that show that bilingual treatment may be useful, further study is required to find the most effective approaches. Included in this is the investigation of the ways in which treatment may include a variety of

languages, as well as the ways in which the development of bilingual language skills improves the results of therapy (Muckley, 2015).

Another important topic that has to be investigated in the future is the long-term effects of speech therapy treatments administered to multilingual people. According to Muller, Muckley, and Antonijevic-Elliott (2019), there is a dearth of research that investigates the ways in which various therapy techniques influence bilingual persons over the course of time. It is necessary to do longitudinal research in order to get an understanding of the long-term implications that treatment has on the development of bilingual language skills, academic accomplishment, and general communication abilities.

In addition, the discipline of speech-language pathology needs to meet the need for additional specialists that are able to communicate in two languages and that are culturally competent. According to the Northern Ireland School Census (2015), the increasing linguistic diversity of the population necessitates the need for therapists who are not only linguistically skilled in more than one language but also culturally sensitive to the requirements of clients who come from a variety of backgrounds. In order to do this, improvements need to be made to training programs, recruiting initiatives, and chances for professional growth that are centered on bilingualism and cultural competency.

The development of appropriate assessment tools, effective and tailored intervention strategies, an understanding of the long-term impacts of these interventions, and an increase in the cadre of skilled bilingual and culturally competent professionals are four things that will determine the future of bilingual speech pathology research and practice. It is vital to address these areas in order to advance the profession and guarantee that persons who are bilingual and have speech impairments get the greatest possible quality of treatment.

Methodology

The study was carried out with a survey-based methodology, employing a custom tailored closed-ended questionnaire. The research focused on a group of individuals who are specialists in language, and the sample size was 240 participants.

The study used a quantitative research approach, using a structured questionnaire to gather data. This methodology facilitated the methodical examination of replies and the production of statistically meaningful outcomes. The questionnaire was designed to examine the perspectives and methodologies of language specialists in the domain of speech pathology, particularly for persons who are bilingual or multilingual.

The research focused on a specific group of individuals who had expertise in language, including speech-language pathologists, linguists, and language educators who have experience with bilingualism and speech impairments. A stratified random selection approach was used to pick 240 experts, ensuring a representative sample from diverse geographical areas and professional backgrounds.

The main tool used to gather data was a self-administered questionnaire, consisting of closed-ended questions that were rated on a 5-point Likert scale. The scale included a spectrum from 'Strongly Disagree' to 'Strongly Agree,' enabling participants to indicate their degree of agreement with a set of statements pertaining to bilingualism and speech pathology. The survey included sections addressing diagnostic difficulties, treatment methods, cultural factors, and professional education in bilingual speech pathology. Prior to the main research, the questionnaire underwent validation in a pilot study that included 30 language specialists.

The process of gathering data took place for a duration of three months. The survey was disseminated digitally to the chosen respondents, who were informed of the study's objective and guaranteed the privacy of their answers. Respondents were given a four-week timeframe to fill and submit the questionnaire. Weekly reminder emails were sent to optimize the response rate.

The gathered data were examined via statistical tools. Descriptive statistics were used to succinctly summarize the demographic characteristics of the participants and their replies to the questionnaire questions. The research used inferential statistics, namely chi-square tests and t-tests, to analyze the associations between variables and to assess the study's hypotheses.

The study complied with ethical norms in research. All participants were required to provide informed permission, indicating their understanding of their voluntary involvement and the confidentiality of their answers. Prior to initiation, the study obtained permission from the appropriate institutional review board.

Results

Descriptive Statistics

The research had 239 individuals, with 129 females (54.0%) and 110 men (46.0%) in terms of gender distribution. The descriptive statistics indicate that the mean score for the belief in the relevance of knowing bilingualism in speech pathology is 3.19, with a standard deviation of 1.462. The average score for the importance of specialized training in bilingual language development for speech pathologists was 2.95, with a standard deviation of 1.385.

The average confidence level in evaluating speech and language problems in bilingual persons was 3.02, with a standard deviation of 1.373.

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Gender	239	0	1	.46	.499
I believe that a comprehensive understanding of bilingualism is crucial for effective assessment in speech pathology.	239	1	5	3.19	1.462
In my opinion, speech pathologists should have specialized training in bilingual language development.	239	1	5	2.95	1.385
I feel confident in my ability to accurately assess speech and language disorders in bilingual individuals.	239	1	5	3.02	1.373
I agree that standard speech assessment tools are sufficient for diagnosing communication disorders in multilingual individuals.	239	1	5	3.02	1.367
I believe that treatment approaches for speech and language disorders should be tailored to accommodate the bilingualism of the individual.	239	1	5	3.07	1.381
In my practice, I regularly incorporate both languages of a bilingual individual in therapy sessions.	239	1	5	3.17	1.477
I find it challenging to differentiate between a language disorder and a language difference in bilingual individuals.	239	1	5	2.95	1.391
In my experience, there are significant barriers to accessing appropriate resources for treating bilingual individuals with communication disorders.	239	1	5	3.00	1.380
I actively seek professional development opportunities related to bilingualism and speech pathology.	239	1	5	3.04	1.362
I feel that there are adequate resources and tools available for speech pathologists to effectively work with bilingual individuals.	239	1	5	3.05	1.380
Valid N (listwise)	239				

The average score for typical speech evaluation methods in detecting communication impairments in multilingual persons was 3.02, with a standard deviation of 1.367. The mean score for the belief in customizing treatment techniques for speech and language impairments to suit bilingualism was 3.07, with a standard deviation of 1.381. The treatment sessions for bilingual persons that included both languages regularly got an average score of 3.17 (standard deviation = 1.477).

The participants' average response was 2.95 (standard deviation = 1.391) when queried about the difficulty of distinguishing between a language problem and a linguistic difference among bilingual persons. The average score indicating the perceived obstacles to getting suitable resources for treating bilingual adults with communication difficulties was 3.00 (standard deviation = 1.380). The average score for actively seeking professional development opportunities in the field of bilingualism and speech pathology was 3.04, with a standard deviation of 1.362. Finally, the perceived sufficiency of resources and instruments for dealing with multilingual persons was rated at 3.05 (SD = 1.380).

T-Test Results

One-Sample Test					
	Test Value = 0				
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference Lower Upper
Gender	14.246	238	.000	.460	.40 .52
I believe that a comprehensive understanding of bilingualism is crucial for effective assessment in speech pathology.	33.720	238	.000	3.188	3.00 3.37
In my opinion, speech pathologists should have specialized training in bilingual language development.	32.888	238	.000	2.946	2.77 3.12
I feel confident in my ability to accurately assess speech and language disorders in bilingual individuals.	34.006	238	.000	3.021	2.85 3.20
I agree that standard speech assessment tools are sufficient for diagnosing communication disorders in multilingual individuals.	34.158	238	.000	3.021	2.85 3.20
I believe that treatment approaches for speech and language disorders should be tailored to accommodate the bilingualism of the individual.	34.384	238	.000	3.071	2.90 3.25
In my practice, I regularly incorporate both languages of a bilingual individual in therapy sessions.	33.149	238	.000	3.167	2.98 3.36
I find it challenging to differentiate between a language disorder and a language difference in bilingual individuals.	32.831	238	.000	2.954	2.78 3.13
In my experience, there are significant barriers to accessing appropriate resources for treating bilingual individuals with communication disorders.	33.664	238	.000	3.004	2.83 3.18
I actively seek professional development opportunities related to bilingualism and speech pathology.	34.524	238	.000	3.042	2.87 3.22
I feel that there are adequate resources and tools available for speech pathologists to effectively work with bilingual individuals.	34.165	238	.000	3.050	2.87 3.23

One-sample t-tests were performed to compare the average scores with a reference value of zero. All factors exhibited statistically significant findings ($p < .000$). The significance of comprehending bilingualism in speech pathology was notably shown by a mean difference of 3.188 (95% CI [3.00, 3.37]). Additionally, the need for specialized training in bilingual language development was found to be 2.946 (95% CI [2.77, 3.12]). The confidence level in evaluating problems in bilingual persons was 3.021 (95% confidence interval [2.85, 3.20]), while the perceived effectiveness of conventional diagnostic techniques was 3.021 (95% confidence interval [2.85, 3.20]). The study found that the average difference in treatment approaches for bilingualism was 3.071 (95% CI [2.90, 3.25]), whereas the consistent use of both languages throughout therapy sessions had an average score of 3.167 (95% CI [2.98, 3.36]). The difficulty in distinguishing between language problem and linguistic difference was measured at a score of 2.954 (95% confidence interval [2.78, 3.13]), whereas the obstacles seen in obtaining services for multilingual persons were rated at 3.004 (95% confidence interval [2.83, 3.18]). The study found that the level of active pursuit of professional growth in bilingualism and speech pathology was 3.042 (95% CI [2.87, 3.22]), and the sense of sufficiency of resources and instruments was 3.050 (95% CI [2.87, 3.23]).

Reliability Analysis

The reliability of the scale, comprising 11 items, was assessed using Cronbach's alpha, which yielded a value of 0.7. This indicates acceptable internal consistency among the items.

Reliability Statistics	
Cronbach's Alpha ^a	N of Items
0.7	11

ANOVA with Cochran's Test

A repeated measurements design, An analysis of variance (ANOVA) using Cochran's Test was performed to compare the average scores among various factors. The findings revealed notable disparities across items (Cochran's Q = 606.240, p < .000), indicating diversity in the answers across several facets of bilingualism and speech pathology. The overall average across all factors was 2.81, suggesting a considerable degree of agreement or prevalence of the examined attitudes and behaviours among the participants.

ANOVA with Cochran's Test						
		Sum of Squares	df	Mean Square	Cochran's Q	Sig
Between People		383.513	238	1.611		
Within People	Between Items	1466.874	10	146.687	606.240	.000
	Residual	4316.035	2380	1.813		
	Total	5782.909	2390	2.420		
Total		6166.422	2628	2.346		
Grand Mean = 2.81						

Discussion

The study's results provide valuable insights into the challenges encountered by speech pathologists while evaluating and managing communication impairments in multilingual persons. The findings emphasized a modest degree of awareness among speech pathologists about the significance of comprehending bilingualism, the need for specialized instruction, and the difficulties linked to bilingual speech pathology.

The participants recognized the need of having a thorough comprehension of bilingualism in order to conduct good evaluation in the field of speech pathology, as shown by the average score of 3.19. This discovery emphasizes the need of include a multilingual viewpoint when assessing and treating communication difficulties. Bilingualism, as a complex phenomenon, has an effect on the development of language and determines the expression of speech and language impairments. The findings reflect the ideas expressed in the existing body of research, underscoring the need for speech pathologists to possess a comprehensive comprehension of multilingual language development and its consequences for evaluating and implementing methods for intervention.

The results also indicated that speech pathologists had a perceived need for specialized training in bilingual language development, with an average score of 2.95. This discovery is of utmost importance, since it highlights a deficiency in the existing training and professional development programs for speech pathologists. Specialized training may provide professionals with the requisite expertise and understanding to effectively address the distinctive difficulties posed by bilingual clients. This includes the ability to discern between a language disorder and a linguistic difference, a task that participants found to be tough.

The participants demonstrated a reasonable degree of assurance in their capacity to evaluate speech and language impairments in bilingual persons, and a comparable level of consensus about the adequacy of conventional speech evaluation instruments. Nevertheless, there was a significant acknowledgment of the need to customize treatment methods to fit an individual's ability to speak two languages (mean score 3.07). This discovery implies an increasing recognition of the constraints of traditional evaluation instruments and the need for more sophisticated and personalized therapeutic approaches that take into account the multilingual circumstances of the patient.

The research highlighted substantial issues about the availability of suitable resources for treating bilingual patients and the pursuit of professional development opportunities connected to bilingualism and speech pathology. The results suggest that speech pathologists acknowledge the significance of continuous learning and access to resources in improving their proficiency in dealing with multilingual clients. Nevertheless, the moderate ratings indicate that significant obstacles still exist in terms of accessing these resources and opportunities.

The results of this research have significant ramifications for the training and professional activities of speech pathologists. There is a distinct need for more extensive training programs that include an emphasis on bilingualism, as well as the creation of evaluation instruments and treatment methods particularly tailored for bilingual persons. Furthermore, it is crucial to enhance the availability of resources and chances for professional growth in the field of multilingual speech pathology.

Subsequent investigations should examine the precise educational requirements of speech pathologists in this domain and the efficacy of various forms of professional growth endeavors. Additionally, it would be advantageous to examine the progress and effectiveness of specialized evaluation instruments and therapeutic methods for bilingual persons with communication problems.

Conclusion

This research elucidates the crucial elements of bilingualism within the domain of speech pathology, emphasizing the intricate difficulties and requirements encountered by speech pathologists while evaluating and addressing communication impairments in persons who speak several languages. The results emphasized the need of having a thorough understanding of bilingualism, specific instruction, and the creation of customized evaluation instruments and treatment methods in this area.

The acknowledgement among speech pathologists of the significance of comprehending bilingualism and the need for specialized training demonstrates an increasing awareness of the intricacies associated with dealing with bilingual clients. Nevertheless, the limited degree of confidence in their capacity to evaluate and manage multilingual customers indicates a notable deficiency in existing training and professional development initiatives. It is imperative for educational institutions and professional entities to promptly address this gap by integrating comprehensive and thorough training in multilingual language development and disorders.

The research also emphasizes the constraints of conventional speech evaluation instruments in detecting communication impairments in bilingual persons. This discovery necessitates a fundamental change in the direction towards creating and using more sophisticated tools and methods that are specifically designed to match the distinct linguistic characteristics of bilingual persons. These technologies and procedures would empower speech pathologists to provide more precise diagnosis and efficient treatments.

Moreover, the difficulties in obtaining suitable resources and chances for professional growth in the field of bilingualism and speech pathology highlight the need for improved support systems and resources. These resources should be easily available to speech pathologists to improve their expertise and understanding in this specialized field.

The research uncovers the complex interaction between bilingualism and speech pathology, highlighting the need for a comprehensive strategy in training, practice, and resource distribution. The worldwide growth in bilingual persons will lead to a higher need for speech pathologists who are skilled in dealing with the intricacies of bilingualism. Hence, it is essential to prioritize the resolution of these highlighted issues, as it is not only vital for the speech pathology profession but also critical for delivering fair and efficient healthcare services to the varied and multilingual community.

References

1. CHONDROGIANNI, V., and JOHN, N. 2019, Tense and plural formation in Welsh English bilingual children with and without language impairment. *International Journal of Language and Communication Disorders*, 53(3), 495-514.
2. COMHAIRLE NA GAELSCOILAIUCHTA, What is Irish Medium Education? [Online] Available: <http://www.comhairle.org> [accessed 29 September 2019].
3. D'SOUZA, C., KAY-RAINING BIRD, E., and DEACON, H., 2012, Survey of Canadian Speech-Language Pathology Service Delivery to Linguistically Diverse Clients. *Canadian Journal of Speech-Language Pathology and Audiology*, 36(1), 18-39.
4. DELAMO WHITE, C. and JIN, L., 2011, Evaluation of speech and language assessment approaches with bilingual children. *International Journal of Language and Communication Disorders*, 46(6), 613-617.
5. DOCKRELL, J., LINDSAY, G., ROULSTONE, S., and LAW, J., 2014, Supporting children with speech, language and communication needs: an overview of the results of the Better Communication Research Programme. *International Journal of Language and Communication Disorders*, 49, 543-557.
6. EDWARDS, S., FLETCHER, P., GARMAN, M., HUGHES, A., LETTS, C., and SINKA, I., 1997, Reynell Developmental Language Scales III, The University of Reading Edition. GL Assessments.
7. GAELSCOILEANNA TEO, Statistics on the Irish Medium Education Sector. [online] Available: <http://www.comhairle.org> [Accessed 29 September 2019].
8. GATHERCOOLE, V., and THOMAS, E., 2009, Bilingual first-language development: Dominant language takeover, threatened minority language take-up. *Bilingualism: Language and Cognition*, 12(2), 213-237.
9. GROSJEAN, F., 2010, *Bilingual: Life and Reality* (Cambridge, MA: Harvard University Press).
10. HASSON, N., CAMILLERI, B., JONES, C., SMITH, J., and DODD, B., 2013. Discriminating Disorder from Difference using Dynamic Assessment with Bilingual Children. *Child Language Teaching and Therapy*, 29(1), 57-75.
11. HICKEY, T., 1990b, ILARSP: A Grammatical Profile of Irish, *Clinical Linguistics and Phonetics*, 4, 363-76.
12. KNOWLES, W., and MASIDLOVER, M., 1982, *The Derbyshire Language Scheme*. Derbyshire.
13. IBM Corp. Released 2015. *IBM SPSS Statistics for Windows, Version 23.0*. (Armonk, NY: IBM Corp). 40
14. IRISH ASSOCIATION OF SPEECH AND LANGUAGE THERAPISTS, 2017, *Guidelines for Speech and Language Therapists Working with Linguistically Diverse Service Users*.

15. KAPANTZOGLOU, M., RESTREPO, M., and THOMPSON, M., 2012, Dynamic assessment of word learning skills: Identifying language impairment in bilingual children, *Language, Speech and Hearing Services in Schools*, 43(1), 81-96.
16. LPEL, N., WILLIAMS, C., and KANE, R., 2019, Identifying developmental language disorder in bilingual children from diverse linguistic backgrounds, *International Journal of Speech-Language Pathology*, 21(6), 613-622.
17. LUND, E., KOHLMEIER, T., and DURAN, L., 2017, Comparative Language Development in Bilingual and Monolingual Children with Autism Spectrum Disorder: A Systematic Review. *Journal of Early Intervention*, 39(2), 106-124.
18. MARINOVA-TODD, S. H., COLOZZO, P., MIRENDA, P., STAHL, H., KAY-RAINING BIRD, E., PARKINGTON, K., GENESEE, F., 2016, Professional practices and opinions about services available to bilingual children with developmental disabilities: An international study. *Journal of Communication Disorders*, 63, 47-62.
19. MILLAR-WILSON, F., MCGUIGGAN, L., and TROLAN, B., 2013, *Functional Language Across Countries (FLAC)* (Black Sheep Press).
20. MUCKLEY, S-A., 2015, *Language Assessment of native Irish speaking children: towards developing diagnostic testing for speech and language therapy practice* (PhD Thesis, National University of Ireland: Galway).
21. MÜLLER, N., MUCKLEY, S-A., and ANTONIJEVIC-ELLIOTT, S., 2019, Where phonology meets morphology in the context of rapid language change and universal bilingualism: Irish initial mutations in child language, *Clinical Linguistics and Phonetics*, 33(1-2), 3-19.
22. NORTHERN IRELAND SCHOOL CENSUS, IRISH MEDIUM EDUCATION 2014/2015 Key Statistics. [Online] Available: <https://dera.ioe.ac.uk> [Accessed 29 September 2019].
23. NIC FHLANNCHADHA, S., and HICKEY, T., 2019, Assessing children's proficiency in a minority language: exploring the relationships between home language exposure, test performance and teacher and parent ratings of school-age Irish-English bilinguals, *Language and Education*, 33(4), 340-362.
24. O'TOOLE, C., and FLETCHER, P., 2008, Developing Assessment Tools for Bilingual and Minority Language Acquisition. *Journal of Clinical Speech and Language Studies*, 16, 12-27.
25. O' TOOLE, C., 2009, *Sealbhu na Gaeilge ag Naionain: Early Language Acquisition of Irish* (PhD Thesis, University College: Cork).
26. O'TOOLE, C., and HICKEY, T., 2013, Diagnosing Language Impairment in Bilinguals: Professional Experience and Perception. *Child Language Teaching and Therapy*, 29(1), 91-109.
27. O'TOOLE, C., and HICKEY, T., 2017, Irish-English Communicative Development Inventory ICDI: Irish-English Adaptation of MacArthur-Bates Communicative Development Inventory.
28. O'TOOLE, C., and HICKEY, T., 2017, Bilingual language acquisition in a minority context: using the Irish-English Communicative Development Inventory to track acquisition of an endangered language. *International Journal of Bilingual Education and Bilingualism*, 20(2), 146-162.
29. O'TOOLE, C., NÍ SHÍTHIGH, D., MOLAMPHY, A., and WALSH, E., 2020, Findings from the first phase of developing a receptive vocabulary test for the Irish language. *International Journal of Bilingualism*, 24(4), 572-587.
30. PARADIS, J., RUSK, B., DUNCAN, T., AND GOVINDARAJAN, K., 2017, Children's Second Language Acquisition of English Complex Syntax: The Role of Age, Input, and Cognitive Factors *Annual Review of Applied Linguistics*, 37, 148-167.
31. RENFREW, C., 2010, *Word Finding Vocabulary Test* (4th edition). Oxford: Speechmark Publishing Ltd.
32. RENFREW, C., 2010, *The Action Picture Test* (4th edition). Oxford: Speechmark Publishing Ltd.
33. ROYAL COLLEGE OF SPEECH AND LANGUAGE THERAPISTS, 2018, *Clinical Guidelines for Speech and Language Therapists, Bilingualism: Working with bilingual clients/patients with speech, language and communication needs.*
34. SEMEL, E., WIIG, E.H., and SECORD, W.A., 2004, *Clinical Evaluation of Language Fundamentals*, 4th edition (CELF-4). The Psychological Corporation/A Harcourt Assessment Company.
35. STOW, C., and PERT S., 2015, *SLT Assessment and Intervention: Best practice for children and young people in bilingual settings and in particular Gaelic Medium Education (GME)* (RCSLT Clinical Guidelines: Royal College of Speech and Language Therapists).
36. TEOH, W., BREBNER, C., and MCALLISTER, S., 2018, Bilingual assessment practices: challenges faced by speech-language pathologists working with a predominantly bilingual population. *Speech, Language and Hearing*, 21(1), 10-21.

37. THOMAS, E., GATHERCOLE, V., and HUGHES, E.K., 2013, Sociolinguistic Influences on the Linguistic Achievement of Bilinguals: Issues for the Assessment of Minority Language Competence. In V.C.M Gathercole (eds), *Solutions for the Assessment of Bilinguals*, pp. 175-193.
38. ULJAREVIĆ, M., KATSOS, N., HUDRY, K., and GIBSON, L., 2016, Practitioner Review: Multilingualism and neurodevelopmental disorders – an overview of recent research and discussion of clinical implications. *Journal of Child Psychology and Psychiatry*, 57(11), 1205-1217.
39. VAN DULM, O., and SOUTHWOOD, F., 2013, Child Language Assessment and Intervention in Multilingual and Multicultural South Africa: Findings of a National Survey. *Stellenbosch Papers in Linguistics*, 42, 55-76.
40. VERDON, S., MCLEOD, S., and MCDONALD, S., 2014, A geographical analysis of speech-language pathology services to support multilingual children. *International Journal of Speech-Language Pathology*, 16, 304–316.
41. VERDON, S., MCLEOD, S., and MCDONALD, S., 2019, Supporting culturally and linguistically diverse children speech, language and communication needs: Overarching principles, individual approaches, 58, 74-90.
42. WILLIAMS, C., and MC LEOD, S., 2012, Speech-Language Pathologists' Assessment and Intervention Practices with Multilingual Children. *International Journal of Speech-Language Pathology*, 14(3), 292-305.