

“Were the Fathers Available?”: An Evaluation of Fathers’ Involvement in Emergency Remote Education of Learners Who Are Deaf/Hard of Hearing

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Abstract

Prior to the emergence of the coronavirus disease in 2019 (COVID-19), studies revealed lower involvement of fathers in the education of learners who are Deaf and Hard of hearing (LDHH). Although research evidence reveals that work structure and other commitments may be responsible for fathers’ limited involvement in the education of their children, there is limited research evidence on the involvement of fathers of LDHH in remote education during the COVID-19 lockdowns. Based on the perceptions of mothers of LDHH, this study therefore explored fathers’ involvement in the remote education of their LDHH. Hinged on the Theory of Planned Behaviour, two research questions were raised and answered in the study. Eight mothers of LDHH from KwaZulu-Natal province in South Africa participated in this qualitative study. Data was gathered via a semi-structured telephonic interview, and the collected data was analysed thematically. The findings revealed that: (i) the involvement of fathers in the remote education of LDHH saw a fair increase during the lockdowns when compared to the pre-COVID-19 era; (ii) (ii) father-child communication approaches, technical devices needed for remote learning, and ability to intervene promptly when technical glitches arises were factors that influenced the perceptions of the fathers’ involvement in the remote education of LDHH during the lockdowns. Based on the findings, appropriate recommendations were made for policy and practice.

Keywords: Fathers’ involvement, remote education, learners who are deaf and hard of hearing, COVID-19, sign language

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Learners who are deaf and/or hard of hearing (LDHH) are individuals who have difficulties responding to auditory-verbal stimuli through the organ of hearing (Adigun, 2020; Alshawabkeh et al., 2021). In other words, they have hearing disabilities which are not readily visible and only become evident when interpersonal interactions involve the exchange of verbal cues. Inopportunately, LDHH are a heterogeneous group of individuals who are slower than their hearing peers at developing age-appropriate vocabularies. In addition, they have difficulty understanding words with multiple meanings (Adigun, 2019). For example, they may have sufficient challenges to decipher words that may have several meanings such as the word *bank* which could mean a place where money is kept or the edge of a stream. According to Oyewumi et al. (2015), LDHH usually experience a partial understanding of events around them; they have limited access to incidental learning; they have unusual language and communication structures; and they exhibit difficulties maintaining social relationships.

Prior to the emergence of COVID-19, hearing impairment already had a cascading effect on these learners' psychosocial and emotional stabilities, social competence, quality of life and family concerns, learning outcomes and resilience for academic activities within and outside of the classrooms (Adigun, 2020; Akellot & Bangirana, 2019; Su et al., 2020). Earlier studies have shown that even during face-to-face teachings, the performance of LDHH in academic activities does not match up with that of their peers without hearing disabilities (Adigun & Ajayi, 2015; Akellot & Bangirana, 2019; Hrastinski & Wilbur, 2016). Unfortunately, the emergence of the coronavirus disease (COVID-19) which has necessitated a series of lockdowns as a measure to curtail the spread of the virus has aggravated the academic and learning challenges among the LDHH. Although studies have revealed that conscious use of instructional materials, the application of technology (Rice, 2015), and active involvement of parents (Adigun, 2017; Akellot & Bangirana, 2019) may foster positive academic performances and resilience among LDHH. Earlier studies (Adibsereshki et al., 2019; Johnson et al., 2018) allude that loss of the sense of hearing remains a risk factor for impaired resilience. Johnson et al. (2018) added that the lag in communication and required social skills among the LDHH may consequently result in a lower level of resilience for face-to-face or online academic activities. Based on the foregoing, Hallahan and Kauffman (2006) advocate for special educational services and academic support for learners with disabilities in order for them to reach their potential. Some studies note that the parents of learners with disabilities experience more than the average level of stress (Graig et al., 2016; Plant & Sanders, 2007; Smith et al., 2017) and Galpin et al. (2017) also state that learners with disabilities experience a heightened level of stress and may exhibit tantrums when they struggle with some learning tasks. Therefore, such learners require adequate support, particularly from their parents and siblings.

Studies have advanced the implications of family/parental involvement in fostering positive resilience for schooling and learning outcomes among learners with disabilities inclusive of those LDHH (Akellot & Bangirana, 2019; Rice, 2015; Sevinc & Senkal, 2021; Wanjiru et al. 2015; Smith et al., 2017). Specifically, a significant body of empirical evidence indicates that mothers are generally more involved in their children's and family care activities; they engage in active social play and companionship as well as academic-related activities with their children (Akellot & Bangirana, 2019; DesJardin & Eisenberg, 2007; Ortiz et al., 2021; Zaidman-Zait et al., 2018). Interestingly, research evidence over the last two decades has revealed an incremental increase in the contribution and involvement by fathers to overall child development (Asril et al., 2021; Flouri, 2005; Ingber & Most, 2012; Mavrogianni & Lampropoulou, 2018). Various factors

such as increased numbers of women entering the workforce, the parents' own developmental histories, and the children's contextual characteristics such as hearing impairment and sociocultural changes, among others, have influenced the observed increase in fathers' involvement in total childcare (Ingber & Most, 2012; Mavrogianni & Lampropoulou, 2018).

However, variations exist in the reports of fathers' involvement in their children's education in the virtual learning environment, and the researchers of this present study were of the view that the lockdowns occasioned by COVID-19 may positively influence fathers' active involvement and/or commitment towards the emergency remote education of their children. Therefore, based on mothers' perceptions, this present study was instituted to:

1. Determine if fathers were actively involved in the remote education of LDHH during the lockdowns occasioned by COVID-19.
2. Determine the factors that influenced the active involvement of fathers in the remote education of LDHH during the lockdowns occasioned by COVID-19.

Literature Review

Issues of Fathers' Involvement in the Education of LDHH in Pre-COVID-19

Sub-Saharan African nations were unprepared for the enormous social disaster presented by COVID-19. Prior to the emergence of COVID-19, there was an increase in the call for the infusion of information communication technologies (ICTs) and/or deployment of blended learning approaches in the education of learners with special needs, particularly for those with hearing impairment (Adigun & Nzima, 2020). Regrettably, educational approaches for learners with special needs in general were structured for face-to-face teaching and learning activities (Adigun, 2020; Alqraini & Alasim, 2021; Kritzer & Smith, 2020). In other words, all stakeholders inclusive of the teachers of LDHH were unprepared and unskilled for teaching in crisis situations such as the COVID-19 pandemic, and there were no contingency plans for teaching LDHH in this crisis.

Disappointingly, prior to the COVID-19 pandemic, there was an imbalance in the research evidence concerning the involvement of the mothers of LDHH as compared to involvement of the fathers. While studies by DesJardin and Eisenberg (2007), and Lara and Saracosti (2019) have elaborated on the contributions, involvement, and roles of mothers in the education of LDHH, the little research data available reveals less commitment and involvement of fathers in their children's education (Ricci & Hodapp, 2003; Rush, 2015). Studies during the last decade have reported an increase in the amount of time that fathers spend with their children (Crespi & Ruspini, 2015; Flouri, 2005; Pleck & Masciadrelli, 2004; Rice, 2017), but a recent study by Hernawati and Herawati (2020) notes that fathers' involvement in the education of their children is not rated very highly by mothers. Hernawati and Herawati (2020) aver that most fathers hardly have the time to interact with teachers or other students' parents, and rarely take the time to check their children's schoolwork and support them with their assignments. Lamentably, mothers aver that the involvement of fathers in the education of their children at home is less than expected (Radovanović et al., 2020).

Notably, the variations in the levels of commitment of fathers to the education of their children may be informed by various factors, which include but are not limited to how much stimulating social play has been established between fathers and their children (Akellot & Bangirana, 2019; Fischer & Anderson, 2012; Flippin & Watson, 2015; Pancsofar et al., 2013; Roggman et al., 2004); and the fathers' educational backgrounds/attainment (Conger, Conger, & Scaramella, 1997; Radovanović et al., 2020; Sarimski, 2017). As indicated by Musyoka (2015),

cognitive, linguistic, and social development in deaf children is stimulated by play. Through play, deaf children have a high potential to develop and test various aspects of the affective, cognitive, and linguistic capacities of their social world (Pataki, Metz, & Metz, 2014). According to Roggman et al. (2004), interaction of fathers with their children differs significantly from children's interaction with their mothers. Unlike mothers, fathers often react calmly to tantrum-like behaviour among children, engage in more stimulating play with their children, and may also provide soothing responses to their children's queries.

Essentially, the data available has revealed that language homogeneity within the home may foster active father-child interactions (Ricci & Hodapp, 2003; Spencer & Meadow-Orlans, 1996) and by extension active involvement in the children's academic activities. In other words, the deaf children of deaf parents may enjoy more robust academic involvement of fathers (Musyoka, 2015) as compared to the deaf children of hearing parents. Ricci and Hodapp (2003) in their study failed to indicate the contribution of the type and/or severity of a disability on the interaction between fathers and their deaf children; while other studies have indicated a correlation between the type and/or severity of a disability and the concentration of fathers' commitment to the overall development and wellbeing of their deaf children (Konstantareas & Homatidis, 1992; Radovanović et al., 2020).

Radovanović et al. (2020) argued that the development of social competencies and academic resilience among deaf children is influenced by the interaction of external and internal variables. Among the external variables are culture, educational programmes, availability of instructional resources, and robust interpersonal relationships between the children and the adults (Radovanović et al., 2020). Parental involvement in the education of children may also be motivated by some internal factors such as optimism, a positive self-concept, creativity, emotional regulation, a sense of belonging, self-confidence, an internal locus of control, independence, persistence, academic achievement, and a positive interpretation of events (Radovanović et al., 2020; Stanley, 2011). Masten (2014) alludes that a child's educational, social and language development as well as their individual qualities and resilience are developed and stimulated through positive parent-child interactions in a supportive home environment. In a like manner, provision of the academic support needed for learners at home and the involvement of fathers in the education of their children is affected by the fathers' educational attainment, exposure, and some psychological factors such as motivation, skills and self-confidence (Hernawati & Herawati, 2020; Lewis & Lamb, 2003).

Fathers' Involvement in the Education of LDHH During COVID-19 Lockdowns: From the Perspectives of the Mothers

Lockdowns occasioned by COVID-19 which served as a measure to curtail the spread of the virus necessitated the closure of not only business ventures but also face-to-face schooling. According to Green, Burrow, and Carvalho (2020), the emergence of COVID-19 came with elevated social anxiety for all including LDHH, their teachers and their parents alike. Lamentably, COVID-19 raised a higher concern for the economic sustainability of the family and a myriad of unknown circumstances for the future and educational processes were elevated to an "emergency" category, with great dependence on ICTs for pedagogical approaches as essential services. While the lockdowns persisted, the need to engage learners actively and to have continued participation in teaching and learning activities motivated the urgent migration of teaching activities from physical classrooms to totally remote educational activities. Remote educational activities were not only stressful for learners with special needs; they heightened the

level of associated concerns for the quality of the education for LDHH as well as the coping and support mechanisms for parents (Adigun, 2022; Ortiz et al., 2021; Tlili et al., 2021).

Adigun (2022); Alqraini and Alasim (2021); Tlili et al. (2021) further suggested that the challenges of remote education for LDHH were not only elevated by the lack of several assistive technological devices at home but also by the limited knowledge and use of sign language by family members, especially the fathers. Thus, LDHH have had a higher risk of academic and social exclusion due to a lack of the support required for accessibility to synchronous remote education (Kritzer & Smith, 2020; Martins et al., 2015). Regrettably, the academic attention received at home has remained incomparable to the physical attention received from teachers and support staff during face-to-face educational activities. Recent studies by Ayas et al. (2020); Pacheco et al. (2020) assert that many LDHH experience difficulties with maintaining instructional attention and have lower resilience for the virtual/remote education required at home. Alqraini and Paul (2020) state categorically that due to the loss in hearing sensitivity, subtitled lessons are not enough for these students and the lessons need to be supported and guided by teachers and parents. Alqraini and Paul thus recommend active involvement of fathers and mothers in the virtual learning of LDHH.

Since the emergence of COVID-19, especially in Africa, research evidence abounds on the traumatic nature of several father-headed homes (Adebiyi et al., 2021; Mbazzi et al., 2020; Olawale et al., 2021). According to Adebiyi et al. (2021); and Mbazzi et al. (2020), due to job losses and the inability of some fathers to keep up with the financial demands of their homes (Hyland et al., 2020; Mbazzi et al., 2020) there has been an increase in the rate of mental health deficiencies, depression, anxiety, domestic violence, and many other social vices (Hyland et al., 2020). As noted by Adigun et al. (2021), Goggin and Ellis (2020), and Mbazzi et al. (2020), more worrisome has been the depressing and traumatising situations attributed to COVID-19 among the parents of children with disabilities, where the children require continual psychoeducational support, rehabilitation, and therapeutic sessions. More importantly, while the lockdown due to COVID-19 persisted, research evidences had shown active involvement of fathers at seeking early and therapeutic interventions for their children with disabilities (Cacioppo et al., 2021; Karahan et al., 2021; Sato & Araki, 2021), other studies (Adigun, 2022; Rice & Ortiz, 2021; Yazcayir & Gurgur, 2021) had investigated and presented findings on other aspects of online learning engagements among learners with disabilities including those who are DHH. However, there is currently no research evidence that explores the involvement of fathers in emergency remote education of LDHH.

While the lockdown persisted, the researchers of this current study assumed that fathers did not only have ample time to bond with their deaf children but also further understood their children's academic, communication, and social challenges and got actively involved in the emergency remote teaching with their deaf children. Therefore, to validate that assumption and to further understand the involvement of fathers in the remote education of LDHH, this present study leveraged on the perceptions of mothers of LDHH to provide answers to the following research questions:

1. Were the fathers actively involved in the remote education of their LDHH during the lockdowns occasioned by COVID-19?
2. What factors motivated the perceived involvement of these fathers in the remote education of their LDHH during the lockdowns occasioned by COVID-19?

Theoretical Framework

This study was underpinned by Ajzen's (1991) Theory of Planned Behaviour (TPB). The theory (TPB) assumes that individuals (that is, the fathers of LDHH) react rationally. According to Alghazo (2013), such rational behaviour is motivated by an intention, and studies have proven that the intention to exhibit a behaviour is inclined by three factors which are: (a) attitudes, (b) subjective norms, and (c) perceived behavioural control (Adigun, 2020; Ajzen, 1991; Alghazo, 2013; Patton, 2019). Imperatively, elements of the perceived intentions (attitude, subjective norms, and perceived behavioural control) of the fathers to get actively involved in the remote teaching and learning activities of their deaf children were not considered during the process of making the decision to provide the educational support needed for their deaf children during COVID. However, these lockdowns may have unconsciously given the fathers the time to contribute, engage, and be actively involved the remote teaching and learning of their deaf children. However, unwholesome attitudes as well as issues of communication difficulties (Adigun et al., 2015) between hearing parents and deaf children remained a concern for the active involvement of the parents in the education of these LDHH. In other words, even in the presence of mothers, variations in the degree of hearing loss and the home climate, among other external factors, may have influenced the active involvement of fathers in the remote education of the LDHH during the various phases of lockdowns.

Method and Materials

A qualitative research design was adopted in this exploratory study. The study also adopted the interpretivist paradigm to explore the fathers' involvement in the remote education of LDHH, using the mothers' views as the research lens. A random sampling procedure was used to select eight mothers of LDHH from a total of twenty-seven mothers who were on a WhatsApp platform for an inclusive high school in the province of KwaZulu-Natal, South Africa. The participants selected (coded as M1 to M8) had an intact family (a household with the father, mother and children living together) all through the lockdowns and at the time of data collection. Also, neither the fathers nor the mothers had hearing loss. The study participants were all career mothers who worked from home during the COVID-19 lockdowns. Five of the participants (mothers of LDHH) had children with post-lingual deafness (deafness that occurs after the acquisition of speech and language), while others were with learners with pre-lingual deafness (deafness that occurs prior to the acquisition of speech and language). Among their children, only four mothers had a first-born child with hearing loss. The children of the selected participants all participated in remote teaching and learning activities during the COVID-19 lockdowns.

Data was collected using a recorded telephone interview. The interview was conducted to evaluate the fathers' involvement in the online teaching and learning activities among the LDHH during the COVID-19 lockdowns, based on the perspectives of the mothers of the LDHH. The process of the interview was considered appropriate to observe the physical/social distancing policy of the government (Adigun et al., 2021). The interview schedule therefore covered the following key areas as they pertained to the period of COVID-19 lockdowns:

1. A description of the family life and care of the children who were DHH.
2. The participants' views about the online teaching and learning participation
3. The technology infrastructure and Internet accessibility for the LDHH who participated in remote teaching and learning activities
4. Evaluation of the perceived roles and involvement of the fathers of LDHH in online learning participation of the LDHH

5. Factor(s) that influenced the active involvement of fathers in the online teaching and learning participation of LDHH

The recorded interviews with the participants were played and replayed for transcription purposes. The interviews were transcribed verbatim (Creswell, 2009). The transcribed interviews were coded, and the identities of the interviewees were anonymized. The transcribed document was analysed using thematic content analysis (Cresswell, 2013). As noted by Cohen et al. (2011), the objective of using the thematic content analysis was to identify recurring themes from the set of interview reports. The interviews were organised using the repetitive themes from the transcribed interview documents. The themes generated were used to address and answer the two research questions. The iterative processing of the analysed data aided the comparison and summarization of the interviews.

Ethical Consideration

Approval for this study was secured from the Ethics and Research Committee of the researchers' institution. The study adhered strictly to all the ethics of social science research, as indicated in the Helsinki Declaration. The objective of the study was clearly discussed with the participants before securing their consent and approval to participate in the study. Anonymity and confidentiality of the participants' profiles and responses were assured.

Findings and Discussion

The findings presented below were derived from the interviews conducted with the mothers of the LDHH who participated in various emergency remote education plans during the various lockdowns occasioned by COVID-19 in South Africa. The participants were assigned pseudonyms of M1–M8. A fair increase in the perception of the involvement of fathers in the emergency remote education of LDHH emerged as the theme that responded to **research question one**; while father-child communicative abilities, technology and technical issues emerged as the themes that responded to **research question two**.

Research Question #1

In response to research question one (Were the fathers actively involved in the remote education of their LDHH during the lockdowns occasioned by COVID-19?), the study found that the fathers of LDHH were fairly involved in the emergency remote education of their DHH children during the COVID-19 lockdowns, but the mothers seemed unsatisfied with the level of the fathers' involvement in the education of their children. While participants acknowledged a significant increase in the fathers' concern for the education of their DHH children, many believed that the lockdowns afforded these fathers an extensive opportunity to appreciate the various learning challenges and potential of their children. However, mothers of LDHH who participated in this study indicated that in addition to attending virtually to their own careers, they seemed more overwhelmed with chores and caring for the children than fathers during the pandemic. Below are some of the comments from the study participants.

M2 said that:

...while I had thought that the lockdown was a blessing off office stress, little did I know that I will have little or no time of mine while the lockdown persisted. Of course, I always have office issues to attend, chores and family matters. The virtually school took heavy

toll on my psyche (sic). Although, my husband assisted but you it can't be compared to what I faced.

M4 commented that:

Prior to the lockdowns, my husband's work schedule has not given him ample opportunity to attend to the education of our boy (referring to her deaf child). While I appreciated the fact that we were all at home, he felt belabored with providing the necessary academic support to the boy during his online academic activities.

M4 added that:

...when he (husband to M4) complained of stress he experienced when guiding Mthembu (a pseudo name for the son of M4) through his virtual classes or assignments, I (M4) will just smile because I know that what he does with the boy is little compared to my engagement with Mthembu. Although, I appreciate my husband even with the little he does with the boy.

Virtually all mothers who participated in this study admitted that very limited concern was shown by their husbands (fathers of the LDHH) regarding the education of their deaf children prior to the emergence of COVID-19, but some of the mothers noted that slight changes were observed in their husbands' attitudes towards the educational development of their children while observing the lockdowns. A mother (M6) whose deaf child was the second of her children had this to say:

It was the lockdown that made my husband to have a feel of the children's schoolwork. While I understood the complexities of his job, I have always complained about his attitude to our children's school activities. I once told him that paying their fees wasn't enough of what he could do. Although the lockdowns were frustrating, at least I was happy that my husband had opportunities to examine and assist our daughter (LDHH) with some of her assignments and online school activities.

M6 added that:

In fact, I could practically see the happiness boldly written on the face of my girl (her deaf child) when her father was with her during one of the virtual classes.

While all the mothers observed a slight increase in the involvement of fathers in the emergency remote education of their LHDD, M8, a mother with a deaf girl as her first child said:

My husband's actions and attitude towards my child were not even encouraging; not to talk of getting involved or assisting her in her online schooling activities. I would say, I see no difference from my own end. I had to do my best for my child on my own.

M1 was glad to witness father-child bonding during the lockdowns. She (M1) noted that her husband had no choice but to give some assistance to their son during his virtual classes. In her words, M1 said that:

His (husband of M1) levels of commitment and involvement in my son's online academic activities were increased and better than how they were before the lockdown.

Categorically, I would say that the lockdown was a blessing in disguise. It made both of them (father and son) have a good bonding. My son taught his father some signs as well.

Based on the above responses, it could be assumed that the lockdowns introduced as a measure to curtail the spread of COVID-19 fostered positive father-child relationships by requiring the fathers' involvement in their children's online educational activities. Although the participants of this study wished for more involvement by their husbands/partners, the findings of this current study showed that the level of the fathers' involvement in the education of their LDHH was increased during the lockdowns in comparison to their pre-COVID-19 levels.

The participants' (mothers of LDHH) perceptions of the increased involvement of the fathers could largely be attributed to the lockdowns. This was simply because of the restrictions put in place and the closure of workplaces that forced all to stay indoors. This finding was consistent with the findings of Flouri (2005), Ingber and Most (2012), Mavrogianni and Lampropoulou (2018), and Pleck and Masciadrelli (2004), who noted that since the millennium there had been a substantial increase in the rates at which the fathers of children with special educational needs got involved in the overall development of their children. However, the findings of this present study were not in agreement with those of Hernawati and Herawati (2020) and Radovanović et al. (2020) who reported a lower rating by mothers of fathers' involvement in their children's education.

While Hernawati and Herawati (2020) averred that most of the fathers in their study hardly had sufficient time to interact with teachers and/or other students' parents, rarely took the time to check their children's schoolwork and rarely helped them with their assignments, only one of this present study's participants lamented on the lack of involvement by her husband. This study thus revealed that the fathers of the LDHH had ample time for family bonding and improved on their commitment to the remote teaching and learning activities of their deaf children. Notably though, the participants attributed the increase in the fathers' involvement to the lockdowns occasioned by COVID-19.

Mavrogianni and Venetta Lampropoulou (2020) indicated that fathers' involvement in the education and overall wellbeing of their children with disabilities was invaluable in terms of the provision of the assistance and support needed (academic, emotional, and social), as well as the achievement of family cohesion. Unlike mothers who engaged in social play (Akellot & Bangirana, 2019; Zaidman-Zait et al., 2018) and had spontaneous reactions to antisocial behaviour among their children, Roggman et al. (2004); and Han and Jun (2013) theorized that fathers often reacted more calmly to the tantrums of their children, engaged in a more stimulating form of play with their children and provided soothing responses to their children's queries and academic-related activities. Interestingly, stimulating play has the potential to foster the cognitive, linguistic, and social skills needed for active academic performance among LDHH (Adigun & IHEME, 2020; Musyoka, 2015; Pataki, Metz, & Metz; 2014).

Mothers of LDHH or children with other disabilities may be overwhelmed by various contextual factors such as the degree of their child's disability, comorbidities, house chores and career schedules, among others (DesJardin & Eisenberg, 2007; Ingber & Most, 2012; Lara & Saracosti, 2019; Mavrogianni & Lampropoulou, 2018; Rice, 2015), hence they look forward to receiving substantial support, especially from their husbands. The foregoing portrayed the expectations of the mothers who participated in this current study. While they acknowledged a fair increase in the levels of the fathers' involvement in the emergency remote education of their

DHH children during the COVID-19 lockdowns, these participants looked forward to more active participation and involvement by fathers in the education and overall wellbeing of the LDHH. Interestingly, this current finding deviated from the report by Ricci and Hodapp (2003) who asserted that the research data available at the time of their study revealed less commitment and involvement of fathers in their children's education. The current trend observed in fathers' commitment and involvement in the education of their LDHH may have been influenced by the COVID-19 lockdowns when they were not distracted and occupied by work commitments; by their subsequent increased awareness of the need for them to provide their families with support and care; by their level of educational attainment (Radovanović et al., 2020; Sarimski, 2017), and/or by having gained sensitisation to the public inclusion of people with disabilities, among others.

Research Question #2

Two themes emerged in response to **research question two** which examined the perceptions of the potential factors that motivated the active involvement of fathers in the remote education of their children, namely *father-child communicative abilities and technology and technical issues*. While this study found that fathers were involved in the remote education of their children who were LDHH, it was determined that the interactions between the fathers and their deaf child(ren) as well as these fathers' capacities for intervention were influenced by their communicative abilities. In other words, while all the participants of this study were non-deaf mothers of deaf children, the communication mode within their homes was largely oral and virtual communication was only used with their deaf children. As such there tended to be communication challenges between these fathers and their children who were LDHH prior to the lockdowns as they hardly had time to interact/communicate with their children using sign language. With respect to the foregoing, some of the study participants shared the following.

M7 said:

In our family, we have always been conversing with the oral mode. This is because we wanted Sam (son: LDHH) to acquire some level of speech. Although he lost his speech and hearing from birth, my husband is of the opinion that through lip reading he would acquire some level of understanding that could help him in the larger society. It is not that we don't know that sign language is best for him, we try to force oral communication on him at home. Unfortunately, there were lapses in communication during the lockdown, particularly when he was being assisted during various virtual classes.

It wasn't easy taking on the role of a teacher of a deaf learner and/or explaining some abstract concepts to their child (girl, deaf learner) during the COVID-19 lockdowns. This was according to M1, who said:

My husband and I had a tough time providing learning assistance to my child during the lockdowns. My husband tried his best to clarify some abstract concepts to her (girl, Deaf learner) but it was somewhat difficult. I strongly believe that her father's lack of proper understanding and inability to communicate with her through sign language created a great lacuna.

M5 disclosed that:

To be candid, inability to effectively communicate via sign language had a negative impact on my son's remote teaching and learning activities. Although, his father tried his best, I must say that his best wasn't enough. You know (referring to the interviewer) remote learning isn't like face-to-face learning for a deaf learner. My son, his father and other family members did our best to provide some explanations to him when he faces some hurdles during his remote classes.

Another participant (M2) had the following to say about father-child communication challenges during remote teaching and learning activities during the lockdowns:

It was evident to my husband that he was far from our son (LDHH). He was not able to efficiently communicate with his son through sign language. Hence, there were some lapses in the father-child instructional support. In fact, there was a time my son got angry with his father and everyone at home. This was because he was left alone while his siblings were working independently on their gadgets.

Comments by the participants with regards to communication difficulties exposed the existence of communication gaps between LDHH and their family members. As revealed during the interview, there seemed to be compelling evidence that deaf children of non-deaf parents were persuaded to respond to oral communication by using their lip-reading skills. The finding of this study was therefore that adoption of sign language within the home environment was still a challenging task for some family members. Thus, academic challenges and poor resilience for online teaching and learning among the LDHH, particularly during the various remote academic activities, may have been aggravated by the lack of efficient two-way communication through sign language.

The finding of this study with regards to two-way communication challenges at home was in line with the previous submissions by Adigun (2017; 2020); Ayas et al. (2020); Johnson et al. (2018); Oyewumi and Adigun (2013); Oyewumi et al. (2015); and Pacheco et al. (2020) who previously established some communication challenges between individuals with deafness and non-deaf members of society. When using verbal communication alone, individuals who are deaf and/or hard of hearing may understand instructions significantly and thus progress and develop age-appropriate vocabularies, albeit at a slower rate of progression. Unfortunately, they tend to get confused with (i) words having the same spelling or pronunciation but different meanings and origins (homonyms) such as site/sight; (ii) words that sound alike but are spelled differently (homophones) such as eye/I; and (iii) words that have the same spelling but different meanings (homographs) such as lean/thin; lean/rest against.

As alluded by Adigun (2020; 2022); Ayas et al. (2020); Alqraini and Alasim (2021); Oyewumi et al. (2015) and Tlili et al. (2021), LDHH experienced unusual language and communication structures and had difficulties sustaining their instructional attention and resilience for academic activities, particularly during remote teachings. Lack of capacity for incidental learning (Adigun, 2017), and uncaptioned virtual teachings (Alqraini & Paul, 2020) may have compelled the LDHH to seek more academic support and further explanations from their parents during the lockdowns. Lamentably, our findings showed that communication difficulties via sign language within the home environment, especially between fathers and their children (LDHH), were a great challenge for efficient remote education for LDHH while the

COVID-19 lockdowns persisted. This finding supported those of Martins et al. (2015); and Kritzer and Smith (2020).

Technology and technical issues emerged as a sub-theme which provided an answer to **research question two**. In our quest to explore the factors that influenced the perceived involvement of fathers in the remote education of their children who were LDHH, our study revealed that technology and technicalities were determinants of fathers' involvement in the remote education of LDHH. As revealed through the telephonic interviews with the mothers of LDHH, fathers provided great assistance by resolving technical issues that arose during the various remote teachings and sometimes uploaded and submitted assignments using dedicated links. Below are some of the responses to this effect provided by the participants. M3 disclosed that:

He (referring to her husband) was always there to provide necessary assistance with the laptop. He always assists our daughter with setting up the Zoom and Microsoft Teams which were used for the remote academic engagements during the lockdowns.

In a like manner, M6, whose husband worked remotely for a credit facility company stated that: My husband had a tight work schedule during the lockdowns. He was always online for several meetings and to attend to clients. Even with his busy schedule, I enjoyed the fact that I don't have to worry about loss of Internet connectivity. Because of his job (husband of M6), he makes readily available strong Internet services, and he assisted my daughter with setting up of her virtual classrooms and submissions of her assignments or classwork, as the case may be.

As disclosed by these participants (mothers of LDHH), the fathers of the LDHH were actively involved in providing the technical support required by their children who were deaf and/or hard of hearing. These reported actions of the fathers further established the fact that the fathers of the LDHH gave LDHH the educational support that they required during the lockdowns occasioned by COVID-19. This finding corroborated the earlier findings of Adigun and Ihome (2020); Akellot and Bangirana (2019); Flouri (2005); Ingber and Most (2012); and Mavrogianni and Lampropoulou (2018) who reported positive developments in fathers' involvement and commitment to the education of their children/learners with disabilities.

The current study did not support the findings of Hernawati and Herawati (2020) and Ricci and Hodapp (2003) who reported a lower level of fathers' involvement in the education of LDHH. In addition, the studies of Adigun (2017) and Akellot and Bangirana (2019) exposed the roles of parents, especially the fathers, in the adoption and use of technological devices for the education of LDHH. This current finding was in line with the submissions of Ingber and Most (2012) and Mavrogianni and Lampropoulou (2018) who listed technological characteristics as one of the contextual factors that could predict the active involvement of parents in the education of learners with special educational needs.

Discussion

Recommendations for Programmes

Based on the findings derived from this study through the perceptions of mothers of LDHH, there is a need for conscious efforts by the fathers of LDHH and other learners with disabilities to get involved in the remote education of their children. Fathers should desist from using their work/careers and the need to provide for their families as an excuse to remove themselves from involvement in the education of their children. Schools being attended by LDHH should develop programmes aimed at increasing the involvement of fathers in the teaching and learning activities of these learners. Such programmes should not disturb the fathers' work schedules and must be designed to accommodate virtual participation. The fathers of these learners must be informed well ahead of time to allow them time to arrange their work schedules to accommodate the schools' programmes. Such programmes can involve making the fathers guest speakers on "career days" or teachers for a short period of time. It is the belief of the authors of this study that such a concept will not only enhance father-child bonding but also provide a platform for the active involvement of fathers in their children's education.

In terms of communication, it is highly recommended that fathers of LDHH should devote more time to learning sign language. These fathers' ability to communicate using sign language can be a source of motivation for their children and foster their children's self-esteem and motivation. The fathers' ability to communicate in clear terms using sign language as a mode of communication will aid proper understanding of concepts by the LDHH. This is because these fathers' ability to communicate via sign language will match these learners' style, language ability, and level of understanding.

Strong spousal as well as professional support may foster the level of fathers' involvement needed in the remote education of their deaf and hard of hearing children. This study thus recommends that the mothers of LDHH patiently, persistently, and proactively encourage father-child bonding and the involvement of their spouses in the education of their children (either remote or face-to-face education).

Recommendations for Future Study

Future researchers can examine the long-term effects of the pandemic and home-based variables on fathers' involvement in the remote educational activities of LDHH. In other words, a longitudinal study of fathers' involvement in the remote teaching and learning activities of their children who are LDHH is encouraged. The researcher in this present study intends to apply a quantitative research approach in future studies that investigates the issues of fathers' involvement in the virtual education of LDHH. Such an approach is recommended for a cross-sectional study by other researchers who have an interest in the family dynamics, home environment and education of LDHH.

Limitations of the Study

This present study was not all-encompassing. Only a few mothers participated in the study, and a qualitative research design was employed, hence caution must be exercised when generalizing the findings. In this study, information was extracted regarding the fathers' involvement in the remote education of their children who were LDHH, and the factors that influenced their involvement in the remote education of their children were based on the perceptions of these children's mothers. Therefore, future research on fathers' involvement in the

remote education of their children who are LDHH should involve the fathers and the LDHH as the respondents. It is also suggested that the variables may influence virtual teaching of natural sciences to LDHH be included for investigation in future research on fathers' involvement in the education of LDHH.

Conclusion

COVID-19 has not just had a significant impact on the application of technology for educational purposes; it has also impacted significantly on the various dynamics of family cohesion and the involvement of parents in the education of their children, irrespective of disabilities. There is a paucity of research evidence on the involvement of fathers in the education of their children, both prior to the emergence of COVID-19 and while the virus continues to ravage the globe, hence the need for this explorative study which assessed mothers' perceptions of fathers' involvement in the education of learners who were Deaf and Hard of hearing (LDHH) in South Africa. Based on the perceptions of mothers of LDHH, this present study concluded the following:

1. The perception of involvement of fathers in the education of their children who were LDHH increased during the remote learning associated with COVID-19.
2. Father-child communication competencies (especially with reference to sign language) as well as the fathers' ability to provide the technical devices needed for remote education and intervene promptly during technical difficulties were factors that influenced the perceived involvement of fathers in the remote education of LDHH during the lockdowns occasioned by COVID-19.

Declarations

The author(s) declare no potential conflict of interest.

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References

- Adebiyi, B. O., Roman, N. V., Chinyakata, R., & Balogun, T. V. (2021). The negative impacts of COVID-19 containment measures on South African families-Overview and recommendations. *The Open Public Health Journal*, 14(1), 233-238. <https://doi.org/10.2174/1874944502114010233>.
- Adibsereshki, N., Hatamizadeh, N., Sajedi, F., & Kazemnejad, A. (2019). The effectiveness of a resilience intervention program on emotional intelligence of adolescent students with hearing loss. *Children*, 6(3), 48. <https://doi.org/10.3390/children6030048>
- Adigun, O. T. (2017). Effects of computer-assisted instruction and concept mapping on the academic achievement of students with hearing impairment in Ecology in Ibadan, Oyo State, Nigeria. *Journal of Issues and Practice in Education*, 9(1),123-146. Available at <https://journals.out.ac.tz/index.php/jipe/article/view/752>
- Adigun, O. T. (2019). Burnout and sign language interpreters in Africa. *Journal of Gender, Information and Development in Africa*, 8(3), 91-109. DOI: <https://doi.org/10.31920/2050-4284/2019/8n3a5>
- Adigun, O. T. (2020). Perceived quality of life of adolescents who stutter: Does self-efficacy, emotional intelligence, parental socio-economic status and social support play a role? *Gender & Behaviour*, 18(2), 15874-15883. <https://www.ajol.info/index.php/gab/article/view/198215>
- Adigun, O. T. (2020). Self-esteem, self-efficacy, self-concept and intimate image diffusion among Deaf adolescents: A structural equation model analysis. *Heliyon*, 6, e04742; 1-8. <https://doi.org/10.1016/j.heliyon.2020.e04742>
- Adigun, O. T. (2022). Experiences of emergency remote teaching via Zoom: The case of natural sciences teachers handling deaf/hard of hearing learners in South Africa. *International Journal of Learning, Teaching and Educational Research*, 21(2), 176-194. 2 <https://doi.org/10.26803/ijlter.21.2.10>
- Adigun, O. T., & Ajayi, E. O. (2015). Teacher's perception of the writing skills of deaf/hard of hearing students in Oyo State, Nigeria. *International Journal of Educational Foundation and Management*, 9(1), 212-222. Available at www.ijefameducation.com.
- Adigun, O. T., & IHEME, U. M. (2020). Mathematics anxiety among deaf learners: An analysis of predictive factors. *The International Journal of Science, Mathematics and Technology Learning*, 28(1), 1-13. <https://doi.org/10.18848/2327-7971/CGP/v28i01/1-13>
- Adigun, O. T., & Nzima, D. R. (2020). Digitalized vs. interpreted biology instructions for deaf learners: Implication for a technosociety. *Journal of Education and Social Research*,10(5), 265-272. <https://doi.org/10.36941/jesr-2020-0104>

- Adigun, O. T., Vivekanantharasa, R., & Obosu, G. K. (2021). The deaf or hard of hearing population's attitude and information seeking behaviour towards COVID-19 in South Africa. *Journal of Human Ecology*, 75(1-3), 16-26. <https://doi.org/10.31901/24566608.2021/75.1-3.3326>
- Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.
- Akellot, J., & Bangirana, P. (2019). Association between parental involvement and academic achievement of deaf children at Mulago School for the Deaf, Kampala, Uganda. *African Health Sciences*, 19(2), 2270-2281. <https://doi.org/10.4314/ahs.v19i2.53>
- Alghazo, Y. (2013). The theory of planned behavior and parental involvement: A theoretical framework for narrowing the achievement gaps. *International Journal of Science and Research*, 5(4), 570-572.
- Alqraini, F. M., & Alasim, K. N. (2021). Distance education for d/deaf and hard of hearing students during the COVID-19 pandemic in Saudi Arabia: Challenges and support. *Research in Developmental Disabilities*, 117, 104059. <https://doi.org/10.1016/j.ridd.2021.104059>
- Alshawabkeh, A. A., Woolsey, M. L., & Kharbat, F. F. (2021). Using online information technology for deaf students during COVID-19: A closer look from experience. *Heliyon*, 7(5), e06915. <https://doi.org/10.1016/j.heliyon.2021.e06915>
- Asril, N. M., Mahayanti, N. W. S., Tirtayani, L. A., Adnyani, K. E. K., Astawan, I. G., & Arthana, I. K. R. (2021). Fatherhood & children's remote learning during Covid-19 pandemic. In *2nd International Conference on Technology and Educational Science (ICTES 2020)* (pp. 60-65). Atlantis Press.
- Ayas, M., Al Amadi, A. M. H. A., Khaled, D., & Alwaa, A. M. (2020). Impact of COVID-19 on the access to hearing health care services for children with cochlear implants: a survey of parents. *F1000Research*, 9. <https://doi.org/10.12688/f1000research.24915.1>
- Cacioppo, M., Bouvier, S., Bailly, R., Houx, L., Lempereur, M., Mensah-Gourmel, J., ... & ECHO Group. (2021). Emerging health challenges for children with physical disabilities and their parents during the COVID-19 pandemic: The ECHO French survey. *Annals of Physical and Rehabilitation Medicine*, 64(3), 101429.
- Cohen, L., Manion, L., & Morrison, K. (2011). Descriptive statistics. *Research Methods in Education Seventh Edition*. Routledge, 35, 622-640.

- Crespi, I., & Ruspini, E. (2015). Transition to fatherhood: New perspectives in the global context of changing men's identities. *International Review of Sociology*, 25(3), 353-358. <https://doi.org/10.1080/03906701.2015.1078529>
- Creswell, J. W. (2009). Mapping the field of mixed methods research. *Journal of Mixed Methods Research*, 3(2), 95-108. <https://doi.org/10.1177/1558689808330883>
- Creswell, J. W., & Poth, C. N. (2016). *Qualitative inquiry and research design: Choosing among five approaches*. Sage.
- DesJardin, J. L., & Eisenberg, L. S. (2007). Maternal contributions: supporting language development in young children with cochlear implants. *Ear Hear*, 28, 456-469. <https://doi.org/10.1097/AUD.0b013e31806dc1ab>
- Fischer, J., & Anderson, V. (2012). Gender role attitudes and characteristics of stay-at-home and employed fathers. *Psychology of Men & Masculinity* 13, 16-31. <https://doi.org/10.1037/a0024359>
- Flippin, M., & Watson, L. R. (2015). Fathers' and mothers' verbal responsiveness and the language skills of young children with autism spectrum disorder. *American Journal of Speech-Language Pathology*, 24(3), 400-410. https://doi.org/10.1044/2015_AJSLP-13-0138
- Flouri, E. (2005). *Fathering and child outcomes*. John Wiley & Sons.
- Galpin, J., Barratt, P., Ashcroft, E., Greathead, S., Kenny, L., & Pellicano, E. (2018). "The dots just don't join up": Understanding the support needs of families of children on the autism spectrum. *Autism*, 22(5), 571-584. <https://doi.org/10.1177/1362361316687989>
- Goggin, G., & Ellis, K. (2020). Disability, communication, and life itself in the COVID-19 pandemic. *Health Sociology Review*, 29(2), 168-176. <https://doi.org/10.1080/14461242.2020.1784020>
- Graig, F., Operto, F. F., De Giacomo, A., Margari, L., Frolli, A., Conson, M., ... & Margari, F. (2016). Parenting stress among parents of children with neurodevelopmental disorders. *Psychiatry Research*, 242, 121-129. <https://doi.org/10.1016/j.psychres.2016.05.016>
- Green, J. K., Burrow, M. S., & Carvalho, L. (2020). Designing for transition: supporting teachers and students cope with emergency remote education. *Postdigital Science and Education*, 2(3), 906-922. <https://doi.org/10.1007/s42438-020-00185-6>
- Hallahan, D. P., & Kaufman, J. M. (2006). *Exceptional learners: Introduction to special education*. (10th Ed.). Allyn & Bacon.

- Hernawati, N., & Herawati, T. (2020). Differences in father and mother involvement and the factors that influence it on early childhood education. *SEA-CECCEP*, 1(01): 17-31. <http://seameo-ceccep.org/journal/index.php/ceccep/article/view/7>
- Hrastinski, I., & Wilbur, R. B. (2016). Academic achievement of deaf and hard-of-hearing students in an ASL/English bilingual program. *Journal of Deaf Studies and Deaf Education*, 21(2), 156-170. <https://doi.org/10.1093/deafed/env072>
- Hyland, P., Shevlin, M., McBride, O., Murphy, J., Karatzias, T., Bentall, R. P., ... & Vallières, F. (2020). Anxiety and depression in the Republic of Ireland during the COVID-19 pandemic. *Acta Psychiatrica Scandinavica*, 142(3), 249-256. <https://doi.org/10.1111/acps.13219>
- Ingber, S., & Most, T. (2012). Fathers' involvement in preschool programs for children with and without hearing loss. *American Annals of the Deaf*, 157(3), 276-288. <https://www.jstor.org/stable/26234842>
- Johnson, P., Cawthon, S., Fink, B., Wendel, E., & Schoffstall, S. (2018). Trauma and resilience among deaf individuals. *The Journal of Deaf Studies and Deaf Education*, 23(4), 317-330. <https://doi.org/10.1093/deafed/eny024>
- Karahan, S. , Yıldırım Parlak, Ş. , Demiröz, K. , Kaya, M., & Kayhan, N. (2021). Experiences of the mothers to cope with the problem behaviors of the children with special needs during coronavirus (COVID-19) process. *Eğitimde Nitel Araştırmalar Dergisi*, 9(1), 76-101.
- Konstantareas, M., & Homatidis, S. (1992). Mothers' and fathers' self-report of involvement with autistic, intellectually delayed and normal children. *Journal of Marriage and the Family*, 54, 153–164. <https://www.jstor.org/stable/353283>
- Kritzer, K. L., & Smith, C. E. (2020). Educating deaf and hard-of-hearing students during COVID-19: What parents need to know. *The Hearing Journal*, 73(8), 32. <https://doi.org/10.1097/01.hj.0000695836.90893.20>
- Lara, L., & Saracostti, M. (2019). Effect of parental involvement on children's academic achievement in Chile. *Frontiers in Psychology*, 10, 1464. <https://doi.org/10.3389/fpsyg.2019.01464>
- Lewis, C., & Lamb, M. E. (2003). Fathers' influences on children's development: The evidence from two-parent families. *European Journal of Psychology of Education*, 18(2), 211-228. <https://doi.org/10.1007/BF03173485>

- Masten, A. S. (2014). Global perspectives on resilience in children and youth. *Child development, 85*(1), 6-20.
- Mavrogianni, T., & Lampropoulou, V. (2020). The involvement of fathers with their deaf children. *International Journal of Disability, Development and Education, 67*(1), 45-57. <https://doi.org/10.1080/1034912X.2018.1551520>
- Mbazzi, F. B., Nalugya, R., Kawesa, E., Nimusiima, C., King, R., Van Hove, G., & Seeley, J. (2020). The impact of COVID-19 measures on children with disabilities and their families in Uganda. *Disability & Society, 1*-24. <https://doi.org/10.1080/09687599.2020.1867075>
- Musyoka, M. M. & Smith, Z. Y. (2021). Mainstreamed Deaf/HH Students' Online Learning in K-12: Challenges, Opportunities, and Solutions. In T. Fudge & S. Ferebee (Eds.), *Curriculum Development and Online Instruction for the 21st Century* (pp. 69-89). IGI Global. <https://doi.org/10.4018/978-1-7998-7653-3.ch005>
- Olawale, B.E., Mutongoza, B.H., Adu, E., & Omodan, B.I. (2021). COVID-19 induced psychosocial challenges in South African higher education: Experiences of staff and students at two rural universities. *Research in Social Sciences and Technology, 6*(3), 179-193. <https://doi.org/10.46303/ressat.2021.37>
- Ortiz, K. R., Rice, M. F., Curry, T., Mellard, D., & Kennedy, K. (2021). Parent perceptions of online school support for children with disabilities. *American Journal of Distance Education, 35*(4), 276-292. <https://doi.org/10.1080/08923647.2021.1979343>
- Oyewumi, A. M., Isaiah, O. O., & Adigun, O. T. (2015). Influence of social networking on the psychological adjustment of LDHH in Ibadan, Oyo State, Nigeria. *Net Journal of Social Sciences, 3*(1), 17-24. www.netjournal.org/pdf/NJSS/2015/1/15-015.pdf
- Pacheco, L. F., Noll, M., & Mendonça, C. R. (2020). Challenges in teaching human anatomy to students with intellectual disabilities during the Covid-19 pandemic. *Anatomical Sciences Education, 1*-10. <https://doi.org/10.1002/ase.1991>.
- Pancsofar, N., Vernon-Feagans, L., Odom, E. C., & Family Life Project Investigators. (2013). Work characteristics and fathers' vocabulary to infants in African American families. *Journal of Applied Developmental Psychology, 34*(2), 73-81. <https://doi.org/10.1016/j.appdev.2012.11.005>
- Pataki, K. W., Metz, A. E., & Pakulski, L. (2014). The effect of thematically related play on engagement in storybook reading in children with hearing loss. *Journal of Early Childhood Literacy, 14*(2), 240-264. <https://doi.org/10.1177/1468798413480516>

- Patton, S. R. (2019). Parents' and teachers' perceptions of parental involvement. *Walden Dissertations and Doctoral Studies*, 7419. <https://scholarworks.waldenu.edu/dissertations/7419>
- Plant, K. M., & Sanders, M. R. (2007). Predictors of care-giver stress in families of preschool-aged children with developmental disabilities. *Journal of Intellectual Disability Research*, 51(2), 109-124. <https://doi.org/10.1111/j.1365-2788.2006.00829.x>
- Pleck, J. H., & Masciadrelli, B. P. (2004). Paternal involvement by U.S. residential fathers: Levels, sources, and consequences. In M. E. Lamb (Ed.), *The role of the father in child development* (pp. 222–271). John Wiley & Sons Inc.
- Radovanović, V., Šestić, M. R., Kovačević, J., & Dimoski, S. (2020). Factors related to personal resiliency in deaf and hard-of-hearing adolescents. *The Journal of Deaf Studies and Deaf Education*, 25(4), 430-437. <https://doi.org/10.1093/deafed/enaa012>
- Ricci, L. A., & Hodapp, R. M. (2003). Fathers of children with Down's syndrome versus other type of intellectual disability: Perceptions, stress, and involvement. *Journal of Intellectual Disability Research*, 47, 273–284. <https://doi.org/10.1046/j.1365-2788.2003.00489.x>
- Rice, M. (2017). Describing K-12 online teachers' online professional development opportunities for students with disabilities. *Online Learning Journal*, 21(4). <https://www.learntechlib.org/p/183765/>
- Rice, M. F. & Ortiz, K. R. (2021). Parents' use of technological literacies to support their children with disabilities in online learning environments. *Online Learning*, 25(3), 208-229. <https://doi.org/10.24059/olj.v25i3.2407>
- Rice, M.F. (2015). Rhetorical constructions of parents by online learning companies: A study of parent testimonials. *Exploring Pedagogies for Diverse Learners Online (Advances in Research on Teaching, Vol. 25)* (pp. 121-141) Emerald GROUP Publishing Limited. <https://doi.org/10.1108/S1479-368720150000027006>
- Roggman, L. A. (2004). Do fathers just want to have fun? *Human Development*, 47(4), 228-236. <https://www.jstor.org/stable/26763805>
- Rush, M. (2015). Theorising fatherhood, welfare and the decline of patriarchy in Japan. *International Review of Sociology*, 25(3), 403-414. <https://doi.org/10.1080/03906701.2015.1078528>

- Sarimski, K. (2017). Behaviour problems in preschool children with Down syndrome: Results from the Heidelberg Down syndrome study. *Zeitschrift für Kinder-und Jugendpsychiatrie und Psychotherapie*, 46(3), 194-205. <https://doi.org/10.1024/1422-4917/a000523>
- Sato, N., & Araki, A. (2021). Fathers' involvement in rearing children with profound intellectual and multiple disabilities. *Journal of Family Nursing*, 1–12, <https://doi.org/10.1177/10748407211037345>
- Sevinc, S., & Senkal, O. A. (2021). Parent participation in early intervention/early childhood hearing impairment program. *Nigerian Journal of Clinical Practice*, 24(2), 254. https://doi.org/10.4103/njcp.njcp_139_20
- Smith, S., Ortiz, K., Rice, M., & Mellard, D. F. (2017). Parents' perceptions of special education service delivery when their children move to fully online learning. *Center on Online Learning and Students with Disabilities, University of Kansas*.
- Spencer, P. E., & Meadow-Orlans, K. P. (1996). Play, language, and maternal responsiveness: A longitudinal study of deaf and hearing infants. *Child Development*, 67(6), 3176-3191. <https://doi.org/10.1111/j.1467-8624.1996.tb01908.x>
- Tlili, A., Amelina, N., Burgos, D., Othman, A., Huang, R., Jemni, M., ... & Chang, T. W. (2021). Remote special education during crisis: COVID-19 as a case study. In Burgos D., Tlili A., Tabacco A. (eds.) *Radical Solutions for Education in a Crisis Context* (pp. 69-83). Lecture Notes in Educational Technology. Springer. https://doi.org/10.1007/978-981-15-7869-4_5
- Yazcayir, G., & Gurgur, H. (2021). Students with special needs in digital classrooms during the COVID-19 Pandemic in Turkey. *Pedagogical Research*, 6(1), em0088. <https://doi.org/10.29333/pr/9356>
- Zaidman-Zait, A., Most, T., Tarrasch, R., & Haddad, E. (2018). Mothers' and fathers' involvement in intervention programs for deaf and hard of hearing children. *Disability and Rehabilitation*, 40(11), 1301-1309. <https://doi.org/10.1080/09638288.2017.1297491>