

Laidlaw Programme Reflective Report

Scholar Report

Name:	Mallika Khathuria
Faculty:	Social Sciences
Email address:	Lw22m2k@leeds.ac.uk
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Introduction

The summer of '23 marked a profound and transformative chapter in my academic journey, as I embarked on a research project that would challenge my intellect, broaden my horizons, and alter my perspective in ways I could not have foreseen. Under the guidance of my research supervisors Prof. Angharad Beckett and Dr. Miro Griffiths, I dove head-first into the world of assistive technology for disabled children. My learnings from the research were profound, surprising, and sometimes even infuriating. This experience has been enlightening in more ways than one and has opened my mind up to various possibilities regarding my academia.

The research project, which focused on the experiences of children, demanded more than just the application of scholarly knowledge; it required an immersion into an understudied area of research, an unwavering commitment to look beyond the ancient position in literature, and a willingness to challenge preconceived notions. That said, it is important, to note that I did not begin my research into this topic from scratch. My academic supervisors had already been working on this research for many years prior to my joining, and I was following in their footsteps. Hence it was even more important to me that I do justice to my role as a student researcher and only broaden the scope of the intended cause instead of hindering it. The support that I received from my supervisors cannot be understated, and this research would not have been as enlightening as it was without their guidance. I am eternally grateful for them to let me be part of this project, which I know is near and dear to their heart. I can only hope that I've not let them down as this project has become something that I'm passionate about as well.

The integration of technology into our lives cannot be ignored. In the realm of education and child development, it has marked as an unprecedented voyage, one that transcends the boundaries of conventional learning and inclusive education. The pivotal focus of this report is an exploration of the experiences of children who use

assistive technology on a daily basis. This report will focus on three key themes - the technical aspect of the research, the current position in the research and my learnings from it as well as the way forward. It should be noted that despite what the title may suggest, this research was not a technological investigation, but rather an introspective reflection on the experiences, encounters, and revelations of the children, as well as parents and teachers that have shaped our understanding of this important subject.

This reflective report stands as a testament to the spread of research that allows the way for inclusion and compassion that drives to stand for a world where every child, regardless of their abilities has an equal opportunity to thrive. As we embark on this insightful journey, it is crucial to recognise the true measure of our progress lies not only in the technological advancements but within the positive impact on the lives of the children that we seek to assist. Hence, the most interesting part of this project for me was the focus on human rights.

Part 1 – Technical aspect of research

Online Focus Groups – Dilemmas & Ethics surrounding vulnerable groups

In today's digital age, the landscape of research methodologies has been significantly transformed by the advent of virtual focus groups. These virtual gatherings represent a technological leap in the way we conduct research, breaking down geographical barriers and redefining the boundaries of collaboration. This technological feat becomes even more evident when considering vulnerable groups that may not be able to attend an in-person focus group but can do so online.

Online focus groups have gained immense popularity in the realm of qualitative research due to their convenience, cost-effectiveness, and extended reach for data collection. However, this method also introduces a set of unique concerns, including data security, privacy, confidentiality, and the responsibilities of researchers.

Historically, the transition to virtual focus groups has faced resistance. Critics have argued that these methods may not adequately capture essential elements such as the moderator's role, the ability to observe nonverbal cues, and the dynamics of the group atmosphere. One critical aspect of any focus group is group interaction, which naturally differs in the virtual context. Nevertheless, researchers can mitigate these criticisms by remaining attentive to nonverbal cues, and group dynamics, and by consciously building rapport among participants.

Another critical consideration for online focus groups is the technological proficiency of participants. Clear and detailed instructions must be provided to ensure efficient participation in the research process.

Maintaining data security and privacy is of paramount importance in conducting online focus groups. Researchers bear the responsibility of taking all necessary measures to protect participant information. This includes regularly updating software and adhering to relevant data protection regulations. Upholding integrity, professionalism, and transparency is essential in the context of online focus groups,

despite their efficiency and flexibility. Ethical considerations must always take precedence to protect participants and maintain the integrity of the research.

Additionally, efforts must be made to ensure that vulnerable groups can access virtual focus groups. One of the primary challenges in conducting online focus groups on sensitive subjects is ensuring that selected participants have both the desire and technological capability to participate. While online focus groups offer the advantage of flexibility in participation location, ensuring participants have adequate technological access is equally important.

Furthermore, researchers must maintain an ethical balance when facilitating online focus groups, especially when working with vulnerable populations. Facilitators should possess substantial interpersonal skills, including active listening and the ability to remain impartial during discussions.

It's important to note that gathering and assessing participants from vulnerable groups may require additional time, primarily due to the need for ethical approvals or the specific nature of the study. Conducting focus groups in such contexts necessitates heightened awareness and sensitivity.

Addressing concerns related to privacy, potential harm, technological access, and researcher responsibilities is crucial to ensuring ethical practices and safeguarding the rights and well-being of vulnerable participants.

Part 2 – Current position in research – my findings

In the past few decades, the field of assistive technology has undergone remarkable advancements that have had a profound and far-reaching impact on the lives of individuals with disabilities worldwide. These innovations have significantly elevated their overall quality of life, fostering greater independence and inclusion. However, it is imperative to acknowledge that these advancements exist within a context marked by persisting stigma and bias against individuals with disabilities.

This comprehensive review delves into a substantial body of research, encompassing no fewer than 20 influential papers that have contributed significantly to our understanding of this subject. Through a meticulous examination of these studies, this review aims to distil their collective insights into three overarching themes, providing a comprehensive snapshot of the current research landscape.

1. Assistive Technology for Infants and Young Children

The past three decades have witnessed a growing body of literature addressing the application of Assistive Technology (AT) for infants and young children. However, it is noteworthy that among the numerous articles published during this period, only 38 have presented empirical data. Out of these, 23 have been categorized as empirical reports, primarily concentrating on the pedagogical aspect of teaching children how to effectively utilize AT devices.

Despite the valuable contributions made by these studies, it is important to acknowledge that the body of evidence regarding the efficacy of AT device usage in infants and toddlers remains limited. Both the quantity of published reports and the depth of evidence provided still fall short of offering a comprehensive understanding of this critical area.

In these studies, a predominant teaching approach involved granting access to various AT devices such as switches, computers, or power chairs and creating opportunities for children to practice using them. Historically, AT device use for children with low-incidence disabilities primarily aimed to enhance functional skills, particularly in areas like mobility and communication. Regrettably, only a relatively small number of articles considered AT as a means to facilitate children's active and meaningful participation in their daily activities and routines. These articles, while providing valuable insights into effective teaching strategies for specific skills, tended to have a limited emphasis on integrating these skills within the broader context of daily life.

As we move forward, it becomes evident that further research is necessary to address these knowledge gaps and align with contemporary best practices. Emphasis should be placed on promoting children's successful engagement and participation in everyday activities and routines, thereby providing a more comprehensive understanding of the potential benefits and applications of Assistive Technology in early childhood development.

2. Assistive Technology for Students

Numerous studies have undertaken the exploration of the synergistic benefits arising from the integration of information and communication technologies with assistive technology, particularly in the context of students with special needs. This blend of technology has emerged as a crucial tool in fostering the independence of these students, both in academic pursuits and future employment prospects.

The applications of assistive technology extend far and wide, enabling students with special needs to engage actively in classroom discussions, connect with peers and educators, explore diverse educational pathways, cultivate self-directed learning skills, collaborate seamlessly with peers, conquer challenging academic tasks, and partake in community and recreational activities.

Nonetheless, the selection of the most appropriate technology for each child warrants careful consideration, time, and patience. It is essential to recognize that assistive technology does not eliminate learning difficulties. Instead, it empowers individuals with learning disabilities to harness their strengths and address their weaknesses, ultimately leading to fulfilling and successful lives.

The utilization of technology is instrumental in creating a sense of belonging and active participation within classrooms for children with learning disabilities. It not only elevates assignment completion rates and motivation but also alleviates the

workload and stress on educators, while simultaneously championing the cause of inclusive education. By enabling students to construct their own learning experiences, assistive technology aligns with the overarching goal of involving these children in classroom activities, mirroring the experiences of their typically developing peers.

A key facet of assistive technology lies in its capacity to facilitate adaptations that mitigate the barriers posed by difficulties in reading, writing, mathematical reasoning, and problem-solving. Notably, it serves as a boon in the realm of writing, offering computer-supported tools that reduce frustration, enhance motivation, foster peer acceptance, and enhance productivity in both classroom and home settings.

The formation of effective collaborative planning teams is paramount in ensuring that technology is tailored to meet the individual needs of students in classroom settings. These teams play a pivotal role in assessing the effectiveness of current technology interventions and closely monitoring their implementation, thereby ensuring necessary adjustments to accommodate the evolving abilities of students with special needs.

While the full potential of assistive technology for children with special needs is yet to be fully realized, its promising trajectory offers hope for significantly reducing learning difficulties and unlocking opportunities for every child, thus paving the way for a more inclusive and equitable future.

3. Research Landscape

A comprehensive review spanning the years 2009 to 2020, focusing on the influence of Assistive Technology (AT) on the inclusion of students with disabilities, has shed light on certain noteworthy trends and challenges within this field. It is worth noting that this research domain has not received the recognition it deserves within the scientific community, as evidenced by the limited number of citations in the analysed publications.

Contrastingly, the research endeavours of leading countries in the field of Assistive Technology, notably the United States, Brazil, and Turkey, underscore a robust and global interest in advancing this area of study. In terms of research methodologies, the reviewed studies predominantly embraced qualitative research designs, utilizing observation and interviews as their primary data collection methods, with quantitative approaches following closely behind.

However, despite the promising trajectory of Assistive Technology research, several challenges and barriers continue to impede its effective utilization. Notably, inadequate teacher training in the field of Assistive Technology stands out as a significant hindrance. Additionally, economic constraints often restrict access to AT tools, while certain high-cost devices such as iPads remain financially prohibitive for

many. Rural areas face disproportionately greater obstacles in accessing AT resources compared to their urban counterparts, further exacerbating the digital divide in educational equity.

Part 3 – The way forward

While the promise of Assistive Technology is undeniable, it is not devoid of obstacles. Among these challenges are the glaring gaps in teacher training in the field of Assistive Technology, economic barriers that obstruct access to essential tools, and the financial burden associated with certain high-cost devices.

In light of these findings, the trajectory of future research should be marked by a concerted effort to address these challenges head-on. Tailoring Assistive Technology solutions to cater to the unique needs of different disabilities should be a priority, along with the implementation of comprehensive teacher training programs designed to maximize the educational benefits of Assistive Technology.

Conclusion

The journey of progress in assistive technology has brought about profound transformations in the lives of individuals grappling with various disabilities, be it physical or learning disabilities. While these advancements have been nothing short of remarkable, they are accompanied by notable challenges that warrant our attention, including a conspicuous lack of recognition within the scientific community and a scarcity of citations in research literature.

In conclusion, the potential of Assistive Technology to enhance the lives of individuals with disabilities remains significant. We must continue our dedicated efforts to unlock its full potential and ensure that these transformative tools are accessible to all who can benefit from them.

The final presentation

Attending the AAATE (Association for the Advancement of Assistive Technology in Europe) conference in Paris was a phenomenal experience, one that I'll always remember. I am incredibly thankful for the opportunity to present our insights at an international conference; at a platform where our findings can reach engineers that work in the field and that have the power to create change because that is what really matters.

As mentioned earlier, our findings unveiled a fresh perspective, emphasizing that much of the existing research heavily relies on parental viewpoints, often inadvertently side-lining the essential voices of the children themselves. Furthermore, our research underscored the significance of considering the social dimensions of healthcare alongside its technological aspects.

Presenting these insights at the 17th annual AAATE conference was both a humbling and eye-opening experience. Being surrounded by passionate academics and dedicated engineers from across Europe, all united by a common purpose, was undeniably inspiring.

Once again, I wish to extend my deepest appreciation to Professor Angharad and Dr. Miro for their unwavering commitment to this field and for allowing me to be a part of this impactful project.

This experience, which seamlessly merged academic growth with cultural enrichment, has been invaluable. I extend my heartfelt thanks to the Laidlaw Foundation for granting me this life-changing opportunity to contribute to a significant discourse and, hopefully, leave a lasting impact.

Here are some titbits from the trip, but none will ever be able to capture everything that I got out of this incredible experience.







