Project Title: Cyber Challenges Faced By People with Intellectual and Development Disabilities (IDD).

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Date	Task	Challenges	Next steps
03/02/2023	**Entry 1:** • Researched different research topics for the project *I considered four topics and did preliminary research on them until I finally settled on the last two topics.* • Identified the dissertation topic *I finally settled on a topic that focused on the cyber challenges facing people with intellectual and developmental disabilities.* • Had a project meeting with my supervisor *He suggested I wait so he speaks to someone at the Tizard Centre, University of Kent.*	I struggled to find a topic that is testable and one that has a clear research problem.	After settling on the topic, the next steps include conducting preliminary research and defining the scope of the study and the specific objectives.
27/03/2023	**Entry 2:** • **Meeting with supervisor and someone from Tizzard centre** *Dr Triantafyllopoulou completed her PhD in Clinical Psychology of Intellectual Disabilities at the Tizard Centre, University of Kent. She has been working with people with intellectual disabilities and autistic individuals since 2006 and her research is mainly focused on health and online safety*. • **Defined the research aim and objectives** *Based on my topic, my study aimed to learn more about the difficulties people with Down syndrome and other forms of intellectual*	Establishing a suitable social media platform for data collection.	• Refine the research context based on previous studies. • Begin drafting the literature review. • Evaluate possible ethical requirements associated with the research.

	disability encounter when using social media. By doing this, I sought to understand the complexities of online safety and cybersecurity issues faced by this demographic and identify the unique obstacles they face while using social media platforms like Twitter. *I split my research aim into smaller parts, where the first part focused on evaluating how people with Down syndrome and other forms of general learning disability use social media compared to those without IDD. I investigated factors such as posting style, sentiment analysis, and interaction patterns.* *The second part focused on learning how caregivers can best help their loved ones with IDD stay safe and secure while using social networking sites. The third part investigated how people with Down syndrome and other learning disabilities can be better protected online. This goal seeks to determine actionable steps that can be taken to make the Internet a more secure place for people with intellectual and developmental disabilities.* *Finally, the study sought to suggest ways to improve our knowledge of how people with Down syndrome and other forms of learning disability navigate social media and help pave the way for a more welcoming and accessible online space for all.*		

	• Conducted a preliminary literature review on cyber challenges on individuals with IDD and Down syndrome. *Conducting preliminary research provided me with the background information required to define the problem statement and kick off the rest of my literature search.* • Described the research problem *Based on my preliminary reading, I described the research problem, which centered around the fact that even with the growth of cyberspace, people with intellectual and developmental disabilities are largely ignored in the scholarly literature regarding the challenges they face in cyberspace.*		
24/04/2023	**Entry 3:** • Looking for papers online to finish up my critical review due 23:55 on Tuesday 9th May 2023 • Conducted further literature review to establish the challenges experienced by the target group in cyberspace. • Started the literature review, outlining how individuals with IDD use technology, how they use Twitter, problems associated with online communication in ID individuals, and challenges associated with the group using the Internet.	Struggled to find recent studies that directly address the cyber challenges among individuals with Down syndrome and Williams Syndrome.	• Completed the literature review and shared it with the supervisor for feedback. • Begun evaluating potential profiles with ID on Twitter.
	Entry 4:		

	• Revised the proposal based on the supervisor's feedback. • Submitted the revised proposal and started data collection preparations.	Delay in approving the proposal, which had an impact on the project timeline.	• Set up the Python environment for the project. • Explore open data collection platforms for individuals with different learning disabilities.
27/03/2023	**Entry 5:** • Received clearance to collect data. *At this stage, I had to familiarize myself with the relevant ethical considerations before starting the data collection process. After considering all the ethical considerations, I started the data collection process.* • Explored Twitter as a suitable cyberspace for individuals with unique learning disabilities		• Begin data collection by creating a Twitter API.
From 01/04/2023 to 30/06/2023	**Entry 6:** • Selected participants by establishing Twitter profiles with Williams syndrome and Down syndrome and their activities on Twitter, • Collected usernames, tweets, and retweets from the identified using Twitter API.	Individuals with learning disabilities tweet occasionally, and using Twitter API affected the data quality.	• Begin preparation for data cleaning and pre-processing.
03/08/2023	**Entry 7:**		

	• Extracted text content, hashtags, emojis, and tweets from collected data. • Pre-processed the tweets by removing special characters, stopwords, and HTML tags and converting all text to lowercase.	The process required addressing duplicates, inaccuracies, and inaccuracies to ensure the accuracy of the data.	• Decide on the approach to be applied in modelling the topics present in the two datasets: IDD dataset and Down_Syndrome dataset.
07/08/2023	**Entry 8:** • Extracted main topics in the two datasets using the LDA model: cyberbullying and awareness. • Created a word cloud for each group to identify the common words used by individuals with disabilities.	The LDA assigned high weights to common words like 'a', 'and' or 'have,' which do not show the relevant topics.	• Install key libraries like VADER and SentiWord to aid sentiment labelling and classification.
09/08/2023	**Entry 9:** • Assigned polarities to the tweets in the dataset. • Categorized the tweets as positive, negative or neutral based on the overall sentiments expressed.		• Import important libraries needed in the training of the BERT model.
10/08/2023	**Entry 10:** • Categorized the datasets into train and test sets needed to train the BERT model. • Trained and built the BERT classification model to help distribute sentiment in both datasets.	The model took a long to train and build.	• Begin analysis and interpretation of the results.

12/08/2023	**Entry 11:** • Compared the classification metrics: precision, recall, and F1-score to assess the model's efficiency in predicting sentiments in the datasets. • Created a visualization chart to compare the model's performance based on the two datasets.		•
14/08/2023	**Entry 12:** • Documented the sentiments established in the two groups • I interpreted the findings to establish the trends and patterns in the groups' challenges, activities, and involvement in the online space.	Balancing the need for comprehensive results and the project's word limit.	• Identify the recurring topics in the datasets.
17/08/2023	**Entry 13:** • Highlighted the common topics in both datasets through inspection of the word cloud and the output of the LDA model *To highlight the common topics, I developed a word cloud that produced the top 50 prevalent words in both datasets. The topics were then derived from the clusters of top keywords in the control group and IDD dataset. I manually clustered the top 50 keywords in each group, resulting in two topics: aggression and toxicity, and bullying.* • Listed ten common words used by each group of participants.	Balancing the need for comprehensive results and the project's word limit.	• Synthesize findings with the previous study. • Start outlining the implications section based on the results.

	• Summarized the key differences in activities and challenges between individuals with IDD and Down syndrome based on topics discussed: cyberbullying, online safety, and awareness. • Discussed the model performance (Transformers model) in predicting sentiments in IDD and down_syndrome datasets. *I used the LDA model to predict the most common topics within the cyber challenges datasets and performed in-depth analysis. This also involved conducting sentiment analysis, which involved creating a labeled dataset using the Transformer learning approach, which was used to train and test the labeled data. Regarding evaluating the transformer model, I used three major metrics; Precision score, F1 score, and recall.*		
28/08/2023	**Entry 14:** • Compare the current study findings with findings from previous studies. • Discussed the study implications and provided recommendations to enhance the experiences of these individuals in cyberspace. *Some of the implications I highlighted in the study include the fact that the findings of this study will make their way into the*		• Finalize the implication section. • Begin drafting the conclusion and abstract of the project.

	mainstream, and this will result in caregivers, educators, politicians, and the general public having a deeper appreciation for the specific challenges and hazards experienced by people with intellectual and developmental disabilities when navigating the Internet. In many different ways, it is my strong belief that the findings of this research can be used to improve the digital inclusion of persons with intellectual and developmental disabilities (IDD) through revised policies, curricula, and interventions.		
03/09/2023	**Entry 15:** • Summarized the findings of the study • Identified limitations in the present study and made suggestions for further studies.	Balancing the need for completeness and conciseness in the conclusion.	• Revise all sections of the dissertation. • Finalize remaining tasks, including citation and formatting checks.
06/09/2023	**Entry 16:** • Conducted thorough review and revision of the whole project to address the feedback from the supervisor and peers. During these revisions, the most important aspects I noted included the fact that there is a need for further investigation into the intricate interplay between individuals with disabilities and social media across diverse		• Prepare for project presentation and defense.

	online platforms. Social media platforms such as Twitter offer a distinctive avenue for enhancing our comprehension of Down syndrome, learning disabilities, and associated disorders. This, in turn, can enhance the digital well-being and inclusivity of individuals affected by these conditions. I strongly believe that this study provides an important foundation and basis for further in-depth examination of this topic.		

Reflection

Throughout the project, I began understanding and comparing challenges experienced by profiles with IDD and Down syndrome on Twitter. I analysed the data collected on the platform using machine learning approaches to gather valuable insights into the sentiments and experiences on social networks. This logbook documents the milestones, challenges, and achievements throughout the projects, which explored the challenges experienced by individuals with IDs such as Down syndrome and William syndrome in cyberspace. The project observed all stages of research, data collection, analysis, and synthesis to provide meaningful insights into the field. This research, informed by in-depth analysis, presents a detailed evaluation of the topic and its contributions, outlining the need for proactive measures and increased awareness to counter the many challenges and promote a more inclusive digital space. The comparison of the two groups sheds light on the usually overlooked interactions and challenges experienced by individuals

with ID on social platforms. This study contributes to promoting inclusivity and improving the experiences of individuals with learning disabilities. Although the study provides a foundational understanding of challenges faced by individuals with ID, complementing the quantitative findings with qualitative data could provide more meaningful information about people's motivations, experiences, and perspectives.