UNIVERSITY OF OKLAHOMA

GRADUATE COLLEGE

Personal Online Safety for College Students with Intellectual and Developmental Disabilities

A Scoping Review, Program Survey, and Single-Case Experimental Design

A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

in partial fulfillment of the requirement of the

Degree of

DOCTOR OF PHILOSOPHY

By

Isela Plasencia de Alba

Norman, Oklahoma

2025

Personal Online Safety for College Students with Intellectual and Developmental Disabilities

A Scoping Review, Program Survey, and Single-Case Experimental Design

A DISSERTATION APPROVED FOR THE

DEPARTMENT OF EDUCATIONAL PSYCHOLOGY

BY THE COMMITTEE CONSISTING OF

Dr. Kendra Williams-Diehm, Chair

Dr. Malarie Deardorff

Dr. Corey Peltier

Dr. Jenny Sperling

Dedication

To my children, my husband, and my family.

Acknowledgments

Statistics show that less than 2% of teenage moms earn a college degree by the age of 30 and 1% of Latina women hold a doctoral degree. Statistically speaking, I am not the norm. I was not supposed to be here. It is thanks to my community and my support system that I have been able to break barriers and reach my lifelong dream of completing my doctorate. I will always be grateful to everyone who has loved me, supported me, and helped me get to where I am.

To my family and friends…

To my children Joshua and Jazlyn: you are my reason why. Many years ago, I learned that the best thing I could give my children is an educated mom. I am here to show you the many things you can accomplish with love, support, and self-determination. I can't wait to see you both accomplish your own goals and dreams. Josh, whether you decide to become an electrical engineer, a musician, or anything else, I know you will be brilliant at it. Jaz, you will be the most amazing president this country has ever had, and if you pick any other path, I know it will be just perfect for you. Los amo mis niños.

To my husband Francisco: I could not have done this without you. Gracias por tu amor, tu apoyo, y tu paciencia. Por los días que me ayudabas para que pudiera ponerme a hacer tarea. Por darme un hombro para llorar en los momentos difíciles You have always supported my decisions and my love for learning. Este logro también es tuyo. We really make a great team, love you amor.

Para mis papás y mis hermanos; gracias por sus porras, su amor, y su apoyo. Han sido una parte fundamental de mis logros. Los quiero mucho.

To my prima Jessica: gracias por los check-ins, por escuchar mis quejas, and for all the love and support. Love you.

To tía Margarita: gracias por siempre creer en mi and for showing me that you can keep learning until the very last day. Espero que desde el cielo pueda disfrutar de este logro conmigo y que se sienta orgullosa de mi. La quiero y la extraño mucho.

To my friends: thank you for your love, encouragement, and support in this journey.

To my committee…

To my advisor and mentor, Kendra: I don't know if you realize the impact that your work and dedication has in the lives of doctoral students like me. You have given us life-changing opportunities. I will never be able to thank you enough for everything that you have done for me and my family. I am not sure what you saw in me fourteen years ago, but I will always be grateful that God put me in your path. Thank you for always believing in me more than I believe on myself.

To my mentor Malarie: thank you for your guidance and support through the past five years. You make learning easy and fun. Thank you for helping me see my worth and all that I can accomplish. For being there in the celebrations as well as the difficult times throughout this doctoral program. Thank you for being my advocate.

To my mentor Corey: thank you for everything you have taught me. I don't know if you realize how much us doctoral students admire you and see you as a role model. As I embark in my new career, I hope to be as knowledgeable, kind, and dedicated to my students as you are to yours.

To my mentor Jenny: thank you for your support and guidance throughout this process. Although there have been many times when I have felt imposter syndrome, you have always made me feel like I belong. Mil gracias!

To my cohort Peighton and Ryan: I am so grateful that we got to do this together and I know that I could not have done it alone. Thank you for your help with all the things, for the wonderful and thoughtful conversations, for being a safe space for ranting and a support in the difficult times. I'm so proud of your accomplishments and I love seeing you reach your goals. I can't wait to see what else you achieve, and I hope we continue to collaborate in the future.

To my work family…

To my Zarrow and Sooner Works family (Megan, Melissa, Anna, Rylee, Emily, Angela, Chris, Tracy, Christy, Tasa, Natasha, Savannah, Gale, Brooki, Bailey, Belkis, Amal, Courtney, Fanee, and Kerry) and all the Sooner Work students and interns I have had the pleasure of working with: I will always be grateful for your love, support, and friendship.

To my ABA supervisors Mindy and Heather: thank you for believing in me, for your time, your dedication, and all you have taught me. I will forever be grateful for the opportunity of working with you both.

To every professor, advisor, and mentor who has ever believed in me: thank you for making a positive impact in my life.

To whoever reads my work one day, thank you for caring about our students with intellectual and developmental disabilities.

Table of Contents

List of Tables

List of Figures

Scoping Review

Single Case Figure

Abstract

Currently, there are 361 Postsecondary Education Programs (PSE) across the U.S. that give individuals with intellectual and developmental disabilities (IDD) the opportunity of pursuing postsecondary education (Think College, 2025). Many of these programs are housed within institutions of higher education that require and encourage students to have internet access and use technology for academics, communication, and socialization. This dissertation includes three manuscripts. The first manuscript is a scoping review based on selected 24 articles that discussed teaching personal safety, online safety, and cyberbullying prevention skills. The data collected from the articles was organized into four emerging themes: cyberbullying, privacy of information, social skills for safe online interactions, and responsible use of the internet. Only a few of the articles focused on individuals with disabilities. The second manuscript is a national survey that was sent to coordinators of PSE programs to learn about their student engagement in risky online behaviors as well as the instructional practices of the program in regards to personal online safety. The results were based on data from 42 respondents. Findings indicate that about forty percent of students with IDD attending PSE programs have engaged in risky online behaviors related to sharing personal private information online, sending money or financial information to strangers, and sending or receiving sexually explicit messages or emails. Survey results also discuss PSE program staff perceptions on the increased vulnerability of students with IDD to online victimization. Finally, the third manuscript is a single case research design to teach personal online safety to college students with IDD attending a postsecondary education program. The intervention was based on Behavior Skills Training and focused on teaching students three appropriate ways to respond to messages requesting personal private information. Overall, results indicate that most of the participants showed an increase in appropriate responses

after the intervention. As a whole, the three studies point to the need for teaching personal online safety skills and the impact that an online safety intervention can have on students' behaviors.

Chapter 1: Problem Statement

Technology has become part of our daily routines, and the general understanding is that technology is meant to improve our lives and make them easier. For individuals with disabilities, accessing technology represents a path to autonomy. An electric wheelchair can serve as a tool for independent mobility, a reading device provides access to information, a cell phone a means for communication, and a communication device can give someone a voice. The Assistive Technology Act (ATA) of 2004 has given many individuals with disabilities across the U.S. access to assistive technology devices that promote their independence and provide a better quality of life. Similarly, having greater technological skills such as knowing how to use computers has been identified as a predictor to obtain postsecondary employment for individuals with disabilities (Mazzotti et al., 2021). This highlights the importance of technology in the lives and opportunities for individuals with disabilities.

The variety, availability, and affordability of technological devices makes it easier for individuals with disabilities to purchase devices that help with accessibility and communication (McNaughton & Light, 2013). In a survey conducted last year with 5,626 adults in the U.S., 98% reported owning a cellphone and 91% owned a smartphone that provides internet access (Pew Research Center, 2024). These statistics point at how common it has become for people to access technological devices and the internet.

Despite the positive aspects of technology and the many benefits it provides, there is also a negative side to it. Having internet access and using technological devices such as cellphones, computers, and tablets make it easy to communicate with people all over the world. We use social media, emails, apps, and text messages to share part of our lives with others and stay connected. However, this ability comes with various risks such as vulnerability of the

information we share and the possibility of having unsafe online interactions including cyberbullying victimization.

Vulnerability of Individuals with Intellectual and Developmental Disabilities

Individuals with intellectual and developmental disabilities often struggle with social safety skills (Drew et al., 2022). The lack of social safety skills for individuals with intellectual and developmental disabilities puts them at higher risk for violence, victimization, and sexual abuse when compared to nondisabled individuals (Drew et al., 2022; Peterson et al., 2021). Having social safety skills and being able to respond appropriately to dangerous situations is especially important when these individuals transition into adulthood and increase their independence. Despite the importance of teaching safety skills for individuals with intellectual disabilities, there is a limited amount of research conducted in this area (Trevor et al., 2021). When it comes to social safety, individuals with intellectual and developmental disabilities are more likely to be victimized than individuals without disabilities (Miltenberger & Novotny, 2022; Spivey & Mechling, 2016). Yet, most of the research on the safety of individuals with intellectual and developmental disabilities focuses on in person social safety issues such as abduction and sexual abuse prevention, or physical safety issues such as poison prevention and firearm safety skills (Miltenberger & Novotny, 2022). There is a dearth of research regarding social safety skills to help individuals with intellectual and developmental disabilities have safe social interactions online. With increased access to technological devices, this is an area of research that needs to improve. Similarly, with the increase of technology use, there is a need to teach individuals with intellectual and developmental disabilities personal online safety skills. Increasing the personal safety and online safety skills of individuals with disabilities can lead them to have improved social interactions while staying safe in person and online.

Cyberbullying

Cyberbullying has various definitions across different fields and researchers. Hinduja & Patchin (2023) define cyberbullying as the "willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices" (p.2). Kowalski et al., (2016) define cyberbullying as "bullying that occurs via the internet or text messaging" and is "... an act of aggression that occurs over time" (p.416). Vismara et al., (2022) define cyberbullying as "i) an intentional aggressive behavior; ii) conducted repeatedly; iii) with unequal power between perpetrators and victims; iv) and using electronic technology as a medium" (p.1). The common elements across different cyberbullying definitions are the repeated negative interactions that occur through technological devices rather than face to face.

Cyberbullying Prevalence

Measuring cyberbullying prevalence is a difficult task. This is caused by many factors such as the various definitions for cyberbullying, the different instruments used to measure cyberbullying, and the differences in research focus (Kennedy, 2019; Vismara et al., 2022). However, research indicates that the rate of cyberbullying prevalence in the U.S. is on the rise (Kennedy, 2019). This is concerning as cyberbullying has been correlated to negative mental health outcomes such as anxiety, depression, and suicidal ideation (Clements et al., 2024; Kowalski & Toth, 2017; Kowalski et al., 2016). The majority of the existing research in cyberbullying has been focused on general education students in middle and high school settings (Kowalski et al., 2016; Zalaquett & Chatters, 2014). However, cyberbullying is also present in college settings. College students with and without disabilities have reported being victims of cyberbullying (Kowalski et al., 2016; Zalaquett & Chatters, 2014). More research should be

conducted to understand college students' experiences with cyberbullying and how it affects their college experience.

Cyberbullying Among Individuals with Intellectual and Developmental Disabilities

There is a limited amount of research on cyberbullying among individuals with intellectual and developmental disabilities, and the instruments that are currently used to assess cyberbullying have not been adapted for this population of students (Kowalski & Toth, 2017; Martínez-Cao et al., 2021). From the current literature, we know that students with disabilities are at higher risk of being cyberbullied than students without disabilities (Elridge et al., 2021). This risk increases when the students have an intellectual or developmental disability and when their disability is more noticeable to others (Kowalski & Toth, 2017; Kowalski et al., 2016). Research also suggests that students with disabilities who are in special education classes report higher rates of cyberbullying than their peers in general education classes (Elridge et al., 2021). Finally, students with disabilities who do not have the appropriate social skills and supports, report higher rates of cyberbullying (Elridge et al., 2021).

A recent scoping review found that harassment was the most common type of cyberbullying experienced by individuals with intellectual disabilities (Clements et al., 2024). Examples of cyberbullying harassment behaviors included being insulted, being made fun of, being called names, and receiving mean and threatening messages (Clements et al., 2024). Other types of cyberbullying victimization experienced by individuals with intellectual disabilities include impersonation (i.e. cyberbullies pretending to be them and sending inappropriate messages from their social media) as well as outing and trickery (i.e. cyberbullies sharing the individual's personal information in social media for everyone to see) (Clements et al., 2024). In a study conducted by Kowalski & Toth (2017) to compare cyberbullying among youth with and

without disabilities, about 50% of individuals without disabilities and 73% of individuals with disabilities reported having been bullied in their lifetime. These percentages of cyberbullying prevalence are alarming and highlight the importance of conducting further research to understand why students of all abilities are experiencing cyberbullying and what can be done to prevent it.

Nonetheless, research has identified protective factors against cyberbullying for individuals with intellectual and developmental disabilities. These include teaching the students social skills as well as improving their environments and support (Martínez-Cao et al., 2021). Due to the importance of technology for students with disabilities and their increased susceptibility to cyberbullying, it is important to teach these students personal online safety skills that can prepare them to respond appropriately to online victimization.

College Programs for Students with Intellectual and Developmental Disabilities

The introduction of the Higher Education Opportunity Act (HEOA) of 2008, gave students with intellectual disabilities a path to attend postsecondary education by prompting the creation of Comprehensive Transition and Postsecondary Programs (CTP) and allowing these students to receive federal financial aid for the first time. CTP programs were defined as programs for individuals with intellectual disabilities in institutions of higher education where students would be enrolled on at least a half-time basis, take regular college courses, and participate in work-based training along with their non-disabled peers (HEOA, 2008; Lee & Will 2010). There are currently 361 Postsecondary Education Programs in the U.S. (Think College, 2025) that allow students with intellectual and developmental disabilities to continue learning after high school.

Many students with intellectual or developmental disabilities who are enrolled in PSE programs are able to attend courses, have internship opportunities, and live in the dorms along with traditionally enrolled college students. However, for many of those students, going to college represents the first opportunity of living away from home which brings new social situations and challenges (May, 2023). On the other hand, many colleges and universities require students to complete, attend, or submit coursework through online platforms. Students are also encouraged to stay informed and connected with their peers, professors, and program staff through the use of websites, email, apps, or text messaging. The exposure to new social situations combined with the expectation of technology use in college can put these students at risk for unsafe online interactions and cyberbullying victimization (Kowalski et al., 2016).

Since many of these programs are relatively new, there is a lack of research on evidence-based interventions that can be used to teach those students with intellectual and developmental disabilities the social safety skills that they can use to navigate college life safely. Teaching students in PSE programs skills related to personal health, sexuality, and healthy relationships can ensure that they have a safer college experience (May, 2023). It is important for PSE programs to teach social safety skills as part of their curriculum to help students learn how to respond to new social situations while living on campus. This should include online personal safety skills instruction.

Problem Statement

Despite the increase in the number of PSE programs across the country for students with intellectual and developmental disabilities, there is a dearth in research on the cyberbullying prevalence, and the online personal safety skills of these young adults who are expected to use

technology as part of their college education while navigating new social situations. In order to address this problem, I will conduct the following research project.

Proposed Research

Scoping Review

The first part of my dissertation research will focus on conducting a scoping review to explore the existing literature regarding personal safety as well as online safety and cyberbullying prevention skills for individuals with and without disabilities.

The scoping review will aim to answer the following research questions:

1) What is the breadth of the current research related to teaching personal safety skills for in person and online interactions?
2) What skills are being taught that promote personal safety and online safety?
3) Does the current research include individuals with disabilities?

The results of the scoping review will be discussed in Chapter 2.

Survey

I will begin by carrying out a survey that will be sent to all 355 PSE programs for individuals with intellectual and developmental disabilities across the U.S. as of January of 2025. This survey will provide information on student engagement in risky online behaviors while attending college, and how PSE programs are addressing these behaviors when they occur. It will also provide information on whether PSE program staff believe that students with intellectual and developmental disabilities should learn personal online safety skills and examples on how they are teaching these skills. Finally, due to the lack of research in this topic, the survey will serve as a form of social validity.

The purpose of the survey is to answer the following research questions:

1. Do students with intellectual and developmental disabilities attending postsecondary education programs (PSE) engage in online behaviors that put their personal safety at risk?
2. Do PSE programs believe that teaching personal online safety skills is important for their students?
3. What are PSE programs doing to address online safety concerns with their students?
4. What instructional materials (i.e. modules, lessons, or curricula) are PSE programs using to teach personal online safety skills to college students with intellectual and developmental disabilities?

The survey will include both Likert type and open-ended questions, therefore, quantitative and qualitative analysis will be conducted to interpret findings. The results of the survey research will be discussed in Chapter 3.

Multiple Probe Design Across Groups

The second part of my research is a single case intervention to teach personal online safety skills to students with intellectual and developmental disabilities attending a PSE program. As part of the safety skills, they will learn the risks of sharing personal private information online as well how to appropriately respond when someone is requesting this information online.

The single case study will answer the following research questions:

1. Is there a functional relation between a personal online safety skills intervention and the decrease in inappropriate personal online safety behaviors for college students with intellectual and developmental disabilities enrolled in a PSE program?
2. Do the participating students believe that learning personal online safety skills is important for their personal safety and overall college experience?

3. Does the PSE program director and staff believe that teaching personal online safety skills to students in the program is important for a safe college experience?

Visual analysis will be conducted to evaluate the success of the personal online safety intervention for each of the participants. Results for the single case research design will be discussed in Chapter.

Finally, Chapter 5 will provide a summarized discussion of findings for all three studies, as well as summary of limitations, implications for practice, and future research ideas.

Chapter 2. Personal Safety, Online Safety, and Cyberbullying Prevention Skills for Individuals with and without Disabilities a Scoping Review

From cellphones to household electronics and smart vehicles, technology forms part of our everyday lives. Technological advancements allow us to connect with individuals around the world and online interactions have become part of our routines. According to the National Center on Education Statistics (2023), about 97% of children between the ages of 3 and 18 had some type of internet access at home in the year 2021. The internet makes it easy for us to communicate with others. Whether via email, text messages, social media, apps, websites, and even gaming consoles, technology lets us reach people across the world. Although this easy access to communication can have many benefits, it also comes with its disadvantages. Such is the case of cyberbullying.

Cyberbullying

There are many existing definitions of cyberbullying that vary across researchers and fields. For example, Hinduja & Patchin (2023) define cyberbullying as the "willful and repeated harm inflicted through the use of computers, cell phones, and other electronic devices" (p.2). Similarly, Smith (2019) defines cyberbullying as "an aggressive, intentional act" that occurs repeatedly over time through the internet or a mobile phone (p.19). The different definitions of cyberbullying have some characteristics in common: they refer to negative online interactions that occur more than once, and the interactions happen through a screen rather than face to face.

Due to the many definitions of cyberbullying, as well as the differences in research focus and instruments to measure it, researchers have had a difficult time measuring cyberbullying prevalence (Kennedy, 2019; Smith, 2019; Vismara et al., 2022). For example, a meta-regression conducted by Kennedy (2019) showed that cyberbullying increased from close to 10% in 2000,

to a little over 16% in 2017. However, a 2021 survey of about 2,500 middle and high school students in the U.S. reported that at least 45% of them had been cyberbullied in their lifetime, and around 23% of them had been cyberbullied within the previous 30 days (Hinduja & Patchin, 2023). There is a clear variation in cyberbullying perpetration reported across researchers. Nonetheless, cyberbullying prevalence is on the rise. This is concerning as cyberbullying has been correlated to negative mental health outcomes such as anxiety, depression, and suicidal ideation (Clements et al., 2024; Kowalski & Toth, 2017; Kowalski et al., 2016; Smith, 2019). Despite the large difference in the reported percentages of cyberbullying perpetration across researchers, cyberbullying is a clear issue in our country, and it is negatively impacting our youth.

Technology and Individuals with Disabilities

Research indicates that individuals with disabilities who have greater technological skills such as knowing how to use computers, are more likely to obtain postsecondary employment (Mazzotti et al., 2021). For many individuals with intellectual and developmental disabilities (IDD), assistive technology can also be necessary for communication, accessibility, and mobility. For example, individuals with IDD might use communication devices to express themselves, screen readers to access information, and electric wheelchairs to move independently.

Conversely, research suggests that individuals with intellectual and developmental disabilities are more vulnerable online victimization and cyberbullying (Chadwick, 2019; Miltenberger & Novotny, 2022; Spivey & Mechling, 2016). Their risk for cyberbullying is increased when their disability is noticeable to others (Kowalski & Toth, 2017; Kowalski et al., 2016). Knowing the significance that technology can have in improving the lives of individuals

with IDD, more research should be conducted to help this population learn cyberbullying and online safety prevention skills.

Scoping Reviews

Scoping reviews were introduced by Mays et al., (2001) and later defined by Arksey & O'Malley (2005) as a methodology that can be used to identify the body of literature in a broad research area or one that has not been explored before. Scoping reviews also aid in identifying gaps in the literature and summarizing research findings (Arksey & O'Malley, 2005). Although it was first introduced and used for healthcare research, it can also be used in the complex field of special education research (Harrison et al., 2018; West). This scoping review will explore the existing literature related to personal online safety and cyberbullying prevention to identify gaps and summarize available findings.

Need for current study

As technology continues to advance, and internet use continues to increase among our youth, it is essential that we teach our students the skills they need to have safe online interactions. This is especially important for individuals with intellectual and developmental disabilities who are at an increased risk for cyberbullying as well as in person and online victimization (Chadwick, 2019; Miltenberger & Novotny, 2022; Spivey & Mechling, 2016). However, there is limited research related to the instruction of online safety and personal safety skills for individuals with disabilities (Smith, 2019). This scoping review aimed to understand the existing literature regarding personal online safety and cyberbullying prevention and how individuals with disabilities fit in the literature.

Method

This study follows the scoping review process suggested by Harrison et al., (2018) for special education research which is based on Arksey and O'Malley's (2005) five step process and includes procedures by Levac et al., (2010).

Stage 1: identifying initial research aims:

In the winter of 2023, the main author met with the program director and staff of a Postsecondary Education Program (PSE) for students with Intellectual and Developmental Disabilities (IDD), to discuss a broad issue. Many of the students with IDD who have attended their program lacked the personal safety skills to have safe interactions both in person and online. Some of their students had shared their personal private information online and engaged in risky behaviors. This discussion helped establish a broad goal for this scoping review (Arksey & O'Malley, 2005; Levac et al., 2010; Westphaln et al., 2021). The initial goal was to identify the existing literature regarding the teaching of personal online safety skills, specifically for individuals with disabilities. This goal informed the following research questions for this scoping review:

1) What is the breadth of the current research related to teaching personal safety skills for in person and online interactions?
2) What skills are being taught that promote personal safety and online safety?
3) Does the current research include individuals with disabilities?

Stage 2: identifying relevant studies:

The author's original purpose was to explore existing research around teaching individuals with IDD personal safety skills for online interactions. However, after conducting an initial search that yielded a small number of peer reviewed articles, the main author met with

three other experts in the field of special education as well as a librarian for the educational psychology department at her university for input. The author and experts as a team, discussed the limited results and opted to change the aim of the review by broadening the population (Arksey & O'Malley, 2005; Levac et al., 2010; Westphaln et al., 2021). The new goal was to include research related to teaching online safety and personal safety skills to individuals with and without disabilities.

While reviewing some of the articles yielded by the search, the author noticed that "cyberbullying" and "sexting" were common keywords in a few of the initial articles. Therefore, the author had another discussion with the program staff and special education experts, and the team suggested expanding the search terms to include "cyberbullying" and "sexting". A comprehensive list of the Boolean string follows: abstract("disab*" OR "IDD" OR "intellectual disabilities" OR "developmental disabilities" OR "autistic" OR "individuals with autism" OR "adults with disab*" OR "children with disab" OR "youth with disab*" OR "students with disab*" OR "teenagers with disab*" OR "students" OR "youth" OR "young adults" OR "teenagers" OR "adults" OR "children") AND abstract("sexting" OR "cyberbullying" OR "personal safety") AND PEER(yes) AND abstract("online safety" OR "social media safety" OR "digital safety" OR "internet safety" OR "social safety" OR "stranger safety") AND PEER(yes).

Based on the librarian's recommendation, the author searched these terms in the following databases: ERIC, PROQUEST, Academic Search Complete and Soc INDEX. The team developed the following limits for included articles (a) the research focus was a form of personal online safety (e.g. social media safety, cyberbullying, sexting); (b) the research focus was a form of social safety (e.g. stranger safety); (c) the research included interventions, instruction, strategies, or curriculum; (d) the articles were peer-reviewed.

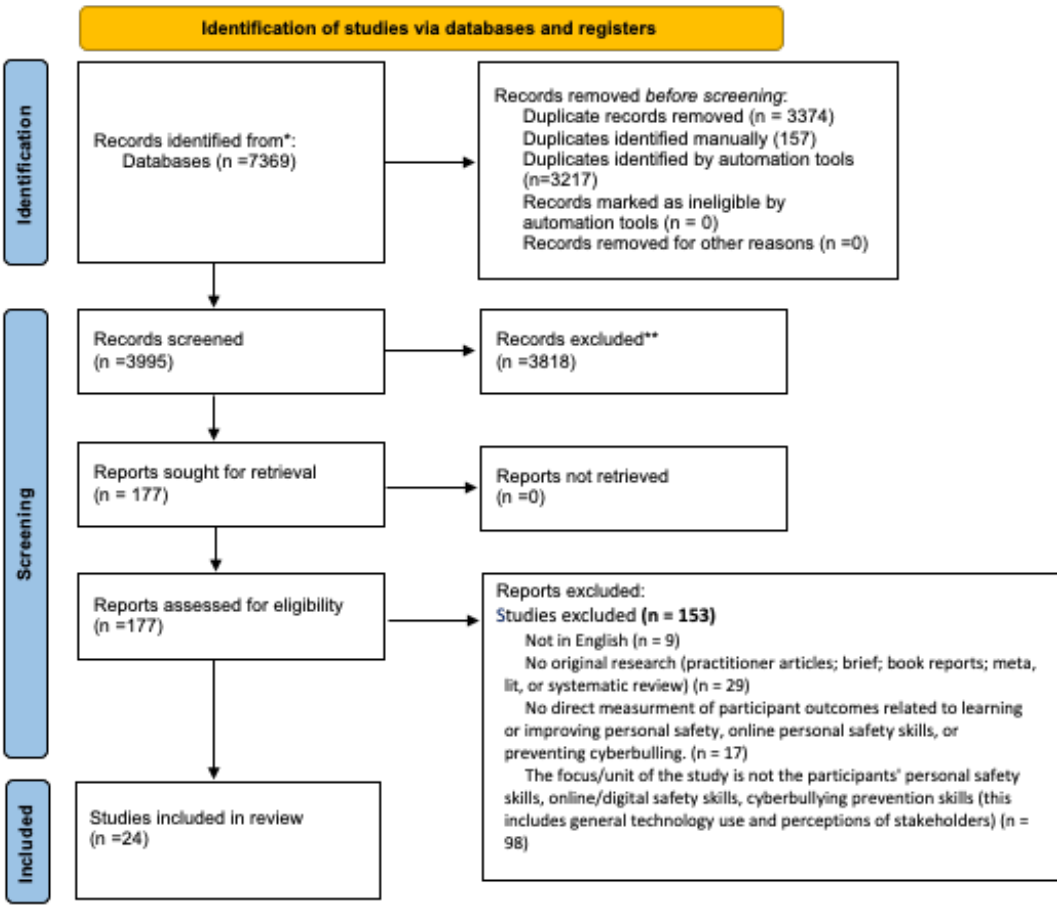
Stage 3: selecting studies

The search across databases yielded a total of 7,369 articles that were inputted into the systematic review tool Covidence. Out of those 7,369 articles, Covidence detected and deleted 3,374 duplicate articles. A total of 3995 articles were used in the title and abstract screening. Two of the authors served as independent reviewers and double screened all 3995 articles based on criteria (a) through (d) and excluded articles based on the following criteria: articles that did not include research (e.g. practitioner articles, grant proposals, book reviews, news briefs, white papers); articles discussing general technology use or stakeholder's perceptions of online safety; and grey literature. The inter-rater reliability for title and abstract screening was 96.62%. The authors then met and discussed each of the disagreements until reaching 100% agreement. Additionally, during title and abstract screening, 157 articles were manually identified as duplicates and removed.

After the title and abstract screening, 177 articles were sent to full text review, and 3818 articles were deemed irrelevant based on the screening criteria. The same two authors double coded all 177 articles independently for the full text review. Inter-rater reliability was 87.01%. The authors then met to discuss each disagreement until they reached 100% agreement. The full text review yielded 153 excluded articles. Articles at this stage were excluded based on the following criteria: the article was not in English; the study did not contain original research (e.g. briefs, book reports, literature reviews); and the study that did not contain measures of participant outcomes related to learning or improving personal safety, online safety, or preventing cyberbullying. Relevant dissertations, meta-analysis, and literature reviews were excluded from the scoping review but tagged for the researchers to review for information and additional articles. The end result was 24 articles that met inclusion criteria: articles with

intervention research that measured participant outcomes related to learning or improving skills associated with personal safety, online safety, or cyberbullying prevention.

Figure 1
Identifying and Selecting Studies (PRISMA diagram)



Stage 4: charting the data

This part of the scoping review involves extracting relevant information from the included studies (Arksey & O'Malley, 2005; Levac et al., 2010; Westphaln et al., 2021). As the first step for this multi-stage process, the authors created a coding sheet that determined the relevant information to be extracted from the articles (Harrison et al., 2018; Levac et al., 2010). After the coding sheet was created, two of the authors coded information from the first 3 articles to review the information and determine if additional codes were needed. Their percentage

agreement in these three articles was 99.1%. The two authors then coded the remaining articles independently as suggested by Levac et al., (2010). The percentage agreement for data extraction was 96.94%. The authors then met to discuss and review the disagreements until 100% agreement was reached. The coding sheet included the following criteria: article information (i.e. title, authors, year of publication, and journal); participant demographics (i.e. number of participants, age, gender, and disability status); country where the research was conducted as well as the setting for the study (i.e. early childhood, elementary school, middle school, high school, post-secondary, home, job, community, other); implementer (i.e. researcher, educator, peer, family member, other); research design (i.e. quantitative, qualitative, mixed methods, single case design); dependent variable measured such as personal safety skills (i.e. general personal safety) , online safety skills (i.e. anonymity, phishing, online privacy, online interactions, and cyberbullying), social safety skills (i.e. talking to strangers, providing personal information to strangers); independent variables utilized (i.e. name of curriculum intervention, dosage, and type of materials/activities it included); and finally, the effects of the intervention (i.e. increased, or decreased skills, showed no significant change, and reported social validity).

Stage 5: collating, summarizing, and reporting results

The final stage of the scoping review is to collate, summarize and report the findings without assessing the quality of evidence or attempting to generalize the findings (Arksey & O'Malley, 2005). All 24 studies explored different interventions and curricula used to teach personal safety and social safety skills for online and in person interactions. To answer the first two research questions – 'What is the breadth of the current research related to teaching personal safety skills for in person and online interactions?' and 'What skills are being taught that promote personal safety and online safety?'– information from all 24 articles was summarized

and presented in Table 1 with the following labels: Author(s) (including year of publication); Country (location where the research took place); Setting (place where intervention took place); Participant number (total number of participants in the study); Included individuals with disabilities (whether the study reported participants with disabilities); Methodology (type of research methodology used); Targeted skills (dependent variable; skills targeted during the intervention including specific examples from the articles if available); and Curriculum/Intervention (independent variable; curriculum or intervention used to improve skills). For an overview of the findings and details about the studies see Table 1.

After the data from the articles was summarized, the authors identified overarching themes that were used to organize the different types of skills targeted in the articles. This information helped answer research question two– 'Does the current research skills include individuals with disabilities?'. Findings are summarized below.

Table 1
Included studies and study characteristics

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Aizenkot & Kashy-Rosenbaum, 2018	Israel	Elementary and Middle School	1402	Not reported	Quantitative	General online safety skills (e.g. knowledge and competencies; attitudes toward WhatsApp cyberbullying; social norms; perceived behavioral control)	Intervention Program
Aizenkot & Kashy-Rosenbaum, 2020	Israel	Elementary Middle and High Schools	1550	Not reported	Quantitative	General online safety skills and cyberbullying prevention skills (e.g. knowledge and competencies; attitudes toward WhatsApp cyberbullying; subjective norms; perceived behavior control)	Safe surfing intervention program
Aizenkot & Kashy-Rosenbaum, 2021	Israel	Elementary School	533	Not reported	Quantitative	General online safety skills (e.g. cyberbullying in general, and WhatsApp cyberbullying; state laws prohibiting cyberbullying; skills for judging and self-monitoring content before disseminating online)	Safe surfing intervention program

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Andrews et al., 2020	USA	Not reported	513	Not reported	Quantitative	General online safety skills (e.g. motivation to restrict sharing)	Randomly assigned to (1) educational video “Be a Smart Cookie” from YouthPrivacyProtection.org or (2) a seven-item true/false educational quiz
Athanasiades et al., 2015	Greece	Middle School and Online	314	Not reported	Quantitative	General online safety skills and cyberbullying prevention skills	"TABBY in Internet" (Threat Assessment of Bullying Behavior of Youngsters)
Barlett et al., 2020	USA	Post-secondary	342	Not reported	Quantitative	General online safety skills and anonymity	Cyberbullying intervention that targets anonymity perceptions
Bickham et al., 2021	USA	Middle School	218	Not reported	Quantitative	General online safety skills (e.g. managing online conflict, online peer pressure)	Screenshots
Boulton et al., 2016	UK	Elementary School	291	Not reported	Quantitative	General online safety skills and privacy of things posted online (e.g. people online might not be who they say they are, cyberbullying, and computer viruses)	CATZ curriculum

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Brandau et al., 2022	USA	Private School 5th through 8th grade	27	Not reported	Quantitative	General online safety skills (e.g. digital citizenship: digital life and personal media habits, safe online behavior, and cyberbullying)	Digital Citizenship Curriculum
Brenick et al., 2014	USA	Elementary School	238	Not reported	Quantitative	General social safety skills and skills related to talking to strangers (e.g. boundary setting, and help-seeking)	Kidpower Everyday Safety Skills Program (ESSP)
Bright et al., 2022	USA	Elementary School	1176	Not reported	Quantitative	General online safety skills and cyberbullying prevention skills (e.g. digital dangers)	Monique Burr Foundation (MBF) for Children's Child Safety Matters (CSM) curriculum
Cross et al., 2015	Australia	High School	225	Not reported	Mixed Methods	General online safety skills and cyberbullying prevention skills	Cyber Friendly Schools Project (CFSP)
Damara & Omari, 2022	Oman	Middle School	389	Excluded participants with disabilities	Quantitative	General Online safety skills and cyberbullying prevention skills (e.g. privacy of things posted online, cyber extortion)	Social Networking Safety Promotion and Cyberbullying Prevention Presentation (SNSPCP)
Fisher, 2014	USA	University dormitories at summer camp	21	Yes (only participants with disabilities)	Quantitative	General social safety skills and Skills related to talking to strangers	Behavior Skills Training

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Hughes-Roberts, 2015	UK	Post-secondary	41	Not reported	Quantitative	General online safety skills and privacy of things posted online	Privacy Examiner
Jones et al., 2023	USA	Elementary School	1072	Not reported	Quantitative	General online safety skills including phishing, privacy of things posted online, seeking help with online interactions (e.g. catfishing, digital footprint, trolling, password sharing)	Be Internet Awesome (BIA) program, curriculum, and materials
Liau et al., 2017	Singapore	Elementary School & Home	440	Not reported	Quantitative	General online safety skills (e.g. attitude toward offline meetings, online disclosure, nasty messages, watching porn online, playing more than 3 hours, cyberbullying)	iZ HERO exhibition and Story Quest game from the website
Marnewick et al., 2022	South Africa	School with Special needs unit for individuals with ID ages 10 to 20	19	Yes, 8 participants with disabilities and 11 without	Qualitative	General online safety skills (e.g. empowering to use WhatsApp with independence, easy and accessible communication, online etiquette, responsible digital citizen)	WhatsApp awareness intervention programme

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
McGraw et al., 2014	USA	Elementary School	1379	Not reported	Quantitative	General online safety skills (e.g. dealing with uncomfortable content, cyberbullying, strangers, and providing personal information online)	Internet Safety and You
Nicolaidou & Venizelou, 2020	Cyprus	Elementary School (6th grade)	73	Not reported	Quantitative	General online safety skills (e.g. protection of personal data, avoiding cyberbullying, protection from hackers)	"Be Smart When Online"
Roberto et al., 2014	USA	Middle School	425	Excluded participants with disabilities	Quantitative	General online safety skills (e.g. social networking safety promotion and cyberbullying prevention)	Arizona Attorney General's Social Networking Safety Promotion and Cyberbullying Prevention presentation
Spivey & Mechling, 2016	USA	In the community & university classrooms	3	Yes (Only participants with disabilities)	Single Case Design	General personal safety and social safety skills (e.g. talking to strangers, providing personal information, and knowing how to respond to strangers)	Video Modeling and In Vivo training of safety skills

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Tanrikulu et al., 2015	Istanbul	High School	16	Not reported	Mixed Methods	General online safety skills (e.g. cyberbullying sensibility personal information on social network sites can be used by others)	Sensibility Development Program
Yurdakul & Butun Ayhan, 2022	Turkey	Middle School	38	Not reported	Quantitative	General online safety skills and cyberbullying prevention skills (e.g. cyberbullying tendency, coping with cyberbullying, protection from cyberbullying)	The Cyberbullying Awareness Program

Findings

Breadth of current research related to teaching personal safety skills for in person and online interactions and skills being taught that promote personal and online safety

Out of the 24 articles selected in this scoping review, 21 of them discussed general online safety skills. From this broad category, four themes emerged: cyberbullying, privacy of information, social skills for safe online interactions, and responsible use of the internet. It is important to note that most of the articles taught skills from multiple themes as many of these skills seem to be related to each other. For example, understanding privacy and anonymity can lead to responsible use of the internet, safer online interactions, and in turn help prevent cyberbullying.

Cyberbullying prevention and awareness skills were the most common skills taught for online safety. Cyberbullying related skills were taught in 16 out of the 21 articles that addressed general online safety. Some of the skills addressed in this theme include understanding the definition and consequences of cyberbullying, being a bystander, and the laws prohibiting cyberbullying (Aizenkot & Kashy-Rosenbaum, 2021); coping and protection from cyberbullying (Yurdakul & Butun Ayhan, 2022); and perceptions of anonymity in cyberbullying (Barlett, 2020). These articles seemed to addressed skills related to understanding cyberbullying from different perspectives (bully, victim, or bystander), possible consequences of cyberbullying, but mostly, skills that help prevent and address cyberbullying.

Privacy related skills were addressed in 8 out of 21 of the articles. Some of the skills taught related this theme are understanding catfishing, trolling, digital footprint and consequences of password sharing (Jones et al., 2023); privacy of things posted online and how information can be used for cyber extortion (Damara & Omari, 2022); and protection of personal

data from hackers (Nicolaidou & Venizelou, 2020). All of these skills seemed to focus on teaching skills related to keeping private information out of the internet and understanding the consequences of having your information online.

Social skills related to safe online interactions were discussed in 6 of the 21 articles. Some of the skills taught were skills related to managing online conflict and online peer pressure (Bickham et al., 2021); understanding social norms and perceived behavioral control (Aizenkot & Kashy-Rosenbaum, 2018); and understanding when it might be important to seek help with online interactions from a trusted adult (Jones et al., 2023). These skills were specific to improving social skills for better and safer interactions online.

Finally, from the 21 articles discussing general online safety skills, 7 addressed skills for responsible internet use such as digital citizenship and safe only behavior (Brandau et al., 2022); watching porn online or playing for more than 3 hours (Liau et al., 2017); and social networking safety (Roberto et al., 2014). The focus of these skills seemed to be understanding how to responsibly use the internet, the type of content that can be found or shared online, and the time spent online.

Out of the 24 articles, there were 4 articles that discussed in person-personal safety skills. Some of the skills taught in these articles addressed talking to strangers (Brenick et al., 2014; Bright et al., 2022; Fisher 2014; Spivey & Mechling, 2016), boundary setting and help seeking (Brenick et al., 2014); and knowing how to respond when strangers request personal information or invade personal space in public transportation (Spivey & Mechling, 2016). Although these skills were specifically taught for in person interactions, the authors agree that these skills are just as valuable to have safe online interactions.

Does the current research include individuals with disabilities?

Regretfully, only a few of the articles reported having participants with disabilities as part of their study population. Two of the articles were specific to participants with disabilities and they were both focused on offline personal safety skills (Fisher 2014; Spivey & Mechling, 2016). One study included participants with and without disabilities. This study was conducted by Marnewick et al., (2022) and taught skills related to using WhatsApp to promote independence and easy and accessible communication. Two of the articles mentioned excluding participants with learning disabilities (Damara & Omari, 2022) and participants enrolled in special education (Roberto et al., 2014). The other 19 articles reported age and gender of their participants but did not report disability status. These results highlight the need for conducting research related to online safety skills for individuals with disabilities.

Discussion

This scoping review sought to explore the existing literature around teaching personal safety and online safety skills to individuals with and without disabilities. A large portion of the articles that were excluded during the early stages of the scoping review focused on the correlates and consequences associated with cyberbullying which is consistent with previously explored trends in cyberbullying research (Smith, 2019). Some of the other articles discussed stakeholder's perceptions of online safety or addressed concerns related to time spent online. The 24 studies selected for this scoping review included interventions and specific learning outcomes. This was important as the authors were hoping to determine the types of personal safety and cyberbullying prevention skills that could be taught to postsecondary education students with intellectual and developmental disabilities. Nonetheless, the limited number of

articles that included interventions and measurable outcomes points at the lack of intervention research to teach cyberbullying and personal safety skills.

It is essential to note that most of the studies selected for this review were conducted with younger individuals from elementary and middle school students as part of school wide interventions which is consistent with previous findings (Kowalski et al., 2016; Vandebosch, 2019; Zalaquett & Chatters, 2014). There were only a couple of articles that included high school age students and 4 of the 21studies included adults; however, 3 of them were specific interventions for adults with disabilities. These results point at the lack of research with older students which is concerning when we consider that cyberbullying does not stop when students age. Previous studies have found that college students with disabilities and without disabilities have also reported being victims of cyberbullying (Kowalski et al., 2016; Zalaquett & Chatters, 2014). When discussing cyberbullying research Smith (2019) explains that although cyberbullying research seems to have started in North America., it has increased more rapidly in European countries. For this scoping review, 13 out of the 24 selected studies took place in countries outside of the U.S. This generates questions surrounding the need for continued cyberbullying prevention research in the U.S. Similarly, the overall findings of this scoping review emphasize the need to expand cyberbullying research across different age groups and different settings.

When it comes to online safety much of the research seems to be focused on exploring how cyberbullying correlates to negative outcomes for the bullies, the victims and the bystanders, which is consistent with overall cyberbullying research trends (Smith, 2019). However, as mentioned before, only a small portion of the research focuses on teaching cyberbullying prevention skills (Smith, 2019; Vandebosch, 2019). About two thirds of the

articles selected in this scoping review are meant to teach participants how to deal with or prevent cyberbullying. However, there is little focus on other aspects of online safety outside of cyberbullying. Some of the articles in this scoping review discussed general online safety areas related to privacy, safe online interactions, and responsible internet use; however, these areas need continued exploration. There needs to be an increase in research to address risky online behaviors and interactions that goes beyond cyberbullying because positive online interactions can also involve risks and lead to negative outcomes.

This scoping review illustrates the lack of research on personal safety and online safety for individuals with disabilities which is consistent with previous research (Kowalski & Toth, 2017; Martínez-Cao et al., 2021). In contrast, the existing research for this population discusses their increased risk to online victimization and cyberbullying (Chadwick, 2019; Miltenberger & Novotny, 2022; Spivey & Mechling, 2016). This shows a disconnect in the literature. On one hand we understand that individuals with disabilities are more vulnerable to being victimized online, yet we are not actively finding ways to teach the skills needed to prevent or deal with victimization.

Limitations and future research

An important limitation of this scoping review is the variety of terms and keywords encompassed when discussing online safety, personal safety, and cyberbullying. While conducting the full text review and collecting and summarizing data from the selected articles, the authors realized that different researchers from various fields use different terminology to refer to online safety related skills which can make it difficult to be thorough when conducting research (Schreiber & Cramer, 2024). This indicates the likelihood of missing key terms and keywords during the initial search that should be included in future scoping or literature reviews

related to these topics. The authors also realize the importance of consulting with experts in related fields to discuss the keywords and terminology they use when discussing online safety to find other relevant literature in the future.

Future research should explore interventions that lead to evidence-based practices for teaching cyberbullying prevention, personal safety, and overall online safety skills for individuals of different ages, backgrounds, and abilities. The initial article searches for this scoping review yielded close to 4,000 articles, however, only 24 of those articles included an intervention with some type of measurement of participant skills as a dependent variable. Although it is important for us to explore and understand the consequences and correlates of cyberbullying, it is just as important that we learn how to teach skills to prevent it or respond to it.

Conclusion

There is a limited amount of research related to teaching online safety skills in the U.S. A large portion of the existing research focuses on understanding the reasons for and consequences of cyberbullying. However, as technology continues to advance and the options for online communication continue to increase, it is important that we find evidence-based practices to promote online safety skills. This is especially important for individuals with disabilities who are often more vulnerable to victimization and not always included in the research (Chadwick, 2019; Miltenberger & Novotny, 2022; Spivey & Mechling, 2016); especially when we consider that individuals with disabilities might depend on technology for communication, access, and independence.

Chapter. 3 “They don’t see the red flags” Online Safety Behaviors of College Students with Intellectual and Developmental Disabilities Attending Postsecondary Education Programs

Individuals with intellectual and developmental disabilities (IDD) have not always been able to attend postsecondary education. This is often due to their inability to meet traditional college entrance requirements such as college entrance exams (Betch et al., 2020). However, the introduction of the Higher Education Opportunity Act (HEOA) of 2008 gave individuals with IDD the opportunity to attend postsecondary education. The HEOA (2008) led to the creation of Comprehensive Transition and Postsecondary Programs (CTP), which were defined as programs for individuals with IDD at Institutions of Higher Education (IHE) where they would be enrolled at least half-time, take traditional college courses and receive work-based training along their peers without disabilities (HEOA, 2008; Lee & Will 2010).

Over two hundred new postsecondary education programs (PSE) for students with IDD have been created in the past 14 years going from 138 in 2011, to 361 in 2025 (McEathron et al., 2013; Think College, 2025). The increase in PSE programs makes it possible for more students with IDD across the U.S. to access postsecondary education. However, the increased access can represent new adversities. For many of students with IDD, attending college means living away from home for the first time which comes with new social situations and challenges (May, 2023). These challenges are further exacerbated by the difficulties that come with being a college student such as taking higher rigor courses, practicing time management, and balancing school, employment, and social life.

Technology use in IHEs

Numerous colleges and universities across the United States use learning management systems (LMS) such as Canvas, D2L, or Blackboard to manage instruction (Bouchrika, 2025). Students attending IHEs often complete and submit assignments online through the LMS,

communicate with professors and peers via email, and use the internet as a tool for access, information, and research. Similarly, many IHEs offer courses that are partially or completely online. According to the National Center on Education Statistics (2023b), in fall of 2021, about 61% of all undergraduate students were enrolled in at least one distance education course. This is important to consider for students with IDD attending PSE programs as the majority of these programs are housed within institutions of higher education. Their exposure to online instruction and online communication while attending these programs is almost inevitable.

Risks of Online Victimization for Individuals with IDD

There is limited research regarding technology or internet use for individuals with IDD. However, the current literature suggests that individuals with IDD are at higher risk of cyberbullying and victimization when compared to their nondisabled peers (Chadwick, 2019; Miltenberger & Novotny, 2022; Spivey & Mechling, 2016). This is concerning when we consider that cyberbullying victimization and perpetration often lead to a higher risk of mental health concerns and negative outcomes (Jackson et al., 2025). More research should be conducted to find evidence-based practices to help students with IDD be safe online and prevent cyberbullying.

The National Center for Education Statistics (2023a) reported that in 2021, about 97% of children between the ages of 3 and 18 had access to the internet at home. Despite the increase in technological advances over the past decade, and the increased use of technological devices from pre-k to higher education institutions, there is limited research on how to teach our students to be safe online. The literature regarding cyberbullying has increased tremendously over the past 20 years (Smith, 2019). However, much of the existing literature focuses on predictors and outcomes of involvement followed by prevalence rates and gender differences in cyberbullying

(Smith, 2019). Only a small portion of the research focuses on interventions to teach personal online safety skills and cyberbullying prevention skills is (Smith, 2019).

Purpose of the current study

This survey aimed to increase the literature regarding college students with IDD attending postsecondary education programs and their online safety behaviors. More specifically, we aim to learn the types of risky online behaviors that college students with IDD are engaging in, the consequences they face, the perceptions of PSE program staff regarding online victimization for this population of students, and how they are teaching their students to stay safe online. The research questions were as follows:

Research questions:

1. Do students with intellectual and developmental disabilities attending postsecondary education (PSE) programs engage in online behaviors that put their personal safety at risk and how do programs address said behaviors?
2. Do postsecondary education program staff believe that teaching personal online safety skills is important for their students?
3. Do staff at postsecondary education programs believe that students with IDD are more likely to be victimized online?
4. Are PSE programs teaching personal online safety skills to college students with intellectual and developmental disabilities and what instructional materials (i.e. modules, lessons, or curricula) are they using?

Method

We created an electronic survey to explore the experiences and perceptions of PSE program staff related to students' risky online behaviors. The instrument included background

information of participants and the PSE program (e.g., demographics, program characteristics and requirements), as well as quantitative and qualitative data related to the online behaviors of students with IDD attending these programs. Prior to beginning data collection, the Institutional Review Board (IRB) for the host university approved the study.

Participants

Data for this research project was collected using the online survey tool Qualtrics. The survey consisted of thirty-two items and focused on online safety of students with IDD attending PSE programs. To be included in this study, participants needed to meet the following criteria: (a) be the coordinator or staff member of an inclusive PSE program for individuals with IDD, (b) work directly with students in the program and be familiar their online behaviors. Potential participants were recruited based on a list of all program coordinators found on the Think College's College search tool as of January 2025. The survey respondents provided online consent to participate in the study, as well as their email addresses for gift card distribution. The first section of the survey consisted of participant characteristics which can be found on Table 1.

Table 1

Respondent Characteristics

Demographic Category	*n	%
Role in the post-secondary education program		
Director	19	45.2
Assistant Director	5	11.9
Staff Member	1	2.4
Program Coordinator	11	26.2
Other (e.g. faculty, program manager)	6	14.3
Years employed in the current role		
<1 year	3	7.1
1-5 years	23	54.8
6-9 years	13	31
10> years	3	7.1

n=42

Program and Institution of Higher Education (IHE) Characteristics

The second section of the survey consisted of program characteristics such as length of program existence, number of students served, and disability categories served. This section also included questions regarding characteristics of the institutions of higher education where the programs were housed such as the setting of the institution and residential options. For a summary of IHE and program characteristics see Table 2.

Table 2

Institution of Higher Education and Postsecondary Education Program Characteristics

Demographic Category	*n	%
Setting of the Institution of Higher Education		
Urban	19	45.2
Suburban	13	31
Rural	10	23.8
Length of Program's Existence		
<1 year	3	7.1
1-5 years	23	54.8
6-9 years	13	31
10< years	3	7.1
Approximate Number of Students Served Per Year		
1-10	16	38.1
11-20	8	19
21-30	11	26.2
31-40	2	4.8
41-50	3	7.1
51 or more	2	4.8
**Disability Categories Served		
Intellectual and Developmental Disability	41	97.6
Autism	29	69
Other (i.e. Multiple Disabilities, Other Health Impairment)	5	11.9
Students in the Program Live in University Housing		
Yes	14	33.3
No	25	59.5
Other	3	7.1
***Residential Options for Students Living in University Housing		
Inclusive on Campus	11	78.6
Specialized on Campus	3	21.4
Students in the Program Take Courses along with Traditionally Enrolled Students		
Yes	38	90.5
No	3	7.1
Other (i.e. they can but have chosen not to)	1	2.4
Students in the Program Have Internships or Job Opportunities in Inclusive Settings		
Yes	40	95.2
No	0	0
Other (i.e. yes but they have not started, both)	2	4.8

Notes. **Participants could select multiple response options; therefore, percentages may exceed 100%.

***For Residential Options for Students Living in University Housing, percentages were calculated based on the fourteen programs who said their students lived in university housing.
n=42

Technology Requirements and Encouraged Communication Methods

The third section of the survey included questions regarding program requirements related to technology use, as well as expected forms of communication for students attending the program. A summary of this information can be found on Table 3**.**

Table 3
Technology Use and Communication Methods for Students Enrolled in PSE Programs

Program Characteristics	*n	%
Electronic Device is Required for Program Participation		
Yes	29	69
No	13	31
Electronic Device is Required for Participation in University Courses		
Yes	26	62
No	16	38
**Type of Electronic Device Required		
Cell phone	24	57.1
Laptop/Computer	24	57.1
Tablet	3	7.1
Other (i.e. any of the above or any device with keyboard)	4	9.5
**Purpose of Electronic Device Use		
Academics	28	66.7
Online Meetings	26	62
Accessing School Email	29	69
Internship Related Tasks	20	47.6
Communication	27	64.3
Other (i.e. scheduling, campus engagement)	4	9.5
**How Students are Encouraged to Communicate with Program Staff, Professors, or Internship Supervisors		
Email	41	97.6
Text Message	27	64.3
Messaging App (e.g. GroupMe, WhatsApp, Equip)	18	42.9
Social Media (e.g. Facebook, Instagram, Snapchat)	3	7.1
Other (i.e. Canvas, Blackboard, On-call Phone)	7	16.7
**How Students are Encouraged to Communicate with Peers		
Email	38	90.5
Text Message	37	88.1
Messaging App (e.g. GroupMe, WhatsApp, Equip)	29	69
Social Media (e.g. Facebook, Instagram, Snapchat)	24	57.1
Other (i.e. in person, none)	4	9.5

Note: **Participants could select multiple response options; therefore, percentages may exceed 100%.
n=42

Survey Instrument Development

This survey was created by the main author based on her personal experiences working with students with IDD attending a PSE program over the course of four years. The author consulted with program staff, special educators, and other field experts who helped review and finalize the items. After the survey instrument was created, it was sent to three experts in the field for initial review and feedback. All three experts had experience as previous PSE program coordinators working with students with IDD. Similarly, the survey was shown to two alumni from the postsecondary education program. The researcher met with the alumni via Zoom and discussed the different survey items. After feedback was received, changes were made based on expert recommendations to increase content validity. Finally, the survey was sent to a researcher with expertise in special education and assessment creation who provided feedback and recommendations on the rating scales as well as the clarity of the survey items. These recommendations were implemented by the researchers.

Procedures and Data Collection

We collected data for this study during a six-week period in spring of 2025. The survey was originally distributed via Qualtrics, to all 355 postsecondary education programs across the U.S. The email instructed a program director, coordinator, or program staff member who was familiar with their students' online behaviors to complete the survey. The email included a hyperlink to the Qualtrics survey to participate in the study. A $10 electronic Amazon gift card was offered for the first 50 participants who completed the survey. In order to receive their gift card, participants had to provide their email addresses. Participant emails were only used for payment related purposes and were not connected to survey data.

Data Analysis

This survey analyzed both quantitative data such as Likert-type questions, and qualitative data based on open-ended questions.

Quantitative Analysis. Many of the quantitative items in the survey related to student behaviors measured binary responses as students have either engaged in the behaviors ("yes)", or they have not ("no"). Due to the nature of the questions and our interest in knowing how many programs have seen similar issues when it comes to online safety, we calculated the number and response percentages using embedded analysis tools on Qualtrics.

To respond to the first part of Research Question 1 (students' engagement in risky online behaviors), respondents answered Likert type questions about their students' online behaviors related to sharing private personal information, financial information, or sending and receiving unrequested sexually explicit messages or pictures. When respondents selected "Yes" to any of the previous questions, a new question asked how they found out about the students' risky behaviors (e.g. from the student, from a parent or guardian, from a staff member), and what type of online communication the student had used (e.g. email, social media, messaging app). For the second part of Research Question 1, we asked an open-ended question asking participants how their programs addressed students' engagement on the unsafe behaviors.

To respond to Research Question 2 (PSE program staff beliefs around teaching online safety) respondents answered Likert type questions about their perception on the importance of personal online safety skills, students' understanding of the consequences of sharing personal information online, and whether PSE programs should teach personal online safety skills.

To respond to Research Question 3 (PSE program staff beliefs around online

victimization for students with IDD) respondents answered Likert type questions regarding their perception about the vulnerability of students with IDD to online victimization, as well as whether targeting individuals with IDD online is a form of cyberbullying. When respondents answered "Yes" to the question regarding the increased vulnerability of students with IDD to online victimization, an open-ended question asked their perception of what causes the increased vulnerability.

Finally, to respond to Research Question 4 (are PSE programs teaching personal online safety), respondents answered a Likert type question about whether their program teaches personal online safety skills as well as an open-ended question about the curriculum, modules, handouts, and lessons they use).

Qualitative Analysis. To analyze qualitative responses, we utilized a combination of coding reliability and codebook thematic analysis as described by Braun & Clarke (2022; 2023). These thematic analysis approaches were used as they are based on a (post)positivism framework that promotes objectivity and increases reliability while decreasing researcher bias (Braun & Clarke, 2022; Braun & Clarke 2023). Coding reliability and codebook thematic analysis often involve the creation of a codebook with themes that reflect data collection questions; the data is coded independently by multiple coders, agreement is calculated, and disagreements discussed to reach consensus (Braun & Clarke, 2022; Braun & Clarke 2023).

The survey included three open-ended questions that were tied to Research Questions 1, 3, and 4. The focus of the three questions were to understand the short and long term consequences that students face when they engage in risky online behaviors, the reasons why program directors and staff believe these students are more likely to be vulnerable to online victimization, and the tools for online safety instruction used by the PSE programs.

Two researchers with expertise in special education and qualitative research experience conducted the qualitative analysis for the three open-ended questions described above. The collaboration aimed to increase the transparency of the data analysis (Trainor & Graue, 2014). They began by downloading the responses from Qualtrics into a Microsoft Excel spreadsheet. They reviewed the data independently and based on this data created a list of codes following inductive coding (Braun & Clarke, 2022). The codes were compared, and a final version of the codebook was created. This process was repeated for all three open-ended responses. The researchers used the codebook and reviewed responses line by line. First independently, and then collaboratively. Researcher agreement was calculated by comparing the researchers' codebooks and counting the number of times each code appeared in the responses. Disagreements were discussed to reach consensus. Finally, codes were organized into themes based on similarities.

Research question 1 discussed how programs address student engagement in risky online behaviors. This research question included short- and long-term consequences that students face when they engage in risky online behaviors which resulted in two overall themes and seven subthemes. Research question 3 which discussed why postsecondary education program staff believe that students with IDD are more likely to be victimized online resulted in six overall themes, and the tools for online safety instruction used by the PSE programs were categorized into three overall themes.

Results

Out of the 355 emailed surveys, participants representing 46 out of the 355 programs completed the survey. The percentage completion was set at 70%. A total of 41 participants completed 100% of the survey, and 1 participant completed 74% of the survey. The results of the

survey are based on those 42 surveys completed. All 42 participants received a $10 electronic gift card four to six weeks after completing the survey.

Respondents for the survey were mostly program directors (45.2%) and program coordinators (26.2%). The majority of the programs represented in this study serve students with intellectual and developmental disabilities (97.6%), allow those students to take courses along with traditionally enrolled students (90.5%), and provide them with inclusive internship and job opportunities (100%).

More than half of the respondents (69%) said their students are required to use electronic devices for program participation and many of them (62%) also expressed that students are required to use electronic devices to participate in university courses. Respondents said their programs typically required cellphones (57.1%) or computers (57.1%).

PSE programs seemed to encourage students to use technology for various reasons including academics (66.7%), online meetings (62%), accessing school email (69%), internship related tasks (47.6%), communication (64.3%) and other purposes such as scheduling or campus engagement (9.5%). When it comes to online communication, the majority of respondents said their students were encouraged to communicate with program staff, professors, or internship supervisors via email (97.6%), text messages (64.3%), or messaging app such as GroupMe, or Equip (42.9%). In contrast, respondents mentioned that their students were encouraged to communicate with peers via email (90.5%), text messages (88.1%), messaging app such as GroupMe, or Equip (69%), and social media (57.1%).

Research Question 1: Do students with intellectual and developmental disabilities attending postsecondary education (PSE) programs engage in online behaviors that put their personal safety at risk and how do programs address said behaviors?

Quantitative results. Table 4 provides a summary of the quantitative responses regarding risky online behaviors that students are engaging in while attending PSE programs. Many respondents shared that their students have shared their personal private information (45.2%) or financial information online (31%) and sent or received sexually explicit pictures or messages (31%). Most of these risky behaviors happened through text messages (31%), or social media (33.3%). The majority of times, the respondent found out about the student behavior through the students' parent or guardian (33.3%), the student who engaged on the behavior (28.6%), or a staff member (28.6%).

Table 4

Student engagement in risky online behaviors

Type of risky online behavior students have engaged in	*n	%
Students have shared private personal information online (e.g. full legal name, date of birth, social security number)	19	45.2
Full Legal Name	19	45.2
Date of birth	17	40.5
Social Security Number	3	7.1
Home Adress	18	42.9
Location or Campus Address	17	40.5
Students have shared their financial information or fallen for a financial scam online.	13	31
Shared Credit or Debit Card Information	10	23.8
Shared Bank Account Number	5	11.9
Sent Money Online Thinking They Were Making Purchase	8	19
Sent Money to a Stranger Online Who Requested It	10	23.8
Students have sent or received unrequested sexually explicit messages or pictures	13	31
Sent Nudes or Sexually Explicit Images	8	19
Received Nudes or Sexually Explicit Images	7	16.7
Sent Sexually Explicit Messages	9	21.4
Received Sexually Explicit Messages	9	21.4
Type of online communication students used to share personal private information		
Email	7	16.7
Text Message	13	31
Messaging App (e.g. GroupMe, Equip)	5	11.9

Social Media (e.g. Facebook, Instagram, Snapchat)	14	33.3
How did the respondent find out about student's risky behavior?		
From the Student Engaging in the Risky Online Behavior	12	28.6
From the Student's Parent or guardian	14	33.3
From Another Student	10	23.8
From a Staff Member	12	28.6

Note. Participants could select multiple response options; therefore, percentages may exceed 100%.
**n=42*

Qualitative results. Two main themes emerged from Research Question 1 related to how programs address students' risky online behaviors: Negative Consequences and Corrective Feedback and Support. Table 5 includes a summary of the themes, subthemes, and number of times they were mentioned throughout the responses. The majority of respondents mentioned that when students engaged in risky online behaviors, they allowed natural consequences to occur and that it often resulted in restrictions in technology for family members. Fewer respondents mentioned that they gave students verbal reprimands or provided educational opportunities.

Table 5
Qualitative codes and themes of PSE program responses to students' risky online behaviors

Codes and Themes	Number of times theme was mentioned throughout participant's responses
Negative Consequences	
Financial Loss	11
Restrictions on Technology	17
Natural Consequences (i.e. loss of privileges, student conduct or law enforcement involvement, suspension or removal from program)	26
Loss of Dignity (i.e. hurt reputation, loss of trust from peers, received bullying or harassment)	4
Corrective Feedback and Support	
Educational Opportunity Provided	6
Preventative Measures (i.e. safety plan, help blocking individuals or making reports)	6
Verbal Reprimands (i.e. conversations with program director, teachers, staff, or parents)	9

Research Question 2: Do PSE program staff believe that teaching personal online safety skills is important for their students?

Quantitative Results. Table 6 provides a summary of the quantitative responses regarding PSE program staff perceptions on the importance of personal online safety skills, students' understanding of the consequences of sharing personal information online, and whether PSE programs should teach personal online safety skills. The majority of respondents agreed that having personal online safety skills is important for students attending PSE programs (95.2%) and that these students should understand the risks and consequences of sharing personal information online (95.2%). However, only 78.6% of respondents believe that PSE programs should teach students personal online safety as part of their curriculum.

Table 6

PSE program staff perceptions on the importance of teaching personal online safety skills to students with IDD

PSE program staff perceptions	*n	%
Personal online safety skills are important for students attending PSE programs.	*40*	95.2
Students in PSE programs should understand the risks and consequences of sharing personal information online	*40*	95.2
PSE programs should teach personal online safety as part of their curriculum.	*33*	78.6

**n=42*

Research Question 3: Do PSE program staff believe that students with IDD are more likely to be victimized online?

Quantitative results. Table 7 summarizes respondent's quantitative responses to their perceptions regarding students with IDD increased vulnerability to online victimization and whether targeting individuals with IDD online is a form of cyberbullying. Most of the respondents agreed that students with IDD are more vulnerable to online victimization (90.5%)

and many of them also considered that targeting students with IDD online is a form of cyberbullying (88.1%).

Table 7

PSE program staff perceptions of vulnerability to online victimization for students with IDD

PSE program staff perceptions	*n	%
Students with intellectual or developmental disabilities are more vulnerable to online victimization.	38	90.5
Targeting individuals with intellectual or developmental disabilities online is a form of cyberbullying.	37	88.1

n=42

Qualitative results. Four main themes emerged from research question 3 regarding program staff perceptions on students with IDD increased vulnerability to online victimization: Infantilization, Need for Acceptance and Belonging, Lack of Self-Determination Skills, and Lack of Education or Knowledge. Table 8 summarizes the themes, subthemes, and number of times they were mentioned throughout the responses. One of the most mentioned themes was lack of awareness, judgement, and understanding. The second most mentioned theme was being too trusting, and the third most mentioned theme was the need for acceptance and belonging.

Table 8

Qualitative codes and themes of PSE program perceptions of increased vulnerability of students with IDD for online victimization

Codes and Themes	Number of times theme was mentioned throughout participant's responses
Infantilization (i.e. students with IDD are infantilized, college represents first opportunity to explore and first exposure to freedom)	6
Lack of awareness, judgement, or understanding	19
Trusting (naïve & gullible)	15
Need for acceptance and Belonging (i.e. relationship seeking)	14
Lack of Self-Determination Skills	8
Lack of Education and knowledge (i.e. lack of experience and training)	10

Research Question 4: Are PSE programs teaching personal online safety skills to college students with intellectual and developmental disabilities and what instructional materials (i.e. modules, lessons, or curricula) are they using?

Quantitative results. Table 9 provides a summary of the quantitative responses related to PSE programs teaching personal online safety skills to students with IDD. A little over half of respondents mentioned that students in their program receive instruction on personal online safety as part of the program curricula (57.1%). Some programs only teach personal safety on a case-by-case basis (16.7%) or only provide online safety training from the institution of higher education (14.3). A couple of the respondents said their program does not provide instruction on personal online safety (4.8%).

Table 9

PSE programs' instructional practices regarding personal online safety

PSE programs instructional practices	*n	%
All students in our program receive instruction on personal online safety a part of the program curricula.	24	57.1
Personal online safety is only taught in a case-by-case basis.	7	16.7
Students in our program do not receive instruction on personal online safety.	2	4.8
Students in our program receive online safety training from the institution of higher education.	6	14.3
Other (i.e. developing curricula, finding trainings/learning resources from the university)	2	4.8

**n=42*

Qualitative results. Three main themes emerged for research question 4 related to what programs use to provide instruction on personal online safety: Specific Curricula, Available Existing Materials, Home-Made Curricula. Table 10 lists the different themes and subthemes as well as how many times they were mentioned by respondents. The types of instructional materials used by programs was evenly spread out between the three different categories. While some programs used specific curricula, other programs searched for available materials such as videos and

handouts. Finally, some programs preferred making their own curricula or materials to teach personal online safety to their students.

Table 10

Instructional materials PSE programs use to teach personal online safety

Codes and Themes	Number of times theme was mentioned by respondent
Specific curricula (i.e. Common-Sense Education, Learn for Independence, Responsible Digital Citizenship, Re Media Publications)	10
Available Existing Materials (i.e. modules, YouTube videos, handouts)	11
Home-Made Curricula (i.e. self-made curriculum, guest speakers, role play activities and scenarios, one-on-one instruction as needed, taught as part of course)	12

Discussion

This study utilized survey research to learn about the risky online behaviors of students with IDD attending PSE programs and what programs are doing to address or prevent those behaviors. Survey results highlighted how common it is for students with IDD to be required to use technology while in college. Close to seventy percent of the participants said that their PSE program required students with IDD to use technological devices as part of program requirements or to participate in university courses. This is not surprising when we consider that over 60% of undergraduate students were enrolled in at least one online course in 2021 (According to the National Center on Education Statistics, 2023b). Conversely, approximately half of the respondents shared that students in their program had engaged in different types of risky online behaviors such as sharing their personal private information online, falling for online financial scams, and sending or receiving sexually explicit pictures and messages. Seeing that many PSE programs require their students with IDD to use technology, more needs to be done to help teach those students personal online safety skills and prevent the risky behaviors from occurring.

As one could expect, most of the consequences related to student engagement in risky online behaviors had a negative connotation to it. Whether it was financial loss, technology restrictions, a reprimand, or getting suspended from the program. Many of the respondents mentioned that students' risky behaviors often result in technology restrictions from their parents or caregivers. This type of consequence is common for individuals with IDD as caregivers often perceive them as needing protection or safeguarding (Chadwick, 2019; Chadwick, 2022). Similarly, recent studies have focused on parental restrictions for individuals with disabilities, as it relates to online communication for relationship seeking (Santinele Martino, et al., 2025; Santinele Martino & Kinitz, 2022). Although technology restrictions can help prevent future incidents, this approach does little to teach students with IDD the importance of being safe online and hinders their dignity of risk. Dignity of risk refers to the right of individuals with intellectual and developmental disabilities to take risky decisions and make mistakes that lead to learning opportunities and growth (Bumble et al., 2021; Perske, 1972). Individuals with IDD have the same rights to have experiences and make mistakes as their nondisabled peers. Just like we would not restrict technology or internet use of other adults around us, we should avoid implementing these restrictions for individuals with IDD and provide education and guidance instead.

In contrast, many respondents reported that their program focused on allowing natural consequences to occur. Natural consequences promote dignity of risk. Historically, individuals with intellectual and developmental disabilities have caregivers and service providers who make decisions for them rather than promoting their autonomy (Bannerman et al., 1990; Perske, 1972). By allowing our students with IDD to face the natural consequences of their risky online behaviors, we are helping them learn the negative impact of their actions, even when it results in

them being removed from the program. Sadly, only a few respondents mentioned that they used students' risky behaviors as an educational opportunity or an opportunity for mentoring students to help prevent future incidents. Teaching students how to be safe online and why their actions had the corresponding consequences is essential to promoting safety and autonomy (Bannerman et al., 1990; Perske, 1972).

Most of the respondents agreed that students with IDD are more vulnerable to online victimization and that targeting these students is a form of cyberbullying. These findings are similar to those found in previous research suggesting that individuals without disabilities perceive that individuals with IDD have a higher risk for sharing too much personal information, falling for marketing scams, or being bullied or harassed online (Chadwick et al., 2017). When asked to explain why they believed these students have an increased vulnerability to online victimization, respondents focused on four main themes: infantilization of individuals with disabilities, their lack of self-determination skills, lack of awareness or understanding, and lack of education and knowledge. When talking about students with IDD being too trusting one participant said, "they don't see the red flags".

One way to address this increased vulnerability is through promoting self-determination skills. Research has shown that self-determination is a predictor of postsecondary success for individuals with disabilities (Mazzotti et al., 2021; Test et al., 2009). Students with disabilities who show self-determination are more likely to go to college, complete their college programs, and have paid employment after high school (Mazzotti et al., 2021; Zhang et al., 2023). Self-determination is not a single behavior, but rather a set of skills such as self-advocacy, self-awareness, problem-solving, goal setting and attainment, choice making, self-efficacy and locus of control (Wehmeyer et al., 1996). A study by Griffin et al., (2019) discussed how individuals

with intellectual and developmental disabilities utilize self-advocacy, problem solving, choice and decision making, goal setting and attainment, and self-regulation to respond to bullying. Similarly, these skills can be used for online interactions. Self-advocacy skills can help students speak up to their cyberbullies or let someone know they are being victimized. This is important because students with and without disabilities who have experienced cyberbullying victimization are often unwilling to report it (Kowalski & Toth, 2017). Students can use problem solving and decision-making skills when being cyberbullied by analyzing the situation, understanding their options, and deciding how to respond. On the other hand, self-efficacy skills and locus of control can help students realize they can choose how to respond to being cyberbullied and make things better. Finally, self-awareness can help students decide how they want to interact with others online, and how much they want to share about themselves. Overall, self-determination skills can help improve online social safety behaviors. Through promoting self-determined behavior in postsecondary education settings, we can stop infantilizing individuals with intellectual and developmental disabilities and doubting their ability to understand risks and learn from their actions. We can focus on teaching students how to identify the red flags and what to do with them.

Finally, more than half of the respondents mentioned that their program provided instruction on personal online safety for their students. However, the types of materials, lessons, and formats varied. Some programs used structured curricula, others found existing materials and incorporated them into courses, and the rest created their own lessons. These results are consistent with previous research which emphasizes that the lack of guidance often leaves the responsibility to individual teachers to figure out how to promote cyber safety among their students (Fredrick et al., 2022). There is a need for guidance and uniformity. A study by Jones et

al., (2023) evaluated the use of a digital citizenship curriculum *Be Internet Awesome*, created by Google, Inc. to promote online safety skills among kids in grades 3-12. Their study demonstrated that this curriculum was an effective way to promote digital citizenship skills such as increased knowledge of digital citizenship, and self-efficacy to handle online problems (Jones et al., 2023). However, like much of the existing research surrounding online safety or cyberbullying prevention, their study targeted young students as part of school wide interventions, and did not mention if participants had disabilities (Kowalski et al., 2016; Smith, 2019; Vandebosch, 2019; Zalaquett & Chatters, 2014). This is an issue. Expanding the research on effective practices for teaching online safety and digital citizenship across a variety of students of all ages, abilities, and backgrounds, can help inform guidelines and best practices in all educational settings.

Limitations

Limitations of the study must be considered when interpreting the survey findings. The first limitation was the lack of existing research regarding online safety for college students with IDD attending postsecondary education programs. Due to dearth of research, the authors created survey items based on risky online behaviors that their own students had engaged in. However, it is possible that they missed other important behaviors that staff at other PSE programs have experienced. Another limitation was the low number of participants. Only 42 out of the 355 programs responded to the survey (11.8%). This is much lower than the recommended 50% response rate recommended for surveys at the individual level (Baruch & Holtmon, 2009). Having a larger number of participants can provide a more accurate representation of students' online behavior.

Another limitation related to online safety is the like of online safety standards or guidelines in postsecondary education. Most of the program staff expressed that they search for

existing materials online or create their own due to the lack of guidance in this area. This is also seen in K through 12 settings where teachers are often tasked with creating their own materials related to cybersafety (Fredrick et al., 2022). With over 91% of children ages 3-18 having internet access (National Center for Education Statistics, 2023a) and the increased use of technology in postsecondary education settings, there is a need to create guidelines for online safety and resources for students across grade levels.

Implications for Practice

Postsecondary education programs should provide instruction on personal online safety skills to their students with IDD. Whether through the use of existing curricula, premade videos or handouts, or the creation of their own lessons, teaching students to be safe online should be a priority, especially when the PSE program requires that students use technological devices.

PSE program staff can also focus on teaching self-determination skills. Research has identified self-determination as a predictor of postsecondary success for individuals with disabilities (Rowe et al., 2020). Some examples of self-determination skills that can aid students in making informed and safe decisions while navigating online interactions include problem solving, decision making, and self-advocacy. Finally, PSE program staff should avoid infantilizing students with IDD and promote their autonomy through dignity of risk (Bumble et al., 2021; Perske, 1972).

Implications for Future Research

More research is needed to explore the online behaviors of college students with IDD attending postsecondary education programs. Students' perceptions and experiences should be explored to better understand their decision-making process and the circumstances around their risky online behaviors. Similarly, there is a need for exploring effective instructional practices

for teaching personal online safety skills. By growing the literature, we can better inform our practices. Future research should also explore evidence-based practices that promote personal online safety and decrease risky online behaviors. This research could help inform the creation of safety guidelines for personal online safety for students across grade levels.

Conclusion

There is a need for personal online safety instruction in postsecondary education programs for students with intellectual and developmental disabilities. Most students have access to the internet and technological devices but not all of them receive education on how to use it safely and responsibly. Providing instruction in online safety is especially important when the postsecondary education programs require students to use technology to communicate and participate in the programs. This is an area that needs research and improved practices that lead to better student understanding.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, or publication of this article

Funding

The author(s) received no financial support for the research, authorship, and/or publication of this article.

Ethical standards compliance. This study was approved by the university Institutional Review Board (IRB) and all participants provided informed consent.

Chapter 4. A Multiple Probe Design Across Participants to Teach Personal Online Safety Skills to College Students with Intellectual and Developmental Disabilities

Using technological devices has become part of our daily routines. From a sample of 5,733 adults in the U.S., 97% of them reported owning a cellphone and 9 out 10 owned a smart phone which gives them internet access (Pew Research Center, 2024). The National Center for Education Statistics (2023) reported similar findings indicating that in 2021, 97% of children between the ages of 3 and 18 had internet access at home. The easy access to the internet also gives individuals of all ages and abilities the opportunity to communicate with others online.

Technology Use for Individuals with Disabilities

When it comes to individuals with disabilities, technology can play an important role in their autonomy. The improvements in technology along with the passing of the Assistive Technology Act (2004) has ensured that many individuals with disabilities have the opportunity to own assistive technology that helps with their functional capabilities such as mobility, self-care, accessibility, and communication. Similarly, technology use is a predictor of postsecondary employment for individuals with disabilities (Mazzotti et al., 2021). However, the easy access to technology combined with their decreased social skills can put individuals with disabilities at a higher risk for being cyberbullied (Elridge et al., 2021; Kowalski et al., 2016). Research suggests that that the risk of being cyberbullied is even higher when the students have intellectual or developmental disabilities (IDD) that are more noticeable to others (Kowalski & Toth, 2017; Kowalski et al., 2016).

Cyberbullying is the intentional harm or bullying repeated over time that occurs through a technological device (i.e. cell phones and computers) rather than face to face (Hinduja & Patchin, 2023; Kowalski et al., 2016). Research indicates that the rate of cyberbullying

prevalence in the U.S. is on the rise (Kennedy, 2019). This is concerning as cyberbullying has been correlated to negative mental health outcomes such as anxiety, depression, and suicidal ideation (Clements et al., 2024; Kowalski & Toth, 2017; Kowalski et al., 2016). Most of the existing research in cyberbullying has been focused on general education students in middle and high school settings (Kowalski et al., 2016; Zalaquett & Chatters, 2014). However, cyberbullying is also present in college settings. College students with and without disabilities have also reported being victims of cyberbullying (Kowalski et al., 2016; Zalaquett & Chatters, 2014).

Postsecondary Education Programs for Students with IDD

The Higher Education Opportunity Act of 2008 encouraged the creation of Postsecondary Education programs (PSE) that would allow individuals with intellectual disabilities to attend higher education and receive federal financial assistance. This led to an increase in the number of IPSE programs across the U.S. In the last fourteen years, the number of inclusive postsecondary education programs went from 138 in 2011 (McEathron et al., 2013), to 361 in 2025 (Think College, 2025). Although each program has different requirements and opportunities, they all give students with intellectual disabilities the ability to attend college courses and work-based training alongside traditionally enrolled peers. However, for many of these students, going to college represents the first time being away from home which can present new social situations and challenges (May, 2023). On the other hand, many colleges and universities require students to complete, attend, or submit coursework through online platforms. Students are also encouraged to stay connected with their peers through technology. The exposure to new social situations combined with the expectation of technology use in college can put these students at risk for cyberbullying victimization (Kowalski et al., 2016). Teaching students in PSE programs

skills related to personal health, sexuality, and healthy relationships can ensure that they have a safer college experience (May, 2023). It is important for PSE programs to teach social safety skills as part of their curriculum to help students learn how to respond to new social situations while living on campus. This should include online social safety instruction.

Social Safety Skills for Individuals with Disabilities and Behavior Skills Training

When it comes to social safety, individuals with intellectual and developmental disabilities are more likely to be victimized than individuals without disabilities (Miltenberger & Novotny, 2022; Spivey & Mechling, 2016). Yet, most of the research on the safety of individuals with intellectual and developmental disabilities focuses on social safety issues such as abduction and sexual abuse prevention, or physical safety issues such as poison prevention and firearm safety skills (Miltenberger & Novotny, 2022). There is a dearth of research regarding personal social safety skills to help individuals with intellectual and developmental disabilities have safe social interactions. This is an area of research that needs to improve. Similarly, with the increase of technology use, there is a need to teach individuals with intellectual and developmental disabilities online social safety skills. Increasing the personal safety and online social safety skills of individuals with disabilities can lead them to have improved social interactions while staying safe in person and online.

Behavior Skills Training (BST) is an evidence-based method that has been used to effectively teach safety skills to individuals with disabilities (Miltenberger & Novotny, 2022). BST can be used in teaching safety skills by providing instruction and modeling the target safety behavior during a scenario-based role play and allowing the learner to practice the skill and providing immediate feedback (Miltenberger & Novotny, 2022). If the learner responds correctly to the safety scenario, their response is reinforced with praise but if they respond incorrectly,

they receive corrective feedback and a new opportunity to practice the safety skill (Miltenberger & Novotny, 2022). Using BST to teach online social safety skills to individuals with disabilities can be an effective way to practice appropriate responses of different online safety scenarios without harming the students.

Study purpose and research questions

Despite easy access to the internet and the increase in PSE programs across the country, there is a lack of research on the personal online safety skills of students with intellectual and developmental disabilities who attend these programs and are often expected to use technology as part of their college education; all while navigating new social situations. The purpose of this study is to evaluate the functional relation between an online personal safety skills intervention and the increase in appropriate personal online safety skills of adult college students with intellectual and developmental disabilities attending a PSE program in a university campus setting. The online personal safety skills intervention follows the BST method.

Research Questions

The following research questions will be addressed:

4. Is there a functional relation between a personal online safety skills intervention and the decrease in inappropriate personal online safety behaviors for college students with intellectual and developmental disabilities enrolled in a PSE program?
5. Do the participating students believe that learning personal online safety skills is important for their personal safety and overall college experience?
6. Does the PSE program director and staff believe that teaching personal online safety skills to students in the program is important for a safe college experience?

Method

Participants

Recruitment occurred after receiving IRB approval from the University where the study took place. Participants for this study were seven college students with intellectual and developmental disabilities who attend a four-year postsecondary education program in a large public university and are between the ages of 18 and 24. Students enrolled in this program complete classwork using Canvas on their personal computers. Students are expected to communicate with professors, program staff, and internship supervisors via email. However, they also receive program related information and communicate with other students in the program by texting or using apps on their phone such as GroupMe and Equip.

Recruitment took place during one of the program-specific courses that all students enrolled in the program attend. All students in the program were invited to participate in the study. Initially, eight students expressed interest in participating in the study and signed consent forms. However, one of the students withdrew from the study during baseline collection and their data have been omitted from the study. After providing their consent forms, participants completed a short questionnaire with items related to demographics, phone number, technology use, and their personal experience with risky online interactions. To be part of the study, participants needed to meet the following inclusion criteria: (a) be identified with an intellectual and developmental disability, (b) be enrolled in a postsecondary education program, (c) use technology to communicate via texting, messaging app, or social media. All seven participants have a documented intellectual and developmental disability that qualifies them to be part of the postsecondary education program. However, the participant descriptions below include their disclosed disability during the study.

Coby is a 24-year-old White male student who reports having an autism diagnosis. Coby explained that he prefers to communicate with people via text message or social media and spends about 3 to 4 hours a day talking to people online. Coby reported not knowing if he has fallen for an online scam and that he feels he knows how to be safe online.

Lila is a 19-year-old White female student who reports having dyslexia. Lila explained that she prefers to communicate with people via text message or social media and spends 5 or more hours a day talking to people online. Lila reported she has never fallen for an online scam and that she feels she knows how to be safe online.

Austin is a 24-year-old White male student who reports having an autism diagnosis. Austin explained that he prefers to communicate with people via text messages, phone or video calls, GroupMe, or social media and spends 1 to 2 hours per day talking to people online. Austin reported having fallen victim to a financial scam on social media and losing $500. He also reported that he feels he knows how to be safe online.

Isabella is 21-year-old Latina female student who reports having Dandy Walker Syndrome. Isabella explained that she prefers to communicate with people via text messages, phone calls, GroupMe, social media, or email and spends 5 or more hours a day talking to people online. Isabella reported never having fallen for an online scam and that she feels she knows how to be safe online.

Xander is a 20-year-old Latino male who reports having "bumpy speech" (speech impairment). Xander explained that he prefers to communicate with people via text messages, phone calls, or video calls, and spends 3 to 4 hours a day talking to people online. Xander reported never having fallen for an online scam and that he feels he knows how to be safe online.

Olivia is a 22-year-old Black female who reports having Down Syndrome. Olivia explained that she prefers to communicate with people via video call and spends 5 hours or more per day talking to people online. Olivia reported having never fallen for an online scam and that she feels like she knows how to be safe online.

Julian is a 23-year-old Multiracial student (Black, White) who reports having Down Syndrome. Julian explained that he prefers to communicate with people via text messages, phone calls, GroupMe, or social media and spends less than 1 hour per day talking to people online. Julian reported never having fallen for an online scam and that he is not sure if he knows how to be safe online.

Settings

Text messaging

This study took place in a large university campus in the southwestern region of the United States where participants attend a postsecondary education program. Most participating students live on campus in university housing. Isabella lives at home this semester and drives to campus for classes and program related activities. The largest part of the study was conducted virtually as students received approximately 6 weekly text messages from the researcher requesting some type of personal information from low or medium privacy categories (see Appendix II). Text messages were sent at random days and times during the week.

Training/Intervention Setting

Students were randomly assigned to three groups, and all students from each group completed the same intervention phases. The intervention consisted of receiving 5 to 7 weekly text messages from the researcher that requested some type of personal information. The text messages could come from the researcher (someone students are familiar with) or from an

unknown phone number (stranger). After baseline data were collected, students in each group met with the researcher to receive the online safety intervention in a staggered sequence. The intervention was a PowerPoint training session created by the researcher. The training session was based on Behavior Skills Training and included scenarios, modeling, practice, and immediate feedback for students. Each group training session lasted approximately 45 minutes. The training took place in a classroom at the University where the students attend. During the intervention, a second researcher was present to measure fidelity of implementation. The second researcher was present for the entire training session for all three intervention groups.

Materials

Materials for this study include a 30-45-minute BST PowerPoint training session created by the researcher based on different online safety programs and reviewed by postsecondary education program staff and special educators. The researcher's cellphone to send text messages to students requesting personal information. The Google Voice app was used by the researcher to send students text messages from a fixed number without having to share her personal number with participants. The Burner app was used by the researcher to send text messages to students from an unknown number requesting personal information. This app was chosen by the researcher because it allowed her to switch her phone number after each intervention group. This was important because one of the appropriate behaviors that students were taught was to block the number which would not have allowed students to receive messages if the unknown number had been blocked. A treatment fidelity checklist helped the researcher ensure they were covering all the steps of the intervention. A short demographic survey that included questions for participants related to the types of social media, messaging apps, and online communication they

use. Finally, materials included a social validity survey for students and another one for program staff.

Measures

The independent variable for this study was a 30–45-minute online safety behavior skills training intervention to teach students the different levels of private information, examples of when it is appropriate or not to share the information in each privacy level, and three appropriate ways to respond to people when they ask for personal private information online. The personal information covered in each privacy level was divided into three overall themes: private personal information (e.g. social security number, date of birth, home address), financial information (e.g. sending money online, sharing bank, credit or debit card info), and bodily autonomy (e.g. sharing or requesting nudes). The training materials were presented in a Power Point presentation session.

The dependent variable for the study was the response participants provided to the text message. A response that consisted in asking questions, saying no, or ignoring (not responding) the text message was coded as 0 and indicated a desirable response. A response that consisted in sharing low personal private information in the text message was coded as 1 and indicated an undesirable response. A response that consisted of sharing medium privacy information in the text message was coded as 2 and indicated an undesirable response.

The text messages could come from a stranger phone number or from a person participants were familiar with.

Procedures

Institutional Review Board approval for this study was obtained from the university where the PSE program is located prior to participant recruitment. The program director and staff

received a description of the study. They were also asked to provide examples of risky online behaviors that the students had engaged in, or cyberbullying victimization the students had experienced. The researcher made sure to include input from the program director and staff as well as a couple of program alumni with intellectual and developmental disabilities to create the training. Once the questions were finalized, they were reviewed by a group of important stakeholders (program staff, experts on the field, and program alumni) to increase the content validity of the training. The researcher shared the questions and requested feedback from program staff and field experts. The researcher also met with two program alumni via Zoom to go over the questions and made corrections and additions based on their feedback.

Prior to data collection, all students in the PSE program were invited to participate in the study. During recruitment, the researcher explained to students that as part of the intervention they would answer a demographics questionnaire, receive 5 to 7 text messages per week from the researcher or unknown numbers, do a training on online safety, and finally respond to a social validity survey. The researcher answered questions about participation and reminded students that involvement in the study would not affect their grades or program participation in any way, and that they could leave the study at any time and for any reason. Students who participated in the study received a $25 Amazon gift card as compensation for the time after the study had been completed. All students who attend the program are adults and serve as their own guardians. Students who agreed to participate in the study, signed consent forms and responded to a demographics survey that asked for their phone number, online communication preferences, the time they spent per day communicating online, and their experience with online scams.

The main part of the intervention consisted of the researcher texting each participant randomly selected questions from the list of low and medium privacy questions. The researcher

used two different texting apps; one with a fixed number and one that allowed the researcher to switch numbers after each group went through intervention. No questions from the high privacy list were sent to participants. This was intended as a precautionary measure to avoid texting, questions from the high privacy information category to students out of fear that they would text that information back and put themselves at risk (e.g., sharing their location or social security number).

Text messaging students from known number

At the beginning of baseline data collection, the researcher sent a text message to all participants using the Google Voice app explaining that this was her phone number, that they could save it, and that some of the text messages for the study would come from this number. Three to four times per week, the researcher sent a text message from this number and asked one of the low or medium privacy questions avoiding asking repeated questions to each participant. The researcher avoided sending questions from this number that requested being added to social media or promised an incentive. This was done for participant safety and to avoid misunderstandings.

Text messaging students from unknown number

Similarly, the researcher sent two to three text messages per week from the Burner app asking one of the low or medium privacy questions. However, this time the students were not told that the questions were coming from the researcher, they were just sent from a random phone number that was unknown to the participants.

All of the questions were chosen at random from a numbered list using a random number generator online. After the text messages were sent, the researcher noted whether the student responded appropriately or inappropriately to the text messages. When students did not respond

after 24 hours, the researcher assumed that they had ignored the question and noted the answer as appropriate. However, if a participant responded with the information requested even after the 24 hours had passed, the response was switched to inappropriate. The text messages were sent at random times and days and participants never received more than two text-messages per day, and no more than seven messages per week. After the main author and second researcher recorded the responses as appropriate or inappropriate, the text messages containing personal private information received were deleted. This was done to ensure participant safety.

Examples of personal information by level of privacy

The types of personal information were categorized by three levels of privacy (low, medium, and high privacy). Low privacy information was defined as personal information that is commonly shared when you meet new people and has little risk associated with it (e.g. name). Medium privacy information was defined as information that you would not typically share with someone you just met. This information is typically only shared with people you have a close relationship with and has some safety risks associated with sharing it (e.g. where on campus do you live). High privacy information was defined as information that only the individual should have access to. This is sensitive information only you, your parents or spouse would have access to, and you should not share it with anyone online. Sharing high privacy information represents high identity and personal safety risks for the individual (e.g. social security number). Table 1 includes examples of the questions included in each of the privacy categories.

Table 1
Sample questions by level of privacy

Low Privacy Questions	• Who is this? • Where do you live? • What's your email? • What's your Instagram?
Medium Privacy Questions	• What's your birthday month? • What bank do you use?

	• Do you live on campus? • You won tickets for the game next week, text back to claim your free tickets.
High Privacy questions	• Can you send me your location? • What's your date of birth? • Can I borrow your credit card number to pay for a book for class? • What's your got to password?

Baseline Phase

During the baseline phase, the researcher sent about three to four text messages per week from the phone number the students were familiar with and two to three text messages from the unknown phone number. The researcher noted whether the student responded appropriately by ignoring the message, asking questions, or saying they would not share the information, or inappropriately by sharing the information requested.

Intervention Phase

During the intervention phase the researcher provided the online safety training to each of the three groups. The students were placed in groups at random. Information about the groups can be found on Table 2.

Table 2
Intervention groups

Group number	Participants	When was intervention implemented?
Group 1	• Coby • Lila	After session 7
Group 2	• Austin • Isabella • Xander	After session 11
Group 3	• Olivia • Julian	After session 16

The training lasted between 30 to 45 minutes. During this training the researcher discussed what low, medium, and high privacy levels of information are. The researcher gave examples of when it is appropriate or not appropriate to share the different levels of private information and the possible negative consequences of sharing your personal private information online. The researcher then taught participants three appropriate ways to respond to messages requesting private personal information: 1) to ignore the message/block the person, 2) to say no, or 3) to question why the person needs the information requested. As part of the training the researcher included examples and non-examples of the appropriate ways to respond and went through real life scenarios providing immediate feedback to participant responses.

Intervention Phase Data Collection

After the participants in a group had received the intervention, data collection continued to occur in a process similar to baseline. However, if the participants who had completed the intervention continued to send their personal information, the advisor responded with immediate corrective feedback using the following message: “This message was sent as part of the study. Remember that even if someone you know is asking for your personal information, you don't have to provide it. You can say no, ask questions, or ignore the message”. When participants who had gone through the intervention responded appropriately by asking questions or saying no, they received an immediate praise message “great job asking questions” or “great job saying no”. If participants who had received the intervention did not respond to the message, no praise was given as the researcher could not determine if the participant was intentionally ignoring the message, if the number had been blocked, or if they had simply forgotten to respond and would later respond to the message.

Inter-rater Reliability

A second researcher served as an independent data collector. The researcher was able to read the text messages every week and write in a data collection sheet the question that was asked, the level of privacy, if it came from someone the student was familiar with or a stranger, and whether the response was appropriate (ignored, asked questions, said no) or inappropriate (responded to the question given or provided the information requested). The researcher had a copy of each data collection sheet where she noted how each participant responded to each question. There was a data collection sheet for each of the participants. The independent observer read and documented all of the text messages for each of the participants in 100% of the sessions (i.e. baseline, intervention). This percentage exceeded the 20% recommended by the What Works Clearinghouse (WWC) for single-case design (2020). Total count IOA was calculated by dividing the smaller number of appropriate responses observed by the larger number of appropriate responses and multiplied by 100 (Cooper et al., 2020). IOA was 100%.

Treatment Fidelity

A checklist that contained all steps for each phase of the intervention was used by an independent observer to measure fidelity of implementation. The independent observer was present during 100% of the intervention sessions for each group of participants. Treatment fidelity was 100% in all three intervention sessions.

Social Validity

The researcher developed a social validity survey asking participants and program staff their opinion on the intervention and on the importance of teaching online personal safety skills to college students with IDD. The survey was given to participants and staff after data collection had ended. The participant survey included five questions that were measured in a 3-point scale

(yes, no, I don't know) and two open ended questions. The five initial questions addressed whether participants felt the online safety lesson was helpful and easy to understand, the importance of personal online safety, and if they believed their peers should learn about online safety. The two open ended questions asked what participants felt was the most helpful part of the lesson and if there was anything else they would have liked to learn about.

The social validity survey for the program staff included four questions that were measured in a 3-point scale (yes, no, I don't know) and four open ended questions. The four main questions asked if the staff believed the personal online training was important for students in their program and if this is something that should be taught in other postsecondary education programs for students with IDD. It also asked if they believed the online safety intervention would impact the students who participated, and if they would consider teaching the content as part of a course for future students. All four of those questions were followed up with open ended questions asking why they chose that response.

Study Design

A multiple probe across groups design was conducted. Multiple probe across groups designs are helpful when you have a small group of participants who share similar characteristics and show similar behaviors within specific environments (Gast et al., 2018). In this case, participants were a small group of students with intellectual and developmental disabilities who attend a PSE program. Multiple probe designs allow for nonconsecutive data collection which can be helpful when the repeated exposure to the intervention can have learning effects on the participant's understanding of the intervention (Kennedy, 2005). Nonconsecutive data collection is also helpful in this study because participants were enrolled in college courses and internships that might limit their availability to meet with the researcher. The researcher utilized response

guided visual analysis (Hott et al., 2021) including level, trend, variability, and immediacy of effects to decide when to implement the intervention phase. The researcher followed WWC (2020) standards and recommendations for multiple probe designs (i.e. 6 phases, 3 to 5 data points per phase, probe points are needed prior to introducing the independent variable to a participant).

Results

Results for this study are shown in Figure 1. The graph shows the number of appropriate responses to text messages by level of privacy. A visual analysis of the graph was conducted to compare data trends and immediacy of effects across participants (Kennedy, 2005). The behavior measured in the study was binary; the participants either shared the personal information which was considered inappropriate or responded appropriately by asking questions, saying no, or ignoring the text message. Therefore, the percentage of appropriate responses was calculated for each of the participants in each of the phases. The researcher will also select a metric to calculate and report effect sizes (Hott et al., 2021; Ledford et al., 2023).

Figure 1

Number of inappropriate student responses to text messages requesting low or medium privacy personal information.

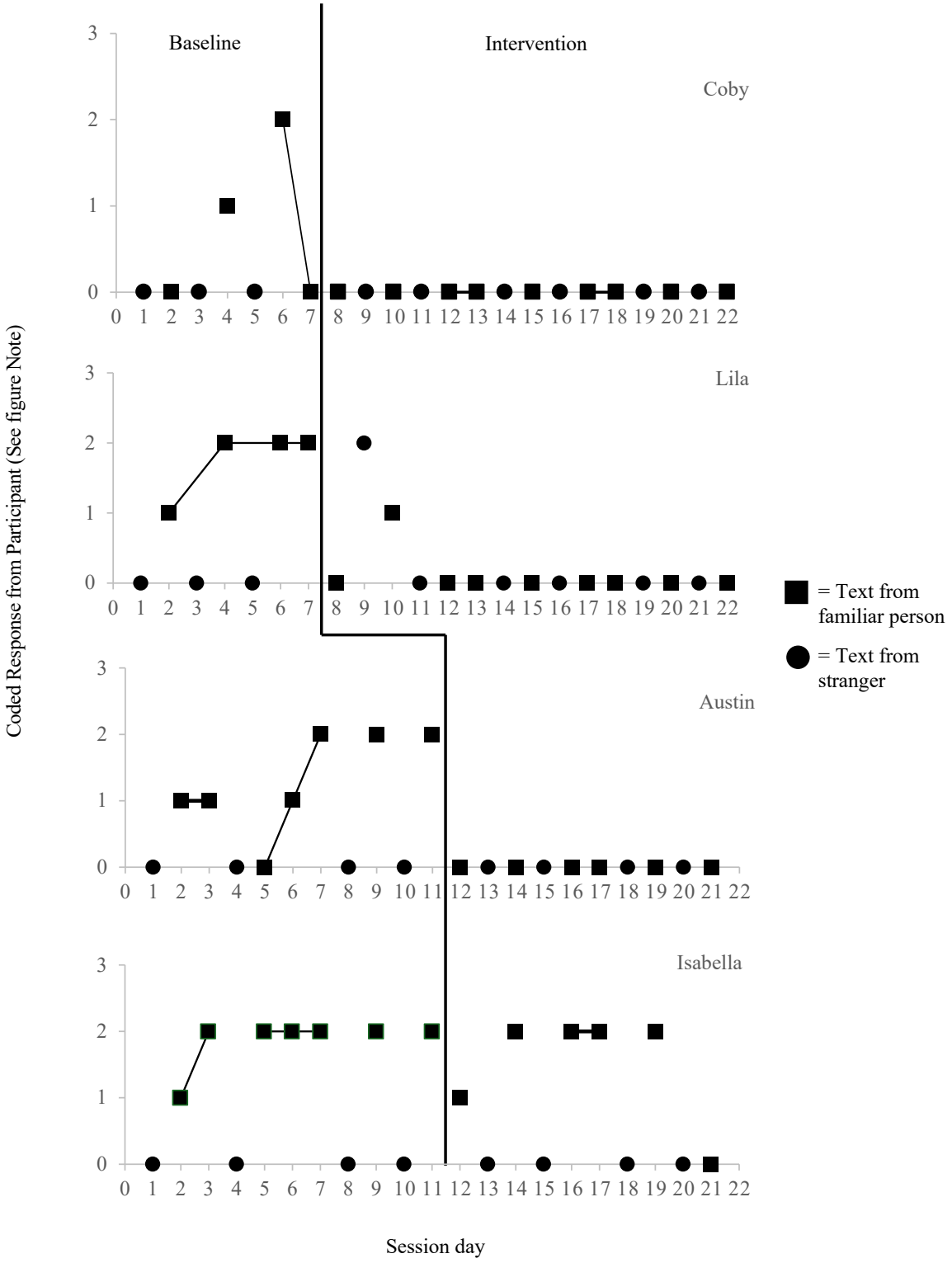
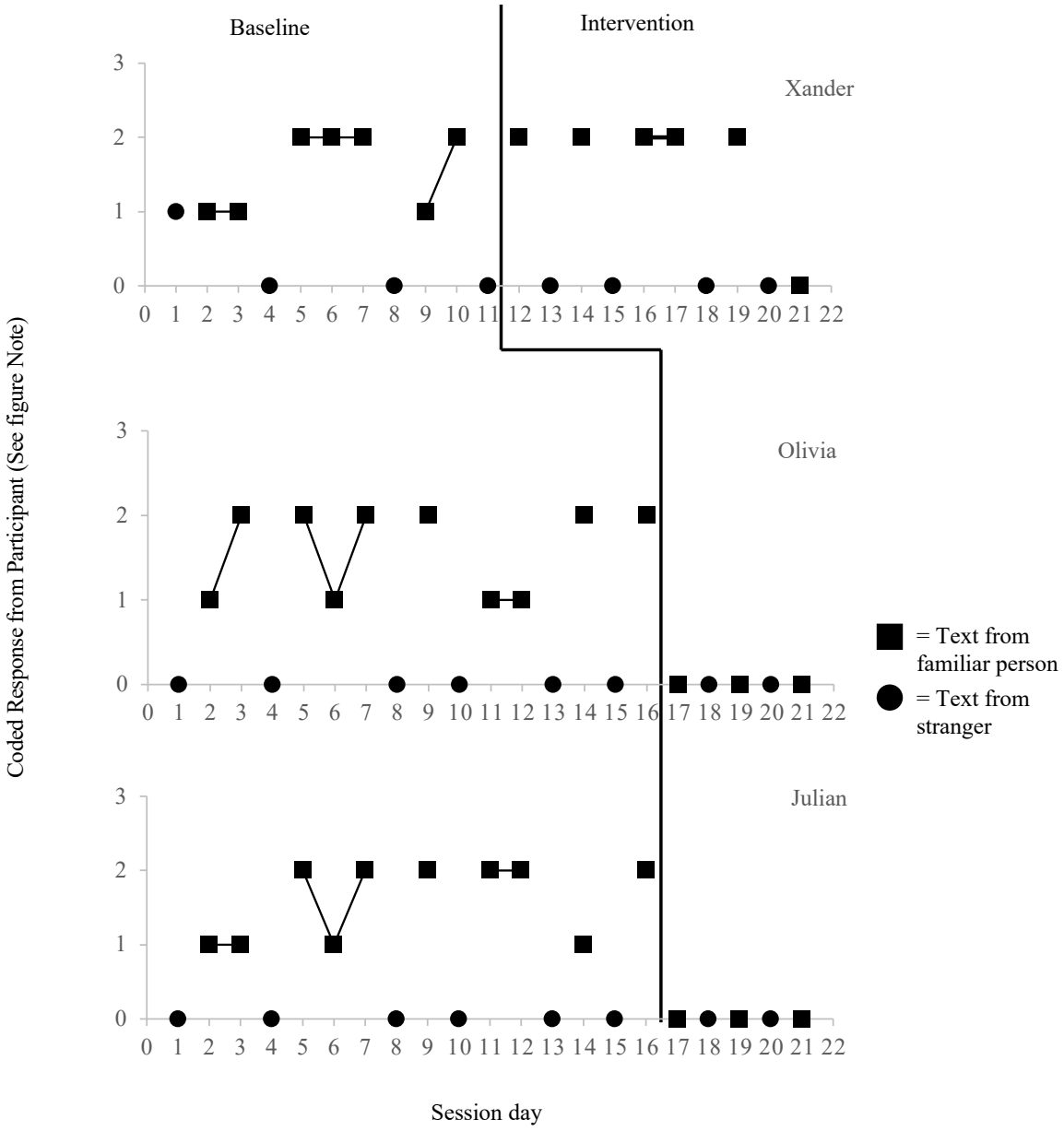


Figure 1 (continued)

Number of inappropriate student responses to text messages requesting low or medium privacy personal information.



Note. 0 = Participant did not text information (appropriate); 1= Participant texted back low privacy information (inappropriate); 2 = Participant texted back medium privacy information (inappropriate).

Coby During baseline, Coby responded appropriately to 50% of the four text messages sent from the familiar phone number. During intervention, Coby responded appropriately to 100% of the nine text messages sent from the familiar phone number. Coby responded appropriately to 100% of the nine text messages sent from the stranger phone number during baseline and intervention.

Lila During baseline, Lila responded appropriately to 0% of the four text messages sent from the familiar phone number. During intervention, Lila responded appropriately to 88% of the nine text messages sent from the familiar phone number. Lila responded appropriately to 100% of the three text messages sent from the stranger phone number during baseline. However, after intervention, Lila responded appropriately to 83% of the six text messages sent from the stranger phone number.

Austin During baseline, Austin responded appropriately to 14% of the seven text messages sent from the familiar phone number. During intervention, Austin responded appropriately to 100% of the six text messages sent from the familiar phone number. Austin responded appropriately to 100% of the eight text messages sent from the stranger phone number during baseline and intervention.

Isabella During baseline, Isabella responded appropriately to 0% of the seven text messages sent from the familiar phone number. During intervention, Isabella responded appropriately to 16% of the six text messages sent from the familiar phone number. Isabella responded appropriately to 100% of the eight text messages sent from the stranger phone number during baseline and intervention.

Xander During baseline, Xander responded appropriately to 0% of the seven text messages sent from the familiar phone number. During intervention, Xander responded appropriately to 16% of the six text messages sent from the familiar phone number. Xander responded appropriately to

75% of the four text messages sent from the stranger phone number during baseline. Xander responded appropriately to 100% of the four text messages sent from the stranger phone number during intervention.

Olivia During baseline, Olivia responded appropriately to 0% of the ten text messages sent from the familiar phone number. During intervention, Olivia responded appropriately to 100% of the three text messages sent from the familiar phone number. Olivia responded appropriately to 100% of the eight text messages sent from the stranger phone number during baseline and intervention.

Julian During baseline, Julian responded appropriately to 0% of the ten text messages sent from the familiar phone number. During intervention, Julian responded appropriately to 100% of the three text messages sent from the familiar phone number. Julian responded appropriately to 100% of the eight text messages sent from the stranger phone number during baseline and intervention.

Social validity for participants

All seven participants responded to the social validity survey. Their responses as well as a sample of the questions asked can be found on Table 3 below.

Table 3

Social validity survey results for participants

Question	Number of participants who agreed
I believe the online safety lesson helped me learn the dangers of sharing my information online.	7 out of 7
I believe the online safety lesson helped me learn how to respond when people ask for my personal information online.	7 out of 7
I believe the lesson was easy to understand	7 out of 7
I believe personal online safety is important	7 out of 7
I believe my peers should learn about personal online safety	6 out of 7 (one responded I don't know)

In the two open ended questions, participants mentioned that the most helpful part about the lesson was learning about when not to share their personal information and knowing how to respond when someone asked for their information. Four participants mentioned they liked everything they learned. One participant who is graduating the program this year and is hoping to work with individuals with disabilities in high school, said they wished they could have learned how to teach online safety to high school students. Another graduating participant said they wish they could have learned how much information to share when applying for jobs online. Finally, the last participant mentioned they wish they could have learned if all text messages that come from unknown numbers are scams.

Social validity for program staff

Three program staff completed the social validity survey: the program director, the student support coordinator, and the vocational coordinator. Their answers are summarized in Table 4.

Table 4

Social validity survey results for program staff

Question	Number of staff who agreed	Reasoning
Having looked at the training materials, do you believe this intervention is important for students in your program?	3 out 3	Recognizing and avoiding scammers is an ongoing issue for students in our program and we need to find tools to prevent the risks from potentially devastating consequences.
Do you believe it is important to teach personal online safety skills to students with IDD attending postsecondary education programs?	3 out 3	Almost everything needed for college is accessed online and it is unreasonable to think this population would not use the internet. It will help them develop independent living skills.
Do you believe this training will impact your students' college experience?	3 out 3	It will help them protect themselves and possibly others. I twill make them

		more self-aware and confident.
Would you consider teaching the content of the online safety training as part of a course for future students?	3 out 3	A structured curriculum would be a great way to address this topic and this a great tool to get ahead of the problem.

Discussion

The purpose of this study was to examine an online safety behavior skills training as a method for increasing personal online safety skills of college students with IDD. More specifically, we wanted to see an increase in appropriate responses to text messages requesting personal private information. As seen in Figure 1, the graphs for Coby, Austin, Olivia, and Julian show immediacy of effects. For these students, the intervention seemed to be an effective way to increase personal online safety skills by decreasing inappropriate responses to text messages soliciting sensitive information. After the personal online safety training session, they stopped sharing their personal private information, even with the person they were familiar with. For Lila, there seemed to be a residual effect following the intervention. However, after receiving a couple of corrective feedback text messages, she also stopped sharing her personal private information. This study supports the use of behavior skills training as an effective way to teach students with disabilities safety skills which is consistent with previous research findings (Miltenberger & Novotny, 2022). In this study, most participants increased their appropriate responses to text messages requesting personal private information after completing the personal online safety training.

Nonetheless, Isabella and Xander continued to text personal private information to the familiar phone number even after going through intervention and despite receiving and acknowledging corrective feedback text messages. When reviewing data for Isabella and Xander,

one should consider the previous relationship that existed between the first author sending the text messages and these two participants. It is likely that Isabella and Xander's previous relationships and experiences working with the first author affected the way they perceived and responded to her text messages.

When it comes to sharing information with someone unknown, Xander and Lila each responded to one text message from the stranger phone number. Xander responded to the first text message that he received from the stranger phone number but refrained from responding after that. Lila only responded to one stranger's text message which included the following prompt "University students respond to this message to get free Chick-fil-A for a week". However, after receiving corrective feedback, she did not respond to the rest of the stranger's text messages. The remaining participants responded appropriately by ignoring all text messages coming from the stranger's phone numbers both during baseline and intervention. This indicates that overall, participants have a level of awareness regarding not responding to strangers online.

On the other hand, all students shared some type of personal private information with the person they were familiar with, in this case, the researcher. This suggests that these participants are more likely to share personal private information with someone they know and trust or someone they see as a figure of authority (e.g. a professor, or mentor). When it comes to Isabella and Xander, they continued to send their personal information to the researcher, even after learning the importance of keeping their information private. This implies that if anyone were to impersonate the researcher, these students would likely share out their personal private information as long as they believed it was the researcher asking for it. This is an area of concern when we consider that students with intellectual and developmental disabilities have difficulties understanding abstract concepts such as impersonation (Lee et al., 2019; Persicke et al., 2012).

Research should explore ways to teach individuals with IDD how to discriminate when it is appropriate to question or deny information, even when requests are coming from someone they trust.

The social validity survey results for participants and program staff indicated that they all found the personal online safety training helpful and valuable. The participants recommended the online training for their peers. Similarly, the program staff said they would like to incorporate the training into a future course for students. After completing data collection, Lila mentioned to the researcher that she had switched all of her social media accounts to private to help prevent strangers from seeing what she posted online. Austin wrote her a thank you note for teaching him how to respond to messages asking him for information as he had been victim of a financial scam on social media the previous semester. These participant experiences enhance the social validity of this study.

Disclosure statement

Because of the nature of the research, those involved in the research were also familiar with students in the PSE program. The first author and researcher was a special education doctoral candidate who completed this study as part her dissertation research. It is important to note that this researcher who completed recruitment, training, and sent the text messages for data collection had a history of working with all participants. She aided students during study hall, taught program specific courses, and participated in other program related events and activities. During the semester when the study was conducted (Spring 2025), the first author was not involved in teaching or mentoring any of the students in the program to avoid conflicts of interest with potential participants.

Limitations

A strong limitation for this study is the lack of maintenance and generalization data. Single case research design guidelines indicate the importance of a generalization phase to demonstrate the behavior is observed in other desired contexts, and a maintenance phase to illustrate the behavior is maintained sometime after the intervention is completed (Ledford et al., 2023). The researcher originally intended to collect both maintenance and generalization data but was unable to due to lack of time. Future research should include both maintenance and generalization phases to ensure that participants are able to continue practicing the appropriate online skills and generalize them to other forms of online communication (e.g. social media, emails, or messaging apps).

Another limitation for this study is related to the generalizability of the results. The participants for this study were 7 students with IDD who attend a postsecondary education program that requires them to use technology for communication and academic purposes. However, it is important to note that there are currently

Implications for practice

Students with IDD often struggle with abstract reasoning such as the idea that someone online can pretend to be someone else (Lee et al., 2019; Persicke et al., 2012). This stresses the importance of reminding students that they should always question who is on the other side of the screen. It is crucial that we emphasize that their personal private information does not need to be shared online, even with people they are familiar with. Similarly, when we teach students with IDD about online communication, we should ensure that they understand concepts such as hacking, and impersonation to help them question who they are interacting with.

This study adds to the literature by demonstrating the feasibility of teaching personal online safety in postsecondary education settings. PSE programs can embed online safety skills as part of their curricula or just spend an hour per semester teaching these skills as part of a class. By teaching personal online safety regularly, PSE programs can ensure that incoming students learn these skills while allowing previous students to review and practice said skills. This intervention can be a low cost, easy, and efficient way to incorporate personal online safety education into a lesson. For a copy of the online safety training, please email the main author.

Implications for future research

There is an ethical component to conducting research with individuals with IDD where you might put students at risk by asking for their personal private information. Designing the intervention and finding the correct wording for recruitment and consent was an extensive process between the main author and the IRB reviewer. Although there was a concern for coercion due to the researcher's history working with the participants, it was important to include someone the students knew and trusted; it has been shown that individuals with disabilities are more likely to be victimized than individuals without disabilities and the victimization is often perpetrated by someone they know (Office for Victims of Crimes, 2018). When conducting future research with this population, researchers should ensure participant safety, simplified terminology, and time for participant questions.

Although the results show that the intervention can be an effective way to teach personal online safety skills to college students with intellectual and developmental disabilities, it is important to replicate this intervention with other forms of online communication such as social media, email, or messaging apps. Students must learn the appropriate ways to respond to all forms of online communication when people are requesting their private personal information.

Future research should also explore ways to allow students to practice the online safety skills in a safe and supportive environment. Finally, future research should explore teaching skills to support students who have been victimized online.

Conclusion

Students with intellectual and developmental disabilities have an increased vulnerability to online victimization. Hence, it is imperative that we teach these students personal online safety skills that promote safe online interactions. Utilizing behavior skills training can be an effective, simple, and low-cost way to teach online personal safety skills to this population of students. As more and more students of all ages have internet access, teachers from K12 settings as well as postsecondary education settings should incorporate personal online safety into their instruction.

Acknowledgments

Conflicts of interest. The authors declared that they have no conflict of interest.

Ethical standards compliance. This study was approved by the university Institutional Review Board (IRB) and all participants provided informed consent.

Chapter 5. Discussion

The main three chapters of my dissertation resulted from my objective of finding an effective way to teach personal online safety skills to college students with IDD attending postsecondary education programs. I wanted to find a way to help students in our PSE program where every semester, at least one of them experiences the negative aspects of online interactions. Students in our program have fallen victims of online financial scams, sent and received unrequested sexually explicit messages or pictures, and shared personal private information with people online such as their address on campus, or a picture of their debit card. Something needed to change. In order to do achieve this goal, I completed three research studies. I began by conducting a scoping review to explore the current research regarding online safety and personal safety for individuals with and without disabilities. My hope was to identify what interventions have been effective in teaching personal online safety and the types of skills targeted in these interventions. After completing the scoping review, I realized that there is a lack of research addressing online safety, especially for individuals with disabilities. This prompted me to create an online survey to send to other PSE programs across the U.S. I wanted to learn if students in other PSE programs across the country were engaging in risky online behaviors, the types of consequences they face, and what program staff are doing to provide online safety instruction to their students. Finally, I conducted a Single Case Research Design aimed to improve the personal online safety skills of college students with IDD attending a PSE program. My goal was to use the information from my scoping review and survey to inform my intervention.

Discussion of Findings

Below you will find a summarized version of the findings for each of the three research studies. This will be followed by the limitations, implications for practice, and future research ideas.

Scoping Review

The scoping review resulted in 24 articles that discussed personal safety, general online safety, and cyberbullying prevention for individuals with and without disabilities. The articles selected for the review included an intervention where the dependent variable was a measure of improved student behaviors and skills related to personal safety both in person and online. There were 21 articles that focused on teaching skills for online interactions. Findings from these articles were summarized and categorized into four themes: cyberbullying, privacy of information, social skills for online interactions, and responsible use of the internet. Cyberbullying prevention skills were the most common skills taught in regard to online safety and were mentioned in 16 out of 21 of the articles. Examples of skills mentioned in these articles include understanding the definition and consequences of cyberbullying and coping with cyberbullying. Privacy related skills were mentioned in 8 out of the 14 articles. Some of the skills addressed in those articles included password sharing, digital footprint, and privacy of information posted online. Social skills related to safe online interactions were mentioned in 6 articles and included skills such as managing online conflict, knowing when to ask for help. Finally, 7 of the articles mentioned responsible internet use and addressed skills like time spent online and digital citizenship. There were four articles that focused on teaching personal safety skills for in person interactions and addressed areas such as talking to strangers, setting

boundaries, or help seeking. Only three of the articles mentioned including participants with disabilities while two other articles specified that they excluded participants with disabilities.

The original search for the scoping review yielded close to 4,000 articles, however a large portion of them focused on the correlates and consequences of cyberbullying. Only 24 included some type of intervention which shows the need for increased intervention research in the area of online safety and cyberbullying prevention. Most of the studies from my scoping review were conducted with elementary and middle school students as part of school wide interventions and focused on cyberbullying prevention skills. More than half of them were conducted outside of the U.S. My findings highlight the need for personal online safety intervention research for students of different ages and in different settings, especially for individuals with disabilities as they are rarely included in the existing literature.

Something worth noting about the early stages of the scoping review, is that despite "sexting" being included as one of the search terms, none of the articles that discussed sexting involved an intervention. Most of the articles related to sexting discussed survey research to explore characteristics of individuals who engage in sexting, as well as laws and policies that are being developed to address it. Although sexting seems to be a relevant term related to online safety, there are ethical considerations when conducting interventions on this topic. This highlights some of the difficulties researchers might face when trying to teach topics related to personal online safety.

Survey

The survey was created based on my personal experiences working with students in a PSE program and the risky online behaviors they have engaged in. The survey was reviewed by several experts in the field as well as two PSE program alumni. The survey was sent to program

coordinators from all 355 PSE programs across the U.S. as of January of 2025. Participants were asked to share about the risky online behaviors that students with IDD attending their program have engaged in. A little over 11% of program staff completed the survey. The results were based on 42 respondents. Over 40% of respondents said that students had engaged in risky online behaviors across all three categories while attending their program. The three categories included were sharing private personal information, sharing financial information, or unrequested sexually explicit messages or images). When asked about the consequences for student engagement in risky online behaviors, the majority of the respondents mentioned natural consequences or parental controls and loss of technology. About 95% of respondents agreed that students with IDD are more likely to be victimized online. When asked why individuals with disabilities are more vulnerable to online victimization, respondents mentioned four main reasons: infantilization of individuals with disabilities, need for acceptance and belonging, lack of self-determination skills, and lack of education or knowledge. PSE program staff also shared about their program's instructional practices regarding online safety. The majority of the staff shared that the found existing trainings or materials (e.g. handouts, videos, worksheets) to teach online safety. Results from the survey emphasize the need for teaching online safety skills to students with IDD attending PSE programs. There is also a need to reconsider the consequences students face when they engage in risky online behaviors. Although natural consequences are appropriate and would be expected for all students regardless of their abilities, the parental controls and technology restrictions take away students' dignity of risk and would not be the norm for students without disabilities. The survey responses also point at a lack of guidelines when it comes to teaching personal online safety to students in PSE programs. Each program seems to handle online safety instruction and consequences for students' risky online behavior differently.

Having a set of guidelines based on evidence-based practices could help inform instructional practices of PSE programs across the country and help prevent student's risky online behavior.

Single Case Research Design

The single case research consisted of a multiple baseline design across three groups. A total of seven participants were randomly divided into three groups that went through intervention simultaneously. During baseline and data collection phases, participants received text messages from the researcher asking for some type of personal information (e.g. what's your email? where do you live?). The messages could come from a number they were familiar with (researcher), or a random phone number (stranger). The intervention was an online safety skills PowerPoint based on behavior skills training, that taught students about different levels of personal private information, and how to appropriately respond when someone is requesting some type of private personal information. The appropriate responses taught were to ask questions, to say no, or to ignore or block the person. Once the student group had gone to intervention, if the student continued to respond to the text messages with their personal information, they received a text message with corrective feedback. All participants had some level of awareness when it comes to not responding to text messages from strangers. Nonetheless, all participants shared some type of personal private information with me. Overall, the intervention seemed to be effective for 5 out of the 7 participants. There were 2 participants who continued to text me their personal information up until the last day of data collection. It is important to note that I have a mentoring relationship and have worked closely with both participants which implies that students with IDD can be more likely to send information about themselves to someone they know and trust. This is concerning and should be addressed through instruction as it suggests that anyone who impersonates me (or someone else they trust) could

possibly get the participants to share out their personal information. Lastly, social validity surveys revealed that both student participants and PSE program staff believed the intervention was important.

After my single case study had been completed and students had received their gift cards, I received feedback from two participants that I did not include in my results because they were not part of data collection. However, with the big emphasis on social validity for single case studies, I wanted to note them here. Lila told me that after going through the study, she had decided to switch all her social media accounts to private so that only her close friends and family could see what she posted. Austin wrote me a thank you note and said that my study was very helpful for him, that he learned how to respond when people ask him for personal information online, and that he thought other students in the program should learn the skills too. To me that makes my intervention socially valid. Knowing that the students who inspired my research learned online safety skills and valued my study is my biggest accomplishment.

One thing that is important to emphasize while reviewing the results from all three research studies is the idea of dignity of risk discussed during the survey results. As explained by Bumble et al., (2022), "real protection is to educate (p. 68). Our students with intellectual and developmental disabilities who attend postsecondary education programs should be given the opportunity to practice taking risks similar to their nondisabled peers (Bumble et al., 2021). Our students with IDD attending PSE programs have the same rights to make mistakes as the rest of the college students. Making mistakes and learning from the consequences is the best way to help them prepare for life after college. PSE programs were created to give students with IDD the opportunity to attend college and gain the skills and experiences they need to be as independent as possible. However, that independence involves more than learning employment,

social, and daily living skills in a controlled environment. Once students leave our programs, we can no longer control the variables of the real world.

Limitations

There were many limitations associated with all three of the research studies. The main limitation is the lack of existing research regarding personal online safety for individuals with disabilities in our country. There was a limited amount of literature to help inform my current research. To address this limitation, I expanded my search terms and included literature from other countries.

One of the main limitations of the scoping review, was the key words and key search terms included in the article search. There many words used to discuss online safety and cyberbullying, that I likely missed other terms and research articles with important additional information.

When it comes to the survey, the biggest limitation was the number of survey respondents. About 11% of participants responded to the survey. It's important to note that each PSE program for individuals with disabilities has different characteristics. Therefore, having a larger number of respondents would have led to better understanding of the online safety instructional practices and the online behaviors of their students with IDD.

Finally, when it comes to the single case study, the biggest limitation was the lack of maintenance and generalization data. Due to the semester ending, I was unable to collect data to measure whether students' behaviors would maintain over time and in other forms of online communication. This is especially important when we consider the many different forms of online communication that students use (e.g. email, social media platforms, text messaging, and other apps).

There are ethical considerations to conducting research with students with intellectual and developmental disabilities, especially when you might be putting students at risk by requesting their personal private information. The IRB approval process for my single case design was extensive. There was a lot of discussion with the IRB reviewer about coercion and appropriate consent. Especially due to my previous history working with students in the PSE program. However, it was important for my research that students knew the person texting them to request their information as it has been shown that individuals with disabilities are more likely to be victimized by someone they know (Office for Victims of Crimes, 2018). When conducting future research with this population of students, researchers should ensure participant safety, use simplified terminology, and give time for participant questions.

Implications for Practice

Overall, this dissertation seeks to start a conversation on the need for personal online safety instruction and guidelines for students across ages and abilities. We are seeing an increase in technology use and internet access by students from K12 as well as postsecondary education settings, yet we are not providing instruction or interventions to help them be safe online. This is especially important for our students with disabilities who are more vulnerable to being victimized online.

As more and more students with IDD are able to attend postsecondary education programs, these programs should provide instruction on personal online safety skills to their students with IDD. Whether through the use of existing curricula, premade videos or handouts, or the creation of their own lessons, teaching students to be safe online should be a priority, especially when the PSE program requires that students use technological devices.

PSE program staff can also focus on teaching self-determination skills such. Self-determination has been identified as a predictor of postsecondary success for individuals with disabilities (Rowe et al., 2020). Some examples of self-determination skills that can help students navigate online interactions safely include problem solving, decision making, self-awareness, and self-advocacy. Finally, PSE program staff should promote student's autonomy through dignity of risk (Bumble et al., 2021; Perske, 1972). Allowing college students with IDD to make mistakes or even creating opportunities for them to make mistakes while providing them with support, is a great way to promote their autonomy.

Students with IDD can struggle with abstract reasoning such as impersonation or the idea that someone online can pretend to be someone else (Lee et al., 2019; Persicke et al., 2012). This stresses the importance of reminding students that they should always question who is on the other side of the screen. Especially for our students who communicate with others via social media. A few of our students with IDD attending our PSE program have shared their private personal information with strangers impersonating someone they know and trust. Seeing the name and profile picture was enough for our students to believe the impersonators were real. When teaching online safety skills to our students, it is crucial that we emphasize that their personal private information does not need to be shared online, even with people they are familiar with. Similarly, when we teach students with IDD about online communication, we should ensure that they understand concepts such as hacking, and impersonation to help them question who they are interacting with.

The results from my single case design demonstrate that teaching personal online safety through behavior skills training can be an effective way of increasing student's online safety skills. This intervention can be a low cost, easy, and efficient way to incorporate personal online

safety education into a lesson for PSE programs. These programs can also embed online safety skills as part of their curricula or just spend a lesson per semester teaching these skills in class. This would be a simple way to promote personal online safety in students and prevent them from being victimized online.

Future Research

This dissertation left me with more questions than answers. Questions that will need to be answered with even more research. The first thing I would like to learn more about are the perceptions and experiences of students with IDD who have engaged in risky online behaviors, experienced cyberbullying, or fallen for some type of online victimization while attending PSE programs. Learning from PSE program staff members was necessary to understand their perceptions and instructional practices. However, it is essential that we ask students directly what they know about personal online safety and what their experiences and consequences have been when they had unsafe online interactions. The second thing I would like to learn more about, are the various curricula, resources, and materials that PSE program staff are using to teach personal online safety skills to their students. My end goal would be to create a resource guide that PSE programs can use to inform their instructional practices based on the resources shared by my survey respondents. Lastly, I would like to replicate and improve my intervention. My overall objective is to share the training I created with other PSE programs and help create some type of guidelines for personal online safety instruction.

This dissertation focused on learning ways to teach skills to prevent of online victimization, however, more needs to be done when it comes to helping students who have been victimized online. We need to explore the skills and strategies that students who have been victimized can use. There is a level of shame associated with being victimized online or falling

for an online scam. It is important for PSE programs to teach students that there is no shame in asking for help when they have fallen for a scam. Similarly, there is a need to create support systems and resources that can be provided to the students who have been in these situations.

There are several other areas of research related to personal online safety that I would like to explore such as parent's perceptions, and online safety for traditionally enrolled college students. Nonetheless, I need to take this one research project at a time.

Conclusion

Although the number of postsecondary education programs for students with intellectual and developmental disabilities has more than doubled in the past 14 years, there are many areas that we need to improve as these students access postsecondary education. We know that many of these students are experiencing new social situations and increased independence for the first time, and we must provide instruction and support to help them navigate college life and all the challenges that come with it. One area that can present challenges for our students is the increased use of technology and online communication expected from college students. We live in a digital world and most children and adults in the U.S. have some type of technology and internet access. This is not the exception for college students with IDD attending PSE programs. Not only do they need to learn how to use technology for their courses, but they are often expected to communicate online with their peers, professors, supervisors, and program staff.

This required use of technology among students with IDD attending PSE programs is problematic. We know that individuals with IDD are at higher risk for online victimization yet there are no existing guidelines or requirements for PSE programs to teach these students how to be safe online. This needs to change. My scoping review highlighted the dearth of research on personal online safety for individuals with disabilities of all ages. The research is lacking for this

population, and it must improve. Conducting more research on what interventions can help increase online safety skills both in K12 and college settings can help create evidence-based practices and guidelines to be applied in all educational settings.

My survey revealed that many of the students with IDD attending PSE programs are engaging in risky online behaviors such as sharing their personal or financial information, as well as sending or receiving unrequested sexually explicit messages or pictures. Similarly, most survey respondents believed that students with IDD are more vulnerable to online victimization. Despite student's risky behaviors and staff perspectives of increased vulnerability, not all programs teach online safety and student consequences vary. Some programs allow students to face the natural consequences of their actions but in many cases, students with IDD are infantilized and lose their technology access, some even get parental controls placed on their devices. Infantilization of individuals with IDD was a big theme in my survey. As I reflect on my cumulative research, I would say that infantilization is a huge reason why our students with IDD engage in the risky behaviors to begin with. We don't teach them about sensitive topics because we believe they won't understand. We overprotect them instead of promoting their autonomy. We are afraid of letting them take risks and instead choose to limit their access. In the survey study, the same respondents criticizing our tendency to treat these students as incapable, were the ones saying that students did not have the ability to understand, were too naïve, or lacked the judgement to make the right decisions. If we don't start seeing our students as capable, if we don't focus on the things they can learn, not much will change. We must promote dignity of risk among our students with IDD and allow them to learn from the consequence of their actions all while providing instruction, support, and resources to help them along the way.

Finally, my single case study points at the vulnerability of postsecondary education students with IDD. Although all participating students did well at ignoring text messages from the stranger phone numbers, all students were willing to share their personal private information with someone they knew and trusted. Through my study, they texted me information such as their full name, date of birth, address, and even the name of the bank they used; no questions asked. As someone who works supporting these students, my baseline results were scary but also expected. I had experienced our students' struggles with oversharing information online or falling victims of online predators. My personal online safety training was effective in teaching the majority of participants how to appropriately respond to these types of requests, even when they come from someone they know. My intervention was essentially free as I used existing online trainings and resources to create the power point training, and I followed behavior skills training procedures to give students the opportunity to practice responding through scenarios and feedback. These findings suggest that something as simple as a one-hour training can help increase students' online safety skills. Online safety instruction does not need to be complicated or expensive, it just needs to occur.

There were two participants who did not stop sharing their personal private information with me until the last day of data collection despite going through the training and receiving corrective feedback. Their previous experiences working with me affected the way the responded to my texts. I'm afraid that anyone impersonating me would likely get them to continue sharing their information as long as they believed it was me asking. These participants would likely benefit from continued explicit instruction on online safety, especially on abstract topics such as impersonation and how we can never really know who is on the other side of the screen.

As I look forward to my future career goals and research interests, I hope to promote high expectations, dignity of risk, and online safety instruction for students with intellectual and developmental disabilities. I also hope to help create guidelines and establish evidence-based practices for personal online safety instruction in PSE programs. Lastly, I hope to create resources and support systems for our students who have experienced online victimization.

References

*Denotes study was included in the scoping review

*Aizenkot, D., & Kashy-Rosenbaum, G. (2018). Cyberbullying in WhatsApp classmates' groups: Evaluation of an intervention program implemented in Israeli elementary and middle schools. New Media & Society, 20(12), 4709–4727. https://doi.org/10.1177/1461444818782702

*Aizenkot, D., & Kashy-Rosenbaum, G. (2020). The effectiveness of SAFE Surfing, an anti-cyberbullying intervention program in reducing online and offline bullying and improving perceived popularity and self-esteem. Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 14(3), Article 6. https://doi.org/10.5817/CP2020-3-6

*Aizenkot, D., & Kashy-Rosenbaum, G. (2021). The effectiveness of SAFE Surfing Intervention Program in reducing WhatsApp cyberbullying and improving classroom climate and student sense of class belonging in elementary school. The Journal of Early Adolescence, 41(4), 550–576. https://doi.org/10.1177/0272431620931203

*Andrews, J. C., Walker, K. L., & Kees, J. (2020). Children and online privacy protection: Empowerment from cognitive defense strategies. Journal of Public Policy & Marketing, 39(2), 205–219. https://doi.org/10.1177/0743915619883638

Arksey, H., and L. O'Malley. 2005. "Scoping Studies: Towards a Methodological Framework." International Journal of Social Research Methodology 8 (1): 19–32. doi:10.1080/1364557032000119616

Assistive Technology Act of 2004, Pub. L. No. 108-364 (2004), https://www.govinfo.gov/app/details/PLAW-108publ364

*Athanasiades, C., Kamariotis, H., Psalti, A., Baldry, A. C., & Sorrentino, A. (2015). Internet use and cyberbullying among adolescent students in Greece: The "Tabby" project. Hellenic Journal of Psychology, 12(1), 14–39.

Bannerman, D. J., Sheldon, J. B., Sherman, J. A., & Harchik, A. E. (1990). Balancing the right to habilitation with the right to personal liberties: The rights of people with developmental disabilities to eat too many doughnuts and take a nap. *Journal of Applied Behavior Analysis, 23*(1), 79–89. https://doi.org/10.1901/jaba.1990.23-79

*Barlett, C. P., Heath, J. B., Madison, C. S., DeWitt, C. C., & Kirkpatrick, S. M. (2020). You're not anonymous online: The development and validation of a new cyberbullying intervention curriculum. Psychology of Popular Media, 9(2), 135–144. https://doi.org/10.1037/ppm0000226

Baruch, Y., & Holtom, B. C. (2008). Survey response rate levels and trends in organizational research. Human Relations, 61(8), 1139-1160. https://doi.org/10.1177/0018726708094863

Becht, K., Roberts-Dahm, L. D., Meyer, A., Giarrusso, D., & Still-Richardson, E. (2020) Inclusive Postsecondary Education Programs of Study for Students with Intellectual Disability. Journal of Postsecondary Education and Disability, 33(1), 63-79.

*Bickham, D. S., Moukalled, S., Inyart, H. K., & Zlokower, R. (2021). Evaluating a middle-school digital citizenship curriculum (Screenshots): Quasi-experimental study. JMIR Mental Health, 8(9), Article e26197. https://doi.org/10.2196/26197

Bouchrika, I. (2025, May 22). 51 LMS statistics: 2025 data, trends & predictions. Research.com. https://research.com/education/lms-statistics

*Boulton, M. J., Boulton, L., Camerone, E., Down, J., Hughes, J., Kirkbride, C., Kirkham, R., Macaulay, P., & Sanders, J. (2016). Enhancing primary school children's knowledge of online safety and risks with the CATZ Cooperative Cross-Age Teaching Intervention: Results from a pilot study. Cyberpsychology, Behavior, and Social Networking, 19(10), 609–614. https://doi.org/10.1089/cyber.2016.0046

*Brandau, M., Dilley, T., Schaumleffel, C., & Himawan, L. (2022). Digital citizenship among Appalachian middle schoolers: The Common Sense Digital Citizenship Curriculum. Health Education Journal, 81(2), 157–169. https://doi.org/10.1177/00178969211056429

Braun, V., & Clarke, V. (2022). Conceptual and design thinking for thematic analysis. Qualitative Psychology, 9(1), 3–26. https://doi.org/10.1037/qup0000196

Braun, V., & Clarke, V. (2023) Toward good practice in thematic analysis: Avoiding common problems and be(com)ing a knowing researcher, International Journal of Transgender Health, 24:1, 1-6, DOI:10.1080/26895269.2022.2129597

*Brenick, A., Shattuck, J., Donlan, A., Duh, S., & Zurbriggen, E. L. (2014). Empowering children with safety-skills: An evaluation of the Kidpower Everyday Safety-Skills Program. Children and Youth Services Review, 44, 152–162. https://doi.org/10.1016/j.childyouth.2014.06.007

*Bright, M. A., Huq, M. S., Patel, S., Miller, M. D., & Finkelhor, D. (2022). Child Safety Matters: Randomized control trial of a school-based, child victimization prevention curriculum. Journal of Interpersonal Violence, 37(1–2), 538–556. https://doi.org/10.1177/0886260520909185

Bumble, J. L., Worth, C. R. J., Athamanah, L. S., Rooney-Kron, M., Regester, A., & Lidgus, J. (2021). “Messy Inclusion”: A call for dignity of risk in inclusive postsecondary education. Inclusive Practices, 1(2), 64–69. https://doi.org/10.1177/27324745211050023

Burke, K. M., Blaskowitz, M. G., Amaya, A., Licata, A. M., Pustorino-Clevenger, A. M., Johnson, J., Killion, M., & Miller, N. (2024). *Self-determination and inclusive postsecondary education for students with intellectual disability: A review of the literature*. *Journal of Inclusive Postsecondary Education, 6*(1). https://doi.org/10.13021/jipe.2024.3548

Chadwick, D. D. (2019). Online risk for people with intellectual disabilities. Tizard Learning Disability Review, 24(4), 180–187. https://doi.org/10.1108/TLDR-03-2019-0008

Chadwick, D. D. (2022). “You want to know that you’re safe”: Experiences of risk, restriction and resilience online among people with an intellectual disability. *Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 16*(3), Article 8. https://doi.org/10.5817/CP2022-3-8

Chadwick, D. D., Quinn, S., & Fullwood, C. (2017). Perceptions of the risks and benefits of internet access and use by people with intellectual disabilities. British Journal of Learning Disabilities, 45(1), 21–31. https://doi.org/10.1111/bld.12170

Clements, F. A., Orchard, L. J., & Chadwick, D. D. (2024). A scoping review investigating the perspectives of people with mild to moderate intellectual disabilities on experiences of cyberbullying victimization and its subtypes. Journal of Intellectual Disabilities. https://doi.org/10.1177/17446295241252214

Cooper, J. O., Heron, T. E., & Heward, W. L. (2020). Applied Behavior Analysis. Pearson Education.

*Cross, D., Lester, L., Barnes, A., Cardoso, P., & Hadwen, K. (2015). If it's about me, why do it without me?: Genuine student engagement in school cyberbullying education. The International Journal of Emotional Education, 7(1), 35–51.

*Damra, J. K., & Al Omari, O. A. (2023). The efficacy and feasibility of the Arizona Attorney General's school-based cyber safety promotion and cyberbullying prevention intervention among middle school adolescents in Oman. Psychology in the Schools, 60(4), 1042–1059. https://doi.org/10.1002/pits.22832

Drew, C. M., Hansen, S. G., & Bell, C. (2022). A systematic review of abduction prevention research for individuals with intellectual and developmental disabilities. Journal of Developmental and Physical Disabilities, 34(6), 937–961. https://doi.org/10.1007/s10882-022-09834-z

Elridge, M. A., Kilpatrick Demaray, M. L., Emmons, J. D., & Riffle, L. N. (2021). Cyberbullying and cybervictimization among youth with disabilities. In Child and adolescent online risk exposure an ecological perspective (1st ed., pp. 255–281). Academic Press.

*Fisher, M. H. (2014). Evaluation of a stranger safety training programme for adults with Williams syndrome. Journal of Intellectual Disability Research, 58(10), 903–914. https://doi.org/10.1111/jir.12108

Gast, D. L., Lloyd, B. P., & Ledford, J. R. (2018). Multiple Baseline and Multiple Probe Designs. In Single Case Research Methodology Applications in Education and Behavioral Sciences (Third, pp. 239–281). Routledge.

Griffin, M. M., Fisher, M. H., Lane, L. A., & Morin, L. (2019). Responses to bullying among individuals with intellectual and developmental disabilities: Support needs and self-

determination. *Journal of Applied Research in Intellectual Disabilities*, *32*(6), 1514–1522. https://doi.org/10.1111/jar.12646

Harrison, J. R., Soares, D. A., & Joyce, J. (2018). Inclusion of students with emotional and behavioural disorders in general education settings: A scoping review of research in the US. International Journal of Inclusive Education. https://doi.org/10.1080/13603116.2018.1444107

Higher Education Opportunity Act of 2008, Pub. L. No. 110-315, 122 Stat. 3078. https://www2.ed.gov/policy/highered/leg/hea08/index.html

Hinduja, S. & Patchin, J. W. (2023). Cyberbullying Identification, Prevention, and Response. Cyberbullying Research Center. http://cyberbullying.org

Hott, B. L., Brigham, F. J., & Peltier, C. (2021). Single Case Research Designs. In Research Methods in Special Education (pp. 165–198). Slack Inc.

*Hughes-Roberts, T. (2015). Privacy as a secondary goal problem: An experiment examining control. Information & Computer Security, 23(4), 382–393. https://doi.org/10.1108/ICS-10-2014-0068

Jackson, E. M., Boyes, M., Blundell, B., Hirn, J., & Leitão, S. (2025). Managing cyberbullying among adolescents with neurodevelopmental disorders: A scoping review. International Journal of Speech-Language Pathology. Advance online publication. https://doi.org/10.1080/17549507.2025.2451305

*Jones, L. M., Mitchell, K. J., & Beseler, C. L. (2023). The impact of youth digital citizenship education: Insights from a cluster randomized controlled trial outcome evaluation of the Be Internet Awesome (BIA) curriculum. Contemporary School Psychology, 28(4), 509–523. https://doi.org/10.1007/s40688-023-00465-5

Kennedy, C. H. (2005). Single-case designs for educational research. Pearson Education.

Kennedy, R. S. (2019). Bullying trends in the United States: A meta-regression. Trauma, Violence, & Abuse, 22(4), 914–927. https://doi.org/10.1177/1524838019888555

Kowalski, R. M., & Toth, A. (2017). Cyberbullying among youth with and without disabilities. Journal of Child & Adolescent Trauma, 11(1), 7–15. https://doi.org/10.1007/s40653-017-0139-y

Kowalski, R. M., Limber, S. P., & McCord, A. (2019). A developmental approach to cyberbullying: Prevalence and protective factors. Aggression and Violent Behavior, 45, 20–32. https://doi.org/10.1016/j.avb.2018.02.009

Kowalski, R. M., Morgan, C. A., Drake-Lavelle, K., & Allison, B. (2016). Cyberbullying among college students with disabilities. Computers in Human Behavior, 57, 416–427. https://doi.org/10.1016/j.chb.2015.12.044

Ledford, J. R., Lambert, J. M., Pustejovsky, J. E., Zimmerman, K. N., Hollins, N., & Barton, E. E. (2023). Single-case-design research in special education: NEXT-generation guidelines and considerations. Exceptional Children, 89(4), 379–396. https://doi.org/10.1177/00144029221137656

Lee, G. T., Xu, S., Zou, H., Gilic, L., & Lee, M. W. (2019). Teaching children with autism to understand metaphors. *The Psychological Record, 69*(4), 499–512. https://doi.org/10.1007/s40732-019-00355-4

Lee, S., & Will, M. (2010). The Role of Legislation, Advocacy, and Systems Change in Promoting Postsecondary Opportunities for Students with Intellectual Disabilities. In Think College! Postsecondary education options for students with intellectual disabilities (pp. 29–48). Paul H Broookes Pub. Co.

Levac, D., Colquhoun, H., & O'Brien, K. K. (2010). Scoping studies: Advancing the methodology. Implementation Science, 5(1). https://doi.org/10.1186/1748-5908-5-69

*Liau, A. K., Park, Y., Gentile, D. A., Katna, D. P., Tan, C. H., & Khoo, A. (2017). IZ Hero Adventure: Evaluating the effectiveness of a peer-mentoring and transmedia cyberwellness program for children. Psychology of Popular Media Culture, 6(4), 326–337. https://doi.org/10.1037/ppm0000094

*Marnewick, C., Meda, L., Condy, J., & Phillips, H. (2022). Using an intervention programme to empower intellectually disabled learners to use WhatsApp in a special needs unit in Cape Town, South Africa. Cogent Education, 9(1), Article 2142447. https://doi.org/10.1080/2331186X.2022.2142447

Martínez-Cao, C., Gómez, L. E., Alcedo, M. Á., & Monsalve, A. (2021). Systematic Review of Bullying and Cyberbullying in Young People with Intellectual Disability. Education and Training in Autism and Developmental Disabilities, 56(1), 3–17.

May, C. (2023). A Planning Guide for New Inclusive Programs and Initiatives Serving College Students with Intellectual Disability. Think College Publication. Boston, MA: University of Massachusetts Boston, Institute for Community Inclusion.

Mays, N., E. Roberts, and J. Popay. 2001. "Synthesizing Research Evidence." In Studying the Organization and Delivery of Health Services: Research Methods, edited by N. Fulop, P. Allen, A. Clarke, and N. Black, 188–219. London: Routledge.

Mazzotti, V. L., Rowe, D. A., Kwiatek, S., Voggt, A., Chang, W.-H., Fowler, C. H., Poppen, M., Sinclair, J., & Test, D. W. (2021). Secondary transition predictors of Postschool success: An update to the research base. Career Development and Transition for Exceptional Individuals, 44(1), 47–64. https://doi.org/10.1177/2165143420959793

McEathron, M. A., Beuhring, T., Maynard, A., & Mavis, A. (2013). Understanding the Diversity: A Taxonomy for Postsecondary Education Programs and Services for Students with Intellectual and Developmental Disabilities. Journal of Postsecondary Education and Disability, 26(4), 303-320.

*McGraw, T., Yan, Z., Weller, J., & Bumgardner, S. (2014). Can the Virginia Internet Safety Program improve fourth graders' internet safety knowledge? International Journal of Cyber Behavior, Psychology and Learning, 4(2), 33–40. https://doi.org/10.4018/ijcbpl.2014040103

McNaughton, D., & Light, J. (2013). The iPad and Mobile Technology Revolution: Benefits and challenges for individuals who require augmentative and alternative communication. Augmentative and Alternative Communication, 29(2), 107–116. https://doi.org/10.3109/07434618.2013.784930

Miltenberger, R. G., & Novotny, M. A. (2022). Teaching safety skills to individuals with developmental disabilities. Advances in Neurodevelopmental Disorders, 6(3), 270–279. https://doi.org/10.1007/s41252-022-00248-8

National Center for Education Statistics. (2023). Children's Internet Access at Home. Condition of Education. U.S. Department of Education, Institute of Education Sciences. Retrieved [June 1, 2025], from https://nces.ed.gov/programs/coe/indicator/cch.

National Center for Education Statistics. (2023b). Undergraduate Enrollment. Condition of Education. U.S. Department of Education, Institute of Education Sciences. Retrieved [date], from https://nces.ed.gov/programs/coe/indicator/cha.

*Nicolaidou, I., & Venizelou, A. (2020). Improving children's e-safety skills through an interactive learning environment: A quasi-experimental study. Multimodal Technologies and Interaction, 4(2), Article 10. https://doi.org/10.3390/mti4020010

Office for Victims of Crime. (2018). *Victims with disabilities* (NCVRW 2018 fact sheet). Retrieved from https://ovc.ojp.gov/sites/g/files/xyckuh226/files/ncvrw2018/info_flyers/fact_sheets/2018NCVRW_VictimsWithDisabilities_508_QC.pdf

Persicke, A., Tarbox, J., Ranick, J., & St. Clair, M. (2012). Establishing metaphorical reasoning in children with autism. *Research in Autism Spectrum Disorders, 6*(2), 913–920. https://doi.org/10.1016/j.rasd.2011.12.005

Perske, R. (1972). The dignity of risk and the mentally retarded. Mental Retardation, 10(1), 24–27.

Peterson, A. M., Fisher, M. H., Brodhead, M. T., Sung, C., & Uher, A. (2021). Teaching young adults with intellectual and developmental disabilities to recognize and respond to coworker victimization. Behavioral Interventions, 36(4), 712–730. https://doi.org/10.1002/bin.1826

Pew Research Center (2024). Mobile fact sheet. Retrieved April 20th, 2025, from https://www.pewresearch.org/internet/fact-sheet/mobile/?tabItem=5b319c90-7363-4881-8e6f-f98925683a2f

*Roberto, A. J., Eden, J., Savage, M. W., Ramos-Salazar, L., & Deiss, D. M. (2014). Outcome evaluation results of school-based cybersafety promotion and cyberbullying prevention intervention for middle school students. Health Communication, 29(10), 1029–1042. https://doi.org/10.1080/10410236.2013.831684

Santinele Martino, A., Parks, J., & Babar, I. (2025). Love and disability: Online dating guidance for disabled people. Sexuality & Culture, 29*(2), 963–987.* *https://doi.org/10.1007/s12119-024-10308-x*

Santinele Martino, A., & Kinitz, D. (2022). "It's just more complicated!": Experiences of adults with intellectual disabilities when navigating digital sexual fields. Cyberpsychology: Journal of Psychosocial Research on Cyberspace, 16*(2).* https://doi.org/10.5817/CP2022-2-6.

Smith, P. K. (2019). Research on cyberbullying: Strengths and limitations. In H. Vandebosch & L. Green (Eds.), Narratives in research and interventions on cyberbullying among young people (pp. 9–27). Springer. https://doi.org/10.1007/978-3-030-04960-7

*Spivey, C. E., & Mechling, L. C. (2016). Video modeling to teach social safety skills to young adults with intellectual disability. Education and Training in Autism and Developmental Disabilities, 51(1), 79–92.

*Tanrikulu, T., Kinay, H., & Aricak, O. (2015). Sensibility Development Program against cyberbullying. New Media & Society, 17(5), 708–719. https://doi.org/10.1177/1461444813511923

Think College (n.d.). Think College Search. Retrieved June 1st, 2025, from https://thinkcollege.net/college-search

Trainor, A. A., & Graue, E. (2014). Evaluating Rigor in Qualitative Methodology and Research Dissemination. Remedial and Special Education, 35(5), 267-274. https://doi.org/10.1177/0741932514528100

Trevor, M., Park, E.-Y., & Blair, K.-S. C. (2021). A meta-analysis of safety skills interventions for individuals with intellectual disabilities. Education and Treatment of Children, 44(4), 309–331. https://doi.org/10.1007/s43494-021-00051-5

Vandebosch, H. (2019). Cyberbullying Prevention, Detection and Intervention. In H. Vandebosch & L. Green (Eds.), Narratives in research and interventions on cyberbullying among young people (pp. 29–44). Springer. https://doi.org/10.1007/978-3-030-04960-7

Vismara, M., Girone, N., Conti, D., Nicolini, G., & Dell'Osso, B. (2022). The current status of cyberbullying research: A short review of the literature. Current Opinion in Behavioral Sciences, 46, 101152. https://doi.org/10.1016/j.cobeha.2022.101152

Wehmeyer, M. L., Kelchner, K., & Richards, S. (1996). Essential characteristics of self-determined behavior of individuals with mental retardation.

Westphaln, K. K., Regoeczi, W., Masotya, M., Vazquez-Westphaln, B., Lounsbury, K., McDavid, L., Lee, H., Johnson, J., & Ronis, S. D. (2021). From arksey and o'malley and beyond: Customizations to enhance a team-based, mixed approach to scoping review methodology. MethodsX, 8, 101375. https://doi.org/10.1016/j.mex.2021.101375

What Works Clearinghouse. (2020). What Works Clearinghouse Standards Handbook, Version 4.1. https://ies.ed.gov/ncee/wwc/handbooks

*Yurdakul, Y., & Ayhan, A. B. (2023). The effect of the Cyberbullying Awareness Program on adolescents' awareness of cyberbullying and their coping skills. Current Psychology, 42(28), 24208–24222. https://doi.org/10.1007/s12144-022-03483-3

Zalaquett, C. P., & Chatters, S. J. (2014). Cyberbullying in college. SAGE Open, 4(1), 215824401452672. https://doi.org/10.1177/2158244014526721

Zhang, D., Roberts, E., Maddalozzo, R., Li, Y.-F., Orsag, M., & Glass, T. (2023). Post-secondary education outcomes for individuals with intellectual and developmental disabilities: Self-determination, independent living, employment, and the impact of covid-19. *Behavioral Sciences*, *13*(10), 832. https://doi.org/10.3390/bs13100832

Appendix A: Scoping Review (Tables and Figures)

Figure1

Identifying and Selecting Studies (PRISMA diagram)

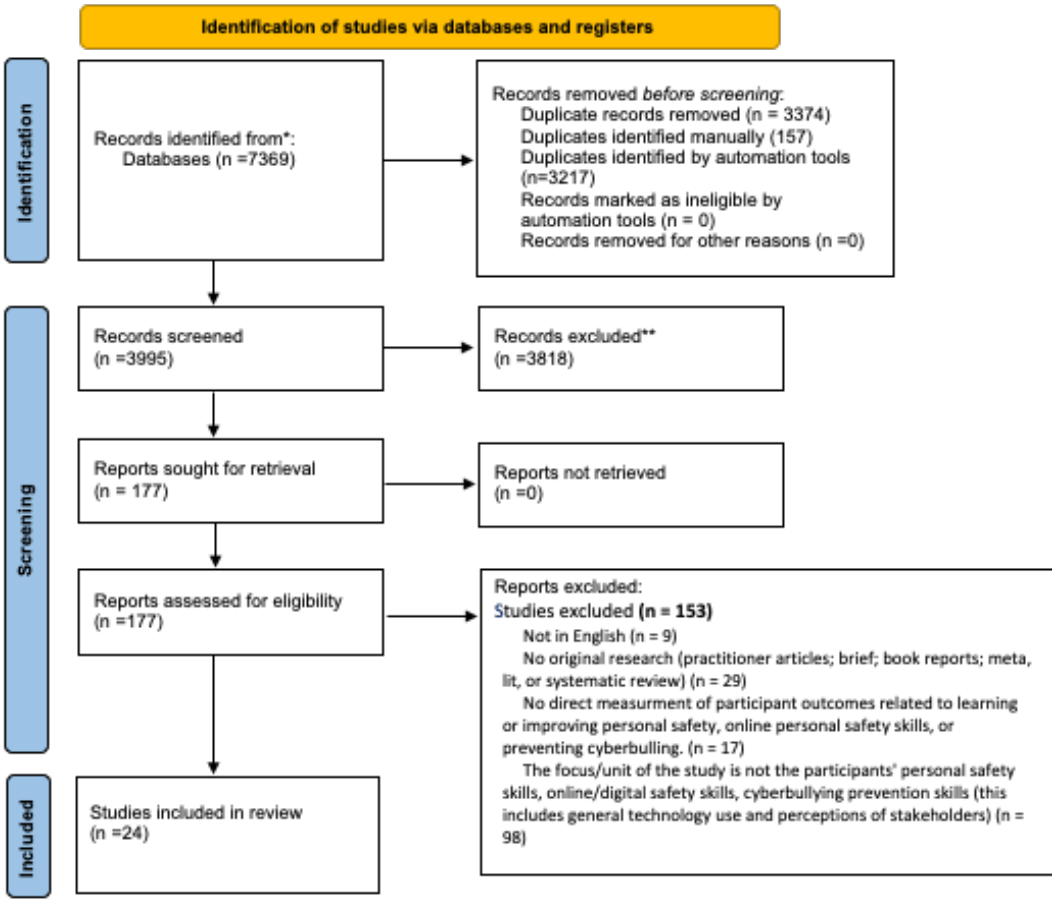


Table 1

Included studies and study characteristics

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Aizenkot & Kashy-Rosenbaum, 2018	Israel	Elementary and Middle School	1402	Not reported	Quantitative	General online safety skills (e.g. knowledge and competencies; attitudes toward WhatsApp cyberbullying; social norms; perceived behavioral control)	Intervention Program
Aizenkot & Kashy-Rosenbaum, 2020	Israel	Elementary Middle and High Schools	1550	Not reported	Quantitative	General online safety skills and cyberbullying prevention skills (e.g. knowledge and competencies; attitudes toward WhatsApp cyberbullying; subjective norms; perceived behavior control)	Safe surfing intervention program
Aizenkot & Kashy-Rosenbaum, 2021	Israel	Elementary School	533	Not reported	Quantitative	General online safety skills (e.g. cyberbullying in general, and WhatsApp cyberbullying; state laws prohibiting cyberbullying; skills for judging and self-monitoring content before disseminating online)	Safe surfing intervention program

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Andrews et al., 2020	USA	Not reported	513	Not reported	Quantitative	General online safety skills (e.g. motivation to restrict sharing)	Randomly assigned to (1) educational video “Be a Smart Cookie” from YouthPrivacyProtection.org or (2) a seven-item true/false educational quiz
Athanasiades et al., 2015	Greece	Middle School and Online	314	Not reported	Quantitative	General online safety skills and cyberbullying prevention skills	"TABBY in Internet" (Threat Assessment of Bullying Behavior of Youngsters)
Barlett et al., 2020	USA	Post-secondary	342	Not reported	Quantitative	General online safety skills and anonymity	Cyberbullying intervention that targets anonymity perceptions
Bickham et al., 2021	USA	Middle School	218	Not reported	Quantitative	General online safety skills (e.g. managing online conflict, online peer pressure)	Screenshots
Boulton et al., 2016	UK	Elementary School	291	Not reported	Quantitative	General online safety skills and privacy of things posted online (e.g. people online might not be who they say they are, cyberbullying, and computer viruses)	CATZ curriculum

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Brandau et al., 2022	USA	Private School 5th through 8th grade	27	Not reported	Quantitative	General online safety skills (e.g. digital citizenship: digital life and personal media habits, safe online behavior, and cyberbullying)	Digital Citizenship Curriculum
Brenick et al., 2014	USA	Elementary School	238	Not reported	Quantitative	General social safety skills and skills related to talking to strangers (e.g. boundary setting, and help-seeking)	Kidpower Everyday Safety Skills Program (ESSP)
Bright et al., 2022	USA	Elementary School	1176	Not reported	Quantitative	General online safety skills and cyberbullying prevention skills (e.g. digital dangers)	Monique Burr Foundation (MBF) for Children's Child Safety Matters (CSM) curriculum
Cross et al., 2015	Australia	High School	225	Not reported	Mixed Methods	General online safety skills and cyberbullying prevention skills	Cyber Friendly Schools Project (CFSP)
Damara & Omari, 2022	Oman	Middle School	389	Excluded participants with disabilities	Quantitative	General Online safety skills and cyberbullying prevention skills (e.g. privacy of things posted online, cyber extortion)	Social Networking Safety Promotion and Cyberbullying Prevention Presentation (SNSPCP)
Fisher, 2014	USA	University dormitories at summer camp	21	Yes (only participants with disabilities)	Quantitative	General social safety skills and Skills related to talking to strangers	Behavior Skills Training

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Hughes-Roberts, 2015	UK	Post-secondary	41	Not reported	Quantitative	General online safety skills and privacy of things posted online	Privacy Examiner
Jones et al., 2023	USA	Elementary School	1072	Not reported	Quantitative	General online safety skills including phishing, privacy of things posted online, seeking help with online interactions (e.g. catfishing, digital footprint, trolling, password sharing)	Be Internet Awesome (BIA) program, curriculum, and materials
Liau et al., 2017	Singapore	Elementary School & Home	440	Not reported	Quantitative	General online safety skills (e.g. attitude toward offline meetings, online disclosure, nasty messages, watching porn online, playing more than 3 hours, cyberbullying)	iZ HERO exhibition and Story Quest game from the website
Marnewick et al., 2022	South Africa	School with Special needs unit for individuals with ID ages 10 to 20	19	Yes, 8 participants with disabilities and 11 without	Qualitative	General online safety skills (e.g. empowering to use WhatsApp with independence, easy and accessible communication, online etiquette, responsible digital citizen)	WhatsApp awareness intervention programme

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
McGraw et al., 2014	USA	Elementary School	1379	Not reported	Quantitative	General online safety skills (e.g. dealing with uncomfortable content, cyberbullying, strangers, and providing personal information online)	Internet Safety and You
Nicolaidou & Venizelou, 2020	Cyprus	Elementary School (6th grade)	73	Not reported	Quantitative	General online safety skills (e.g. protection of personal data, avoiding cyberbullying, protection from hackers)	"Be Smart When Online"
Roberto et al., 2014	USA	Middle School	425	Excluded participants with disabilities	Quantitative	General online safety skills (e.g. social networking safety promotion and cyberbullying prevention)	Arizona Attorney General's Social Networking Safety Promotion and Cyberbullying Prevention presentation
Spivey & Mechling, 2016	USA	In the community & university classrooms	3	Yes (Only participants with disabilities)	Single Case Design	General personal safety and social safety skills (e.g. talking to strangers, providing personal information, and knowing how to respond to strangers)	Video Modeling and In Vivo training of safety skills

Table 1 *Continued*

Author(s)	Country	Setting	Participant number	Included individuals with disabilities	Methodology	Targeted Skills	Curriculum/ Intervention
Tanrikulu et al., 2015	Istanbul	High School	16	Not reported	Mixed Methods	General online safety skills (e.g. cyberbullying sensibility personal information on social network sites can be used by others)	Sensibility Development Program
Yurdakul & Butun Ayhan, 2022	Turkey	Middle School	38	Not reported	Quantitative	General online safety skills and cyberbullying prevention skills (e.g. cyberbullying tendency, coping with cyberbullying, protection from cyberbullying)	The Cyberbullying Awareness Program

Appendix B: Survey (Tables and Figures)

Table 1

Respondent Characteristics

Demographic Category	*n	%
Role in the post-secondary education program		
Director	19	45.2
Assistant Director	5	11.9
Staff Member	1	2.4
Program Coordinator	11	26.2
Other (e.g. faculty, program manager)	6	14.3
Years employed in the current role		
<1 year	3	7.1
1-5 years	23	54.8
6-9 years	13	31
10> years	3	7.1

**n=42*

Table 2

Institution of Higher Education and Postsecondary Education Program Characteristics

Demographic Category	*n	%
Setting of the Institution of Higher Education		
Urban	19	45.2
Suburban	13	31
Rural	10	23.8
Length of Program's Existence		
<1 year	3	7.1
1-5 years	23	54.8
6-9 years	13	31
10< years	3	7.1
Approximate Number of Students Served Per Year		
1-10	16	38.1
11-20	8	19
21-30	11	26.2
31-40	2	4.8
41-50	3	7.1
51 or more	2	4.8
**Disability Categories Served		
Intellectual and Developmental Disability	41	97.6
Autism	29	69
Other (i.e. Multiple Disabilities, Other Health Impairment)	5	11.9
Students in the Program Live in University Housing		
Yes	14	33.3
No	25	59.5
Other	3	7.1
***Residential Options for Students Living in University Housing		
Inclusive on Campus	11	78.6
Specialized on Campus	3	21.4
Students in the Program Take Courses along with Traditionally Enrolled Students		
Yes	38	90.5
No	3	7.1
Other (i.e. they can but have chosen not to)	1	2.4
Students in the Program Have Internships or Job Opportunities in Inclusive Settings		
Yes	40	95.2
No	0	0
Other (i.e. yes but they have not started, both)	2	4.8

Notes. **Participants could select multiple response options; therefore, percentages may exceed 100%.
***For Residential Options for Students Living in University Housing, percentages were calculated based on the fourteen programs who said their students lived in university housing.
**n=42*

Table 3

Technology Use and Communication Methods for Students Enrolled in PSE Programs

Program Characteristics	*n	%
Electronic Device is Required for Program Participation		
Yes	29	69
No	13	31
Electronic Device is Required for Participation in University Courses		
Yes	26	62
No	16	38
**Type of Electronic Device Required		
Cell phone	24	57.1
Laptop/Computer	24	57.1
Tablet	3	7.1
Other (i.e. any of the above or any device with keyboard)	4	9.5
**Purpose of Electronic Device Use		
Academics	28	66.7
Online Meetings	26	62
Accessing School Email	29	69
Internship Related Tasks	20	47.6
Communication	27	64.3
Other (i.e. scheduling, campus engagement)	4	9.5
**How Students are Encouraged to Communicate with Program Staff, Professors, or Internship Supervisors		
Email	41	97.6
Text Message	27	64.3
Messaging App (e.g. GroupMe, WhatsApp, Equip)	18	42.9
Social Media (e.g. Facebook, Instagram, Snapchat)	3	7.1
Other (i.e. Canvas, Blackboard, On-call Phone)	7	16.7
**How Students are Encouraged to Communicate with Peers		
Email	38	90.5
Text Message	37	88.1
Messaging App (e.g. GroupMe, WhatsApp, Equip)	29	69
Social Media (e.g. Facebook, Instagram, Snapchat)	24	57.1
Other (i.e. in person, none)	4	9.5

Note: **Participants could select multiple response options; therefore, percentages may exceed 100%.
n=42

Table 4

Student engagement in risky online behaviors

Type of risky online behavior students have engaged in	*n	%
Students have shared private personal information online (e.g. full legal name, date of birth, social security number)	19	45.2
Full Legal Name	19	45.2
Date of birth	17	40.5
Social Security Number	3	7.1
Home Adress	18	42.9
Location or Campus Address	17	40.5
Students have shared their financial information or fallen for a financial scam online.	13	31
Shared Credit or Debit Card Information	10	23.8
Shared Bank Account Number	5	11.9
Sent Money Online Thinking They Were Making Purchase	8	19
Sent Money to a Stranger Online Who Requested It	10	23.8
Students have sent or received unrequested sexually explicit messages or pictures	13	31
Sent Nudes or Sexually Explicit Images	8	19
Received Nudes or Sexually Explicit Images	7	16.7
Sent Sexually Explicit Messages	9	21.4
Received Sexually Explicit Messages	9	21.4
Type of online communication students used to share personal private information		
Email	7	16.7
Text Message	13	31
Messaging App (e.g. GroupMe, Equip)	5	11.9
Social Media (e.g. Facebook, Instagram, Snapchat)	14	33.3
How did the respondent found out about student's risky behavior?		
From the Student Engaging in the Risky Online Behavior	12	28.6
From the Student's Parent or guardian	14	33.3
From Another Student	10	23.8
From a Staff Member	12	28.6

Note. Participants could select multiple response options; therefore, percentages may exceed 100%.
**n=42*

Table 5

Qualitative codes and themes of PSE program responses to students' risky online behaviors

Codes and Themes	Number of times theme was mentioned throughout participant's responses
Negative Consequences	
Financial Loss	11
Restrictions on Technology	17
Natural Consequences (i.e. loss of privileges, student conduct or law enforcement involvement, suspension or removal from program)	26
Loss of Dignity (i.e. hurt reputation, loss of trust from peers, received bullying or harassment)	4
Corrective Feedback and Support	
Educational Opportunity Provided	6
Preventative Measures (i.e. safety plan, help blocking individuals or making reports)	6
Verbal Reprimands (i.e. conversations with program director, teachers, staff, or parents)	9

Table 6

PSE program staff perceptions on the importance of teaching personal online safety skills to students with IDD

PSE program staff perceptions	*n	%
Personal online safety skills are important for students attending PSE programs.	*40*	95.2
Students in PSE programs should understand the risks and consequences of sharing personal information online	*40*	95.2
PSE programs should teach personal online safety as part of their curriculum.	*33*	78.6

**n=42*

Table 7

PSE program staff perceptions of vulnerability to online victimization for students with IDD

PSE program staff perceptions	*n	%
Students with intellectual or developmental disabilities are more vulnerable to online victimization.	38	90.5
Targeting individuals with intellectual or developmental disabilities online is a form of cyberbullying.	37	88.1

**n=42*

Table 8

Qualitative codes and themes of PSE program perceptions of increased vulnerability of students with IDD for online victimization

Codes and Themes	Number of times theme was mentioned throughout participant's responses
Infantilization (i.e. students with IDD are infantilized, college represents first opportunity to explore and first exposure to freedom)	6
Lack of awareness, judgement, or understanding	19
Trusting (naïve & gullible)	15
Need for acceptance and Belonging (i.e. relationship seeking)	14
Lack of Self-Determination Skills	8
Lack of Education and knowledge (i.e. lack of experience and training)	10

Table 9

PSE programs' instructional practices regarding personal online safety

PSE programs instructional practices	*n	%
All students in our program receive instruction on personal online safety a part of the program curricula.	24	57.1
Personal online safety is only taught in a case-by-case basis.	7	16.7
Students in our program do not receive instruction on personal online safety.	2	4.8
Students in our program receive online safety training from the institution of higher education.	6	14.3
Other (i.e. developing curricula, finding trainings/learning resources from the university)	2	4.8

**n=42*

Table 10

Instructional materials PSE programs use to teach personal online safety

Codes and Themes	Number of times theme was mentioned by respondent
Specific curricula (i.e. Common-Sense Education, Learn for Independence, Responsible Digital Citizenship, Re Media Publications)	10
Available Existing Materials (i.e. modules, YouTube videos, handouts)	11
Home-Made Curricula (i.e. self-made curriculum, guest speakers, role play activities and scenarios, one-on-one instruction as needed, taught as part of course)	12

Appendix C: Single Case Research Design (Tables and Figures)

Table 1

Sample questions by level of privacy

Low Privacy Questions	• Who is this? • Where do you live? • What's your email? • What's your Instagram?
Medium Privacy Questions	• What's your birthday month? • What bank do you use? • Do you live on campus? • You won tickets for the game next week, text back to claim your free tickets.
High Privacy questions	• Can you send me your location? • What's your date of birth? • Can I borrow your credit card number to pay for a book for class? • What's your got to password?

Table 2

Intervention groups

Group number	Participants	When was intervention implemented?
Group 1	• Coby • Lila	After session 7
Group 2	• Austin • Isabella • Xander	After session 11
Group 3	• Olivia • Julian	After session 16

Figure 1

Number of inappropriate student responses to text messages requesting low or medium privacy personal information.

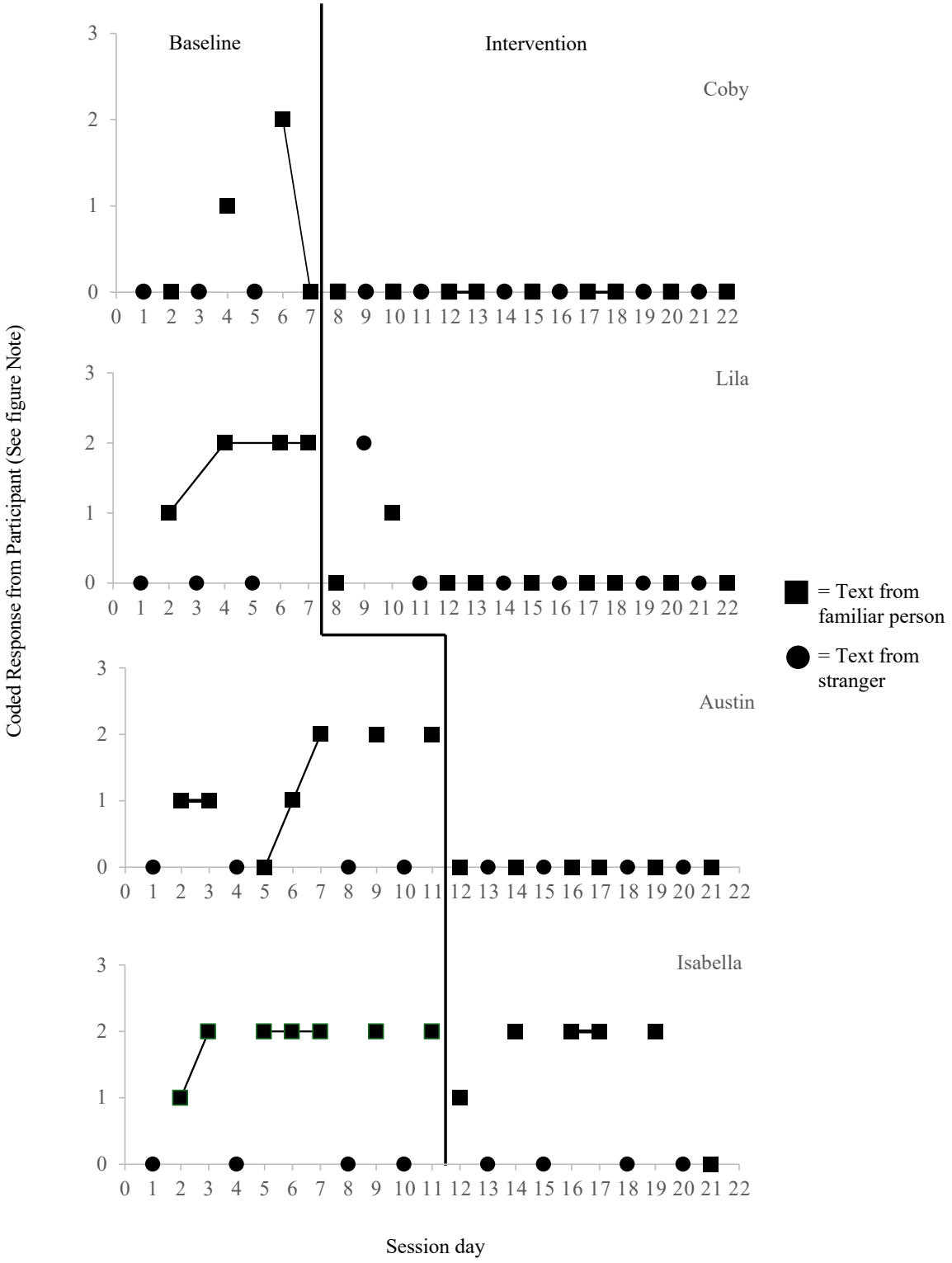
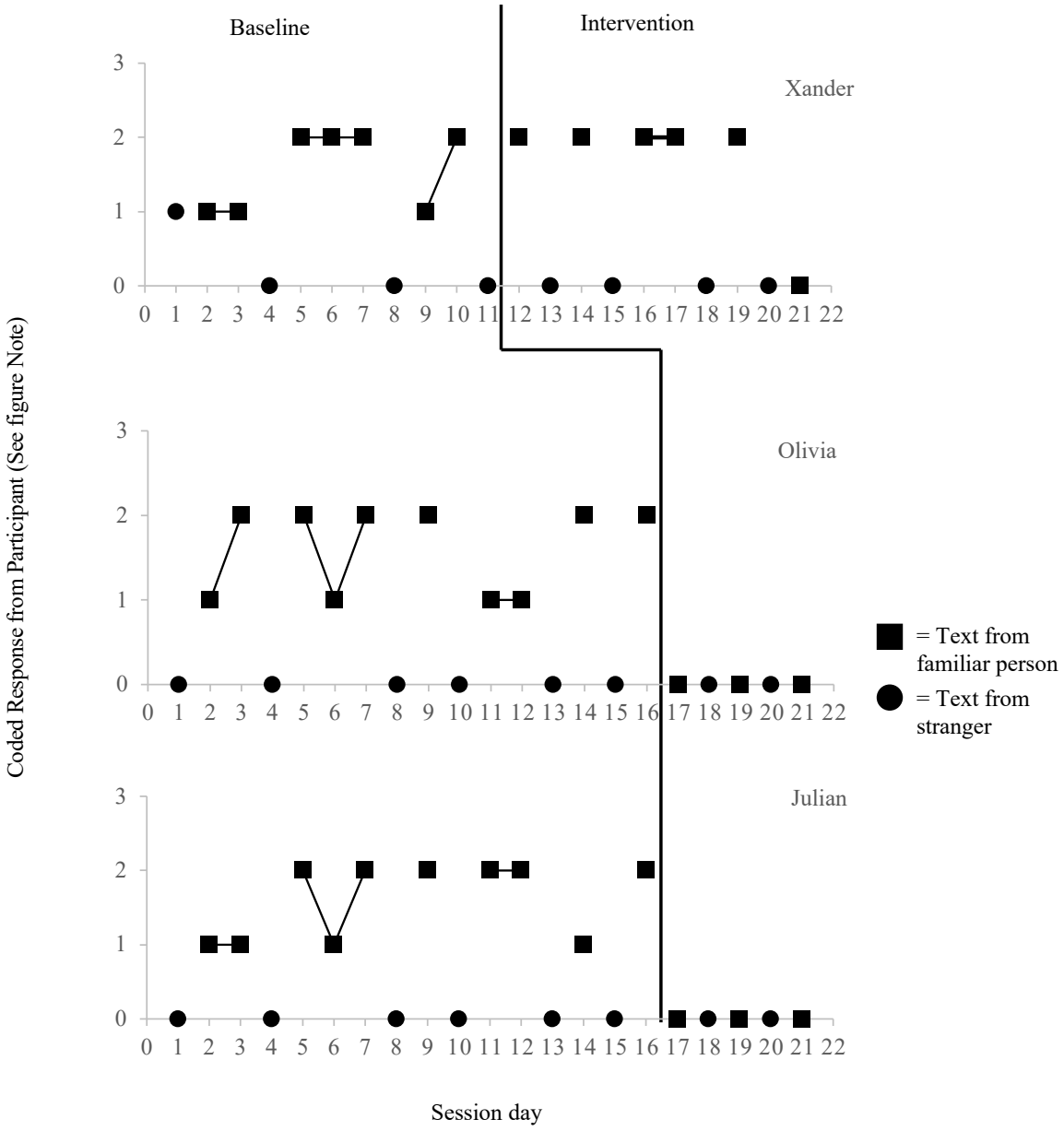


Figure 1 (continued)

Number of inappropriate student responses to text messages requesting low or medium privacy personal information.



Note. 0 = Participant did not text information (appropriate); 1= Participant texted back low privacy information (inappropriate); 2 = Participant texted back medium privacy information (inappropriate).

Table 3

Social validity survey results for participants

Question	Number of participants who agreed
I believe the online safety lesson helped me learn the dangers of sharing my information online.	7 out of 7
I believe the online safety lesson helped me learn how to respond when people ask for my personal information online.	7 out of 7
I believe the lesson was easy to understand	7 out of 7
I believe personal online safety is important	7 out of 7
I believe my peers should learn about personal online safety	6 out of 7 (one responded I don't know)

Table 4

Social validity survey results for program staff

Question	Number of staff who agreed	Reasoning
Having looked at the training materials, do you believe this intervention is important for students in your program?	3 out 3	Recognizing and avoiding scammers is an ongoing issue for students in our program and we need to find tools to prevent the risks from potentially devastating consequences.
Do you believe it is important to teach personal online safety skills to students with IDD attending postsecondary education programs?	3 out 3	Almost everything needed for college is accessed online and it is unreasonable to think this population would not use the internet. It will help them develop independent living skills.
Do you believe this training will impact your students' college experience?	3 out 3	It will help them protect themselves and possibly others. I twill make them more self-aware and confident.
Would you consider teaching the content of the online safety training as part of a course for future students?	3 out 3	A structured curriculum would be a great way to address this topic and this a great tool to get ahead of the problem.