

Developmental Language Disorder Terminology: A Survey of Speech-Language
Pathologists' Use and Knowledge

A Thesis

SUBMITTED TO THE FACULTY OF THE
UNIVERSITY OF MINNESOTA BY

Erin Steffes

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS

Dr. Lizbeth H. Finestack, Advisor

May 2022

Erin Steffes, 2022 ©

Acknowledgements

When I realized I would be obtaining my master's degree virtually amidst a global pandemic, I never could've imagined the number of connections I would make along the way. Brené Brown (2010) defines connection as “the energy that exists between people when they feel seen, heard, and valued; when they can give and receive without judgment; and when they derive sustenance and strength from the relationship.” My thesis writing journey has reminded me how lucky I am to have so many relationships that provide me with strength and sustenance.

During the past two years, I have made a lot of new connections. I would like to thank my thesis advisor, Liza H. Finestack, Ph.D., CCC-SLP, for her endless support and weekly Zoom meetings. Thank you for the long hours spent supporting my writing, data analyses, and data visualization. Thank you for sharing your experiences, wisdom, and Excel tips and tricks with me. Also, thank you for connecting me to the US Raising Awareness of Developmental Language Disorder (RADLD) team. I want to thank the US RADLD team for committing your time and energy to advocate for individuals with developmental language disorder (DLD) across various communication channels. I would like to acknowledge Amanda J. Owen Van Horne, Ph.D., CCC-SLP, BCS-CL for administering this study at the Pennsylvania Speech-Language-Hearing Association (PSHA) statewide convention and Tara Cassidy, M.A., CC-SLP, BCS-CL for joining Dr. Finestack and me in administering this study at the Minnesota Speech-Language-Hearing Association's (MNSHA) statewide convention. I also want to acknowledge our survey methodologist, Abbey Hammel, M.A., who offered incredible Qualtrics and RStudio support.

I am thankful for the support offered to me by the SLHS department, staff, and faculty. I am honored to have received funding from the Bryng Bryngelson Research Fund, named in honor of Dr. Bryng Bryngelson who founded the speech clinic at the University of Minnesota in 1927. I would like to offer a special thanks to my thesis committee members, Mx. Benjamin Munson, Ph.D., and Kerry Danahy Ebert, Ph.D., CCC-SLP for your flexibility and the time, energy, and wisdom you will offer as we meet for my thesis defense.

Finally, I would also like to acknowledge the many connections I brought with me as I began my master's degree. I want to thank my partner, Johnnie L. Johnson III, for his willingness to learn more about DLD and Diffusion of Innovations (DOI) theory than he had ever imagined. Thank you for providing me with strength and sustenance, whether that be having coffee ready for early mornings, dinner ready on late nights, or your infinite kind words of support. Thank you to Johnnie's sister as well, JeNaye Johnson, for her Sunday morning (and evening) Tableau support and expertise. I want to extend a HUGE shout-out to my aunt, Mary Steffes, DNP, RN, AGCNS-BC, and cousin, Katie Leys, for their boundless support over many phone calls, texts, and Zoom meetings. I would also like to thank my parents, Dan and Beth Steffes, brothers, Jake and Zach Steffes, and grandma, Sue Ehlen for believing in me even when I am down and celebrating me when I am up. I could never have come this far without your constant love and support.

All in all, being connected to each of you will help me to offer the best care to my future students and families. I aim to make my students feel as seen, as heard, and as valued as all of you have made me feel throughout this thesis journey. Thank you!

Abstract

Developmental language disorder (DLD) is a relatively new, internationally used term to describe individuals with language impairments not secondary to a biomedical condition. This study aimed to better understand speech-language pathologists' (SLPs) current level of comfort using DLD terminology and knowledge of DLD in order to help SLPs to better understand how and why they should adopt DLD terminology in their clinical practice.

A repeated measures study design assessed how an educational presentation changes SLPs' comfort in using DLD terminology and knowledge of DLD. Analyses were completed for 77 survey responses to determine respondents' (1a) baseline and (1b) change in comfort levels using DLD terminology and respondents' (2a) baseline and (2b) change in knowledge of DLD. Calculated descriptive statistics determined sample characteristics as well as comfort levels using DLD terminology and knowledge of DLD. Thematic analysis was completed for the final post-survey question.

Pre-survey Likert scale responses indicated relatively high levels of comfort in using DLD terminology. Additionally, pre-survey results revealed variability in respondents' knowledge of DLD. A McNemar chi-square test indicated statistically significant changes in participants' comfort levels using DLD terminology pre- to post-survey for each question. A paired *t*-test indicated statistically significant changes in DLD knowledge pre- to post-survey.

Despite some limitations, it was concluded that diffusion efforts, such as educational presentations, are likely to increase SLPs' comfort levels in using DLD terminology as well as SLPs' knowledge of DLD.

Keywords: developmental language disorder, speech-language pathologists,
Diffusion of Innovation theory, innovation-decision process, early adopters

Table of Contents

Acknowledgements.....	i
Abstract.....	iii
Table of Contents.....	v
List of Tables	vii
List of Figures.....	viii
Introduction.....	1
DLD and Its Impact.....	1
Choosing DLD.....	2
Diffusion of Terminology	3
Current Study.....	7
Method	8
Study Materials.....	8
<i>Educational Presentation</i>	8
<i>Pre- and Post-Surveys</i>	9
<i>Piloting</i>	9
Survey Administration	10
Ethical Considerations.....	11

Statistical Analysis	11
Results.....	13
Respondents.....	13
<i>Data Filtering</i>	13
<i>Sample Characteristics</i>	16
Study Question Findings.....	17
<i>Study Question 1a. Baseline Comfort Levels Using DLD Terminology</i>	17
<i>Study Question 1b. Change in Comfort Levels Using DLD Terminology</i>	19
<i>Study Question 2a. Baseline Knowledge</i>	20
<i>Study Question 2b. Change in Knowledge</i>	21
Discussion.....	25
Study Limitations.....	26
Future Directions	27
Conclusions	28
References.....	29
Appendices.....	33

List of Tables

Table 1. <i>Demographics of Study Participants</i>	16
Table 2. <i>Responses to Likert Scale Comfort Level Questions</i>	18
Table 3. <i>Accuracy of True of False Knowledge Questions</i>	21

List of Figures

<i>Figure 1.</i> Sankey Diagram of Step-by-step Filtration Process	15
<i>Figure 2.</i> Pre-survey responses to Likert scale questions regarding use comfort levels .	17
<i>Figure 3.</i> Changes in pre- to post-survey responses for Likert scale questions regarding use comfort levels	19
<i>Figure 4.</i> Changes in pre- to post-survey accuracy for True or False questions	23

Introduction

Recently, through international consensus, it has been determined to use the term developmental language disorder (DLD) in reference to individuals with lifelong receptive and/or expressive language difficulties that are not secondary to a biomedical condition such as low hearing levels, traumatic brain injury, or autism (Bishop et al., 2016, 2017). Throughout history, inconsistent nomenclature used to talk about child language disorders has persisted. Educators may label a child with “speech or language impairment;” a psychologist may diagnose a person with “language disorder;” and an insurance company may identify individuals as those with “expressive language disorder” or “expressive and receptive language disorder.” Although DLD terminology is being used internationally, its use in the United States is not well understood. Thus, the purpose of this study was to evaluate speech-language pathologists’ (SLPs) comfort levels in using DLD terminology and knowledge of DLD before and after an educational presentation recorded by SLPs in the United States.

DLD and Its Impact

Developmental language disorder (DLD) is defined as a lifelong, neurodevelopmental condition that first presents in childhood and is characterized by difficulties in learning, understanding, and/or using spoken language that is not associated with other conditions (Bishop et al., 2017). Specific language difficulties associated with DLD change with development, but DLD persists throughout development and in adulthood. For example, at school age, children are 12 times more likely than their peers to have difficulties with reading, spelling, and math due to language difficulties (Young et al., 2002). By adulthood, individuals with DLD are three

times more likely than their peers to experience clinical depression and are six times more likely to experience clinical levels of anxiety (Conti-Ramsden & Botting, 2008). Despite an estimate of two children in every classroom having DLD (Norbury et al., 2016), many of these children remain undiagnosed. One likely reason for this is the history of inconsistent nomenclature surrounding child language disorders.

Choosing DLD

In 2014, the International Journal of Language and Communication Disorders (IJLCD) issued a debate regarding the terminology used to describe children with language disorders (Reilly et al., 2014). It was found that the inconsistent terminology used to discuss children with language difficulties was creating barriers to both clinical and research progress. This debate revealed a need for international and multidisciplinary consensus regarding diagnostic criteria and labels for children with language difficulties.

Motivated by this finding, in 2016, Bishop and colleagues began their 2-phase CATALISE consortium study (2016; 2017) which gathered experts from English-speaking countries to work together to propose standard criteria and terminology for identifying children who might benefit from skilled language services. In the first phase, 59 experts worked to build consensus on criteria for language disorders, and in the second phase, 57 experts focused on terminology. To build consensus, the researchers used the online Delphi process. First, these experts, comprising speech-language pathologists (SLPs), psychologists, pediatricians, psychiatrists, audiologists, specialist teachers, and charity representatives, utilized a 7-point Likert scale to rate the relevance and validity of 46 statements compiled from IJLCD commentaries and articles, Twitter debates, and the Royal College of Speech and Language Therapists (RCSLT) online

forum. The authors synthesized the experts' responses by removing, combining, and modifying items to improve consensus. The experts completed a second evaluation before reaching an 80% consensus for 24 out of 27 statements.

In 2017, the experts completed their second phase of the online Delphi process, which focused on terminology. Phase two included two rounds in which the experts rated statements utilizing a 5-point Likert scale. The results demonstrated a 78% agreement for 19 of 21 statements, which were then synthesized into twelve statements. Overall, it was determined that the term 'developmental language disorder' is to be used to refer to individuals that do not have language difficulties associated with a biomedical condition; it conveys that difficulties are present at birth (*developmental*), impact *language*, and that the difficulties will be present for life (*disorder*).

Diffusion of Terminology

Despite the empirically-based consensus on the term DLD, efforts need to be made to help SLPs understand the terminology and how they can use it in their clinical practice. There is often a gap between research findings and clinical practice. In healthcare, estimates indicate that it takes 17 years for a mere 14% of original research to get translated to patient care (Balas & Boren, 2000; Green et al., 2009). Challenges that often affect the transfer of research evidence into practice for SLPs include the range and focus of research, the need for accurate interpretation of results for use in their practice settings, and a general doubt that the findings are relevant to their individual client needs (Olswang & Prelock, 2015; Yorkston & Baylor, 2013). Without deliberate dissemination and implementation efforts, bringing scientific findings to real-world practice requires clinicians to read, interpret, and apply findings to their work. This proves itself to be

difficult and impractical for clinicians to complete in addition to their typical workload (Olswang & Prelock, 2015).

One theory of relevance that can guide the dissemination of DLD terminology and implementation by SLPs is the Diffusion of Innovations (DOI) theory (Rogers, 2003).

DOI theory aims to explain how, why, and at what rate new ideas spread by communication through specific populations or social systems over time. According to DOI theory, the characteristics of an innovation influence how quickly individuals adopt innovations. Characteristics of innovations include relative advantage, compatibility, complexity, trialability, and observability. When an innovation's *relative advantage* is more advantageous to an individual, they are likely to adopt it more quickly.

Compatibility is defined by how consistent the innovation is with an individual's values, past experiences, and needs. The more compatible an innovation is, the faster the rate of adoption will be. Simple ideas that are easier to understand are adopted more rapidly than innovations with higher *complexity* and require the development of new skills and understandings (Rogers, 2003). When innovations can be trialed (*trialability*, e.g., hybrid options, partial implementation), some individuals may adopt them more quickly. Lastly, when innovations lead to highly visible results (*observability*), they are more likely to be discussed among peers, and the rate of adoption is likely to be quicker.

In the current study, the innovation to be diffused is DLD terminology. It may be relatively advantageous for SLPs to use the term DLD, as literature has found that providing clear diagnostic information to clients and their families is the first step in forming positive, working relationships (Porter et al., 2020). However, SLPs' may have varying perceptions about what is advantageous to their clinical practice. SLPs are

experts in language, therefore adopting new diagnostic terminology is a compatible innovation. While compatible, the innovation would not necessarily be described as one that is readily comprehended by all. The inconsistent terminology used by the many stakeholders involved in child language increase the level of complexity of this innovation. Due to these systemic inconsistencies, SLPs require knowledge about the differences between diagnoses and eligibility. Some terms are used for billing insurance and others are used for school eligibility; DLD can be used to diagnose or identify individuals with DLD. In regard to trialability, this innovation is one that SLPs can trial by discussing DLD with their colleagues or with parents as appropriate and as they feel comfortable doing so. Due to the extensive online resources and the DLD community online, SLPs will likely see observable results when incorporating DLD terminology into conversations with clients and their families. Innovations that have higher visibility prompt peer discussion, leading to increased rates of adoption (Rogers, 2003). While considering the characteristics of an innovation is important in diffusion efforts, there may be other issues impacting the rate of adoption; current literature does not explore SLPs' current use, knowledge, or opinions about adopting DLD terminology.

In the US, the most prominent diffusion efforts of DLD terminology have been through published studies (e.g., Bishop et al., 2016, 2017) and articles (e.g., McGregor, 2020; McGregor et al., 2020). Such efforts are insufficient. In a synthesis of 41 systematic reviews of implementation science, when compared to passive dissemination strategies, active and multifaceted approaches were the most effective (Eccles & Mittman, 2006; Grimshaw et al., 2001; Lomas, 1993). Based on their synthesis, the authors concluded that educational outreach is the most consistently effective. Rogers

(2003) further suggested that when attitudes are more strongly held, interpersonal channels are often more effective in dealing with an individual's resistance or apathy. Given that in the US, stakeholders use many different terms to describe individuals with DLD, incorporating the use of DLD terminology by SLPs likely requires more interpersonal channels. Thus, in the current study, members of the US Raising Awareness for Developmental Language Disorders (RADLD), which is an advocacy group for individuals with DLD comprising SLPs, researchers, individuals with DLD, and their families, developed a presentation to teach SLPs about DLD and the use of DLD terminology.

As part of DOI theory, Rogers (2003) described *innovativeness* as the degree of relative earliness or lateness in which an individual adopts an innovation. Adopters can be placed into standardized categories based on their innovativeness. The first adopters are the *innovators*. These individuals are active information seekers. Following the innovators, the *early adopters* begin to adopt the innovation and are then proceeded by the *early majority*, *late majority*, and *laggards*. In the US, individuals involved in the CATALISE consortium study (Bishop et al., 2016, 2017) are the innovators of DLD terminology and members of US RADLD along with a subset of researchers and clinicians are the early adopters. Further diffusion efforts are needed to reach the early majority adopters and beyond.

According to the DOI theory, to become an adopter, an individual must go through an innovation-decision process. The process begins when an individual first hears about a new idea and acquires *knowledge*. The individual then begins to form an opinion on the innovation in the *persuasion* stage before entering the *decision* stage,

where they engage in activities that lead to the adoption or rejection of the innovation. During *implementation*, the individual begins to trial the innovation and during the *confirmation* stage, the decision is made to adopt or reject the innovation. In the current study, we aimed to help new early majority adopters to acquire knowledge of DLD terminology and better understand how and why they can use DLD in their clinical practice.

Current Study

The first aim of the current study was to evaluate SLPs' current comfort level in using DLD terminology and SLPs knowledge of DLD. The second study aim was to increase SLPs' comfort to use DLD terminology and SLPs' knowledge of DLD through an educational presentation developed and delivered by members of the US RADLD group as part of the innovation-decision process. The specific research questions, which were related to comfort level and knowledge were:

1. Use
 - a. What are SLPs' current comfort levels using DLD terminology?
 - b. Do SLPs' comfort levels of use change after viewing a 45-minute educational presentation?
2. Knowledge
 - a. What current knowledge do SLPs have about DLD?
 - b. Do SLPs' knowledge of DLD change after viewing a 45-minute educational presentation?

We predicted that SLPs' current comfort levels of use and knowledge would be low but would increase after viewing a 45-minute educational presentation.

Method

Investigators used a repeated measures study design to assess SLPs' comfort level in using DLD terminology and knowledge of DLD before and after viewing an educational presentation. This study was approved by an Institutional Review Board at the University of Minnesota. This paper was written using the Checklist for Reporting of Survey Studies (CROSS; Sharma et al., 2021), which is included in Appendix A. Additionally, the methodology for this study is reported using the Checklist for Reporting Results of Internet E-Surveys (CHERRIES; Eysenbach, 2004), which is included in Appendix B.

Study Materials

Educational Presentation

The US RADLD team created a presentation to disseminate information and encourage SLPs across the country to utilize the term DLD in their routine clinical practice. The presentation comprised three modules: “What is DLD?,” “Diagnosing DLD,” and “The Value of a Diagnosis.” It was developed by numerous ambassadors and founding members of US RADLD over the span of six months from June 2021 through December 2021. Each module's development was led by an ambassador, who was the main writer of the speaker notes. Once slides were reviewed by all involved US RADLD members, the ambassadors video-recorded their modules. All three modules were put together to form a 45-minute informational video for participants to view on Qualtrics in between completing the pre- and post-surveys.

Pre- and Post-Surveys

The survey questions are included in Appendices C and D. The pre-survey began with eight demographic questions involving race, gender, state of residency, work setting, ages served, years of experience, caseload totals, and estimated number of clients with DLD. This was followed by six 4-point Likert scale questions assessing SLPs' comfort levels using DLD terminology. Participants rated each question (e.g., "How comfortable are you with describing DLD and using the term DLD with parents?," "How comfortable are you talking to teachers and administrators about the distinction between eligibility and identification?") on a 4-point scale ranging from 1 (*Not at All*) to 4 (*Very Much*). Then, participants answered 12 True or False questions that assessed knowledge of DLD. Examples of questions include: "DLD is associated with a biomedical condition," "DLD is identified by a mismatch between verbal and nonverbal intelligence," and "DLD will always look the same in every domain of language." After viewing the educational presentation previously described, participants responded to the same six 4-point Likert scale questions and 12 True or False questions that were on the pre-survey. The post-survey ended with an open-ended question asking what else participants would like to know about DLD.

After completing the post-survey, participants had the option to provide their email contact information in a separate survey and receive a \$5 Amazon gift card. The first 200 participants who completed the study were eligible to receive a gift card.

Piloting

The usability and clarity of the survey questions were evaluated on International DLD Awareness Day (October 15, 2021). The investigators held a virtual meeting and

shared the educational presentation with students and faculty from the speech-language pathology program at the University of Minnesota Twin Cities. Twelve individuals completed the pre-survey and post-survey via Google Forms. Based on feedback, the surveys were modified to increase the clarity of the questions asked.

Survey Administration

This open-survey study was hosted online via Qualtrics. Data was collected from February 2, 2022, until April 12, 2022. To be eligible to participate in the study, participants needed to verify that they were a practicing SLP in the US and that they worked with children. Respondents that were not currently practicing SLPs and working with children in the US were not eligible to complete the study. Convenience samples were recruited from American Speech-Language-Hearing Association (ASHA) Special Interest Group (SIG) discussion boards, through social media (i.e., Instagram, SLP Facebook groups), and through emails to colleagues. Cluster samples were recruited at statewide speech-language-hearing convention presentations (i.e., Minnesota Speech-Language-Hearing Association (MNSHA) and Pennsylvania Speech-Language-Hearing Association (PSHA) 2022 state conventions). When live presentations were offered at statewide speech-language-hearing conventions, the presenters displayed a QR code and offered time for participants to voluntarily complete the pre-survey. Presenters then presented the scripted educational presentation before displaying another QR code to bring attendees back to the link to voluntarily complete the post-survey. As participants navigated through the 12 survey pages, Qualtrics notified respondents of any incomplete items. Prior items were not available for review upon submission to the next page.

Ethical Considerations

Participants were required to provide assent before voluntarily engaging in the study. Data remained unidentified unless the participant chose to share their email to receive compensation. For protection, data was stored in Qualtrics and the University of Minnesota's Box secure storage.

Statistical Analysis

To address Study Question 1 regarding comfort levels in use, we analyzed responses to the six pre- and post-survey Likert scale questions. For Question 1a, we determined the percentages of participants with each response type (i.e., *Not at All*, *Very Little*, *Somewhat*, *Very Much*) for each Likert scale question on the pre-survey. For Question 1b, we utilized RStudio (RStudio Team, 2022) to perform the McNemar (1947) chi-squared test for paired samples (pre- versus post-survey) using 3 x 3 matrices. Because the McNemar chi-square test requires all cell values to be greater than 0, we collapsed *Not at All* and *Very Little* responses for analyses. Investigators completed Bonferroni correction to adjust probability (p) values; p -values less than .008 are considered statistically significant. To aid the interpretation of these results, we also determined the percentages of participants whose comfort levels using DLD terminology decreased, stayed the same, or increased pre- to post-survey.

To address Study Question 2 regarding DLD knowledge, we analyzed responses to the 12 pre- and post-survey True or False questions. For Question 2a, we determined the percentages of participants with correct responses and those with incorrect responses for each True or False question on the pre-survey. For Question 2b, we performed the McNemar (1947) chi-squared test in RStudio (RStudio Team, 2022) for paired samples

(pre- versus post-survey) using 2 x 2 matrices for each True or False question. We also used a paired *t*-test to compare the total percent correct of the True or False questions pre- and post- survey and calculated Cohen's *d* (Cohen, 1988) to serve as an effect size with values of .2, .5, and .8, reflecting small, medium, and large effect sizes, respectively. Again, investigators completed Bonferroni correction to adjust probability (*p*) values; *p*-values less than .004 are considered statistically significant

Results

Respondents

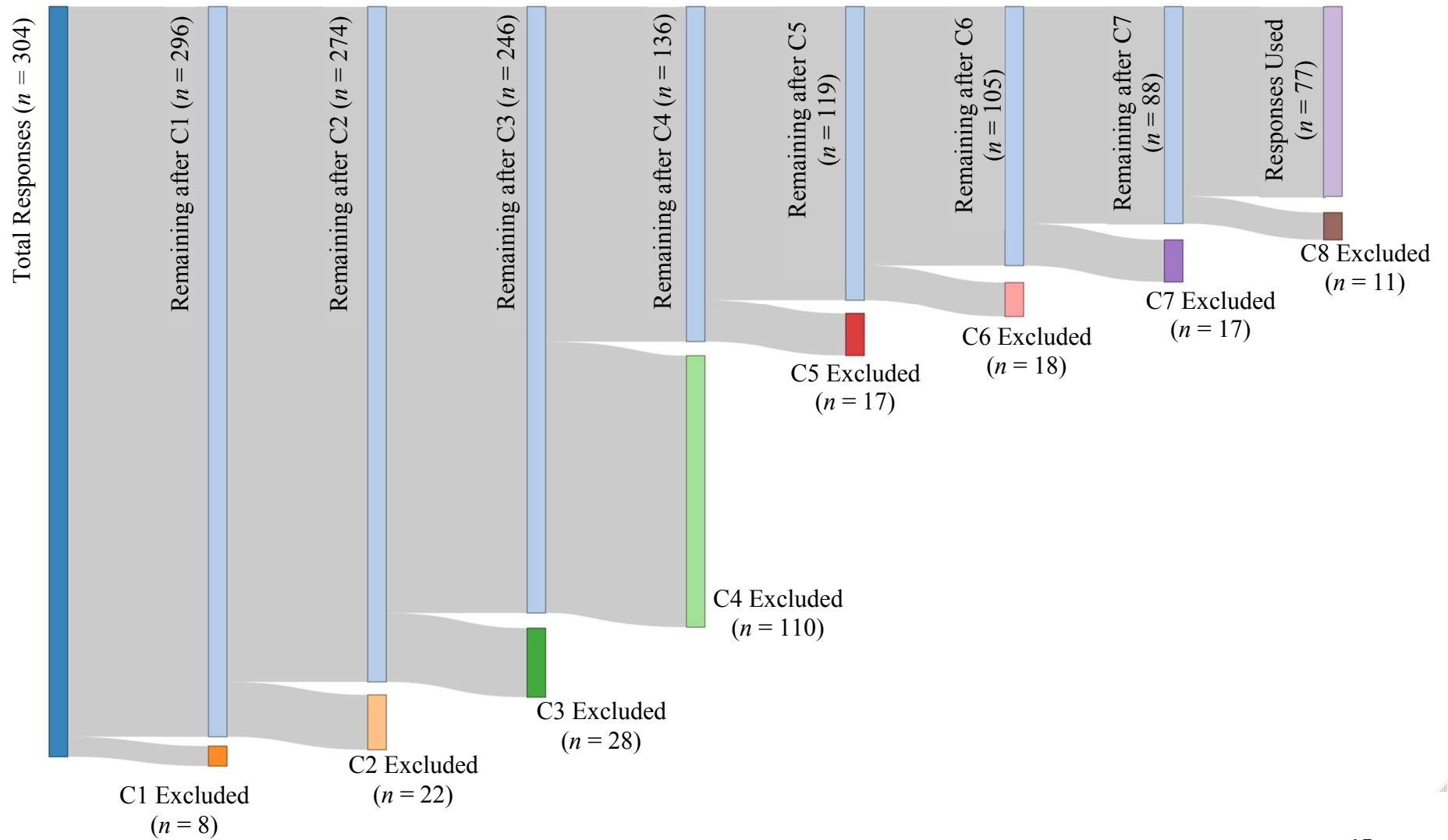
Of the 2,905 individuals who visited the first page of the study, 2,775 proceeded to participate by answering the question on the first survey page (recruitment rate = 95.5%). Of these, 2,263 individuals continued through to the last questionnaire page, yielding a completion rate of 81.5%. Only a small fraction of responses were analyzed for this study due to a high rate of likely fraudulent responses. Within 24 hours of the Qualtrics link being posted online, 1200 participants completed the surveys, suggesting an influx of “bad actors” possibly attempting to receive gift cards. In response to these likely fraudulent responses, investigators used a conservative approach and completed extensive data filtering.

Data Filtering

Using RStudio software (RStudio Team, 2022), investigators applied a filter, excluding all respondents that spent less than 22 minutes on the video page as well as respondents that spent less than 25 minutes on the entire survey. These cutoffs were used to exclude those that could not have finished the 45-minute educational presentation but allowed for video viewing at two-times the speed. After this filter, 304 respondents remained. The Sankey diagram in Figure 1 illustrates the step-by-step process used to further filter the remaining respondents and determine the unique, valid respondents. This process began with Condition 1, which excluded eight respondents who met exclusion criteria (i.e., were not a currently practicing SLP, did not work with children, or did not work in the US), leaving 296 respondents. Condition 2 excluded 22 respondents who did not complete all the questions in each procedure. For Condition 3, the remaining 274

responses were assessed, and 28 responses were rejected for containing repeated IP addresses and the same answer choices or overlaps in start and end times with other responses, leaving 246 respondents. Condition 4 excluded 110 respondents because they started and/or ended the online survey as at least one other respondent (if the survey was not collected at a live event), leaving 136 respondents. In Condition 5 of this process, investigators excluded 17 responses that contained caseload discrepancies/oddities. Caseload discrepancies were characterized by respondents that reported they had more clients with DLD than total clients on their caseload or by respondents that answered “I don’t know” for caseload total followed by a number for clients with DLD. Caseload oddities included respondents that indicated they had a caseload of less than five or more than 100. Condition 6 excluded all respondents that entered “True” for all True or False questions, leaving 105 respondents remaining. For Condition 7, 17 respondents were excluded for inappropriate open-ended responses. These responses included off-topic answers: answering the post-survey’s optional open-ended question with “YES” or “NO”, answers that followed the pattern of “yes,I...” or “sure,I...”, and suspicious answers for years of experience (e.g., 5.7 or 6.4). Finally, for Condition 8, 11 respondents were eliminated due to lack of click counts on pages, locations associated with previously excluded responses, and repeated attempts to receive a gift card. A total of 77 respondents remained for analyses after exclusions based on each of the conditions.

Figure 1. Sankey Diagram of Step-by-step Filtration Process for each Filtering Condition (C)



Sample Characteristics

The demographic data gathered at the start of the pre-survey are presented in Table 1 for the 77 participants included in the final analyses. Participants selected as many responses as applicable. The majority of participants identified as white (77%) and women (71%). Most participants worked in a school setting (69%), but many worked in a clinic (62%), and some worked in both. Responses were collected from 25 states. Most responses were from Minnesota (29%), California (10%), and Pennsylvania (8%).

Table 1.
Demographics of Study Participants

Demographic Categories		Percent (n = 77)
Race		
	White	76.6%
	Black	15.6%
	Prefer not to answer	3.9%
	Asian	2.6%
	Hispanic	1.3%
Gender		
	Women	71.4%
	Men	24.7%
	Prefer not to answer	3.9%
Work Setting		
	School	68.8%
	Clinic	61%
	Other ¹	9.1%
Ages Served		
	Birth – 5 years	41.6%
	6 – 10 years	70.1%
	11 – 13 years	48.1%
	14 – 18 years	23.4%
	18 – 30 years	6.5%
	> 30 years	2.6%
Years Experience		
	0 – 5 years	42.8%
	6-15 years	31.2%
	16 + years	26%

Note. ¹Other responses included agency work; central intermediate unit (preschool ages 3-5); home-based; hospital and outpatient clinic; pediatric hospital- outpatient; provide services in homes, daycares, etc.; University.

Study Question Findings

Study Question 1a. Baseline Comfort Levels Using DLD Terminology

Figure 2 illustrates participant pre-survey responses for each of the six Likert scale questions. Examination of Table 2 along with Figure 2 reveals that for each question, the majority of responses were *Somewhat*, indicating relatively high levels of comfort in using DLD terminology.

Figure 2. Pre-survey responses to Likert scale questions regarding comfort levels using DLD terminology.

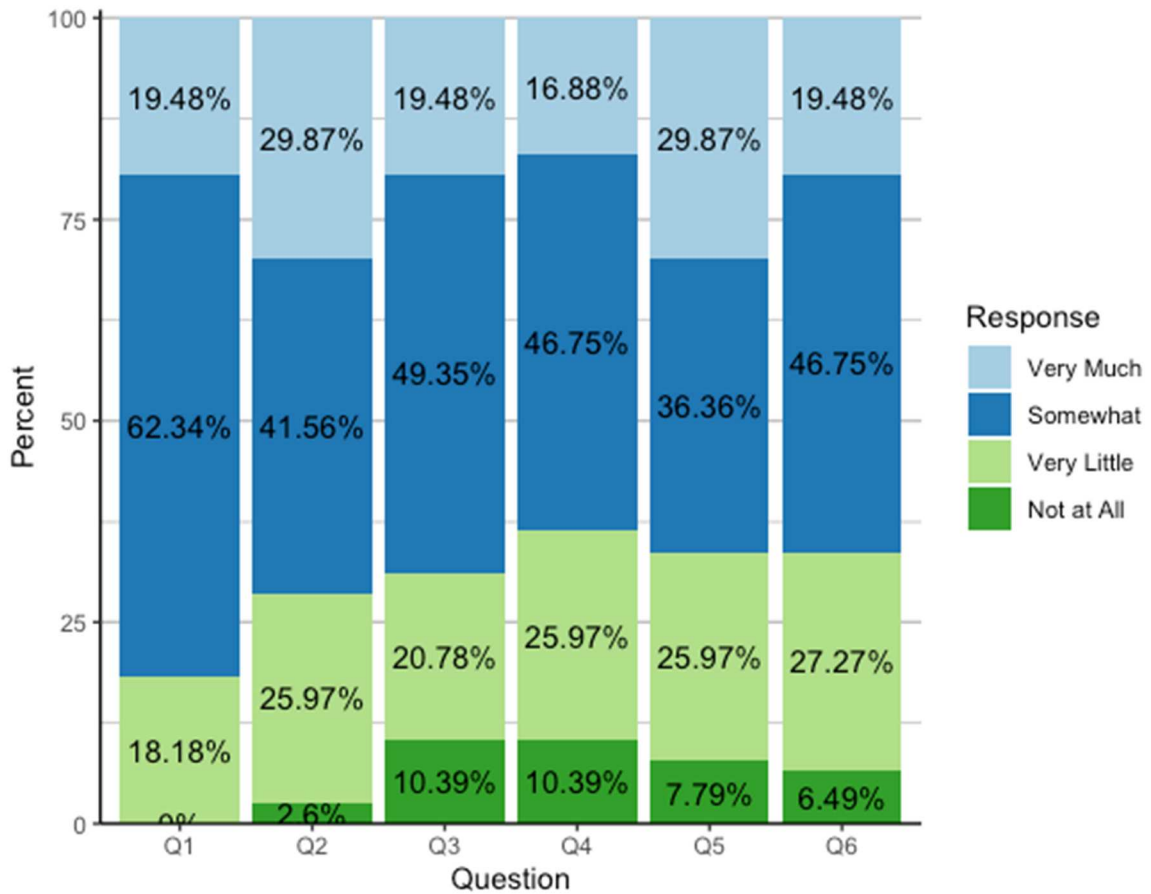


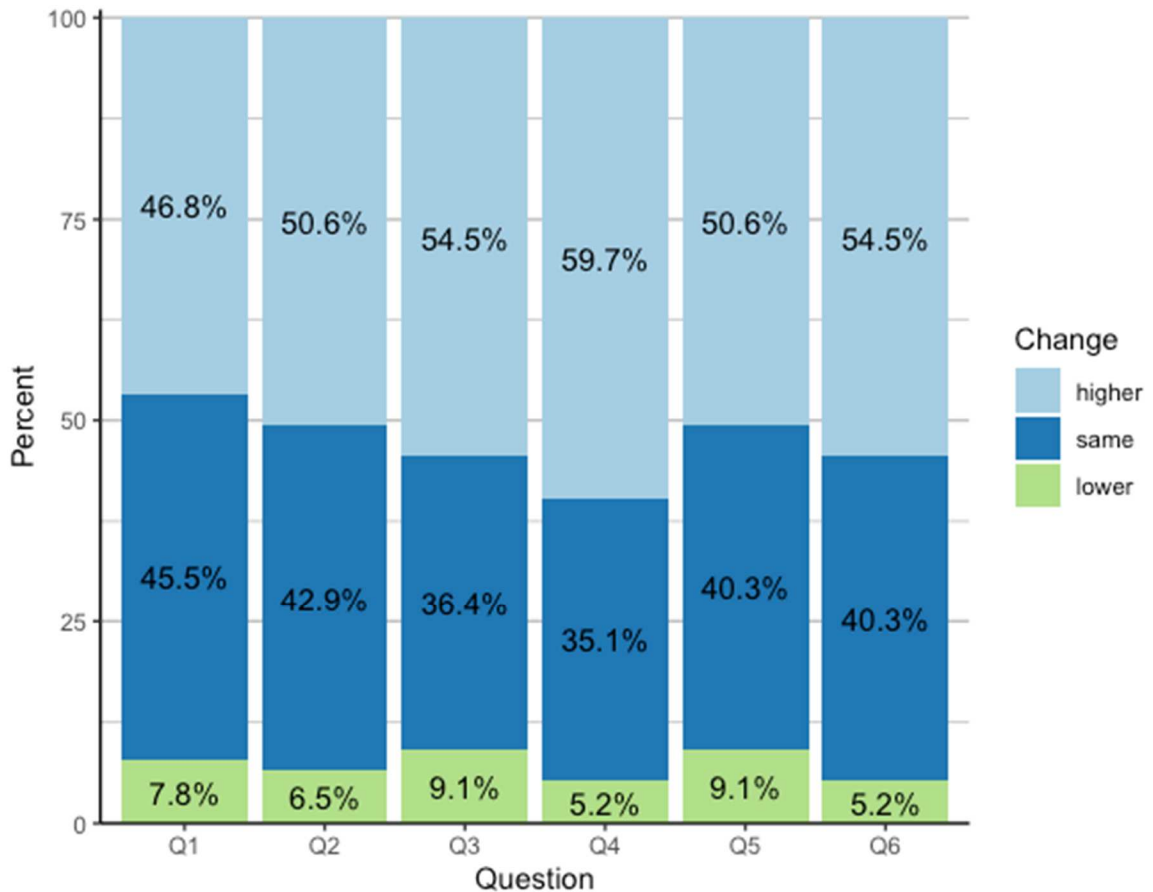
Table 2.
Responses to Likert Scale Comfort Level Questions

Likert Scale Question	Pre-Survey (n = 77)	Post-Survey (n = 77)
Q1. How familiar are you with DLD?		
<i>Not at all</i>	0%	0%
<i>Very little</i>	18.2%	11.7%
<i>Somewhat</i>	62.3%	33.8%
<i>Very much</i>	19.5%	54.5%
	$X^2(3) = 22.45, p < .008$	
Q2. How comfortable are you with identifying an individual with DLD?		
<i>Not at all</i>	2.6%	1.3%
<i>Very little</i>	26%	6.5%
<i>Somewhat</i>	41.6%	28.6%
<i>Very much</i>	29.9%	63.6%
	$X^2(3) = 25.37, p < .008$	
Q3. How comfortable are you with describing DLD and using the term “DLD” with parents?		
<i>Not at all</i>	10.4%	1.3%
<i>Very little</i>	20.8%	11.7%
<i>Somewhat</i>	49.4%	37.7%
<i>Very much</i>	19.5%	49.4%
	$X^2(3) = 23.36, p < .008$	
Q4. How comfortable are you with describing DLD and using the term “DLD” with teachers?		
<i>Not at all</i>	10.4%	3.9%
<i>Very little</i>	26%	3.9%
<i>Somewhat</i>	46.8%	35.1%
<i>Very much</i>	16.9%	57.1%
	$X^2(3) = 36.8, p < .008$	
Q5. How comfortable are you with talking to parents about the criteria for eligibility versus identifying DLD?		
<i>Not at all</i>	7.8%	0%
<i>Very little</i>	26%	9.1%
<i>Somewhat</i>	36.4%	36.4%
<i>Very much</i>	29.9%	54.4%
	$X^2(3) = 21.01, p < .008$	
Q6. How comfortable are you talking to teachers and administrators about the distinction between eligibility and identification?		
<i>Not at all</i>	6.5%	0%
<i>Very little</i>	17.4%	6.5%
<i>Somewhat</i>	46.8%	44.2%
<i>Very much</i>	19.5%	49.4%
	$X^2(3) = 30.5, p < .008$	

Study Question 1b. Change in Comfort Levels Using DLD Terminology

Results of the McNemar chi-square tests appear in Table 2. All chi-square tests yielded *p*-values less than .05. Figure 3 illustrates the percentages of participants whose comfort levels using DLD terminology decreased, remained the same, and increased pre- to post-survey. Inspection of Figure 3 reveals that although many participants did not change their responses, the majority of responses indicated an increase in comfort levels using DLD terminology pre- to post-survey for each question.

Figure 3. Changes in pre- to post-survey responses for Likert scale questions regarding comfort levels using DLD terminology



Study Question 2a. Baseline Knowledge

Examination of Table 3 reveals that across the 12 questions, the percentage of participants who responded correctly ranged from 22% to 84%. Across all questions, the average percent correct for the pre-survey questions was 68% (SD = 19; min-max: 17%-100%).

Table 3.
Accuracy of True or False Knowledge Questions

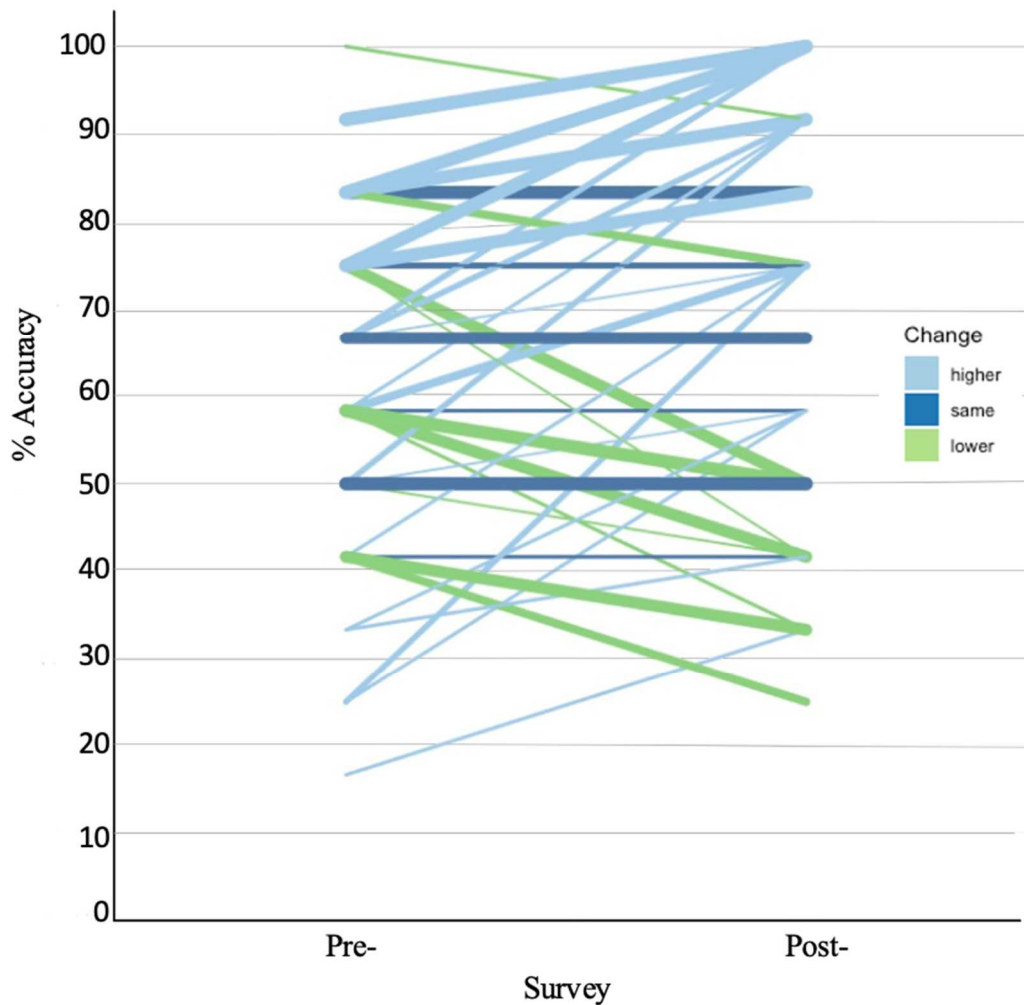
True or False Question	Pre-Survey % Correct (<i>n</i> = 77)	Post-Survey % Correct (<i>n</i> = 77)
1. DLD is associated with a biomedical condition.	62.3%	72.7%
	$X^2(1) = 2.04, p = .153$	
2. Children will grow out of DLD.	72.7%	76.6%
	$X^2(1) = 0.21, p = .646$	
3. DLD can co-occur with other neurodevelopmental disorders such as ADHD.	81.8%	88.3%
	$X^2(1) = 1.45, p = .228$	
4. DLD is identified by a mismatch between verbal and nonverbal intelligence.	50.6%	79.2%
	$X^2(1) = 14.7, p < .004$	
5. It is within an SLP's scope of practice to identify individuals with DLD.	75.3%	81.8%
	$X^2(1) = 1.23, p = .267$	
6. When an SLP gives a child a diagnosis of DLD, the child is automatically eligible to receive services in the school and/or through insurance.	49.4%	51.9%
	$X^2(1) = 0.08, p = .773$	
7. DLD will always look the same in every domain of language.	79.2%	83.1%
	$X^2(1) = 0.31, p = .579$	
8. In addition to a typical evaluation, SLPs need to gather much more information to identify DLD.	22.1%	57.1%
	$X^2(1) = 18.27, p < .004$	
9. Diagnosing DLD benefits SLPs.	77.9%	88.3%
	$X^2(1) = 3.5, p = .061$	
10. Caregivers often report feeling confident in talking about their child's language difficulties.	76.6%	80.5%
	$X^2(1) = .27, p = .606$	
11. Sharing the term DLD can connect children and families with a community of people with shared identities.	84.4%	90.9%
	$X^2(1) = 1.45, p = .228$	
12. Talking to children about neurodevelopmental differences reduces a child's negative feelings towards themselves.	81.8%	88.3%
	$X^2(1) = 2.29, p = .131$	

Study Question 2b. Change in Knowledge

Results of the McNemar chi-squared tests comparing pre-survey and post-survey accuracy for each True or False question appear in Table 3. For two of the questions (Question 4 and 8) the test results were associated with *p*-values less than .05. The

average percent correct for the post-survey questions was 78% (SD = 23; min-max: 25% - 100%). A paired *t*-test comparing pre- and post-survey accuracy was associated with a *p*-value less than 0.05 ($t(76) = -5.7, p < .001$) and an effect size of 0.47, indicating a medium effect. The spaghetti diagram in Figure 4 illustrates each participant's pre- and post-survey total percent correct for the True or False question sections. Examination of Figure 4 reveals variability in respondents' accuracy pre- to post- survey; however, the light blue lines at the top of the graph are thicker than the light blue lines toward the bottom, indicating that while many SLPs' knowledge of DLD started relatively high, many improved in True or False accuracy following the educational video. This trend is consistent with the findings of the paired *t*-test analysis.

Figure 4. *Changes in pre- to post-survey accuracy for True or False questions*



Note. Thicker weighted lines indicate a higher participant response rate.

Short Answer Responses

Participants had the option to share what more they would like to learn about DLD at the end of the post-survey. A total of 32 individuals answered this question. One SLP reported they would like to learn what assessment measures are most reliable for diagnosing DLD. Four participants expressed interest in learning more about treatment approaches or other compensatory strategies from which individuals with DLD may benefit. One SLP wanted to know how brain scans of children with DLD may differ from

children developing typical language milestones. Another participant wanted to know more about the typical age at which a DLD diagnosis may be given. Additionally, this SLP and four others expressed interest in learning more about the differential diagnosis of DLD versus language delay versus dyslexia. One participant wanted to further familiarize themselves with DLD terminology through concrete examples of case studies for children with DLD. Two participants wanted to know more about supporting caregivers and their child's language at home. These SLPs also requested handouts and examples of symptoms to share with families and their social networks. Twelve SLPs simply expressed appreciation for the educational presentation, stating they learned so much and are excited to learn more. One SLP expressed personal appreciation for this study, sharing that their own child and family would have benefitted greatly from a DLD diagnosis. Five participants indicated that the educational presentation supplied them with the knowledge they would currently like to know. One SLP expressed concerns related to how difficult it is to differentiate whether language difficulties are associated with another condition or co-occurring with DLD. This SLP also expressed resistance to adopting DLD terminology due to concerns related to developmental versus acquired language disorders and that the term "development" might imply that a child is expected to grow out of DLD.

Discussion

Collaboration between researchers and clinicians is essential to translate research and implement the latest evidence-based practice into clinical norms and routines (Olswang & Prelock, 2015). In the current study, we aimed to help support new early majority adopters to acquire knowledge of DLD terminology and better understand how and why they can use DLD in their clinical practice. There are three types of knowledge influencing individuals to adopt an innovation: the awareness that the innovation exists, knowledge about how to use the innovation, and knowledge or understanding of how the innovation works (Rogers, 2003). This study's findings provide information about SLPs' comfort levels in using DLD terminology and knowledge of DLD. This paper serves to fill research gaps regarding SLPs' current familiarity with DLD.

In the US, individuals with DLD remain underserved and DLD itself is under-researched (McGregor, 2020). As McGregor (2020) highlights, DLD is a hidden impairment and a relatively unknown condition constrained by outdated policies, despite its high prevalence and significant impact. We predicted that SLPs' current comfort levels in using DLD terminology and knowledge of DLD would be low but would increase after viewing the educational presentation. Pre-survey results indicated that the average participant reportedly felt *Somewhat* comfortable discussing DLD with various stakeholders before the educational presentation. While SLPs' comfort levels in using DLD terminology were already somewhat high, SLPs reported higher comfort levels following the educational presentation.

Pre-survey results show a range of accuracy for each True or False question, suggesting a range in the types of knowledge that SLPs have about DLD prior to viewing

the educational presentation. Rogers (2003) suggests that as individuals are exposed to new knowledge about an innovation, they go through the innovation-decision process. During the first stage, the knowledge stage, participants gain awareness-knowledge, how-to knowledge, and principles-knowledge. The average accuracy on the True or False questions increased pre- to post-survey, suggesting that SLPs' overall knowledge of DLD increases after viewing the educational presentation that provided SLPs with awareness, how-to, and principles knowledge. It may be that after viewing the educational presentation, participants were closer to the persuasion stage of the innovation-decision process, where they will continue to process new information and begin to form opinions about DLD terminology.

Study Limitations

While this study's materials adhere to existing theory and knowledge, the content of the educational presentation and surveys have not been validated by statistical measures. The surveys and educational presentation used in this study have never been used before, so reliability has not been established. This study's repeated measures design lacked random sampling and therefore the results of this study can be applied to participants within the sample but cannot be generalized to all SLPs. This study's sample size is relatively small but adequate given that participants were required to complete an hour-long study. The sample was identified primarily as white women but represented 25 states. Further limitations of repeated measure designs include knowledge or attitude decay (Stratton, 2019); we do not know how long increased knowledge and comfort levels using DLD terminology will last.

Another limitation to this study was the lack of measures in place to prevent multiple participation of respondents (Sharma et al., 2021). Being that this was a nationally distributed online survey, we do not exactly know who completed the study. In addition, in response to the high rate of likely fraudulent responses, the investigators' own biases contribute to the limitations of this study. The filtering process used to eliminate potential "bad actors" could have been done too conservatively, excluding valid responses, or too liberally, including invalid responses. Finally, this study examined knowledge and perceived comfort levels using DLD terminology and does not conclude whether individuals have indeed adopted the term DLD.

Future Directions

Participants provided useful ideas for the next directions in the last question of the post-survey. The open-ended responses highlighted that SLPs are interested in diversifying their knowledge to gain more awareness-knowledge, how-to knowledge, and principles-knowledge about DLD (Rogers, 2003). The open-ended responses also demonstrated a need for early adopters to utilize interpersonal channels to encourage individuals to move from the knowledge stage of the innovation-decision process to the persuasion stage. In the persuasion stage, individuals form opinions about DLD terminology and begin to consider entering the decision stage by engaging in activities that will lead to the adoption or rejection of using DLD terminology. Respondents expressed interest in gaining more knowledge related to assessment of DLD, intervention for DLD, using DLD terminology with various stakeholders, differential diagnosis of DLD and similar profiles, and resources for families. Real-world settings are complex systems, influenced by policy, organizations, and stakeholders of DLD terminology

(Grimshaw et al., 2001). Further diffusion efforts are needed to encourage early majority adopters and beyond to adopt DLD terminology. As Rogers (2003) suggests, future directions should lead people to the adoption phase of the innovation-decision process. Certain issues require attention as early majority adopters enter the adoption phase (Rogers, 2003). This study assessed target adopters' comfort levels using DLD terminology and knowledge of DLD. Future efforts should be made to understand the needs of target adopters, their current attitudes and values, what factors will increase the likelihood of adoption, and how potential adopters can be influenced to change their behaviors.

Conclusions

This study aimed to help SLPs better understand how and why they should adopt DLD terminology in their clinical practice. Results of pre- and post-survey Likert scale questions indicated that participants' comfort levels in using DLD terminology increased with statistical significance after viewing the educational presentation. Similarly, results of pre- and post-survey True or False questions indicate that participants' knowledge of DLD increased with a medium effect after viewing the educational presentation. In conclusion, diffusion efforts such as educational presentations may increase SLPs' comfort levels in using DLD terminology as well as SLPs' knowledge of DLD.

References

- Balas, E. A., & Boren, S. A. (2000). Managing Clinical Knowledge for Health Care Improvement. *Yearbook of Medical Informatics*, *09*(01), 65–70.
<https://doi.org/10.1055/s-0038-1637943>
- Bishop, D. V. M., Snowling, M. J., Thompson, P. A., Greenhalgh, T., & CATALISE consortium. (2016). CATALISE: A Multinational and Multidisciplinary Delphi Consensus Study. Identifying Language Impairments in Children. *PLOS ONE*, *11*(7), e0158753. <https://doi.org/10.1371/journal.pone.0158753>
- Bishop, D. V. M., Snowling, M. J., Thompson, P. A., Greenhalgh, T., & Consortium, and the C.-2. (2017). Phase 2 of CATALISE: A multinational and multidisciplinary Delphi consensus study of problems with language development: Terminology. *Journal of Child Psychology and Psychiatry*, *58*(10), 1068–1080. <https://doi.org/10.1111/jcpp.12721>
- Brown, C. B. (2010). *The gifts of imperfection: Let go of who you think you're supposed to be and embrace who you are*. Hazelden.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed). L. Erlbaum Associates.
- Conti-Ramsden, G., & Botting, N. (2008). Emotional health in adolescents with and without a history of specific language impairment (SLI). *Journal of Child Psychology and Psychiatry*, *49*(5), 516–525. <https://doi.org/10.1111/j.1469-7610.2007.01858.x>

- Eccles, M. P., & Mittman, B. S. (2006). Welcome to Implementation Science. *Implementation Science, 1*(1), 1, 1748-5908-1-1. <https://doi.org/10.1186/1748-5908-1-1>
- Eysenbach, G. (2004). Improving the Quality of Web Surveys: The Checklist for Reporting Results of Internet E-Surveys (CHERRIES). *Journal of Medical Internet Research, 6*(3), e34. <https://doi.org/10.2196/jmir.6.3.e34>
- Green, L. W., Ottoson, J. M., García, C., & Hiatt, R. A. (2009). Diffusion Theory and Knowledge Dissemination, Utilization, and Integration in Public Health. *Annual Review of Public Health, 30*(1), 151-174. <https://doi.org/10.1146/annurev.publhealth.031308.100049>
- Grimshaw, J. M., Shirran, L., Thomas, R., Mowatt, G., Fraser, C., Bero, L., Grilli, R., Harvey, E., Oxman, A., & O'Brien, M. A. (2001). Changing Provider Behavior: An Overview of Systematic Reviews of Interventions. *Medical Care, 39*(8), II2-II45.
- Lomas, J. (1993). Diffusion, Dissemination, and Implementation: Who Should Do What? *Annals of the New York Academy of Sciences, 703*(1), 226-237. <https://doi.org/10.1111/j.1749-6632.1993.tb26351.x>
- McGregor, K. (2020). How We Fail Children With Developmental Language Disorder. *Language, Speech, and Hearing Services in Schools, 51*, 1-12. https://doi.org/10.1044/2020_LSHSS-20-00003
- McGregor, K. K., Goffman, L., Van Horne, A. O., Hogan, T. P., & Finestack, L. H. (2020). Developmental Language Disorder: Applications for Advocacy, Research,

- and Clinical Service. *Perspectives of the ASHA Special Interest Groups*, 5(1), 38–46. https://doi.org/10.1044/2019_PERSP-19-00083
- McNemar, Q. (1947). Note on the sampling error of the difference between correlated proportions or percentages. *Psychometrika*, 12(2), 153–157. <https://doi.org/10.1007/BF02295996>
- Norbury, C. F., Gooch, D., Wray, C., Baird, G., Charman, T., Simonoff, E., Vamvakas, G., & Pickles, A. (2016). The impact of nonverbal ability on prevalence and clinical presentation of language disorder: Evidence from a population study. *Journal of Child Psychology and Psychiatry*, 57(11), 1247–1257. <https://doi.org/10.1111/jcpp.12573>
- Olswang, L. B., & Prelock, P. A. (2015). Bridging the Gap Between Research and Practice: Implementation Science. *Journal of Speech, Language, and Hearing Research*, 58(6). https://doi.org/10.1044/2015_JSLHR-L-14-0305
- Porter, K. L., Oetting, J. B., & Pecchioni, L. (2020). Caregivers' Perceptions of Speech-Language Pathologist Talk About Child Language and Literacy Disorders. *American Journal of Speech-Language Pathology*, 29(4), 2049–2067. https://doi.org/10.1044/2020_AJSLP-20-00049
- Reilly, S., Bishop, D. V. M., & Tomblin, B. (2014). Terminological debate over language impairment in children: Forward movement and sticking points. *International Journal of Language & Communication Disorders*, 49(4), 452–462. <https://doi.org/10.1111/1460-6984.12111>
- Rogers, E. M. (2003). *Diffusion of innovations* (5th ed.). Simon & Schuster.

- RStudio Team. (2022). *RStudio: Integrated Development Environment for R* (2022.2.0.443) [Desktop]. RStudio, PBC. <http://www.rstudio.com/>
- Sharma, A., Minh Duc, N. T., Luu Lam Thang, T., Nam, N. H., Ng, S. J., Abbas, K. S., Huy, N. T., Marušić, A., Paul, C. L., Kwok, J., Karbwang, J., de Waure, C., Drummond, F. J., Kizawa, Y., Taal, E., Vermeulen, J., Lee, G. H. M., Gyedu, A., To, K. G., ... Karamouzian, M. (2021). A Consensus-Based Checklist for Reporting of Survey Studies (CROSS). *Journal of General Internal Medicine*, 36(10), 3179–3187. <https://doi.org/10.1007/s11606-021-06737-1>
- Stratton, S. J. (2019). Data Sampling Strategies for Disaster and Emergency Health Research. *Prehospital and Disaster Medicine*, 34(03), 227–229. <https://doi.org/10.1017/S1049023X19004412>
- Yorkston, K. M., & Baylor, C. R. (2013). Evidence-based practice: Applying research outcomes to inform clinical practice. In L. A. C. Golper & C. Fratalli (Eds.), *Outcomes in speech-language pathology* (2nd ed., pp. 265–278). Thieme.
- Young, A. R., Beitchman, J. H., Johnson, C., Douglas, L., Atkinson, L., Escobar, M., & Wilson, B. (2002). Young adult academic outcomes in a longitudinal sample of early identified language impaired and control children. *Journal of Child Psychology and Psychiatry*, 43(5), 635–645. <https://doi.org/10.1111/1469-7610.00052>

Appendices

Appendix A.

Checklist for Reporting of Survey Studies (CROSS; Sharma et al., 2021)

Section/Topic	Reported on Page #
Title and abstract	
1. Title and abstract	
a. State the word “survey” along with a commonly used term in title or abstract to introduce the study’s design.	iii
b. Abstract includes background, objectives, method, findings/results, interpretation/discussion, and conclusions.	iii
Introduction	
2. Background: includes the rationale of study, what has been previously done, and why this survey is needed.	1
3. Purpose/aim: specific purposes, aims, goals, or objectives of the study.	7
Method	
4. Study design: Specify with a commonly used term	8
5. Data collection methods	
a. Questionnaire description	9
b. Questionnaire instruments description, target population, validity and reliability information, scoring/classification procedure, and reference links (if any).	9
c. Pretesting, if performed and method of pretesting	9
d. Questionnaire, should be fully provided	C, D
6. Sample characteristics	
a. Study population	13
b. Sampling techniques	10
c. Specify locations of sample participants whenever clustered sampling was applied.	10
d. Provide information on sample size	13
7. Survey administration	
a. Describe survey administration	10
b. Survey’s time frame	10
c. For web-based surveys, provide approaches to prevent “multiple participation” of participants.	N/A
8. Study preparation: describe any preparation process before conducting the survey	9
9. Ethical considerations	
a. Institutional review board (IRB) approval	8
b. Survey anonymity, confidentiality, and protecting from unauthorized access.	11
10. Statistical Analysis	

a. Statistical methods and analytical approach.	11
b. Variable modification	11
c. Missing data mechanisms	N/A
d. State how non-response error was addressed.	N/A
e. For longitudinal surveys, state how loss to follow-up was addressed.	N/A
f. Report weighting of items or propensity scores to adjust for non-representativeness of the sample.	N/A
g. Describe any sensitivity analysis conducted.	11
<hr/>	
Results	
<hr/>	
11. Respondent Characteristics	
a. Report numbers of individuals at each stage of the study. Use flow diagram.	13
b. Reasons for non-participation at each stage.	13
c. Report response rate	13
d. Define unique visitors. Report number of unique visitors along with relevant proportions	13
12. Descriptive results: characteristics of study participants, potential confounders and assessed outcomes.	16
13. Main findings	
a. Give unadjusted estimates and, if applicable, confounder-adjusted estimates along with 95% confidence intervals and p-values.	17
b. For multivariable analysis, provide information on the model building process, model fit statistics, and model assumptions (as appropriate).	17
c. Provide details about any sensitivity analysis performed. If there are considerable amount of missing data, report sensitivity analyses comparing the results of complete cases with that of the imputed dataset (if possible).	17
<hr/>	
Discussion	
<hr/>	
14. Limitations: sources of potential biases and imprecisions	26
15. Interpretations: cautious overall interpretation of results, based on potential biases and imprecisions and suggest areas for future research.	25
16. Generalizability: external validity of the results	26
<hr/>	
Other sections	
<hr/>	
17. Role of funding source: state whether any funding organization has had any roles in the survey's design, implementation, and analysis.	Acknowledgements
18. Conflict of interest: declare any potential conflict of interest.	N/A
19. Acknowledgements: provide names of organizations/persons that are acknowledged along with their contribution to the research.	Acknowledgements
<hr/>	

Appendix B.

Checklist for Reporting Results of Internet E-Surveys (CHERRIES; Eysenbach, 2004)

Item Category	Checklist Item	Reported on Page #
Design		
	Describe survey design	8
Approval and consent process		
	IRB approval	8
	Informed consent	10
	Data protection	11
Development and pre-testing		
	Describe development and testing	9
Recruitment process		
	Open survey versus closed survey	10
	Contact mode	10
	Advertising the survey	10
Survey Administration		
	Web/E-mail	10
	Context	10
	Mandatory/Voluntary	10
	Incentives	9
	Time/Date	10
	Randomization of items or questionnaires	N/A
	Adaptive questioning	N/A
	Number of items	9
	Number of screens (pages)	10
	Completeness check	10
	Review step	10
Response Rates		
	Unique site visitor	13
	View rate	N/A
	Participation rate	13
	Completion rate	13
Preventing multiple entries from the same individual		
	Cookies used	N/A
	IP check	13
	Log file analysis	13
	Registration	N/A
Analysis		
	Handling of incomplete questionnaires	13
	Questionnaires submitted with an atypical timestamp	13
	Statistical correction	11

Appendix C.
Survey Questions

Pre-Survey Inclusion Questions

Are you currently practicing as an SLP?
Yes
No

Do you currently work with children with language impairments?
Yes
No

Do you practice in the United States?
Yes
No

Pre-Survey Demographic Questions

In which setting(s) do you work? *Select all that apply.*

School
Clinic
Other (*please specify below*)

Which age group(s) do you primarily serve in your job? *Select all that apply.*

Birth – 5 years
6 -10 years
11-13 years
14-18 years
18-30 years
>30 years

How many years of experience do you have as an SLP? *Please enter a number 0 or greater only.*

How many children (ages 0-18) do you have on your current caseload? *Please enter a number only or write "Don't know" if you don't know.*

Of the children on your caseload, how many would you characterize as having DLD? *Please enter a number only or write "Don't know" if you don't know.*

What is your state of residency?

What is your race?

What is your gender?

***Likert Scale Questions**

How familiar are you with DLD?

	<i>Not at all</i>
	<i>Very little</i>
	<i>Somewhat</i>
	<i>Very much</i>
How comfortable are you with identifying an individual with DLD?	
	<i>Not at all</i>
	<i>Very little</i>
	<i>Somewhat</i>
	<i>Very much</i>
How comfortable are you with describing DLD and using the term “DLD” with parents?	
	<i>Not at all</i>
	<i>Very little</i>
	<i>Somewhat</i>
	<i>Very much</i>
How comfortable are you with describing DLD and using the term “DLD” with teachers?	
	<i>Not at all</i>
	<i>Very little</i>
	<i>Somewhat</i>
	<i>Very much</i>
How comfortable are you with talking to parents about the criteria for eligibility versus identifying DLD?	
	<i>Not at all</i>
	<i>Very little</i>
	<i>Somewhat</i>
	<i>Very much</i>
How comfortable are you talking to teachers and administrators about the distinction between eligibility and identification?	
	<i>Not at all</i>
	<i>Very little</i>
	<i>Somewhat</i>
	<i>Very much</i>

***True or False Questions**

DLD is associated with a biomedical condition.	True
	False
Children will grow out of DLD.	

	True
	False
DLD can co-occur with other neurodevelopmental disorders such as ADHD.	True
	False
DLD is identified by a mismatch between verbal and nonverbal intelligence.	True
	False
It is within an SLP's scope of practice to identify individuals with DLD.	True
	False
When an SLP gives a child a diagnosis of DLD, the child is automatically eligible to receive services in the school and/or through insurance.	True
	False
DLD will always look the same in every domain of language.	True
	False
In addition to a typical evaluation, SLPs need to gather much more information to identify DLD.	True
	False
Diagnosing DLD benefits SLPs.	True
	False
Caregivers often report feeling confident in talking about their child's language difficulties.	True
	False
Sharing the term DLD can connect children and families with a community of people with shared identities.	True
	False
Talking to children about neurodevelopmental differences reduced a child's negative feelings towards themselves.	True
	False

Post-Survey Open-ended Question

What more would you like to learn about DLD, if anything?

*Note. *Both pre- and post- surveys included the same Likert scale and True or False questions.*