



The Use of Telepractice to treat Stuttering



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+ Disclosure Statement



- We have no relevant financial or nonfinancial relationship(s) within the products or services described, reviewed, evaluated or compared in this presentation.



Introduction : The Problem



- Limited access to treatment due to distance/lifestyle factors
- Shortage of SLPs; limited or no access to health professionals, specialty services
- Travel plans disrupt treatment continuity
- Addition of new child to family
- No transport options available
- Better access to treatment for early intervention
- Urban/rural populations both have these concerns



Introduction: The Problem



This increases limited access to treatment in the pre-school years when treatment of stuttering can be most effective

- Increased access to internet
- Affordability of webcams/improved software
- Real-time treatment using telepractice is a solution

+ What is telepractice?



- **Use of telecommunications technology to deliver professional services at a distance by:**
 - Linking clinician to client
 - Linking clinician to clinician
 - For assessment, intervention and/or consultation
 - ASHA (2004)

+ What is telepractice?

- extends rural and remote locations with little access to professionals
- Variety of modes include video conferencing, telephone, email, “skype”
- Real-time audio & visual connection - analogous to an in-person session
- May involve ‘store-and-forward’ service; e.g. e-mail, fax, audio, video recordings for later examination
- Venues include schools, medical centers, community health clinics, client’s homes, child care centers
- No limits for implementation as long as services comply with national, state/province, professional guidelines



+ Benefits of Telepractice



- Increased capacity for services in underserved areas
- Reduced wait time for services (Mashima, 2008)
- Increased access to specialists
- Reduced costs for time/travel for consumer
- Increased equality in service despite where people live
- Patient satisfaction has been positive



History of use of Telepractice



- Developed to provide treatment across countries (Wilson, Lincoln, & Onslow, 2002; Rousseau, Packman, Onslow, Dredge & Harrison, 2002)
- Use in Canada has grown by more than 35% annually over the past 5 years (Health Infoway 2011)
- Now a viable alternative to in-clinic delivery of treatment (Craig, McConville, Patterson & Wootton, 1999; Efford et al, 2000; Krumm, Tan & Shelton, 2004; Wootton et al. 2000)



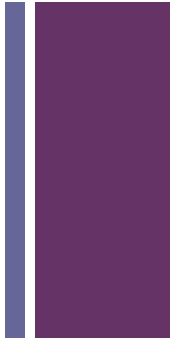
Terminology & Ethical Guidelines



- Telepractice – avoids misconception that these services are used only in healthcare settings
- Also...telespeech, speech teletherapy, telerehab
- The quality of service must be consistent with the quality of services delivered face-to-face



Ethical guidelines (ASHA/CASLPA)



- ASHA (2008) uses the term *telepractice* to avoid the misperception that these services are used only in health care settings (*telemedicine/telehealth*)
- Other terms include : *telespeech, speech teletherapy, telerehabilitation.*
- The use of telepractice does not remove any existing responsibilities in delivering services including adherence to the Code of Ethics, Scope of Practice, state and federal laws, and ASHA policy documents on professional practices. The quality of services delivered via telepractice must be consistent with the quality of services delivered face-to-face (ASHA 2004).
- Telepractice session typically consists of real-time audio and visual connection between a client (or group of clients) and a clinician, analogous to an in-person assessment or treatment session
- Online clinical materials, paced software programs, and other 'digital' therapy tools can serve as adjuncts to live interactions
- Other forms of telecommunications technology can be used to supplement service delivery (e.g., telephone, fax and email)
- Telepractice venues include schools, medical centres, rehab hospitals, community health centres, outpatient clinics, universities, client's homes, residential health care facilities, child care centres, corporate settings. There are no inherent limits to where telepractice can be implemented as long as the services comply with national, state, institutional and professional regulations or policies.

+ Goal of Telepractice



Replicate in- clinic treatment

+ Modes of Delivery



- Many studies have examined real-time synchronous interactive audio-video teleconferencing as a method for providing speech-language pathology services in many areas, including fluency
- Asynchronous applications such as the storing and forwarding of data have been used to supplement services delivered in person or to review and validate information observed and recorded during synchronous telepractice encounters (Lewis, 2006 ; O'Brian, Packman, & Onslow, 2008, Wilson, Onslow & Lincoln, 2004).



Equipment & Connectivity



First:

- Equipment connectivity mediums & bandwidth specifications may vary
- Image and sound quality must adequately support the procedure
- Technology should distort or interfere with communication in the most minimal manner
- Quality of signals must support optimal audio/visual quality for clinical decision-making

+ Equipment and connectivity



- Custom software are being developed to interface with existing equipment to provide a 'virtual desktop' for clinicians to administer therapy
 - Interactive touch screens
 - Report templates
 - Storage database
 - E-learning applications
 - And more!

+ Challenges for Clinicians



- Lack of funds for start-up
- Lack of infrastructure to support services
- Lack of technical support
- Lack of efficacy data
- Licensure restrictions for practice across state lines
- Ethical issues re: privacy/confidentiality
- Legal issues

■ Mashima & Doarn, 2008



Use of telepractice to treat speech & language problems



■ Neurogenic Communication Disorders

- Tindal & Wright (2006) – treatment for anomia
- Perlman & Witthawaskul, (2002) – treatment of swallowing disorder
- Savard et al (2003) – CVA, Parkinsons, cerebral palsy, traumatic brain injury
- Palsbo (2007) – post-stroke

■ Voice Disorders

- Theodoros et al (2006) – Lee Silverman Voice Treatment (Parkinson's disease)
- Ward et al (2007) – laryngeal cancer

■ Dysphagia

- Meyers(2005) – alaryngeal speech and swallowing therapy

■ Childhood speech and language disorders

- Rose et al (2000) – school age children with communication difficulties
- McCullough (2001) – preschool children with special needs
- Madsen & Rollings (2005) – school age speech and language therapy

+ Treating stuttering with telepractice



- Kully (2000, 2002)
 - Adult – follow up of intensive fluency shaping treatment
 - Patient/clinician high satisfaction

- Sicotte, Lehoux, Fortier-Blanc, Leblanc (2003)
 - 6 children ages 3-19
 - Assessment and treatment
 - Outcomes favorable; patient/clinician satisfaction high

+ Treating Stuttering with Telepractice



- **O'Brian, Packman, & Onslow (2008)**
 - 10 adults; Phase 1 trial Camperdown Program
 - 82% reduction in stuttering post treatment; 74% 6 months post-TX
- **Carey, O'Brian, Onslow, Block, Packman & Menzies (2012)**
 - Camperdown Program
 - mean 18 sessions (11 clinician hours) to maintenance
 - 83% reduction of stuttering; 74% 12 months post-entry to maintenance



The Lidcombe Program telepractice



- **Harrison, Wilson, & Onslow (1999)**

- telephone
- 81 sessions to stage 2

- **Wilson, Onslow, & Lincoln (2004)**

- 5 case studies
- Low tech
- Clinically viable

- **Lewis (2006)**

- 15 children; low-tech
- Longer treatment times, higher cost, viable option for improved access



The Lidcombe Program Telepractice



- **Lewis, Packman, Onslow, Simpson & Jones (2008)**
 - Phase II trial
- **Bridgeman, Onslow, O'Brian & Block (2012)**
 - Phase II Randomized Controlled Trial in progress
 - 1-2 additional sessions from established benchmarks
 - Webcam sessions shorter
 - About 11.5 hours clinician time to complete Stage 1
 - 75% reduction in SR from pre-treatment to Stage 2 entry halfway through the trial

+ The Lidcombe Program adapts well to telepractice



- Parents deliver verbal contingencies for fluent & stuttered utterances
- Measurement guides practice/progress
- Clinician mentors/coaches parents
- Can be used with bilingual children
- Can be individualized for each family

+ Getting started



- Consent forms
- Letter of agreement
- Technical support
- Familiarize yourself with literature/resources/technologies
- Start with a trial

+ Ethical Concerns



- Skype does not meet HIPPA regulations, although this may be open to interpretation
 - Determine for your facility if you are protecting your client's confidentiality
- Alternatives to consider:
 - Microsoft office live meeting
 - CISCO Webex

+ Measurement of stuttering



- Live (on-line)
- By phone
- Teleconferencing
- Webcam, internet
- From recorded samples (off-line) that use voicemail, computer software, digital recordings, videos

+ Severity ratings



- E-mail
- Graph using Excel
- Rating sheets scanned and sent
- Phone in
- Texted or posted on Google docs

+ Audio/Video Samples



- Sent by mail
- Email attachments
- Web based sharing systems like cloud computing or drop box
- Other?



Observation of parent delivered contingencies



- Live (on-line) during phone conversations
- Teleconferencing
- Webcam
- From recorded samples (off-line)
- Using voicemail
- Digital audio/video recordings

+ Demonstrating contingencies



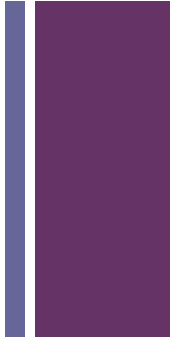
- Audio/audio-visual samples that can be shared by any methods described
- Live, using webcam and internet teleconferencing
- Shared resources
 - Traditional mail
 - Email
 - Through web-based resources; e.g., iPhone, iPod touch, iPad

+ Summary



- May be different for each family
- May augment or replace in-clinic treatment
- Can be used for a short time or full treatment
- May enhance treatment
 - Observe out-of-clinic treatment
 - Follow progress during a holiday or leave

+ Challenges that require problem solving



Client progress, setbacks and other challenges can be aided by:

- Webcam conferences
- Telephone conferences
- Phone, e-mail, texting
- combination



More information that helps



- ASHA SID 18 – Telepractice
- Mainespeechtherapy.org



+ 2 different telepractice
experiences

Louisiana to Bolivia
Montreal to Geneva

+ CASE STUDY FORMAT



- Background of Client:
- Background of Clinician:
- Experiences with “tele-therapy”:
- Pre-treatment measures:
- Therapeutic steps:
- Post-treatment measures:
- Outcome analysis:
- Summary:
- Caveats:



CASE STUDY # 1



■ Background of Client:

- Name: CV
- Age: 6.5
- Onset: Age 3 (no other issues at onset)
- Course of stuttering: growing more severe with time
- Genetics: Father and cousin stutter
- Academics, etc.: Does well in school, but very distractable, reading and literacy issues, bilingual
- Social: Teased at school; doesn't want to go to school (recently) and the teacher asked that he not talk as much
- Other factors: Knows nothing about stuttering, shows little fear, communicates with others, does not like teasing
- Reason for Telepractice recommendation: No skilled clinician locally (in Bolivia)



CASE STUDY # 1



- Background of Clinician:
 - BRS/M-FD
 - University professor and private practice
 - Over 20 years clinical experience with stuttering
 - Over 50 publications
 - Lidcombe certified
 - Active in NSA (self-help organizations)



CASE STUDY # 1



- Experiences with “tele-therapy”:
 - Use of programs for distance self-help meetings, including:
 - Skype
 - OOVVOO
 - Google ++
 - I-Meet
 - Use in individual therapy
 - Face time
 - Skype
 - Text messages



CASE STUDY # 1



- Pre-treatment measures:
 - Evaluation completed in a quiet section of medical school in Buenos Aires, Argentina and recorded on I-phone.
 - Data was later used as part of SSI-3. Results are as follows:



CASE STUDY # 1



■ Pre-treatment measures (SSI-3):

<u>TASK</u>	<u>DATA</u>	<u>COMMENTS</u>	<u>TASK SCORE</u>
Frequency	28% (speaking task) 15% (reading task)*	9 (9 out of 9) 8 (8 out of 9)	17
Duration	3.0 – 4.9 seconds	(average of the three longest blocks)	10
Physical concomitants	1 (distracting sounds) 3 (facial grimaces) 3 (head movements) 1 (extremity movement)	Not Noticeable if not looking Distracting Distracting Not noticeable if not looking	8
TOTAL OVERALL SCORE	96-99 th percentile	Severity Rating; Severe	35



CASE STUDY # 1

■ Pre-treatment measures (speech samples):

<u>TASK</u>	<u>%SS</u>	<u>%nonfl</u>	<u>%P-A</u>	<u>Type</u>	<u>Duration</u>
1 syllable word repetition	0%	0%	0%	n/a	n/a
1 syllable word naming	0%	0%	0%	n/a	n/a
1 syllable word reading	0%	0%	0%	n/a	n/a
Multi-syllable word repetition	0%	0%	0%	n/a	n/a
Multi-syllable word naming	0%	0%	0%	n/a	n/a
Multi-syllable word reading	0%	0%	0%	n/a	n/a
Sentence repetition	31%	40%	0%	Bl, PWR, int.	1-2 sec 3-6 rep/unit
Sentence naming	20%	26%	0%	Bl, PWR, int	3-4 rep/unit 1-2 sec
Dialogue with clinician (reported in SS/min)	8.1 SS/min		16%*	Bl, PWR, Restart/rephrase	1-2 sec 3-6 rep/unit
Monologue with clinician (reported in SS/min)	9.3 SS/min		20%*	Bl, PWR, PhRep, Restart/rephrase	3-4 sec 3-4 rep/unit

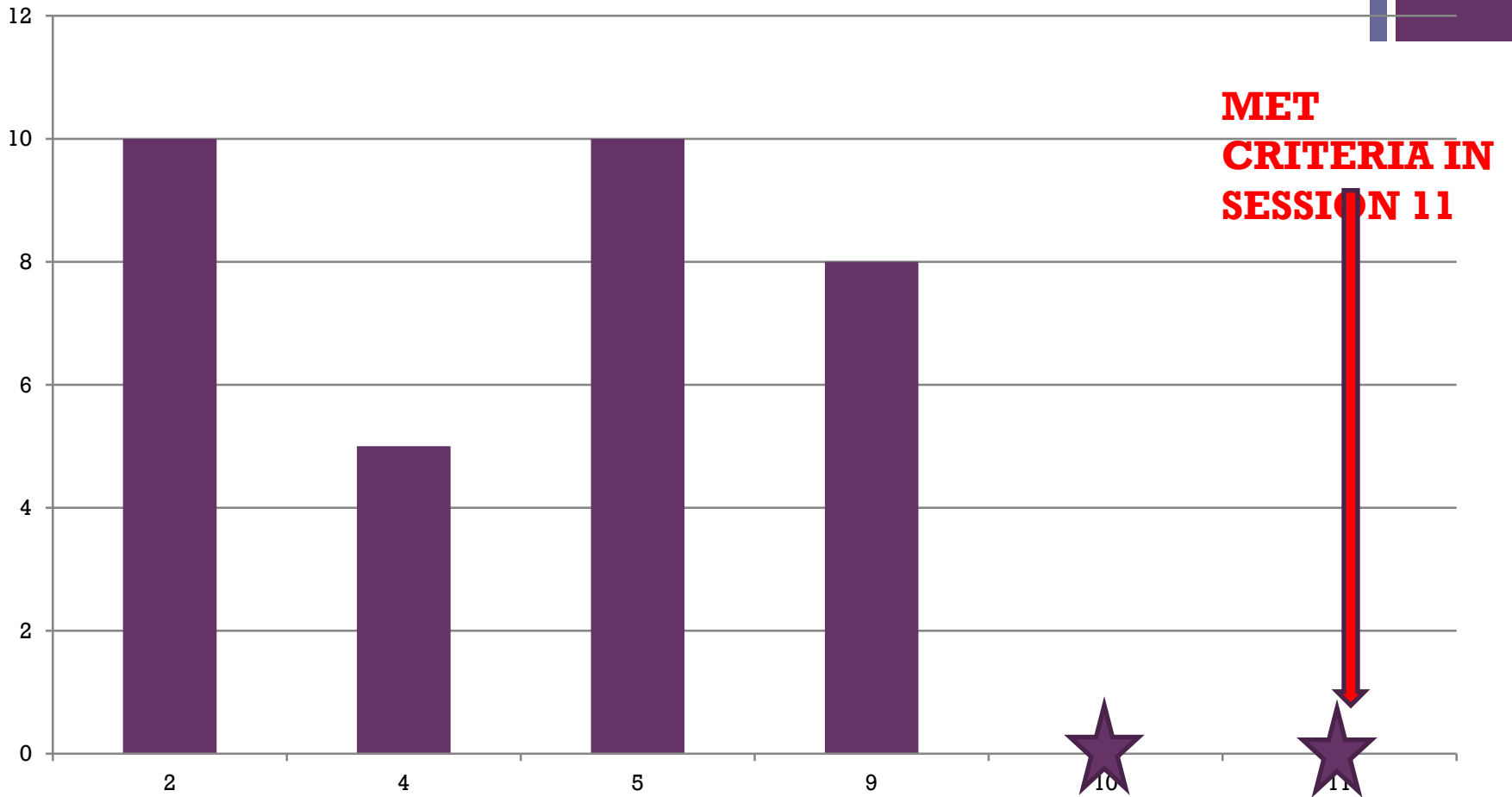


CASE STUDY # 1



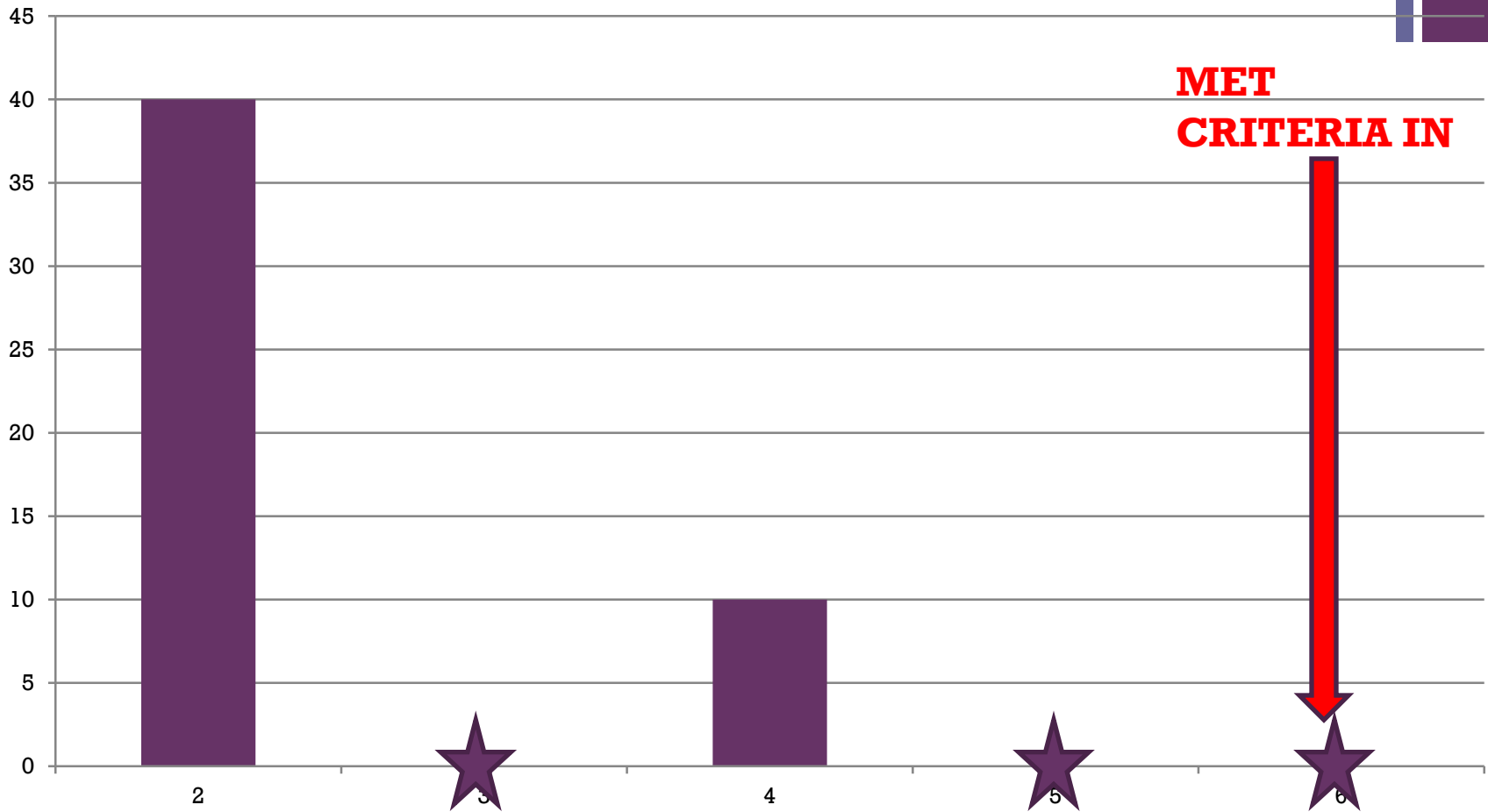
- Therapeutic steps:
- Began with sentence repetition and a sentence naming task (carrier phrase +)

+ %SS (Sentence Repetition)
Sessions 2-11

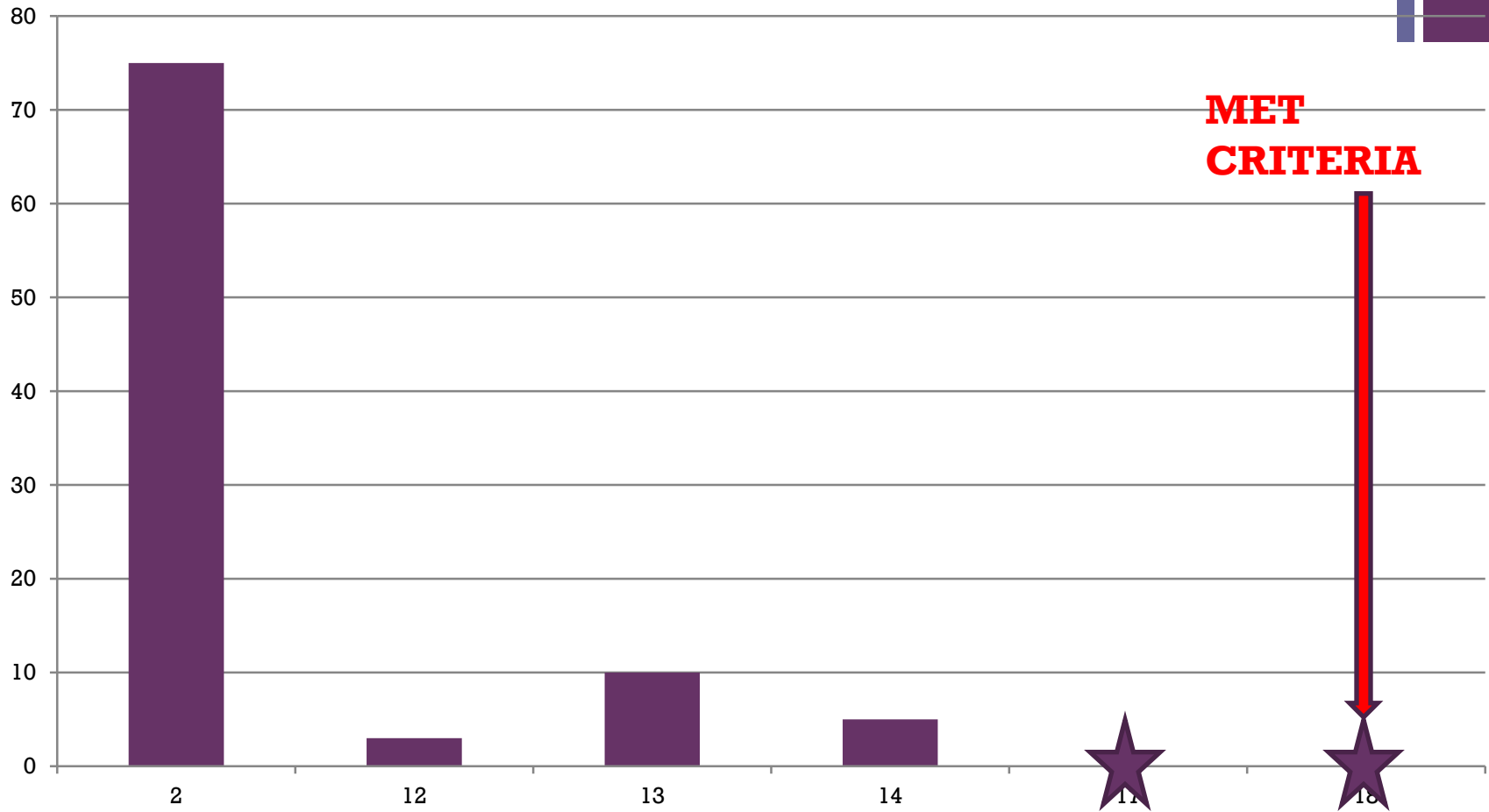


+ %SS (Carrier Phrase + ___)

Sessions 2-6



+ %SS (Question asking task)
Sessions 2-18





CASE STUDY # 1

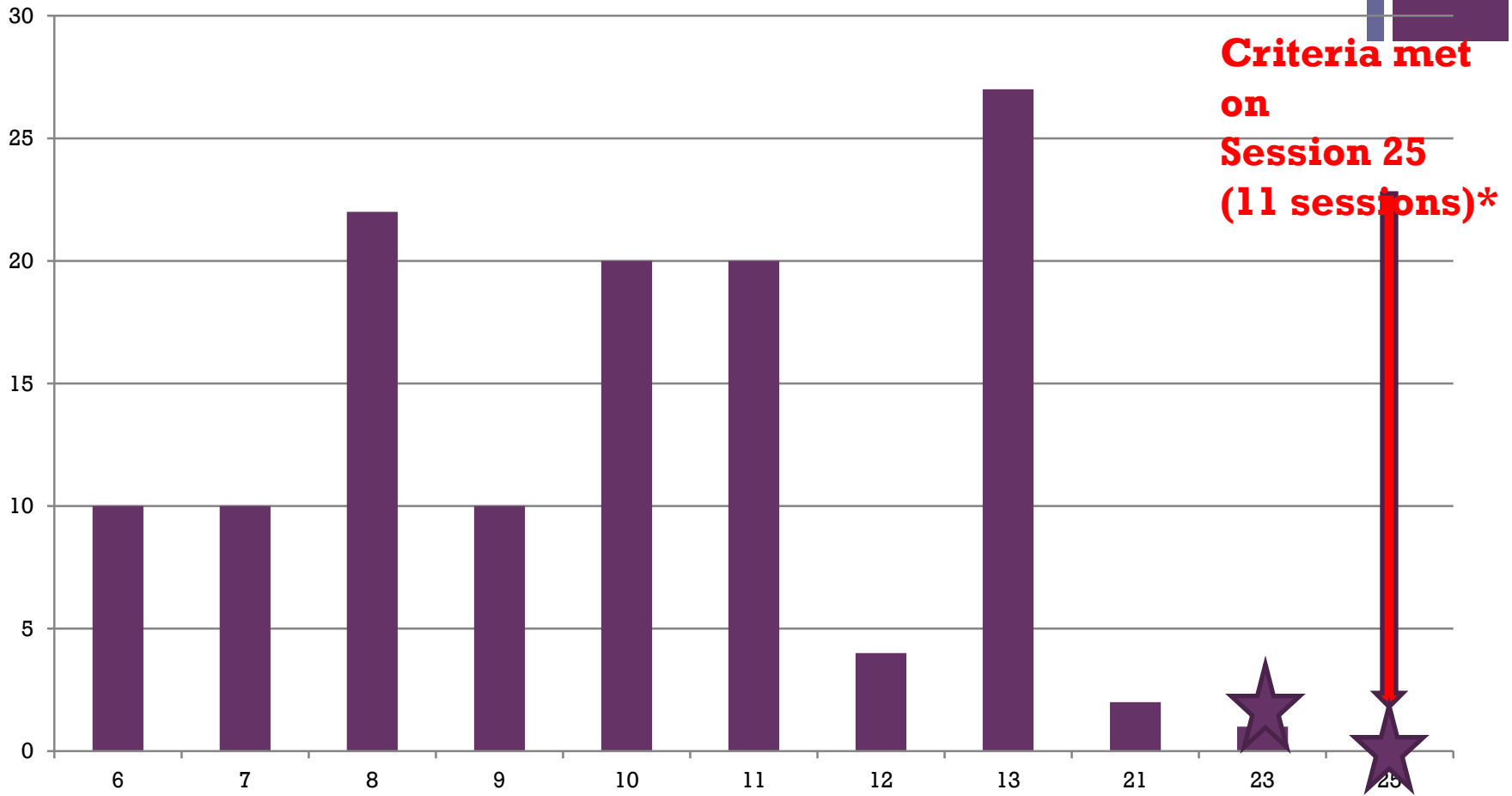


■ Notes:

- Stuttering remained high initially, but decreased quickly once mom was trained to reinforce accurately.
- Question asking was a tough task, so we delayed it until more success was gained.
- Mom was interested in literacy, and CV liked books, so we did many book oriented tasks.

+%SS (Story Retell from Book with Mom)

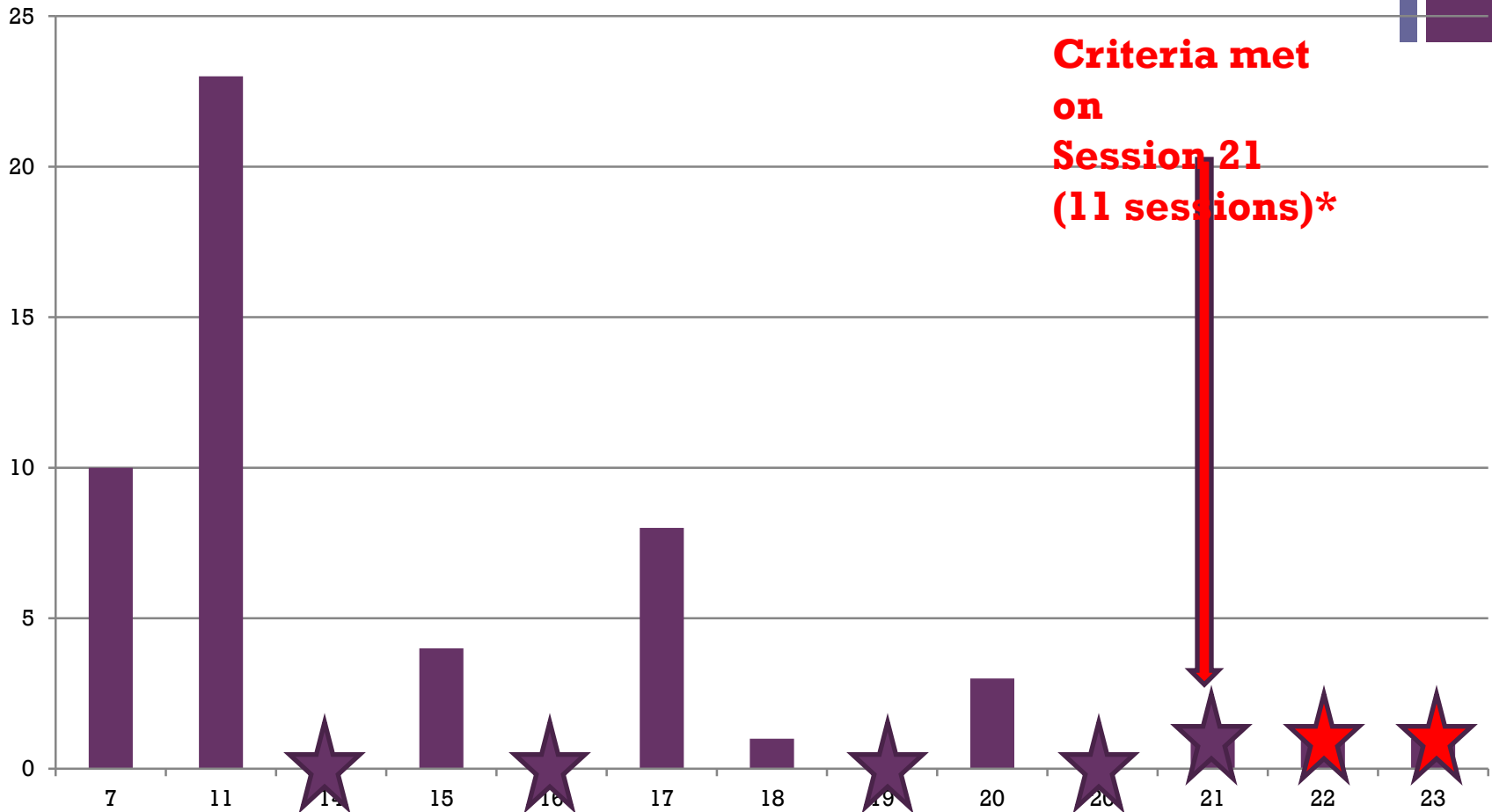
Sessions 6-25





%SS (Story Retell from Book with SLP)

Sessions 7-23



**Criteria met
on
Session 21
(11 sessions)***



CASE STUDY # 1

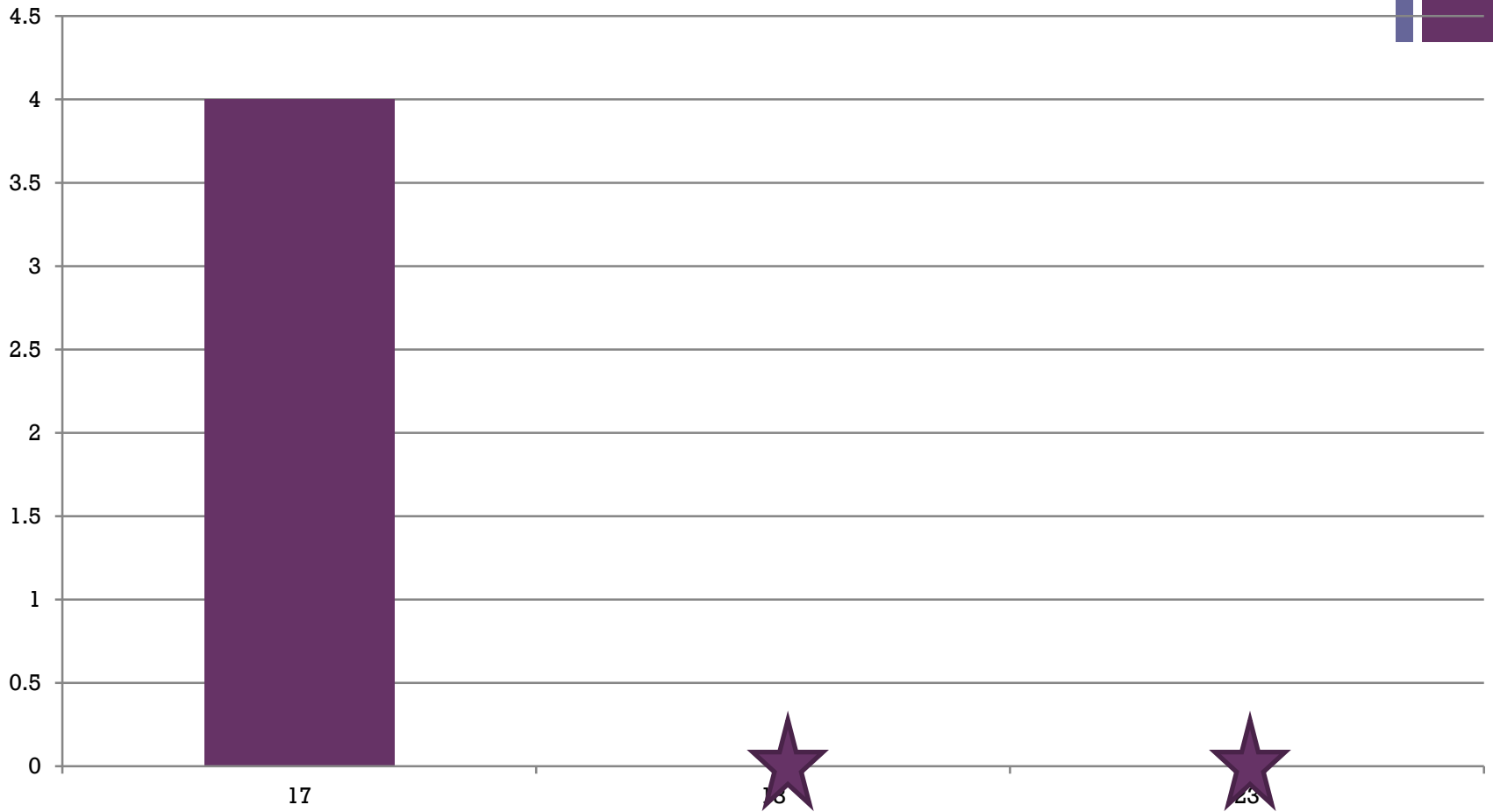


■ Notes:

- It seemed like success was slower with mom. This was because of her inability to allow for “exact retell”. Education was definitely needed.
- During these interactive story retell sessions, CV was able to tell 1,2,3 & 4 sentence narratives.
- Other activities at this time included interactive games, such as barrier games. These were very reinforcing

+ %SS (Interactive game)

Sessions 17-23





CASE STUDY # 1



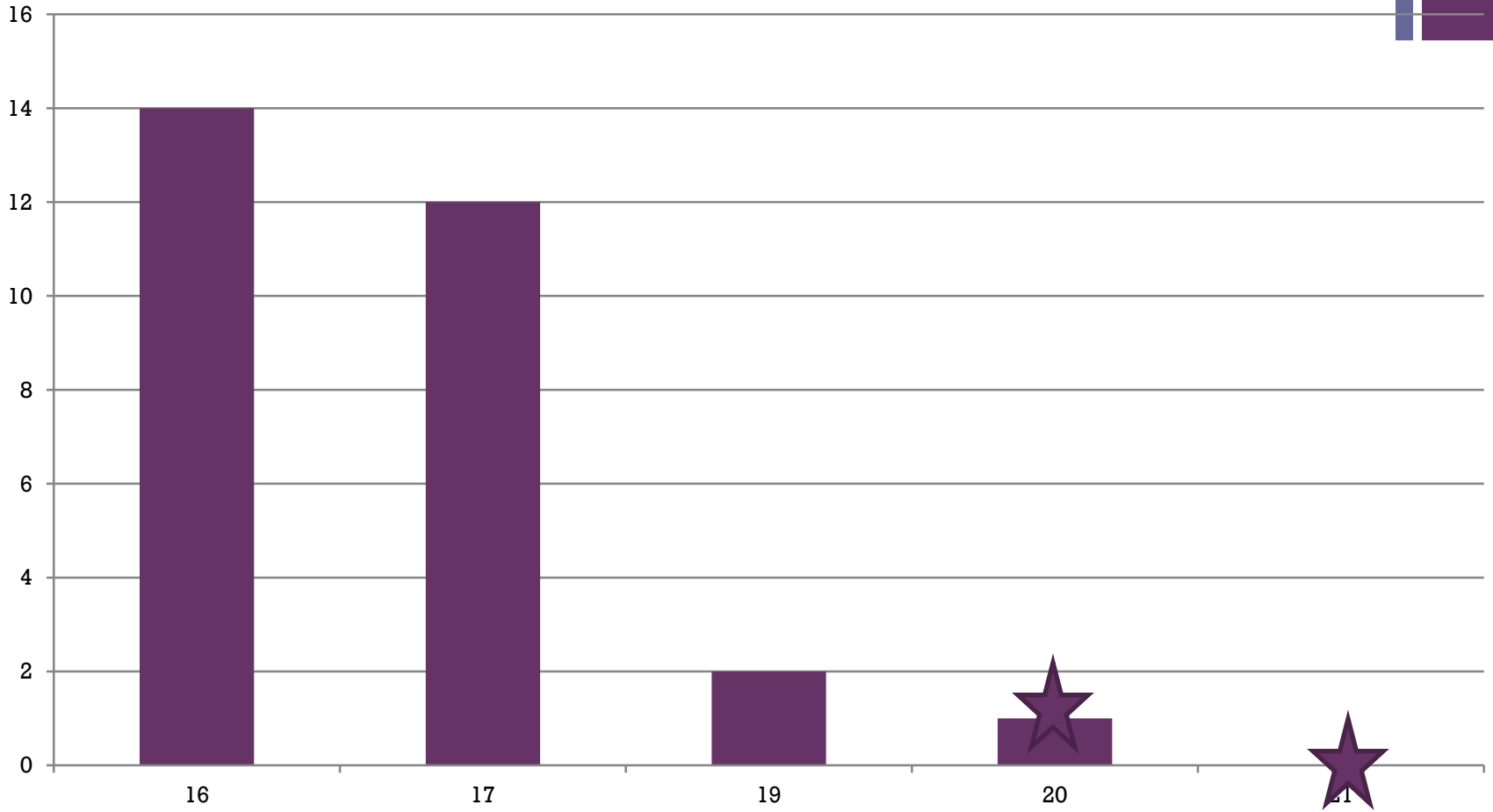
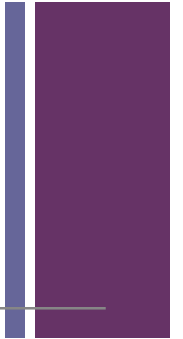
■ Notes:

- Free conversation was began at session # 16 with the therapist and at session # 19 with mom.
- At session # 21 a three way conversation was initiated.
- Please note that data was now kept in SMST, not %SS.



SMST (Free Conversation with Tx)

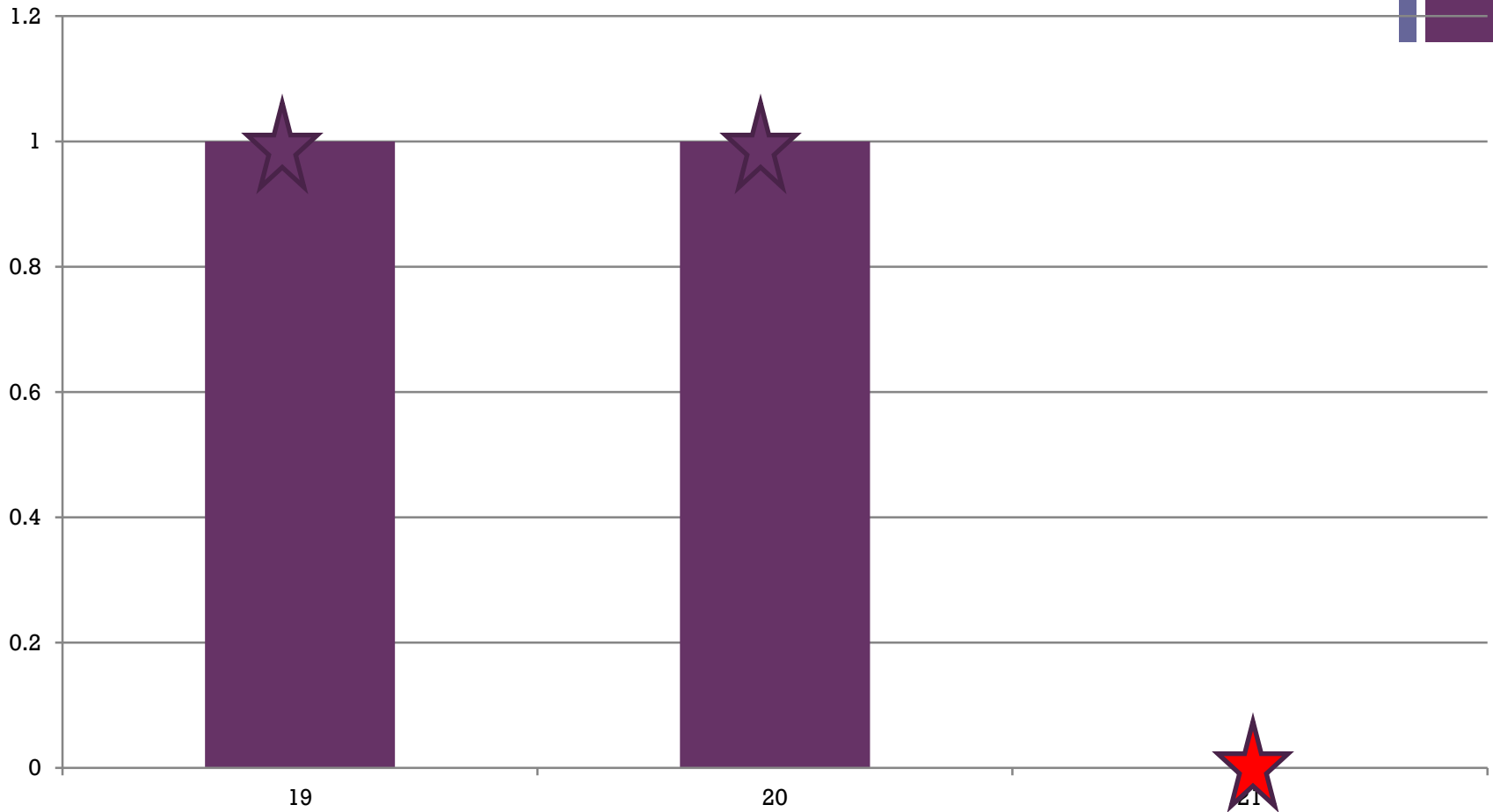
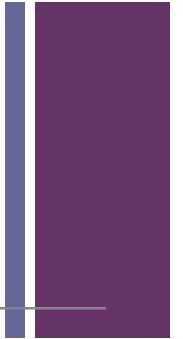
Sessions 16-21





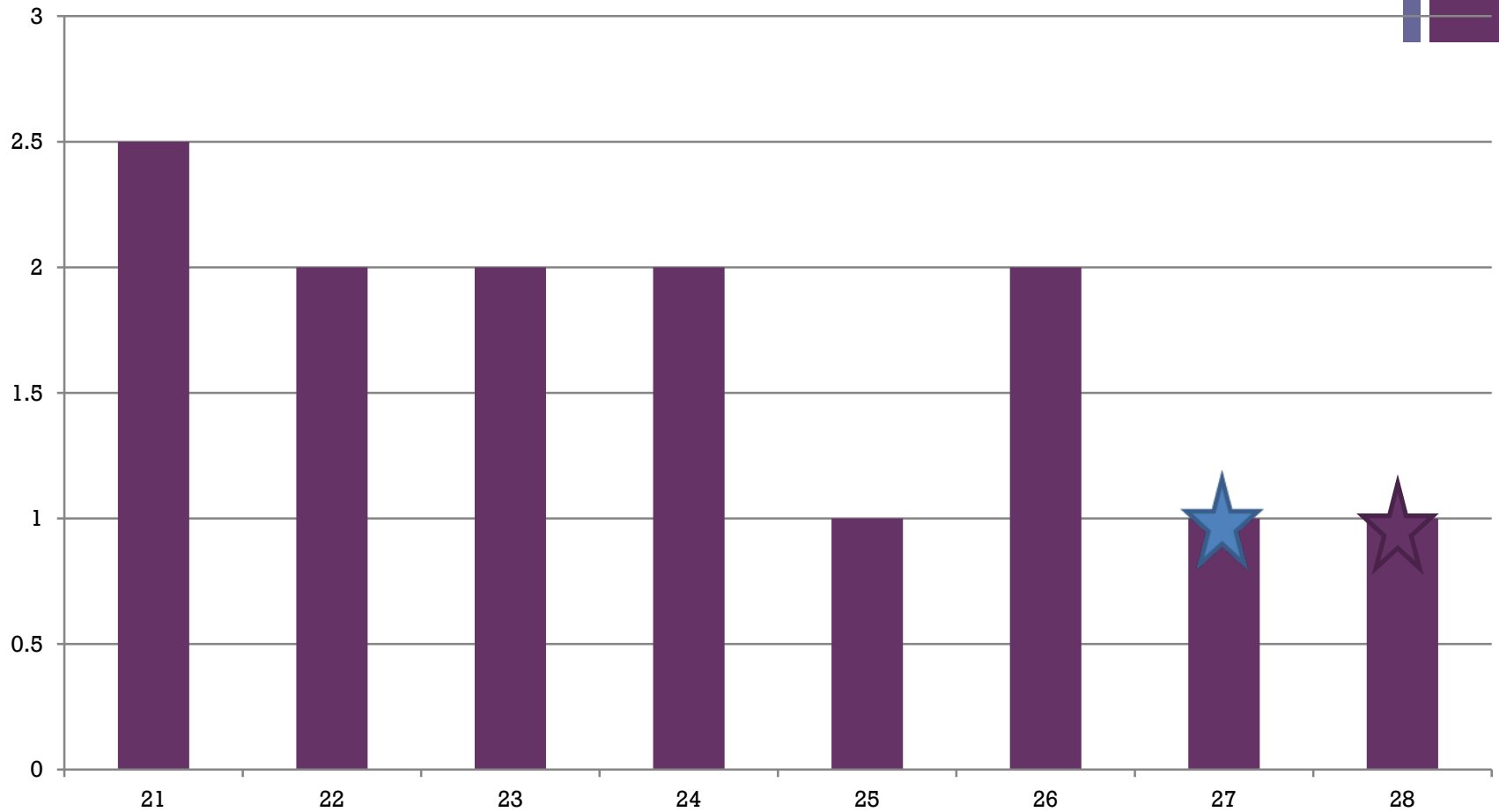
SMST (Free Conversation with Mom)

Sessions 19-21



SMST (Free Conversation with Mom & Tx)

Sessions 21-28





CASE STUDY # 1



- Formal therapy was terminated after Session 28 with occasional e-mail notes to monitor progress.
- CV continues to do well.
- He attended an NSA conference in July 2012.



CASE STUDY # 1



■ Post-treatment measures:

- Reduction of stuttering to less than 1% SS (SR =1):
 - Carrier Phrase completion task: Session 6 (5 sessions)
 - Sentence repetition task: Session 11 (6 sessions)
 - Question asking task: Session 18 (6 sessions)*
 - Higher demand and higher %SS initially



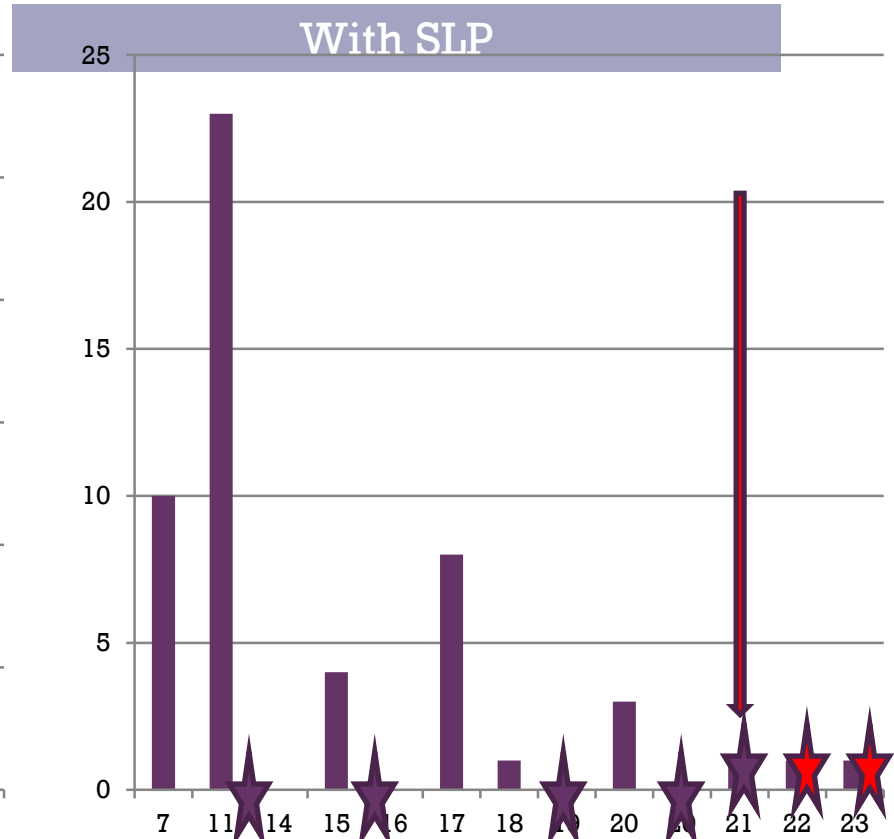
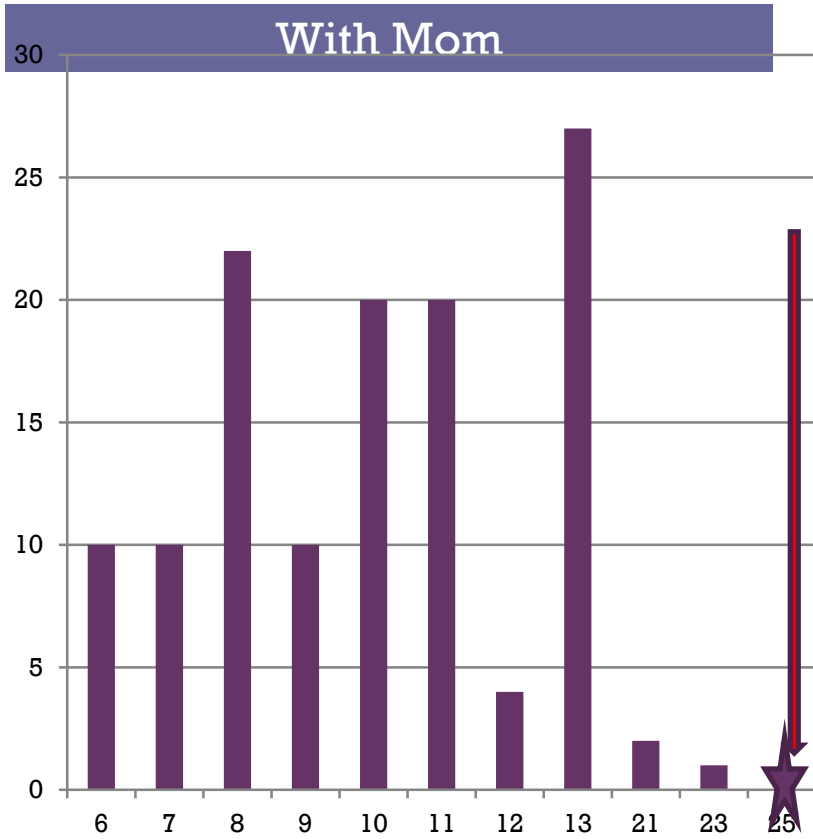
CASE STUDY # 1



- Post-treatment measures:
 - Reduction of stuttering to less than 1% SS (SR =1):
 - Story telling task with mom: Session 25 (11 sessions)
 - Story telling task with SLP: Session 21 (11 sessions)*
 - There were some qualitative differences*

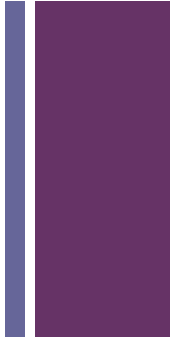


CASE STUDY # 1





CASE STUDY # 1



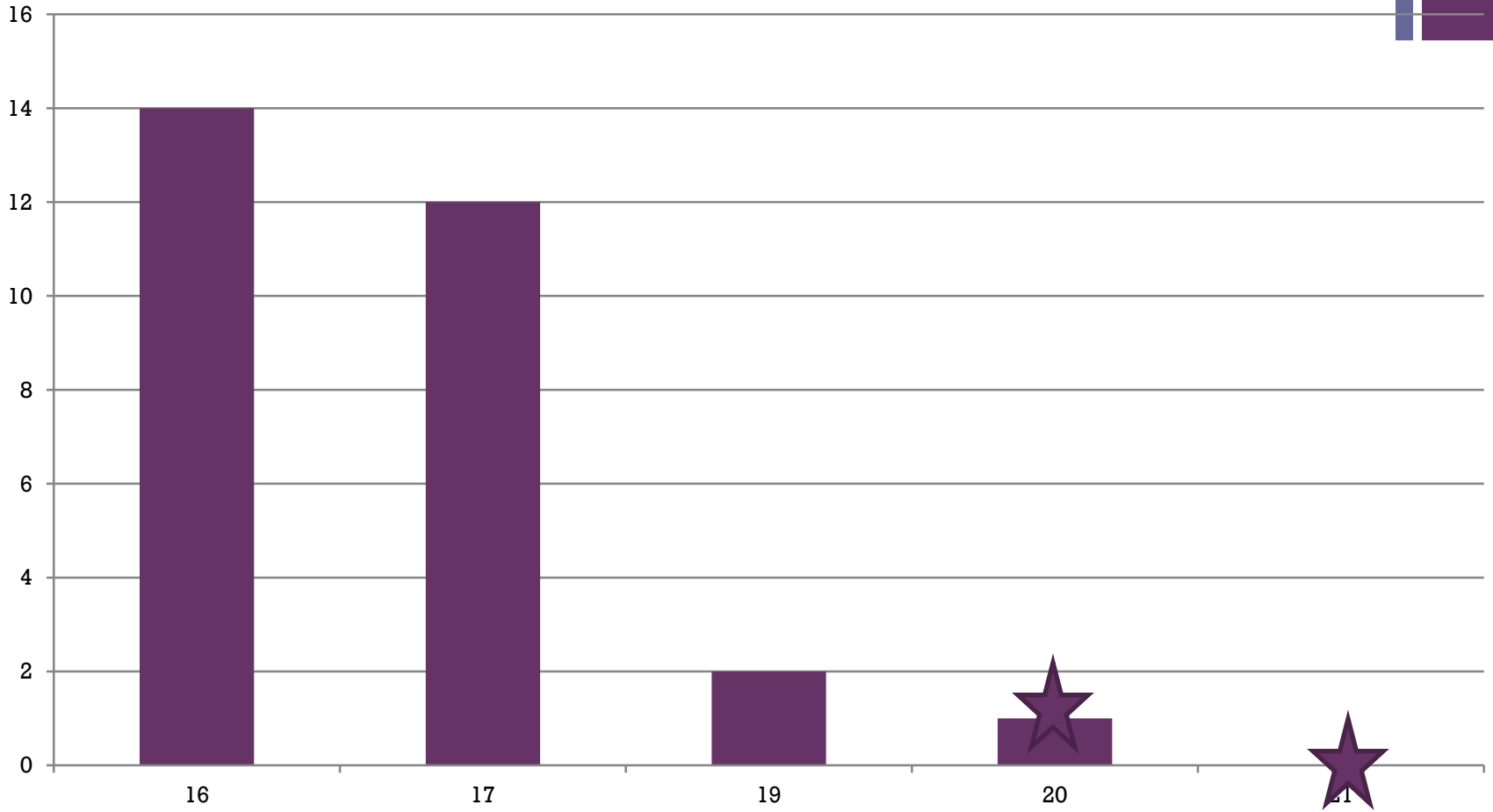
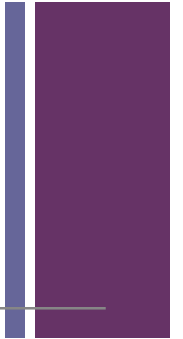
■ Notes:

- Free conversation began at session # 18.
- Began as dialogue: increased to several partners.
- Treatment terminated at session # 28.



SMST (Free Conversation with SLP)

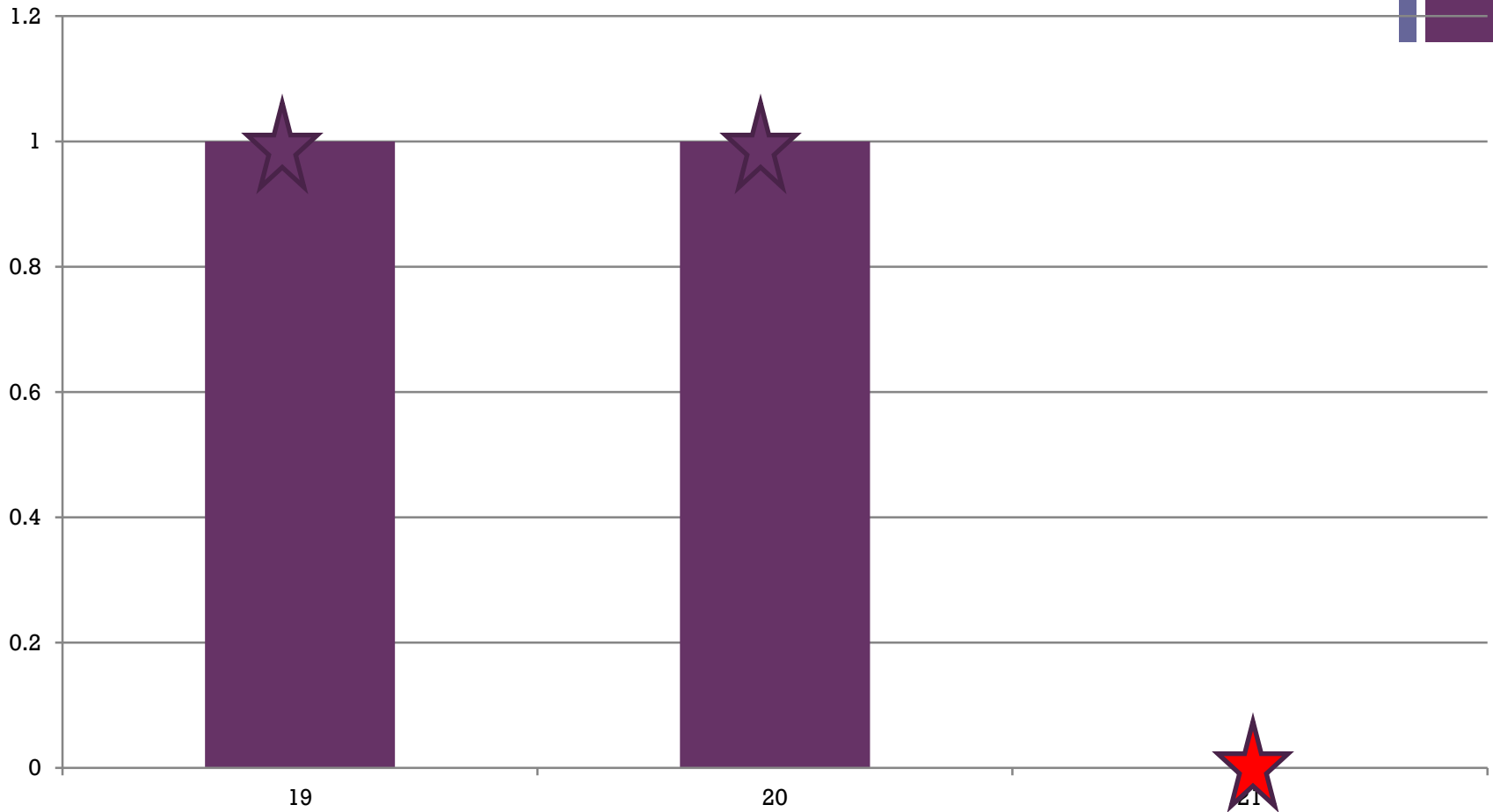
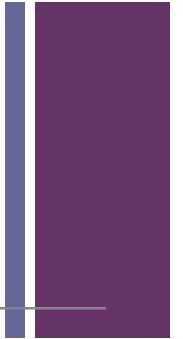
Sessions 18-21





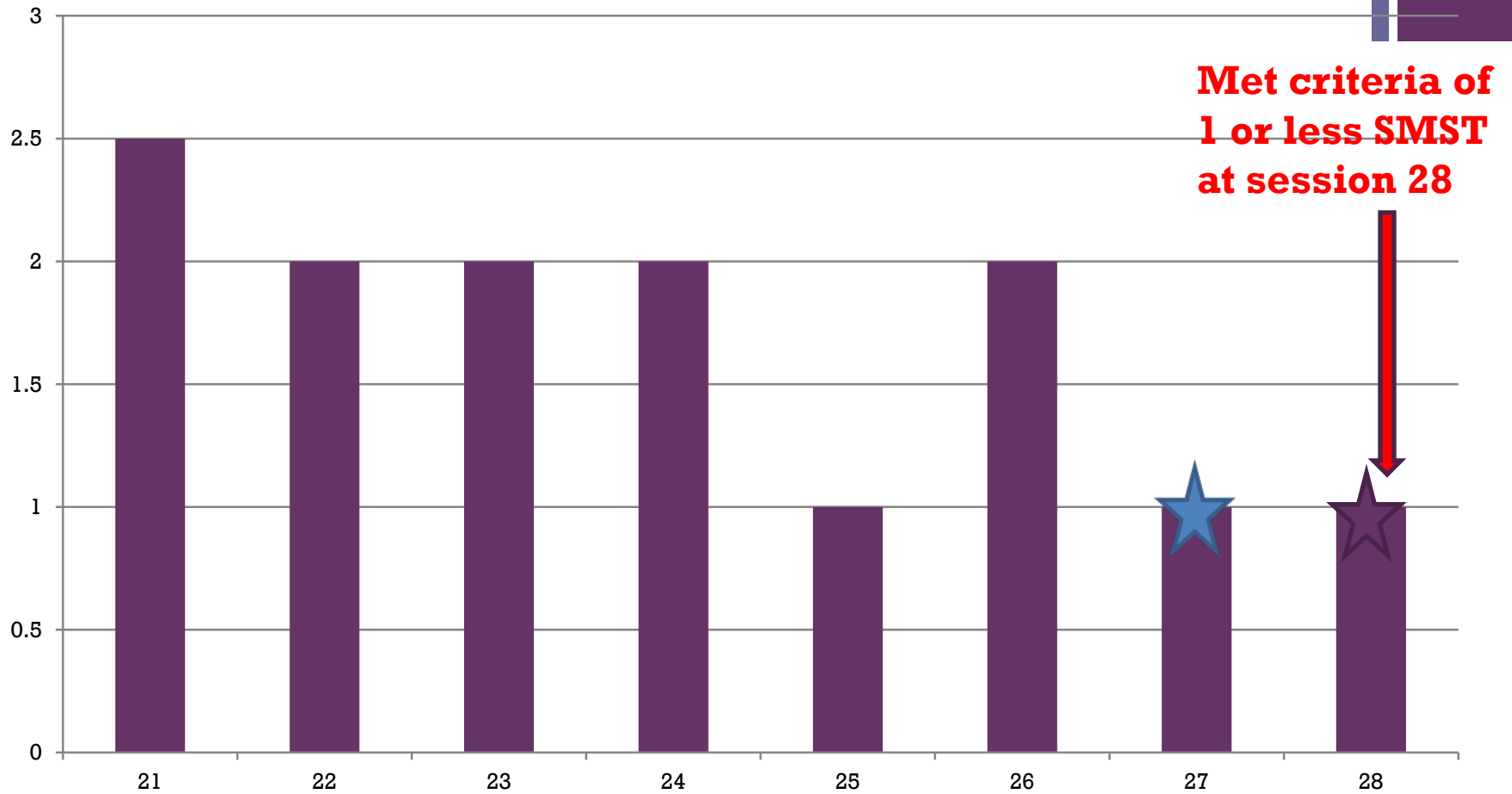
SMST (Free Conversation with Mom)

Sessions 19-21



SMST (Free Conversation with Mom & SLP)

Sessions 21-28





CASE STUDY # 1



■ Outcome analysis:

- Decreased stuttering to less than 1%SS in structured tasks and 1 SMST during conversational tasks within 28 sessions.
- Treatment began on 6/29/2011 and ended on 5/21/2012.
- Treatment took place 1x per week for the first 22 sessions, then every two weeks for the next two sessions, and ended with 1x per month until completion.



CASE STUDY # 1



■ Summary:

- This child and his parents sought stuttering therapy through this model because they did not feel that there was adequate expertise in their home area.
- Stuttering symptoms decreased from “severe” ratings on the SSI-3 to less than 1%SS and less than 1 SMST in 28 sessions, using a modified version of Lidcombe.
- This outcome would be considered highly successful.



CASE STUDY # 1



■ Caveats/Challenges:

- Parental training was “crucial” due to the distance.
- Other issues that may have impacted progress including a bilingual child/household (did not appear to have an impact in this case), and a potential literacy problem (again, not a major problem after meaning-based reading strategies were encouraged).
- He maintains high levels of fluency and is getting “help” with reading.
- Mother is extremely pleased!

+ Montreal to Geneva Case Study 2



+ Background of Client

- Name: NVB
- Age: 4;4
- English/French
- Onset stuttering > 12 months
- Observations: stuttering increasing with language development
- Low average language expression observed by teachers
- Social but having difficulties with French (L2)
- Parents unable to access specialist services

+ Background of Clinician



- Director of non-profit community clinic
- Over 40 years experience with treating stuttering
- Retired from University teaching
- Many publications, presentations
- Member Lidcombe Program Training Consortium with 15 years training clinicians through basic workshops



Case 2: Treatment summary



- 22 Skype sessions over 38 weeks
- Numerous emails, conversations with mother in between sessions
- SR 5-6 at treatment onset
- SR 1-2 at end of stage 1
- Phase 2 – stable one year after discharge
- Status confirmed by teacher, father, grandmother
- Current status after 1 year – continues to meet Stage 2 criteria

+ Case 2: Treatment



- Skype
- Back up emails, phone calls, videos sent through a secure site
- Daily SR sent before each session*
- Demonstration on-line with shared activities



Case 2: Therapeutic Steps



- Lidcombe Program – verbal contingencies for fluency and unambiguous moments of stuttering
- Begin with conversation with mother in structured setting using books, simple games
- Chart progress using Severity Ratings to extend treatment to unstructured conversations
- Stage 2 criteria: SR mostly '1' for 3 consecutive weeks
- Chart progress using daily severity ratings
 - 1= no stuttering
 - 2= mild stuttering
 - 10= very severe stuttering

+ Case 2: Challenge #1

Timing of session



- Time difference of 5 hours
- Settled on afterschool appointment as best timing for both me and mother
- This may not have been the best decision



Challenge #2

NVB not compliant to on-line TX



- Initially willing but later less so; became difficult to engage on-line
 - Mother continued to provide feedback in unstructured/structured conversations daily
 - Sent videos of these sessions with documented notes and questions arising from sessions
 - Session with mom only to go over these notes
 - Weekly 'chat' with NVB for updated SR

+ Challenge #3

Increased complexity/ stuttering

- As unstructured conversations increased NVB's complex language indicated more difficulty with **initiating, describing, retelling, generating**
- Confirmed by teacher and language sample sent by mom
- Several sessions with mom to brainstorm/describe how to incorporate conversations to strengthen these areas during structured sessions resolved this issue





Challenge #4

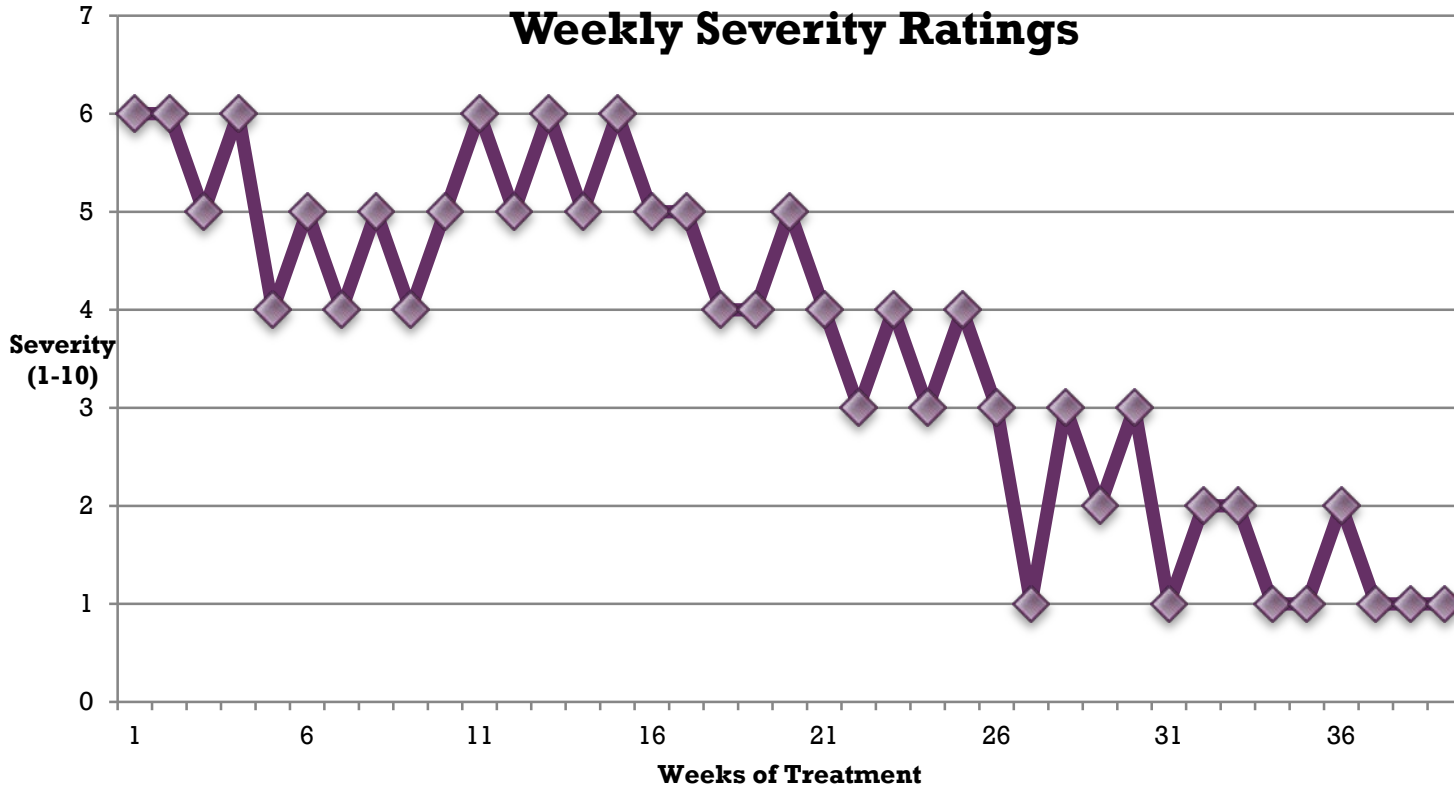
Mom feeling stale/useless



- plateau and small relapse
- Leaves mom questioning herself
- Starts to be inconsistent with data/feedback
- On-line chats to problem solve result in increased feedback
- Dad gives NVB spontaneous praise...leads to increased fluency



Case 2: Severity Rating Chart



+ Phase 2

1 year



- SR-1 on his birthday!
- Grandma visits - only 1 moment of stuttering in 6 days!
- He was sick - fluency not affected!
- Increasing language complexity leads to new confidence in social situations



Future Needs



- Research needed to investigate clinical and operational aspects of telepractice
 - Technological requirements to support diagnostic protocols and intervention procedures
 - Clinical effectiveness and efficacy
 - Client, clinician and caregiver satisfaction
 - Determination of client candidacy for telepractice
 - Cost-benefit analysis
 - Practical implementation issues such as scheduling, workflow, organizational readiness
- Studies needed over a range of service delivery locations, including controlled lab trials and real-world locations



Summary



- Telepractice has the potential to significantly improve access to SLP services
- As models of service delivery and new technologies continue to emerge, telepractice will evolve and expand
- SLPs will need to acquire the necessary technical/clinical skills to practice **competently, ethically, securely for benefit of families** (ASHA 2008)

+ Lessons learned/discussion (JT)



- Text with teens.
- Rewarding methodology.
- Time in therapy.
- Relationship.
- Groups.
- Others

+ Lessons learned/discussion (RS)



- Alternate scheduling.
- International.
- Others.

+ Selected References

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