ALL THE LATEST ON LATE TALKERS
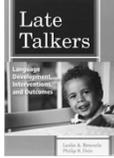
Tim Brackenbury, Ph.D., CCC-SLP
Bowling Green State University
NCSLHA Annual Convention
April 23, 2015

▶ "I got nothing."
  ▶ no financial interest
  ▶ no research to promote
    ▶ one study in progress

▶ Rescorla & Dale (2013)

SCHEDULE

▶ EBP challenge
▶ Treatment recommendations
▶ Future directions
▶ Q & A

EBP CHALLENGE

▶ EBP as a Technology
  ▶ dictionary.com (British dictionary)
    1. the application of practical sciences to industry or commerce
    2. the methods, theory, and practices governing such application: a highly developed technology
    3. the total knowledge and skills available to any human society for industry, art, science, etc

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EBP CHALLENGE

▶ Technology is great when it works, but a bear when it does not.

▶ What happens when the 3 aspects of EBP do not agree with each other?
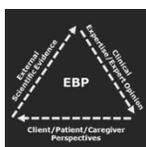 ▶ e.g., NSOMT

EBP CHALLENGE

▶ EBP of Late Talkers
  ▶ Client / Caregiver Perspectives?

  ▶ Clinical Expertise?

EBP CHALLENGE

- Scientific Evidence
  - standard definition
    - 24- to 36-month-olds
      - expressive vocabularies < 10 percentile
      - do not use two-word combinations
    - not all studies use this definition
  - ~ 10 - 20% of 2-year-old population

EBP CHALLENGE

EBP CHALLENGE

EBP CHALLENGE

Bavin & Bretherton, 2013

EBP CHALLENGE

Bavin & Bretherton, 2013

EBP CHALLENGE

Rescorla, 2013

EBP CHALLENGE

Rescorla, 2013
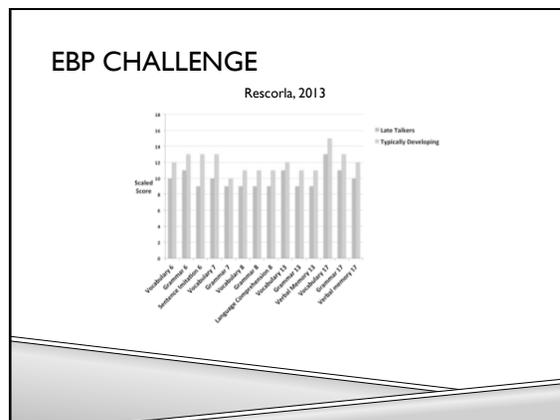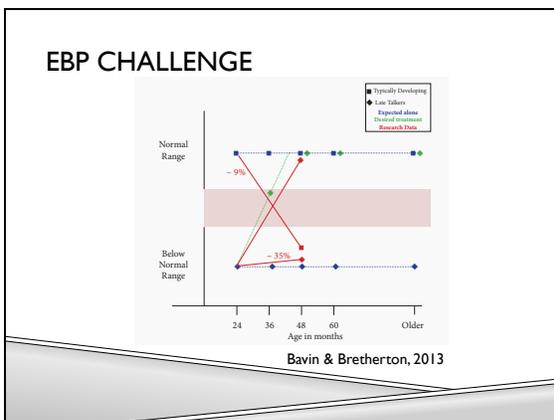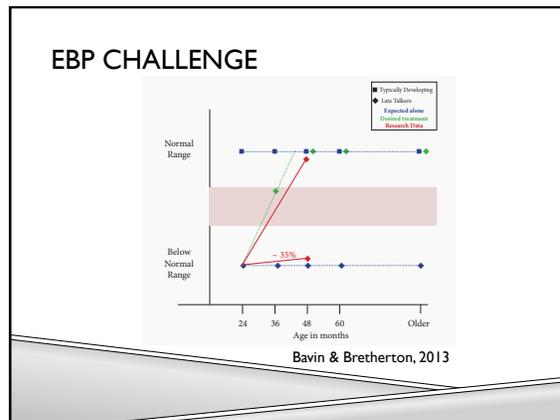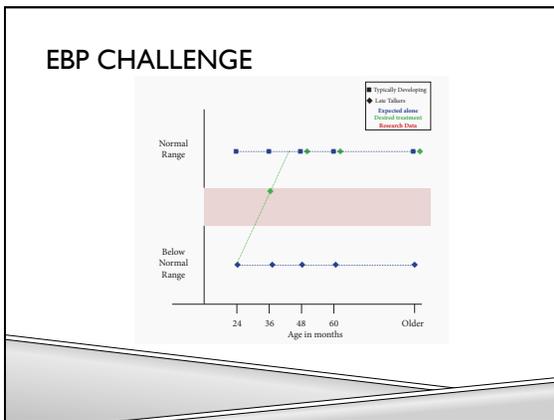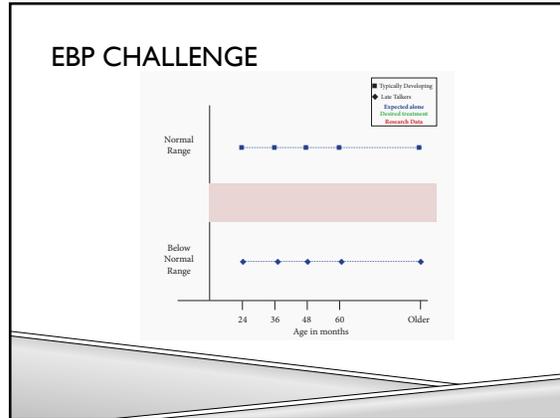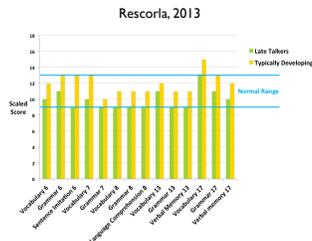
EBP CHALLENGE

- ▶ So what should we do?
  - ▶ Ignore these issues, focus on early intervention
  - ▶ Moratorium on "Late Talker" category (Dollahan, 2003)
  - ▶ Provisional diagnosis (Paul, 2000)

TREATMENT RECOMMENDATIONS

- ▶ Option #1: Wait and See
  - ▶ hold off, reassess periodically
  - ▶ supported by the data
  - ▶ contrary to the philosophy of early intervention

TREATMENT RECOMMENDATIONS

- ▶ Option #2: General language stimulation
  - ▶ involve the child and parents in activities that promote language development
    - ▶ target vocabulary items
    - ▶ modeling forms and responses
  - ▶ home and daycare, group and individual
  - ▶ limited SLP involvement

TREATMENT RECOMMENDATIONS

- ▶ Option #3: Specific language intervention
  - ▶ SLP directed intervention
  - ▶ specific intervention techniques
    - ▶ Hanen model
    - ▶ focused stimulation
    - ▶ milieu therapy
  - ▶ home, daycare, and clinic

TREATMENT RECOMMENDATIONS

- ▶ Which option is correct?
  - ▶ differential diagnosis (Camarata, 2013)
    - ▶ identify factors related to long-term language delays/disorders
    - ▶ choose options related to risk potential

TREATMENT RECOMMENDATIONS

- ▶ Which option is correct?
  - ▶ potential related factors (e.g., Desmarais et al., 2008)

age of problem persistence*	speech sound issues
receptive language issues*	symbolic play
communicative intent	behavior
gesture use	siblings / birth order
family history*	otitis media
maternal education	language models

TREATMENT RECOMMENDATIONS

- ▶ Wait and See
  - ▶ none of the primary factors
  - ▶ few of the secondary factors

- ▶ General language stimulation
  - ▶ few of the primary factors
  - ▶ some of the secondary

TREATMENT RECOMMENDATIONS

- ▶ Specific language intervention
  - ▶ multiple primary factors

FUTURE DIRECTIONS

- ▶ Treating other aspect of word learning
  - ▶ Phonotactic knowledge
    - ▶ Late Talkers with less dense phonological neighborhood densities showed more growth
      (Stokes et al., 2014)
  - ▶ Lexical patterns
    - ▶ young children trained on Shape Bias increased their vocabulary growth (Smith et al., 2002)
      - ▶ we are piloting with Late Talkers

QUESTIONS & ANSWERS

- ▶ What questions do you have?

- ▶ How do these findings relate to your practice?

- ▶ What challenges do **you** face with Late Talkers?

SPECIFIC RESEARCH STUDIES:
LATE TALKERS AND LOW VOCABULARIES

- ▶ Interactive Modeling
  - ▶ embed lexical models in everyday contexts
  - ▶ facilitate their use through focused stimulation techniques

I. Parent Training Models
  - ▶ training parents/caregivers as agents of change

24

SPECIFIC RESEARCH STUDIES:
LATE TALKERS AND LOW VOCABULARIES

- ▸ The Hanen Program
  - ▸ parents are taught techniques that promote language learning through daily interactions
    - ▸ Observe, Wait, Listen
    - ▸ **S**ay less, **S**tress, Go **S**low, **S**how
  - ▸ adults model target vocabulary, but do not require a response

25

SPECIFIC RESEARCH STUDIES:
LATE TALKERS AND LOW VOCABULARIES

- ▸ Research Evidence
  - ▸ Positive effects on parent language facilitation
    - ▸ Girolametto, Pearce, and Weitzman (1996)
  - ▸ Increases in children learning target words
    - ▸ Girolametto, Pearce, and Weitzman (1996)
    - ▸ Whitehurst et al. (1991)

26

SPECIFIC RESEARCH STUDIES:
LATE TALKERS AND LOW VOCABULARIES

- ▸ Variable results for generalization to other word learning
  - ▸ Significant results by Girolametto, Pearce, and Weitzman (1996)
  - ▸ Non-significant results from Whitehurst et al. (1991)

27

SPECIFIC RESEARCH STUDIES:
LATE TALKERS AND LOW VOCABULARIES

- ▸ Positive effects with parents across naturalistic environments
  - ▸ Home: Girolametto, Pearce, and Weitzman (1996)
                     Whitehurst et al. (1991)
  - ▸ Clinic group: Lederer (2001)
  - ▸ Classroom: Wilcox, Kouri, and Caswell (1991)

28

SPECIFIC RESEARCH STUDIES:
LATE TALKERS AND LOW VOCABULARIES

- ▸ Positive effects with other adult conversational partners
  - ▸ Ruston & Schwanenflugel (2010)

29

SPECIFIC RESEARCH STUDIES:
LATE TALKERS AND LOW VOCABULARIES

- II. Clinician-based models
  - ▸ Positive effects with SLP focused stimulation
    - ▸ Kouri (2005)
  - ▸ Classroom + supplemental work
    - ▸ Loftus, Coyne, McCoach, Zipoli, and Pullen (2010)

30

SPECIFIC RESEARCH STUDIES: LATE TALKERS AND LOW VOCABULARIES

▸ Positive effects when targeting semantic and phonological features of new words
  ▸ Motsch and Ulrich (2012)

▸ Explicit vocabulary instruction helps
  ▸ Coyne, McCoach, and Kapp (2007)

31

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Communication Disorders, 43, 361-389.

▸ Leslie Rescorla

STUDENT MADE DOCUMENTS

▸ During the Fall 2015 semester, I had a class with 7 second semester graduate SLP students where we read and discussed the literature on Late Talkers.

▸ Their final assignment was to create documents to share the information we learned.

▸ I've attached these for you to use as you see fit.
  ▸ Also, check out the website that one of them made
    latetalkers.weebly.com

IMAGE URLs

▸ http://3.bp.blogspot.com/-GfrJaDIwyrA/T9ZDNdllWSI/AAAAAAAAE8o/bi592Z6Y-iE/s320/full+disclosure.jpg
▸ http://www.amazon.com/Late-Talkers-Language-Development-Interventions/dp/1598572539/ref=sr_1_1?ie=UTF8&qid=1428761937&sr=8-1&keywords=late+talkers
▸ http://www.asha.org/Members/ebp/default/#_ga=1.163478651.691244481.1428758325

Available Support

- - - - - - - - - - - - - - - - - -

Every parent desires for his or her child to be "normal". When watching other children develop and speak, it can be discouraging if your child is not on that same path. Support is available to help you understand that you are not alone in this frustration. Other parents are out there undergoing similar experiences. Connect with them through these outlets:

Natural Late Talkers:
http://www.naturallatetalkers.com/index.php

Late Talkers Foundation:
http://www.latetalkers.org/index.php

Google Images

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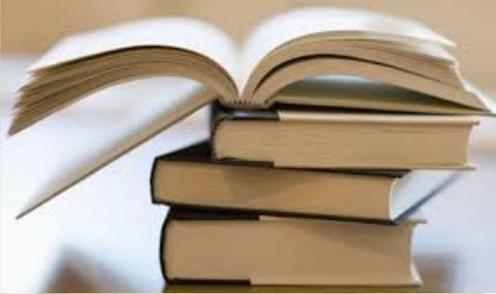*Bowling Green State University*

My child is a Late Talker…

Google Images

What Parents Need to Know Regarding This Diagnosis

What does it mean?
- - - - - - - - - - - - - - - - - - -

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Experts use a variety of definitions; however, the term late talker is generally given to children who have little language by the age of 2. Some children may not talk at all while others have a very small vocabulary. Late talker can also be used to define a child who is not combining words.

Another key component of the term late talker is that the child has no additional disorders that keep them from speaking (e.g. Autism Spectrum Disorder, Down Syndrome, Cerebral Palsy). Late talkers are children who are behind their peers in verbally expressing their wants and needs. It is estimated that 10-20% of two-year-olds are late talkers (Klee et al., 1998; Rescorla & Alley, 2001).

What is the outcome?
- - - - - - - - - - - - - - - - - - -

Interestingly enough, although many of these children start off behind their typically developing peers, many will actually catch up. *Research has shown that the majority of late talkers can develop language and be within the "normal" range on their own*. Studies have found that approximately 50%-75% of children identified as late talkers actually perform similar to their typical peers on standardized language tests by kindergarten (Rescorla, 2013).

Unfortunately, there is a minority of late talkers that do continue to have difficulties with their language. At the time, speech language pathologists are not able to differentiate what group your child may end up in. As a parent, this may be an uneasy thought; however, speech language pathologists (SLPs) are trained professionals to help your family through this process.

What can be done?
- - - - - - - - - - - - - - - - - - -

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Due to the uncertainty revolving the outcome of late talkers, there are some options when it comes to intervention. SLPs are determined to help you down the road to language.

<u>Wait & See</u>- One option is to continue life and see if your child's language develops on its own. Research shows that not everyone needs therapy in order to develop their language.

<u>Watch & See</u>- This may be implemented as long as your child continues to show improvements with his or her language. An SLP will help determine how your child should be improving. Every 3-6 months, your child will be reevaluated to see if these improvements are being made without therapy.

<u>Intervention</u>- If your child does not seem to be making improvements or presents other risk factors, therapy may be recommended. Treatment will include parental involvement and aim to expand your child's vocabulary and language through a naturalistic environment.

Late Talkers

What does "late talker" mean?
- ❖ Definitions of "late talker" can vary slightly, but late talkers are largely referred to as children around the age of two who have limited expressive language, but are otherwise typically developing for their age.

- ❖ Expressive language refers to the words, phrases, and sentences that children produce, while receptive language deals with what children understand and can process.

- ❖ It can be confusing and frustrating as a parent to have a child who is a late talker because they typically have normal receptive language skills. This means that many children who are late talkers understand language, but do not say many words.

- ❖ A late talker refers to a child who has <u>particular difficulty with spoken language</u>; however, some may still diagnose a child as a late talker even if they are showing delays in more areas than just expressive language (Rescorla and Dale, 2013).

What are some indications that your child may be a late talker?
- ❖ According to many definitions of the diagnosis, a child who has limited spoken vocabulary with normal receptive language, play skills, cognition, motor skills, and social skills suggests that they are a late talker.

RISK FACTORS
❖ Family history of language impairments or delays
❖ Limited use of gestures
❖ Lack of spontaneous verbal imitation (child does not repeat words or phrases that they hear)
❖ Little to no advancement noticed in your child's language skills

(Rescorla and Dale, 2013).

Potential Outcomes for Late Talkers
- ❖ Many late talkers grow up to have typical language skills. In fact, around 50-75% of children identified as late talkers perform similar to their typically developing peers by kindergarten.

- ❖ 15 to 20% of children diagnosed as late talkers do go on to later have language impairments.

❖ Unfortunately, it is difficult to predict which children will not catch up on their own.

What should you do if you suspect your child is a late talker?
❖ As parents, there are options to explore if you suspect your child may be a late talker. Waiting to see if your child's language skills improve is one avenue that many parents choose. Others may opt to seek services from a speech-language pathologist.

❖ If your child has limited expressive language and exhibits one or more of the previously stated risk factors, it is recommended that you contact a speech-language pathologist to conduct a comprehensive language evaluation.

> **Parents**: Always trust your instincts!
> You know your child best☺

One of the most common reasons children are referred for evaluation is for an expressive language delay, which is often first noticed by the child's parents (Rescorla, 2011).

❖ If your child has not met the following milestones, seeking an evaluation from a Speech-Language Pathologist could provide you with the answers you are looking for.

Typical Language Development for Toddlers
(www.hanen.org)

12 months	18 months	24 months
Around a child's first birthday, they should use their first word.	Children should be using 20-50 words.	Children's vocabulary should contain at least 100 words.
Children's receptive vocabulary is expected to develop rapidly after the development of their first word. You should expect that your child is able to understand more words than they are producing.	Words used should be a variety of nouns, verbs, prepositions, and adjectives.	2 word utterances should be used.

For more information, visit:
www.latetalkers.org

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http://www.asha.org/public/speech/disorders/LateBlooming.htm

http://www.hanen.org

Late Talkers:
Considerations for Diagnosis
Implications for Intervention Planning

Amanda Sheldon

Classic Definition; Developmental Perspective

- Simplistic/Streamlined Definition:
  - Late Talker = A child around 2 years of age, with delays in EXPRESSIVE language and no other present deficits (receptive, pragmatics, motor, etc.)
  - 2 year olds who score below the 10th percentile on the MacArthur-Bates CDI
- Developmental Perspective Response:
  - These children present with developmental delays in expressive language and should be enrolled in intervention as soon as possible to improve expressive language abilities
  - **But does this tell the whole story?**

Thinking About Late Talkers Differently

Wider Scope

- Current literature indicates that late talkers may be more than children with isolated expressive language delays
  - "LTs have been reported to be **less communicative** than typically developing children and use **fewer communicative acts** (Paul & Shiffer, 1991; Rescorla & Merrin, 1998)… and have **weaker grammatical abilities**," (Bleses & Vach, 2013).
  - Desmarais et al. (2010) showed LTs were different in **language comprehension** skills and **expression** and **engagement** in communication
  - Toddlers who are LTs show a delay in the onset of canonical **babbling** (Oller et al., 1991)
  - "LTs have less complex and less systematic **phonologies** compared with their peers," (MacRoy-Higgins & Schwartz, 2013).

Predictive of later Specific Language Impairment (SLI)?

- Identification of SLI through the LT method is not a reliable means
  - Weismer (2007) = 7.5% of LTs score 1 SD below mean in language measures
  - Thal (2005) = 8.8% of LTs meet SLI criteria at age 5
  - Rescorla (2002) = 6% of LTs score below 10th percentile in spoken language measures, at age 6
  - Paul (2007) = 16% of LTs score below 10th percentile in expressive syntax; within normal limits for receptive/ expressive language measures

---

What happens to LTs as they age?

- Group Data Trends
  - Group data suggests that the large majority of LTs go on to later score within normal limits on various receptive/ expressive language measures
  - However, LTs continue to score *differently* than participants grouped into typically developing criteria; sometimes referred to as the "low end of normal"

What happens to LTs as they age?

Girolametto, Wiigs, Smyth, Weitzman, and Pearce (2001)
- At 5 years, LTs score in average range on receptive/expressive language measures; score significantly lower than TD on complex language tasks; narrating a story

Miller, Carlson, and Vega (2005)
- At age 4, LTs score within average range on language/ cognition testing, but still significantly lower than TD group

Armstrong, Marchman, and Owen (2007)
- Studied LTs through 5th grade; LTs score within normal limits on WJ-R measures during all time points; however LTs score consistently worse than TDs

What happens to LTs as they age?

- Most LTs score **within normal limits** by age 5-7
- LT groups continue to score *significantly different* than groups of typically developing language
- LTs with deficits in receptive and expressive language have a **higher instance** of persistent delay
- **Verbal working memory skills** persist as an area of deficit for the majority of LTs

(Rescorla, 2013)

Late Talker

As a stand alone diagnosis may not be a significant indicator of risk for later language impairment

Intervention Planning

When a child presents as a "classic" late talker there is evidence to suggest that intervention may not be warranted; further complicating the process of intervention planning for these children.

To determine the need for intervention consider some additional factors

Expanding to other Criteria

- Strict definitions of who qualifies as a classic LT have lead to exclusion criteria for studies that leave out children who have delayed expressive vocabulary skills that could be more indicative of later impairment/SLI
- Expanding the definition of *who* is an LT beyond those with expressive language delays amongst no other deficits may make it *more predictive*

(Leonard, 2013)

Considering Risk Factors

- Although no risk factors are agreed to be *predictive* of the LT diagnosis, they are still clinically valuable
- Evaluate the presence of other risk factors for **continued language deficits** to aid informed intervention planning
  - Very low birth weight (Barre, Morgan, Doyle, & Anderson, 2011)
  - Genetics/ Family history (Vernes et al., 2008)
  - Delayed developmental milestones (Locke, 1994)
  - Socio-economic status/ input factors (Dale and Hayiou-Thomas, 2013)
  - Limited/delayed babbling (Paul & Weismer, 2013)
  - Lack of symbolic play (Paul & Weismer, 2013)
  - Atypical production/comprehension profile (Paul & Weismer, 2013)
  - Low rate of nonverbal communication (Paul & Weismer, 2013)

Informed Intervention Planning

- View **diagnosis as a continuum**
  - Normal range cutoffs do not give the whole picture
  - Distinguishable diagnostic categories are not determined by test scores alone
- Emphasize **differential diagnosis** practices
  - There area a number of conditions that lead to the late onset of words
  - Careful observation of the child in a variety of contexts
  - Never seek to confirm a preconceived diagnosis
    (Camarata, 2013)
- **LT diagnosis may not be predictive for all children, but it is still an informative piece of the greater puzzle**

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Intervention For Late Talkers

By: Nicole Jenkins

You have a child on your caseload that meets the criteria to be considered a "Late Talker" (see Power Point presentation by Sheldon, 2014). *Now what?* How will you proceed? The following interventions are **research-based** and have been proven effective in the remediation of expressive language delay (i.e. late talking) in toddlers.

1. Watch and See-No Intervention

2. Target Word-Hanen Program

3. General Language Stimulation

4. Focused Language Stimulation

5. Milieu Teaching

Watch and See-No Intervention

The idea behind the "Watch and See" approach, is based on evidence that the majority of Late Talkers catch up to their typically-performing peers by the age of 5 (Girolametto, Wiigs, Smyth, Weitzman & Pearce, 2001; Paul, 1996; Rescorla, 2002; Whitehurst et al., 1991). Paul (1996) suggests that Late Talkers from middle-class families receive no direct intervention, but rather be monitored every 3-6 months between 2 and 3 years of age and every 6-12 months between 3 and 5 years of age. Children from middle-class families are specifically mentioned here because a lower socioeconomic status is often considered a negative prognostic factor, and therefore children from these families should be considered for direct intervention. This approach is only appropriate for children with few or no additional speech and language concerns beyond the expressive language delay.

How to implement Watch and See:

- ✓ Clinician should identify speech and language goals that would be appropriate if intervention was recommended

- ✓ Upon reevaluation (3-6 months or 6-12 months later), the clinician determines whether these goals have been met without intervention

    - o If YES, continue Watch and See approach and create new goals

    - o If NO, clinician should begin intervention

Target Word-Hanen Program

This parent-implemented program was specifically designed by the Hanen Centre to target late-talking children less than 30 months of age. The Target Word program is similar to Hanen's It Takes Two to Talk, but requires less direct contact with a speech-language pathologist. Parent-implemented interventions tend to me more cost effective and less intrusive than traditional speech therapy.

The following information regarding the Target Word program was adapted from the Hanen Centre website, www.hanen.org.

What will you learn?

- ✓ How to create language-learning opportunities in your everyday activities
- ✓ How to respond when your child communicates without words
- ✓ How to introduce the "target" words into everyday activities and playtime
- ✓ How to repeat the "target" words frequently, setting up opportunities for your child to say them
- ✓ How to turn play time into language-learning time
- ✓ Strategies to implement (e.g. follow your child's lead, expand your child's message, expand your child's play, etc.)
    - o TARGET what you say
        - ▪ T=Take your time
        - ▪ A=Adjust the length (single word or short sentence)
        - ▪ R=Repeat (shoot for 5x)
        - ▪ G=Add a gesture or show the object
        - ▪ E=Emphasize (using pauses, volume changes, elongations)
        - ▪ T=Try other situations/contexts

What does the program include?

- ✓ 1 individual consultation with a Hanen certified speech-language pathologist prior to the start of the program
- ✓ 5 informational sessions with a small group of parents, led by a Hanen certified speech-language pathologist
- ✓ 2 individual consultation appointments with a Hanen certified speech-language pathologist to discuss specific goals for your child

General Language Stimulation

General Language Stimulation is an approach aimed at creating a language rich environment that is appealing to the child. The goal of this approach is for the child to experience frequent adult models of developmentally appropriate language, provided by a parent or clinician. This model is carried out by limiting controlling behaviors (e.g. questions, commands) and increasing responsiveness to the child's communicative acts (e.g. pointing, vocalization, etc.). This approach differs from others in that there are no direct targets for therapy. Instead, the goal is for general language growth through immersion in a language rich environment. A study by Robertson and Ellis Weismer (1999) demonstrated the effectiveness of General Language Stimulation when children in their treatment group (who received General Language Stimulation 2 times per week for 75 minutes) showed statistically and clinically significant gains when compared to children who received no intervention. Parental stress was also significantly reduced in parents of children in the treatment group.

Typical Procedures in General Language Stimulation
(Finestack & Fey, 2013; Paul, 2012)

- ✓ Arrange activity or situation to promote communication by the child is a natural context (play time, snack time)
- ✓ Follow the child's lead
    - o Doing what the child is doing/talking about what the child is talking about
- ✓ Self-talk/Parallel-talk
    - o Talking about what you are doing (e.g. "I'm playing with blocks")
    - o Talking about what the child is doing (e.g. "You are building")
- ✓ Imitating what the child says
- ✓ Recasts
    - o Adding grammatical markers and semantic details to what the child says (e.g. "brush hair" → "brushing dolly's hair")

Focused Language Stimulation

Focused Language Stimulation is much like General language Stimulation in that the clinician strives to create a language rich environment while providing frequent adult models of developmentally appropriate language. Self-talk, parallel-talk, imitation (of the child), and recasting are all utilized in this approach as well. The key differences between the two approaches are:

- ✓ There ARE direct targets for therapy
- ✓ The environment is arranged to facilitate maximal adult models of these targets
  - o Setting up tempting environments (e.g. placing a toy out of the child's reach so they must communicate for help to obtain toy)
- ✓ The clinician DOES ask child to attempt the target form
  - o If the child does not produce the form after being prompted, move on to additional adult models

A study by Girolametto et al. (1996) supported the use of parent-implemented focused stimulation intervention with children ages 23-33 months with expressive vocabularies below the 5th percentile. Parents were trained in the Hanen Program for parents, which utilizes many general language stimulation techniques. On top of this, they were also trained to incorporate 10 target words in their interactions with their children (the "focused stimulation" element). In the end, children in the intervention group had larger vocabularies, increased number of different words, and increased multiword combinations that those in the control group.

Milieu Teaching

Milieu Teaching (MT) is another approach that is similar to the language stimulation approaches mentioned previously. MT also takes place in an environment that is interesting and natural for the child. The clinician (or parent) provides frequent models of the target forms (like Focused Stimulation), and utilizes techniques such as self-talk, parallel-talk, imitations (of the child), and recasts to encourage the child to produce those targets.

The KEY difference between Milieu Teaching and other forms of language stimulation:

- ✓ The child is *expected* to correctly produce the target form.
  - o If the target form is not produced correctly, they are <u>required</u> to IMITATE.
  - o This is usually followed by a recast to expand the child's utterance.

Example:

Clinician: "Tell me about the ball. What color is your ball?"

Child: Incorrect response or no response

Clinician: "Say blue."

Child: "Blue."

Clinician: "Your ball is blue."

Which intervention should I choose?

(Finestack & Fey, 2013)

The decision regarding which intervention approach to utilize for your late talking client is not clear cut. You must consider the child's current performance, their family history of language delay/disorder, and parent preference. Use your clinical expertise to decide, and do not be afraid to change the approach to intervention if the child is showing little or no gains in expressive language.

Watch and See: This approach is only recommended for young children with expressive language as their only concern. Receptive language, cognition, emotional, behavioral, neurological, hearing, and medical should all be typical. Also, this approach is only appropriate for children from middle to high socioeconomic standing, as low socioeconomic standing is often a negative prognostic factor for late talking children.

Target Word-Hanen: This approach is suitable for cases where the child's parents have the time and resources to commit to such a program. The success of this program is largely dependent on the parent's motivation and commitment to following Hanen-instructed guidelines, as they are their child's primary intervention agent.

General Language Stimulation: This approach can be implemented by either the clinician or the parent. This approach does not utilize specific targets, so it is appropriate for children of whom a general increase in language is the goal.

Focused Language Stimulation: This intervention approach may be appropriate for children who have already received General Language Stimulation and showed little or no gains in expressive vocabulary. These children may benefit from an intensive approach that utilizes specific targets.

Milieu Teaching: Like Focused Stimulation, Milieu Teaching may also be appropriate for children who have failed to make gains after undergoing General Language Stimulation. The clinician will be the primary intervention agent with approach, so parent availability is less of a factor. Imitation skills are required for a child to excel in Milieu Teaching.

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                            ┌─────────────────────┐
                            │  Area(s) of Concern │
                            └─────────────────────┘
                             ↓                    ↓
        ┌──────────────────────────┐      ┌──────────────────────────┐
        │ Expressive Language Only │      │  Expressive Language +   │
        └──────────────────────────┘      │     Additional Area(s)   │
                     ↓                     └──────────────────────────┘
        ┌──────────────────────────┐                   ↓
        │  Socioeconomic Status    │      ┌──────────────────────────┐
        └──────────────────────────┘      │ Parent is motivated and  │
             ↓            ↓         ┌─────┐│ has proper time and      │
   ┌────────────────┐ ┌───────┐    │ Yes │←│ resources                │
   │ Middle to High │ │  Low  │    └─────┘└──────────────────────────┘
   └────────────────┘ └───────┘       ↓                    ↓
          ↓                      ┌──────────────┐    ┌─────────┐
   ┌────────────────┐            │ Does the     │    │   No    │
   │  Watch & See   │            │ parent wish  │    └─────────┘
   └────────────────┘            │ to be the    │          ↓
                                 │ primary      │    ┌──────────────────┐
             ┌───────┐           │ intervention │    │ Is your goal for │
             │  Yes  │           │ agent?       │    │ this child to    │
             └───────┘           └──────────────┘    │ see a general    │
                 ↓                       ↓            │ increase in      │
   ┌──────────────────┐          ┌──────────┐         │ language?        │
   │  Target Word-    │          │    No    │────→    └──────────────────┘
   │  Hanen           │          └──────────┘           ↓              ↓
   │  OR              │                          ┌────────────┐  ┌───────┐
   │  General         │                          │ No,        │  │  Yes  │
   │  Language        │                          │ I have     │  └───────┘
   │  Stimulation     │                          │ specific   │       ↓
   └──────────────────┘                          │ targets in │  ┌──────────────────┐
                                                  │ mind       │  │ Has the child    │
                                                  └────────────┘  │ participated in  │
                                                        ↓         │ General Language │
                                          ┌──────────────┐        │ Stimulation and  │
                                          │ Can the child│        │ shown no gains?  │
                                          │ imitate?     │        └──────────────────┘
                                          └──────────────┘           ↓           ↓
                                            ↓          ↓        ┌───────┐   ┌───────┐
                                        ┌──────┐  ┌──────┐      │  Yes  │   │  No   │
                                        │  No  │  │  Yes │      └───────┘   └───────┘
                                        └──────┘  └──────┘          ↓           ↓
                                            ↓          ↓      ┌──────────┐ ┌──────────┐
                                   ┌──────────┐ ┌──────────┐  │ Milieu   │ │ General  │
                                   │ Focused  │ │ Milieu   │  │ Teaching │ │ Language │
                                   │ Language │ │ Teaching │  │ OR       │ │Stimulation│
                                   │Stimulation│ │ OR       │  │ Focused  │ └──────────┘
                                   └──────────┘ │ Focused  │  │ Language │
                                                │ Language │  │Stimulation│
                                                │Stimulation│ └──────────┘
                                                └──────────┘
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Area(s) of Concern

- **Expressive Language Only**
  - **Socioeconomic Status**
    - **Middle to High** → **Watch & See**
    - **Low** → (to "Parent is motivated and has proper time and resources")

- **Expressive Language + Additional Area(s)**
  - **Parent is motivated and has proper time and resources**
    - **Yes** → **Does the parent wish to be the primary intervention agent?**
      - **Yes** → **Target Word-Hanen** OR **General Language Stimulation**
      - **No** → (to "Is your goal for this child to see a general increase in language?")
    - **No** → **Is your goal for this child to see a general increase in language?**
      - **No, I have specific targets in mind** → **Can the child imitate?**
        - **No** → **Focused Language Stimulation**
        - **Yes** → **Milieu Teaching** OR **Focused Language Stimulation**
      - **Yes** → **Has the child participated in General Language Stimulation and shown no gains?**
        - **Yes** → **Milieu Teaching** OR **Focused Language Stimulation**
        - **No** → **General Language Stimulation**

NON-ENGLISH-SPEAKING LATE TALKERS

End of the Semester Final Project
By: Brittany Parker

Why research non-English-speaking late talking children?

- Sparked my interest
- Many studies have been done with English speaking children
- To see what is out there in the literature regarding late talking children who are non-English speakers
  - Similar to findings for late talking English speaking children?
  - Similar definitions of late talking children?

Terminology

- EVD: expressive vocabulary delay
- ELD: expressive linguistic delay
- ERLD: expressive and receptive linguistic delay
- SLP: specific linguistic problems
- AT: average talkers
- NT: normal talkers

Titles of the articles

- Three Profiles of Language Abilities in Toddlers With an Expressive Vocabulary Delay: Variations on a Theme

- A follow-up study on Italian late talkers: Development of language, short-term memory, phonological awareness, impulsiveness, and attention

- Intentional communicative behaviours of Turkish-speaking children with normal and delayed language development

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Three Profiles of Language Abilities in Toddlers With an Expressive Vocabulary Delay: Variations on a Theme

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Study by Desmarais et al., 2010

Table 2. Scores obtained on language variables and correlates of lexical acquisition.

	M (SD)					
Variable	Total sample (N = 68)	Cluster 1 (n = 6)	Cluster 2 (n = 18)	Cluster 3 (n = 44)	χ^2	p
MBCDI–TNW	109 (87.9)	29 (19.85)	39.22 (46.17)	148.52 (81.46)		
Range	5–299	5–51	8–178	16–299		
Variables used to define the clusters						
ITLS–C (%)	75.1 (20.9)	26.6 (11)[a]	74.07 (16.4)	82.6 (11.7)	19.72	< .0001
ITLS–EEC (%)	52.6 (25.2)	25.9 (16.2)	23.9 (15.6)	68 (13.2)[a]	43.7	< .001
Other correlates of lexical acquisition						
ITLS–Play (%)	84.4 (13.5)	76.7 (12.2)	86.9 (10)	84.5 (14.6)	2.85	.24
MBCDI–GC (percentile rank)	8.8 (7.7)	10 (12.9)	10.5 (7.7)	7.6 (6.4)	0.97	.62
BSITD Mental scale (indexed score)	84.7 (12.4)	74.5 (10.3)	77.5 (9.4)	89 (11.6)[a]	16.71	< .001
BSITD Mental—Verbal Items (% of correct responses)	24.7 (15.9)	12.8	14.8	30.3[a]	16.59	< .001
BSITD Mental—Nonverbal Items (% of correct responses)	47.5 (20.3)	29.6	40.0	53.0[a]	9.61	.008

Note. MBCDI–TNW = MacArthur-Bates Communicative Development Inventories—Total Number of Words; ITLS-C = Infant Toddler Language Scales—Comprehension; ITLS–EEC = Infant Toddler Language Scales—Expression and Engagement in Communication; MBCDI–GC = MacArthur-Bates Communicative Development Inventories—Grammatical Complexity; BSITD = Bayley Scales of Infant and Toddler Development.
[a]Cluster that differs significantly from the other two.

A follow-up study on Italian late talkers: Development of language, short-term memory, phonological awareness, impulsiveness, and attention

Study by D'Odorico et al., 2007

Table 2. *Syntactic competence and vocabulary development in late and average talkers*

	Late Talkers (n = 10 M, 6 F)		Average Talkers (n = 10 M, 6 F)		Effect Size	Z	p Values
	M	SD	M	SD			
Grammar comprehension (TCGB)							
Total score	23.44	17.33	15.50	7.96	1.97	−0.99	0.16
Locative	3.21	3.67	2.00	1.87	1.31	−0.70	0.25
Flexional	3.69	2.10	3.09	1.81	0.65	−0.90	0.19
Active affirmative	2.69	2.71	1.79	1.15	1.63	−0.30	0.39
Active negative	2.09	1.97	1.25	1.06	1.66	−1.42	0.08
Passive affirmative	3.76	4.27	2.28	2.22	0.65	−0.62	0.27
Passive negative	3.23	1.70	1.65	0.92	3.18	−2.89*	0.001*
Relative	2.65	2.48	2.32	1.67	0.48	−0.28	0.39
Dative	2.12	1.94	1.13	1.21	1.33	−1.50	0.07
Vocabulary development (Italian BPVS)	15.90	4.09	18.04	3.40	0.83	−1.65	0.05

*p < .005.

Study by D'Odorico et al., 2007

Table 3. *Visuomotor planning, attention, and impulsivness in late and average talkers*

	Late Talkers (n = 10 M, 6 F)		Average Talkers (n = 10 M, 6 F)		Effect Size	Z	p Values
	M	SD	M	SD			
Visuomotor planning							
Mazes Test	13.25	7.57	17.63	6.09	1.00	−1.79	0.04
Attention and impulsiveness							
Continuous Performance Test							
Omissions	6.06	5.92	4.57	6.15	0.33	−1.01	0.16
Commissions	2.79	2.55	3.05	2.57	0.33	−0.37	0.36
Matching familiar figure (errors)	3.89	2.98	6.03	3.45	1.37	−1.61	0.05
ADHD behavior rating scale	11.22	8.27	10.53	5.12	0.65	0.00	0.50

Study by D'Odorico et al., 2007

Table 4. *Verbal short-term memory in late and average talkers*

	Late Talkers (n = 10 M, 6 F)		Average Talkers (n = 10 M, 6 F)		Effect Size	Z	p Values
	M	SD	M	SD			
Verbal short-term memory							
Nonwords repetition	2.25	12.56	52.25	5.89	0.89	−2.56*	0.004*
Word span[a]	2.44	1.90	3.40	1.40	0.34	−2.16	0.015

[a]One girl from the average talkers group refused to perform the task.
*p < .005.

Intentional communicative behaviours of Turkish-speaking children with normal and delayed language development

Study by Topbaş et al., 2003

Table 1. Definitions of intentional categories

Intentional categories	Definition	Example
Regulating behaviours	Verbal or non-verbal intentional communicative acts consisting of gestures/vocalizations/ symbols used for the following subcategories	
Request for object	Reaching/pointing toward an object or something desired	Reaching or pointing toward a desired toy that is out of reach
Request for action	Demand someone carry out an action	Giving a toy for which help is needed to activate something verbally
Protest	Shaking head, nodding negatively or refusing something verbally	When the mother gives unprefered food to the child, he turns his head away
Social interaction	Verbal or non-verbal intentional communicative acts consisting of gestures/vocalizations/ symbols used for the following subcategories	
Direct attention (self)	Seeking listeners' attention or calling someone for play, love, emotional states	Child says 'hey' to direct adults' attention. As soon as mother/father looks at him, he asks 'Can I go out?'
Greeting	Greet adults, peers or toys, etc.	When leaving the room, the child waves, and says 'bye bye'
Acknowledgement	Yes/no responses to adults' questions or utterances	Mother asks 'Is this yours?' Child shakes head 'no'
Joint attention	Verbal or non-verbal intentional communicative acts seeking mutual behaviours for the following subcategories	
Comment/statement	Attract listeners' attention to give information on something, an event, an object, people; describing, commenting on situation	Child shows a bird at a distance
Asking for information	Seeking of knowledge for an event, object or people directly or indirectly	Child asks 'Dad, where is the ball?'
Responding	Responding to the adults' questions (what, where, how, why) and comments in reference to the immediate context.	Adult asks 'what do you want?' in a play context. Child says 'ball'
Communicative modes	The use of child's gestures/vocalizations/ symbols and verbal utterances	

Study by Topbaş et al., 2003

Table 2. The use of categories of intentional behaviours of normally developing children between 13 and 24 months

	Communicative modes											
	Ages (13–15 months)				Ages (15–18 months)				Ages (18–24 months)			
Intentional categories	Gesture	Vocal	Verbal	%	Gesture	Vocal	Verbal	%	Gesture	Vocal	Verbal	%
Regulating behaviours												
Request for object	23	0	0	22	0	0	0	0	0	0	1	0
Request for action	9	1	1	11	1	0	5	19	0	0	9	7
Protest	16	2	0	17	3	2	2	10	1	0	15	13
Total	48	3	1	47	4	2	7	19	1	0	25	20
Social interaction												
Direct attention (self)	20	0	0	19	4	2	0	9	0	2	23	20
Greeting	0	0	0	0	0	0	0	0	0	0	0	0
Acknowledgements	4	7	2	11	0	2	2	6	2	2	1	4
Total	24	7	2	31	4	4	2	15	2	4	24	24
Joint attention												
Comment/statement	3	1	1	6	3	2	4	13	0	0	23	19
Asking for information	1	7	2	3	0	1	0	1	1	0	7	7
Responding	6	0	4	17	1	12	22	51	3	2	30	29
Total	10	8	7	22	4	15	26	65	4	2	60	54
Total	82*	18	10		12	21*	35*		7	6	109*	

Table 3. The use of categories of intentional behaviours of children with language delay between 24 and 36 months

	Communicative modes											
	Ages (24 months)				Ages (25–29 months)				Ages (30–36 months)			
Intentional categories	Gesture	Vocal	Verbal	%	Gesture	Vocal	Verbal	%	Gesture	Vocal	Verbal	%
Regulating behaviours												
Request for object	32	0	2	20	11	2	4	19	4	0	4	9
Request for action	8	2	0	6	5	0	5	11	4	1	2	8
Protest	28	4	0	18	10	0	2	14	10	1	1	13
Total	68	6	2	44	26	2	11	44	18	2	7	30
Social interaction												
Direct attention (self)	54	2	0	32	16	2	8	30	18	3	8	32
Greeting	0	0	0	0	2	0	0	2	3	0	0	3
Acknowledgements	29	4	0	19	8	5	0	15	3	3	1	8
Total	83	6	0	51	26	7	8	47	24	6	9	43
Joint attention												
Comment/statement	4	1	0	3	1	1	1	3	0	4	2	7
Asking for information	1	0	0	0.5	2	0	3	6	0	1	2	3
Responding	0	3	0	2	0	0	0	0	12	1	2	17
Total	5	4	0	6	3	1	4	9	12	6	6	27
Total	156*	16	2		55*	10	23		54*	14	22	

Study by Topbaş et al., 2003

Table 4. Summary rates of categories of intentional behaviours for children with normal and delayed language development

| Intentional categories	Communicative modes				13–24 months Normal	Communicative modes				24–36 months Delayed
	Gesture	Vocal	Verbal	Total		Gesture	Vocal	Verbal	Total	
Regulating behaviours	53	5	33	91	30.4%	112	10	20	142	40%
Social interaction	30	15	28	73	24.3%	133	19	17	169	48%
Joint attention	18	25	93	136	45.3%	20	11	10	41	12%
Total	101	45	154	300	100%	265	40	47	352	100%

Study by Topbaş et al., 2003
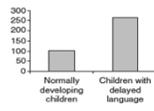
Figure 1. Rates of gesture/vocal use in intentional communicative behaviours of children with normal and delayed language development.
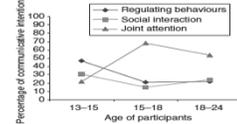
Figure 2. Rates of verbal use in intentional communicative behaviours of children with normal and delayed language development.

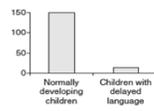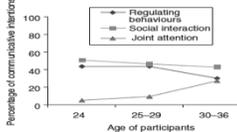Figure 3. Intentional communicative behaviours of children with normal language development.

Figure 4. Intentional communicative behaviours of children with delayed language development.

Conclusions

- In conclusion this study offers evidence that Italian LTs may be weak in several cognitive and linguistic areas that could constitute a significant risk factor for their academic achievements (D'Odorico et al., 2007)

- Subtyping children sheds some light on the notion of heterogeneity within two year olds who are late to talk (Desmarais et al., 2010)

- The children with the language delay developed communicative skills later than the normal developing children, expressed intentions mostly through a means of gesture, and within the categories of regulating behavior and social interaction (Topbaş et al., 2003).

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