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# Key Word Sign NSW Presenter Training 2013

*Issues in Research*

*Thanks to Leigha Dark*

[www.kwsnsw.com](http://www.kwsnsw.com)

# Learning Objective:

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- ❑ To be aware of the current evidence base supporting the use of Key Word Sign and Gesture and other AAC strategies, with people who have a disability and complex communication needs

## Assessment:

- ❑ Discussion during interview on day 3 of training regarding knowledge of resources.

# Research into KWS&G

## Foundational Concepts

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- Sign language has been used with people with intellectual disability since the 1970's
  - Cornforth, A.R.T., Johnson, K. Walker, M. (1974). Teaching sign language to the deaf mentally handicapped. *Apex*, 2(1), 23-25.
  - Powell, G. (1999). Current research findings to support the use of signs with adults and children who have intellectual and communication difficulties. Retrieved from: <http://www.makaton.org/aboutMakaton/research>
  
- Shown to be effective across a range of populations and communication outcomes by many researchers since

# Research into KWS&G

## Foundational Concepts

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- The body of evidence investigating use of KWS&G is growing; aligned with emphasis on Evidence Based Clinical Decision Making
  
- Related areas of research include:
  - Typical development of speech and language
  - Typical development and use of gesture
  - Speech and language development in people who are Deaf/deaf/hearing impaired
  - Gesture development and use in people who are Deaf/deaf/ hearing impaired
  - Sign language development in people who are Deaf/deaf/hearing impaired

# Research into KWS&G

## Foundational Concepts

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- Why does use of sign and gesture work for people with a disability and complex communication needs?
  - Research suggests that in people with ID visuo-spatial processing of information is preferred over auditory-verbal processing; so use of sign capitalises on an area of relative strength (e.g. Broadley, MacDonald & Buckley, 1995; Remington & Clarke, 1996; Schweigert & Rowland, 1998a; 1998b; Miller et al., 1995)
  - Signs can 'last longer' in time than speech; can be held static as a model to encourage imitation and comprehension
  - Visual and tactile- kinaesthetic feedback is available as the sign is produced; this is important for learning, memory and recall (Konstanteras & Leibovitz 1982; Lloyd & Doherty 1983; Kohl , 1981; Dunn 1982).

# Research into KWS&G

## Foundational Concepts

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- What factors influence how a sign is learned?
  - Iconicity
  - Motivation and reinforcing value
  - Complexity of motor demands

# Research into KWS&G

## Foundational Concepts

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- **Iconicity** refers to the strength of the association between the form of a sign and what it represents.

*Transparency* – how guessable the sign is to a naive viewer

*Translucency* – how closely the form of the sign matches the meaning

- Translucency of a sign influences how quickly it is acquired (Fuller & Lloyd, 1990; Ronski & Sevcik, 1997)
- Iconicity is helpful when a sign is introduced to represents a word *already* in receptive vocabulary (In: Schlosser, Lloyd & McNaughton, 1996)
- Iconicity of signs can positively influence perceived intelligibility of speech, when speech and sign are combined (Powell & Clibbens, 1994; Clibbens, Powell & Grove, 1997)

# Research into KWS&G

## Foundational Concepts

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### □ Motivation and Reinforcing Value

- Many signs in an initial vocabulary / lexicon are chosen so that a person can make a request for a concrete object (Schlosser, Lloyd & McNaughton, 1996)
- Therefore, the *reinforcing value* i.e. how highly something is desired, can influence how quickly a sign is acquired (Reichle, 1991)
- If a person wants a chocolate bar, they may learn an 'opaque' sign for this just as easily as they learn a highly guessable sign for 'drink' (Reichle, 1991)

# Research into KWS&G

## Foundational Concepts

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### □ Complexity of motor demands

- Size of manual sign vocabulary and accuracy of sign production have been found to be highly correlated with apraxia and measure of fine motor ability (Seal and Bonvillian, 1997)
- This is a factor that needs to be considered when developing a functional vocabulary
- For individuals where motor abilities limit learning or use of signs, use of additional aided modes of AAC is suggested e.g. symbols, SGD (Mirenda, 2003)

# Research into KWS&G

## Foundational Concepts

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- How does use of AAC, including sign, affect speech development?
  - Systematic review with meta-analysis
  - *"Best level of evidence indicates that AAC interventions do not have a negative impact on speech production"*  
(Millar, Light & Schlosser, 2006, p. 257)

# Research into KWS&G

## Foundational Concepts

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- 16 out of 17 participants (94%) increased speech production during or following at least one AAC intervention (Millar, Light & Schlosser, 2006)
- Of the 6 studies that met inclusion criteria, 5 described unaided (i.e. manual sign) interventions
- Modest positive effects were observed across children and adults ranging from 2 – 60 years
  - Mean increase in number of words was 13 (Range = 1 – 52)
- In some cases there was a 'lag' before effects of AAC intervention on speech were seen
- Findings support the 'automatic reinforcement' theory i.e. *if AAC is presented along with speech and followed by a reinforcer, both AAC use and natural speech should increase in frequency* (Mirenda, 2003)

# Research into KWS&G

## Foundational Concepts

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### □ Clinical Bottom Line

Clinicians and parents should not hesitate to introduce AAC interventions to individuals with developmental disabilities whose speech is inadequate to meet their communication needs.

Best available evidence suggest AAC interventions benefit development of:

*Communicative Competence*

*Language Skills*

*Speech Production*

Parents and clinicians should be realistic about timeframes in which benefits may be seen, and not be too concerned if there is a lag of 6 – 25 sessions before gains are seen.

# Research into KWS&G

## Foundational Concepts

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### □ Gesture: (Typical Development)

- Different types of gesture emerge in a developmental sequence
- Gesture predicts subsequent language milestones
- Gestures and language indicate changes in symbolic operations (i.e. distancing self from object; moving from concrete to representational)
- Gestures facilitate language development
- Gestures complement spoken language
- Gestures use is associated with advances in expressive language and receptive language
- Cross modal combinations scaffold syntactical language transitions
- Gesture scaffolds conceptual development

# Research into KWS&G

## Foundational Concepts

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### □ Gesture (Language Impairment)

- Children with language impairment seem to benefit from the same functions that gesture serves in normal development
- Even when development is delayed, the order or pre-linguistic and linguistic development is preserved
- Late talkers have difficulty imitating play schemes and this may predict persistent language impairments
- Representational gestures produced by children with specific language impairment are immature in quality; parallel the features of their language use

# Research into KWS&G

## Foundational Concepts

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### □ Gesture (People with a disability)

- Gesture production is a strength for people with DS, relative to their language skills
- Children with DS have considerably larger repertoires of gesture than matched peers
- Gesture is a clinically useful scaffold for children with DS

# Research into KWS&G

## Foundational Concepts

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### □ Gesture (People with a disability)

- The gesture development of children with autism deviates from normal
- Difficulties with pointing due to the social-emotional load associated with it
- Like other children with language impairment though, children with autism can use iconic gestures to augment their communication during conversations
- Instruction in manual modality may be a useful clinical and education strategy

# Research into KWS&G

## Foundational Concepts

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- Research shows that children progressively give up the use of sign and gesture as their oral language expands.
- This applies to:
  - **Gesture**
    - in typically developing children  
(Liszkowski, 2008; Capone & McGregor, 2004)
  - **Signing**
    - Down Syndrome (Galeote et al. 2011)
    - Intellectual Disability (Vandereet et al. 2011)
    - At risk children (McGregor, 2008)

# Research into KWS&G

## Foundational Concepts

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### □ Clinical Bottom Line

**Gesture enhances, not hinders, language development.**

Gesture provides children a means of communicating when the spoken modality is not fully developed.

**Parents and caregivers often need training to recognise and accept gestural communication**

*Experimental* research that demonstrates the effect of gesture use in diagnosis, prognosis, and treatment is lacking

# Activity!

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[atouchofinsanity.wordpress.com](http://atouchofinsanity.wordpress.com)

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# Research into KWS&G

An overview of the effectiveness of KWS and Gesture

## Model of Transdisciplinary Evidence Based Practice

(Adapted: Satterfield et al., 2009)



# Research into KWS&G

An overview of the effectiveness of KWS and Gesture

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- There are many ways to consider the research literature on KWS and gesture
  - We could ask:
    - How is the use of sign assessed?
    - How does use of sign influence communication development?
    - What is the profile of people with a disability who use sign?
    - What do clients and families say about their experience of using sign?
    - What is the economic impact of using sign compared to other methods of AAC?
    - Why do some individuals prefer use of sign over other AAC modalities?
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# Research into KWS&G

## An overview of the effectiveness of KWS and Gesture

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- Ultimately though, we are interested in knowing whether use of KWS and gesture is an effective intervention strategy to enhance communication outcomes for people living with a communication disability i.e. Does it work? Should we use it?
- More specifically, we may want to know whether KWS is more or less effective than another form of AAC, for a certain individual or population, on an outcome of interest
- Therefore, we need to look at the *experimental* published literature, that has focussed on the use of KWS as an intervention strategy

# Research into KWS&G

An overview of the effectiveness of KWS and Gesture

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- There are many different types of research designs used in intervention research e.g. Systematic Reviews, Randomized Controlled Trials, Comparative Studies, Case Series, Case Studies
  
- Whether or not a piece of research is 'good quality' and 'trustworthy' depends on:
  - Type of research design and the corresponding *Level of Evidence*
  - How well the study has been carried out or its *Methodological Quality*

# Research into KWS&G

An overview of the effectiveness of KWS and Gesture



Levels of Evidence in Intervention Research

# Research into KWS&G

## 1 – Use of sign with people with ID

In people with Intellectual Disability what effect does use of key word sign and gesture have on communication outcomes?

Population (P)	Intervention (I)	Comparison (C)	Outcome (O)
Intellectual Disability OR Learning Disability OR Cognitive Impairment OR Mental Retardation OR Developmental Disability	Key Word Sign OR KWS OR Gesture OR Manual Sign OR Sign language OR Sign Systems OR Makaton OR Total Communication	Nil	Speech OR Expressive language OR Receptive Language OR Interaction OR Communication OR Social

# State of the evidence

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- ❑ High number of cross-sectional exploratory or descriptive studies (e.g. Vandereet et al., 2011)
- ❑ Limited number of experimental studies (intervention studies) (e.g. Van der Meer et al., 2012)
- ❑ Small numbers of participants
- ❑ Inclusion of multiple aetiologies under the heading 'intellectual disability' or 'developmental disability' (e.g. Autism, Down Syndrome, Williams Syndrome, Fragile X Syndrome)

# Clinical Bottom Line

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Individuals with intellectual disability / developmental disability can be taught to use various AAC options to enhance communication outcomes.

Speech Generating Device; Picture Exchange Communication Systems; Aided Symbol Systems; Manual Sign

Individuals often demonstrate a preference for one communication mode over another and this is a current research focus

Outcomes are influenced by individual attributes (cognitive, communicative, vocabulary comprehension) and socio-environmental factors

Quality, high level evidence is currently limited

# Representative Literature

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Van der Meer, L., Sigafoos, J., O'Reilly, M.F., & Lancioni, G.E (2011). Assessing preferences for AAC options in communication interventions for individuals with developmental disabilities: A review of the literature. *Research in Developmental Disabilities, 32*, 1422 – 1431.

Van der Meer, L., Kagohara, D., Achmadi, D., O'Reilly, M.F., Lancioni, G.E., Sutherland, D., & Sigafoos, J. (2012). Speech-generating devices versus manual signing for children with developmental disabilities. *Research in Developmental Disabilities, 33*, 1658 – 1669.

Vandereet, J., Maes, B., Lembrechts, D., & Zink, I. (2011a). The role of gestures in the transition from one- to two-word speech in a variety of children with intellectual disabilities. *International Journal of Language and Communication Disorders, 46* (6), 714 – 727.

# Representative Literature (cont)

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Vandereet, J., Maes, B., Lembrechts, D., & Zink, I. (2011b). Expressive vocabulary acquisition in children with intellectual disability: Speech or manual signs? *Journal of Intellectual & Developmental Disability, 36*(2), 91–104.

Vandereet, J., Maes, B., Lembrechts, D., & Zink, I. (2010). Predicting expressive vocabulary acquisition in children with intellectual disabilities: A 2-year longitudinal study. *Journal of Speech, Language, and Hearing Research, 53*, 1673–1686.

# Research into KWS&G

## 2 – Use of sign with people with Down Syndrome

In people with Down syndrome what effect does use of key word sign and gesture have on communication outcomes?

Population (P)	Intervention (I)	Comparison (C)	Outcome (O)
Down Syndrome OR Trisomy 21	Key Word Sign OR KWS OR Gesture OR Manual Sign OR Sign language OR Sign Systems OR Makaton OR Total Communication	Nil	Speech OR Expressive language OR Receptive Language OR Interaction OR Communication OR Social OR Conversation

# Clinical Bottom Line

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Receptive comprehension is a relative strength of children with Down Syndrome. Gestural production is also an area of strength.

Galeote et al (2011) showed that the spoken vocabulary of children with DS at the ages of 18 months and 21 months was the same as typically developing children, indicating that there is no general impairment in learning productive (expressive) vocabulary

Similar to typically developing children, in children with DS gestures serve as a 'bridge' between word comprehension and word production; and early gesture use, in association with comprehension, predicts vocabulary development

# Clinical Bottom Line (Cont)

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Assessment of symbolic comprehension shows that that children with Down Syndrome find gestures significantly easier to understand than miniatures or substitute objects used as abstract symbols to represent other objects, thus supporting use of sign and gesture as a modality for communication input.

As the oral vocabulary of children with DS expands, they progressively give up use of gesture and sign

Use of sign (expressive and receptive) in the early stages of language development can help to improve initial communication and reduce frustration.

# Representative Literature

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Galetote, M., Sebastian, E., Checa, E., Rey, R., & Soto, P. (2011). The development of vocabulary in Spanish Children with Down syndrome: Comprehension, production and gestures. *Journal of Intellectual & Developmental Disability, 36* (3), 184 – 196.

Zampini, L., & D'Odorico, L. (2009). Communicative gestures and vocabulary development in 36-month-old children with Down's Syndrome. *International Journal of Language and Communication Disorders, 44* (6), 1063 – 1073.

O'Toole, C., & Chiat, S. (2006). Symbolic functioning and language development in children with Down syndrome. *International Journal of Language and Communication Disorders, 41* (2), 155 – 171.

Iverson, J.M., Longobardi, E., & Caselli, C.M. (2003). Relationship between gestures and words in children with Down's Syndrome and typically developing children in the early stages of communicative development. *International Journal of Language and Communication Disorders, 38* (2), 179 – 197.

# Research into KWS&G

## 3 – Use of sign with people with Autism Spectrum Disorders

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In people with autism spectrum disorders what effect does use of key word sign and gesture have on communication outcomes?

Population (P)	Intervention (I)	Comparison (C)	Outcome (O)
Autism OR Autism Spectrum Disorder OR ASD OR Asperger's Syndrome OR Developmental Disability	Key Word Sign OR KWS OR Gesture OR Manual Sign OR Sign language OR Sign Systems OR Makaton OR Total Communication	Nil	Speech OR Expressive language OR Receptive Language OR Interaction OR Communication OR Social OR Conversation

# Clinical Bottom Line

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Sign is considered an 'Emerging' evidence based intervention for people with autism spectrum disorder

Use of gesture to support imitation based training methods and receptive language instruction may be helpful

Studies show that gesture and speech are not always effectively integrated during social communication in people with autism - consider sequential rather than simultaneous presentation of speech and gesture / sign

Children with autism use significantly less gestures in early development than TD peers or those with other types of DD – this has implications for early autism screening, assessment and intervention

# Clinical Bottom Line (Cont)

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Using signs can provide effective communication options for students with autism

Signing does not impact negatively on speech production and generally has a positive though modest impact on speech production

It is becoming clear that individual differences among children with autism may mean a preference for, and greater success with, one type of communication compared with another and individual differences should be taken into account when choosing and designing communication systems

# Representative Literature

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Falcomata, T.S., Wacker, D.P., Ringdahl, J.E., Vinqust, K., & Dutt, A. (2013). An evaluation of generalization of mands during functional communication training. *Journal of Applied Behaviour Analysis, 46* (2), 444 – 454.

Watson, L., Crais, E.R., Baranek, G.T., Dykstra, J.R., & Wilson, K. P. (2013). Communicative gesture use in infants with and without autism: A Retrospective home video study. *American Journal of Speech-Language Pathology, 22*, 25 – 39.

Van-der Meer, L., Didden, R., Sutherland, D., O'Reilly, M.F., Lancioni, G.E., & Sigafoos, J. (2012). Comparing three augmentative and alternative communication modes for children with developmental disabilities. *Journal of Developmental and Physical Disability, 24*, 451 – 468. DOI 10.1007/s10882-012-9283-3

Wong, V.C.N., & Kwan, Q.K. (2010). Randomized controlled trial for early intervention for autism: A pilot study of the autism 1-2-3 Project. *Journal of Autism and Developmental Disorders, 40*, 677 – 688. DOI 10.1007/s10803-009-0916-z

# Representative Literature (cont)

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Hubbard, A.L., McNealy, K., Scott-Van Zeeland, A.A., Callan, D.E., Bookheimers, S.Y., & Dapreto, M. (2012). Altered integration of speech and gesture in children with autism spectrum disorders. *Brain and Behavior, 2* (5), 606–619. doi: 10.1002/brb3.81

Ingersoll, B., & Lalonde, K. (2010). The impact of object and gesture imitation training on language use in children with autism spectrum disorder. *Journal of Speech, Language and Hearing Research, 53*, 1040 – 1051.

Brunner, D.L. & Seung, H. (2009). Evaluation of the Efficacy of Communication-Based Treatments for Autism Spectrum Disorders: A Literature Review. *Communication Disorders Quarterly, 3*(1), 15-41.

Wendt, O. (2009). Research on the use of manual signs and graphic symbols in autism spectrum disorders: A systematic review. In P. Mirenda & T. Iacono (Eds). *Autism spectrum disorders and AAC*. Baltimore: Paul H. Brookes.

# Research into KWS&G

## 4 – Use of sign with people with Physical Disability

In people with physical disability such as cerebral palsy what effect does use of key word sign and gesture have on communication outcomes?

Population (P)	Intervention (I)	Comparison (C)	Outcome (O)
Physical Disability OR Cerebral Palsy OR Motor Impairment OR Mobility Impairment	Key Word Sign OR KWS OR Gesture OR Manual Sign OR Sign language OR Sign Systems OR Makaton OR Total Communication	Nil	Speech OR Expressive language OR Receptive Language OR Interaction OR Communication OR Social OR Conversation

# Clinical Bottom Line

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Early studies unable to demonstrate any benefit of the use of manual sign in people with cerebral palsy when compared to other form of AAC e.g. symbols, SGDs

Ability to use and preference for different forms of AAC vary greatly across individuals and therefore functional, ecological assessment of communication needs, including communication partners, is essential

Multimodal communication is common in people with cerebral palsy

Use of aided and unaided speech supplementation cues can improve perceived intelligibility of dysarthric speech in people with gross motor impairment

# Representative Literature

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Blischak, D.M., & Lloyd, L. (1996). Multimodal augmentative and alternative communication: Case Study. *Augmentative and Alternative Communication, 12*, 37 – 46.

Hustad, K.C., & Mertz Garcia, J. (2005). Aided and Unaided Speech Supplementation Strategies: Effect of Alphabet Cues and Iconic Hand Gestures on Dysarthric Speech. *Journal of Speech, Language and Hearing Research, 48*, 996 – 1012.

Udwin, O., Yule, W. (1990). Augmentative communication systems taught to cerebral palsied children- a longitudinal study. 1. The acquisition of signs and symbols and syntactic aspects of their use over time. *British Journal of Disorders of Communication, 25*, 295 – 309.

# Topical Research Issues

## 1 - Baby Sign

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- ❑ Involves teaching sign to typically developing babies
- ❑ Based on research that babies learning sign as a first language produce their first signs slightly earlier than babies produce their first spoken words i.e. the theory is that use of sign will enhance or accelerate language development
- ❑ Increasingly popular in recent years
- ❑ Is controversial

# Clinical Bottom Line

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First randomized controlled trial (Kirk et al, 2012) showed that encouraging symbolic gesture (baby sign) in typically developing infants had no significant effect on language outcomes and did not *accelerate* linguistic development

Mothers who use gesture in their interactions with their babies were more responsive to their infants' nonverbal cues and encouraged more independent action by their infant

Questionable effect of baby sign as an *intervention* for language acceleration, HOWEVER gesture has been shown to be an early marker of which children with early unilateral lesions (brain damage) would eventually experience language delay, suggesting that gesture is a promising diagnostic tool for persistent delay i.e. Prognostic

# Clinical Bottom Line (Cont)

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Mothers who are taught to use infant sign continue to use more signs with their infants than those in a control group.

Mothers using sign with their children are more attuned to changes in children's affect and more responsive to children's distress cues.

Mothers using sign viewed their children more positively, reducing parenting-related stress.

There is emerging evidence that a simple infant sign intervention is an effective tool to promote bidirectional communication and positive interactions for preverbal children and their parents.

# Representative Literature

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Kirk, E., Howlett, N. (2013). To sign or not to sign? The impact of encouraging infants to gesture on infant language and maternal mind-mindedness. *Child Development, 82* (2), 574 – 590.

Valloton, C.D. (2012). Infant sign as intervention? Promoting symbolic gestures for preverbal children in low-income families supports responsive parent-child relationships. *Early Childhood Research Quarterly, 27*, 401 – 415.

Sauer, E., Levine, S.C., & Goldin-Meadow, S. (2010). Early Gesture predicts language delay in children with pre- or perinatal brain lesions. *Child Development, 81* (2), 528 – 539.

Thompson, R. H., Cotnoie-Bichelman, N.M., McKerchar, P.M., Tate, T.L., & Dancho, K.A. (2007). Enhancing early communication through infant sign training. *Journal of Applied Behaviour Analysis, 40* (1), 15 – 23.

# Representative Literature (cont)

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Rowe, M., & Goldin-Meadow, S. (2009a). Differences in early gesture explain SES disparities in child vocabulary size at school entry. *Science*, 323, 951–953.

Rowe, M., & Goldin-Meadow, S. (2009b). Early gesture selectively predicts later language learning. *Developmental Science*, 12, 182–187.

Broaders, S., Cook, S. W., Mitchell, Z., & Goldin-Meadow, S. (2007). Making children gesture brings out implicit knowledge and leads to learning. *Journal of Experimental Psychology: General*, 136, 539–550.

Goldin-Meadow, S., Goodrich, W., Sauer, E., & Iverson, J. (2007). Young children use their hands to tell their mothers what to say. *Developmental Science*, 10, 778–785.

# Topical Research Issues –

## 2 - Creating a Sign Environment

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- ❑ A good language environment requires language models (Von Tetzchner, 2000)
  
- ❑ Consistent signing from partners  
(Spragale & Micucci,1990)
  
- ❑ Functional vocabulary (Loeding et al.1990)
  
- ❑ “Sign teaching needs to be embedded in a creative approach to communication which encourages peer interaction and incorporates functional goals.”  
(Grove & McDougall 1991)
  
- ❑ Parallel with aided (ALS) approaches  
(Bloom & Treloar,1997; Goossens, Crain & Elder 1992)

# Clinical Bottom Line

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People with disabilities sign more when communication partners sign to them and respond to sign attempts

To facilitate ongoing use and development of sign the communication partner needs to know at least as many if not more signs than the person they are communicating with (modelling and teaching)

In an organisational setting, the following factors contribute to establishing a signing environment:

*Support from management; provision of training in a way that gives knowledge, practice and support in 'real' situations; development of center-wide policies on signing and communication; involvement of all members of staff in determining their needs and the direction of the project; addressing the staffs underlying beliefs and attitudes in order to change their signing behaviour ; flexibility in the signing system*

# Topical Research Issues –

## 3 - Efficacy of KWS workshops

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- How best to facilitate learning, retention and use of KWS and gesture in non-signing communication partners?
- Attendees may be managers, staff, family members, teachers, community members, health professionals
- Highly variable levels of knowledge, skill, awareness, experience, attitudes, and motivation prior to attending

# Clinical Bottom Line

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Majority of workshop participants are highly enthusiastic about workshops; participation rates are high

Participants in KWS workshops show a significant difference in recognition and production of signs pre and post workshop; gains are not maintained beyond 6 weeks

Staff who have received training in KWS use significantly more sign than untrained staff

While use of sign and gesture significantly changes following a formal training, accompanying change in use of language, MLU, pragmatic functions is not seen in communication partners

# Clinical Bottom Line (Cont)

A critically appraised topic (CAT) completed by the NSW AAC EBP Group in 2012, found the following features of training to communication partners to facilitate communication in AAC users:

- ❑ A series of half day direct training sessions
  - ❑ Use of video illustrating using AAC
- ❑ Use of video feedback to communication partners
  - ❑ Analysis of videoed interaction by trainees
    - ❑ Visual aids (e.g. cards showing KWS)
      - ❑ Person Centred training
        - ❑ Action Planning/ Goal Setting
      - ❑ Training on making AAC resources
- ❑ Instruction within the Natural Environment
- ❑ Coaching methods-e.g. demonstration and feedback
  - ❑ Individual and small group training

Retrieved from: [www.nswspeechpathologyebp.com.au/docs/AAC-EBP-Group.pptx](http://www.nswspeechpathologyebp.com.au/docs/AAC-EBP-Group.pptx)

# Representative Literature

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Chadwick D & Joliffe J (2009), 'A pilot investigation into the efficacy of a signing training strategy for staff working with adults with intellectual disabilities' *British Journal of Learning Disabilities* 37:1 pp. 34-42

C.Torrison, E.Jung, K. Baker, C.Beliveau and A.Cook, (2007). The impact of staff training in Alternative/Augmentative Communication (AAC) on the communication abilities of adults with developmental disabilities. *Developmental Disabilities Bulletin*, 35 (1&2), 103-130.

Wing Chee So., Colin Sim., Chen-Hui., & Julie Low Wei-Shan. (2012) Mnemonic effect of iconic gesture and beat gesture in adults and children: Is meaning in gesture important for memory recall? *Language and Cognitive Processes*, 27 (5), 665-681, DOI:10.1080/01690965.2011.573220

# Where to from here?

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- What research are you interested in reading more about?
- What research questions can you identify that remain unanswered?
- What research questions could you be involved in answering?