

# Practices in Selecting Initial AAC Vocabulary for Individuals with Severe Intellectual Disability

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# Acknowledgement

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Thank you to the SLPs who responded to this survey and to Drs. Meadan, Halle, and Shogren for their guidance and support.



# Key Considerations

Consider the influence of:

- Language impairments and complex communication needs,
- Multiple disabilities (Beukelman & Mirenda, 2013; Light et al., 2008)
- Small vocabulary (Beukelman et al., 1989; Light, 1997; Smith, 2006)

on user's self-determination & autonomy.

Consider the influence of informants.



# The Current Study

Preliminary investigation into how SLPs select initial AAC vocabulary for individuals with severe ID

## Research Questions

1. What are the reported practices of SLPs in Illinois in (a) the vocabulary selection process, and (b) the content of the initial vocabulary?
2. How do practices interact with the type of vocabulary selected?

## Methods

Online survey

- 105 SLPs responded
- Descriptive and nonparametric statistics
- Vocabulary analysis



# A Style Note

AAC = ... 😊

ID = Intellectual Disability

CCN = Complex Communication Needs

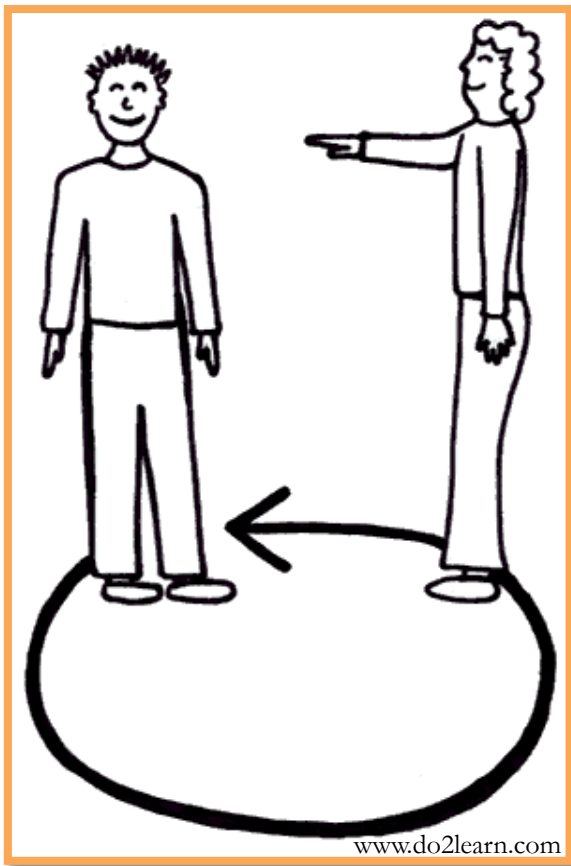
SLP = Speech-language pathologist

Informant = Any person who contributes to  
the vocabulary selection process

AAC User – Assume with ID and CCN



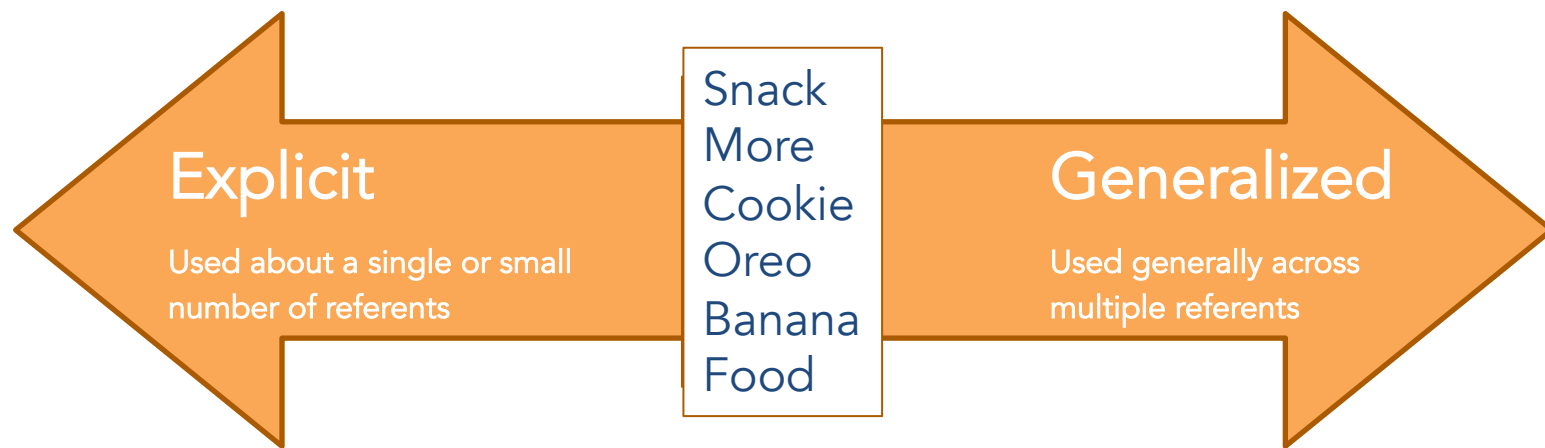
# Your Turn



Please **list 10 words** (including single words, phrases, whole messages, etc.) you typically include in an initial AAC system for an individual with severe ID and CCN.



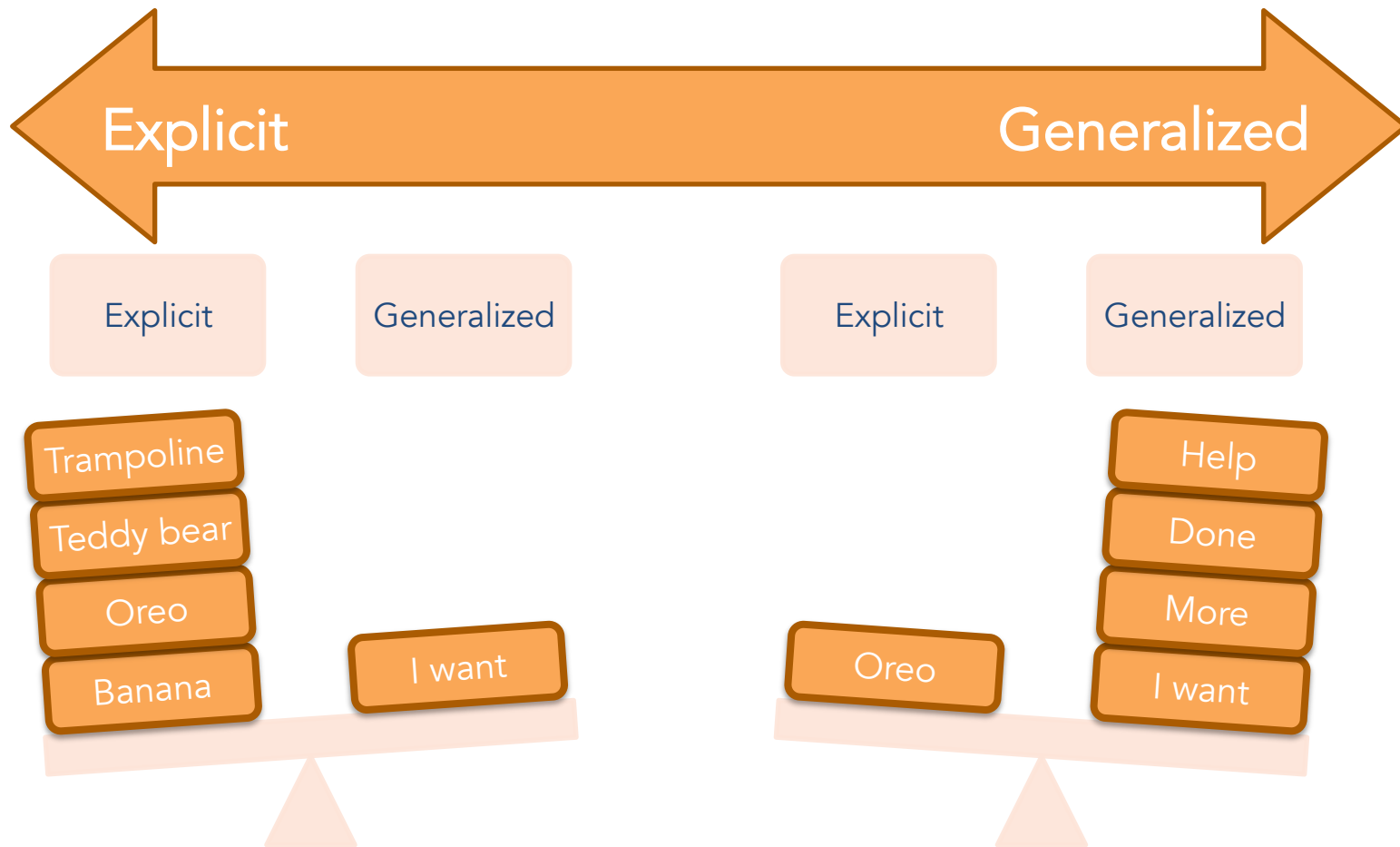
# Vocabulary Type



Cookie		Snack		More
Oreo Banana	Cookie		Snack	More
Oreo Banana	Cookie	Snack	Food	More

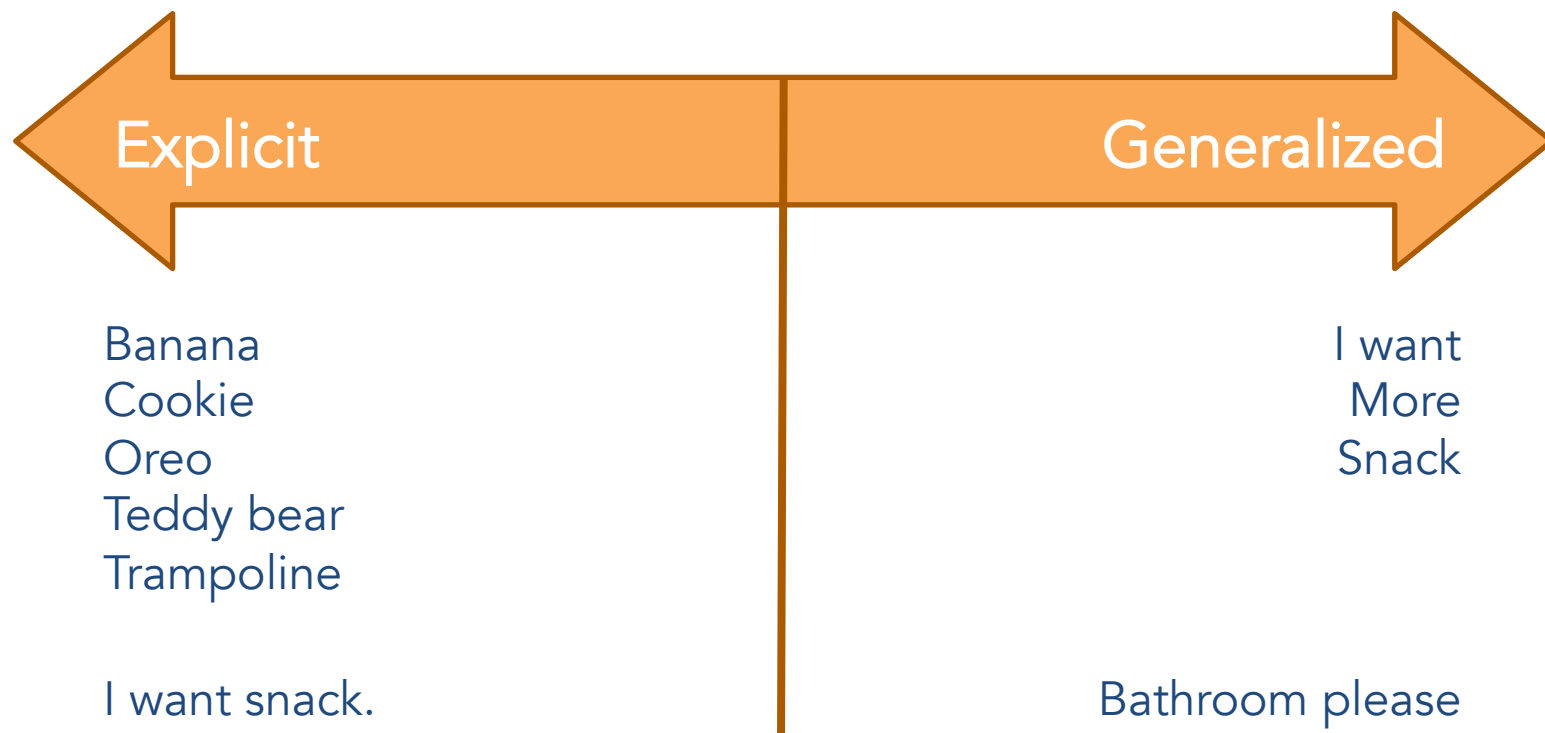


# Vocabulary Type





# Vocabulary Type



# Vocabulary Type - Results



Single words		Whole Messages	Categories
Ball (2)	Mom (5)	Come here (3)	Favorite/preferred action (4)
Bed	Playdough (2)	I am __ years old.	Favorite/preferred activity (2)
Book (2)	Potty (2)	I am/I'm hungry. (3)	Favorite/preferred object/item/toy (21)
Bubbles (2)	School	I am sick.	Favorite/preferred food/food choice (8)
Car	Sleep (2)	I am/I'm thirsty. (3)	Favorite/preferred drink/drink choice (4)
Clothes	Teacher (2)	I am/I'm tired. (2)	Favorite/preferred person (2)
Computer	Toilet (3)	I have to use/need the	Favorite/preferred places
Cookie	Video	bathroom. (2)	Favorite/preferred clothing
Cracker	Water	I need a break. (3)	Favorite/preferred book
Cup		I need water.	Favorite/preferred sensory items (2)
Dad (4)		I want snack.	Family member names (2)
Doctor		I'm angry.	Peer names (2)
Dog		I'm happy.	The child's name
Doll		I'm sad.	Teacher names
Goldfish		Let's go home.	Pet names
Hungry		My name is __. (5)	"Activity specific labeling"
Hurt (2)		Sit down.	Household items
iPad (2)		Stand up.	
Juice		Take a walk.	
Leggos		Time for lunch.	
Milk		Will you read?	

Note. Commonality scores are listed in parenthesis after the vocabulary item when the score was greater than 1.



# Vocabulary Type - Results

Generalized

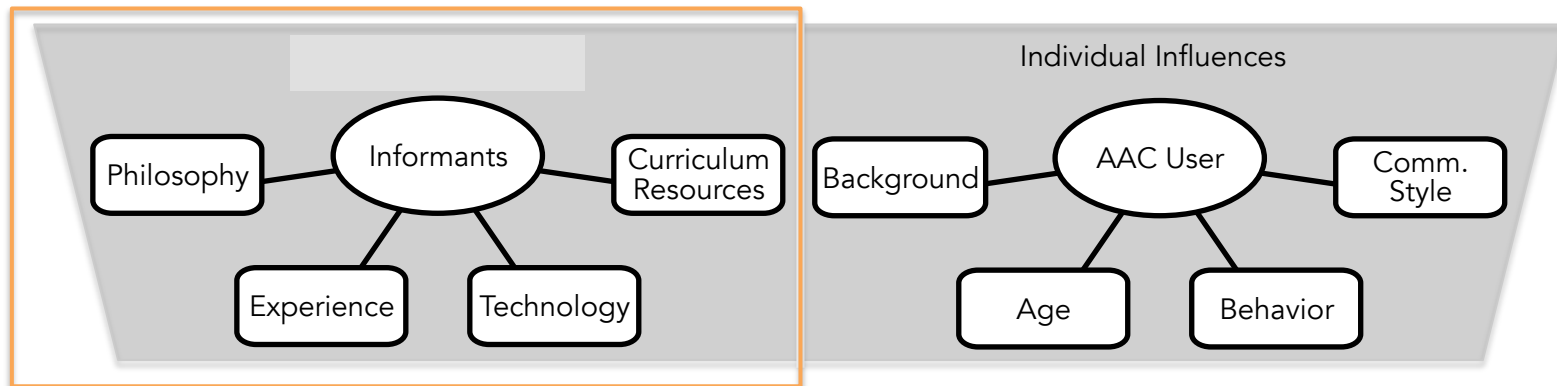
Single Words		Multi-word phrases	Whole messages	Categories
Again (6)	Me (2)	All done (19)	Can I help?	"Basic social words: hi"
Bathroom (13)	Mine (2)	All gone (3)	Can I play?	
Break (6)	More (43)	Bathroom please	Good morning.	"Greeting"
Bye/goodbye (10)	Move	Can I have...?	Help me. (2)	"Locations: in/out, etc."
Cold	Music	I/don't like (4)	Help, please.	
Cool!	Name (3)	I/don't want (2)	I am all done./I'm done. (2)	
Different (5)	Need (4)	Give me	I am not sure.	
Dislike	No (30)	I feel (2)	I don't like it.	
Do (5)	Not (3)	I like (2)	I don't like this. (2)	
Don't (6)	Now	I need	I like it.	
Done (5)	On	I see	I like that.	
Drink (28)	Out	I want (16)	I like this. (3)	
Eat (27)	Pain	My turn (9)	I need help. (4)	
Enough	Play (13)	Something different	I want help.	
Feel	Please (6)	Something else	I want that.	
Finish/ed (5)	Put	Your turn (2)	I want to do an activity.	
Food (3)	Sad		I want to go.	
Give	See (2)		Let me try.	
Go (26)	Snack (3)		Let's do it again.	
Happy	Stop (24)		Let's go.	
Hello/hi (18)	That (7)		No thanks.	
Help (29)	Toy/s (2)		See you later.	
Hot	Turn (3)		Something's wrong.	
Hurry	Uh oh		Thank you. (6)	
I (14)	Wait (2)		Want to play?	
In	Want (26)			
It (3)	What (6)			
Like (11)	Yes/yeah (29)			
Look (8)	You (10)			

Note. Commonality scores are listed in parenthesis after the vocabulary item when the score was greater than 1.



# A Framework

## Influences on Vocabulary Selection

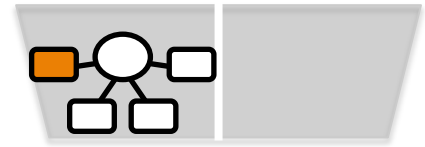


- Banajee, DiCarlo, & Stricklin, 2003; Beukelman et al., 1991
- Balandin & Iacono, 1998a, b; Fried-Oken & More, 1992; Morrow et al., 1993
- E.g., Bryen, 2008 ; Da Fonte, Pufpaff, & Taber-Doughty, 2010; Rackensperger, Krezman, McNaughton, Williams, & D'Silva, 2005; Soto, Yu, & Henneberry, 2007; Wilkins & Ratajczak, 2009

- Beukelman & Mirenda, 2013; Light & McNaughton, 2012; Light, Wilkinson, & Drager, 2008; Soto & Yu, 2014
- E.g., Beukelman, McGinnis, & Morrow, 1991
- Martin, Drasgow, Halle, & Brucker, 2005; Snell, Chen, & Hoover, 2006; Walker & Snell, 2013
- Finke & Quinn, 2012



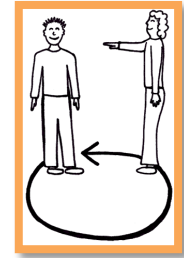
# Philosophy



- Developmental – based on typical language development  
(Holland, 1975; Lahey & Bloom, 1977; Fristoe & Lloyd, 1980)
- Environmental – based on needs in environments accessed  
(Brown et al., 1980; Carlson, 1981; Nietupski & Hamre-Nietupski, 1979)
- Functional – based on communicative functions and/or behavior  
(Carr & Durand, 1985; Reichle, Halle, & Johnston, 1993; Reichle et al., 1991)



# Philosophy – Your Turn

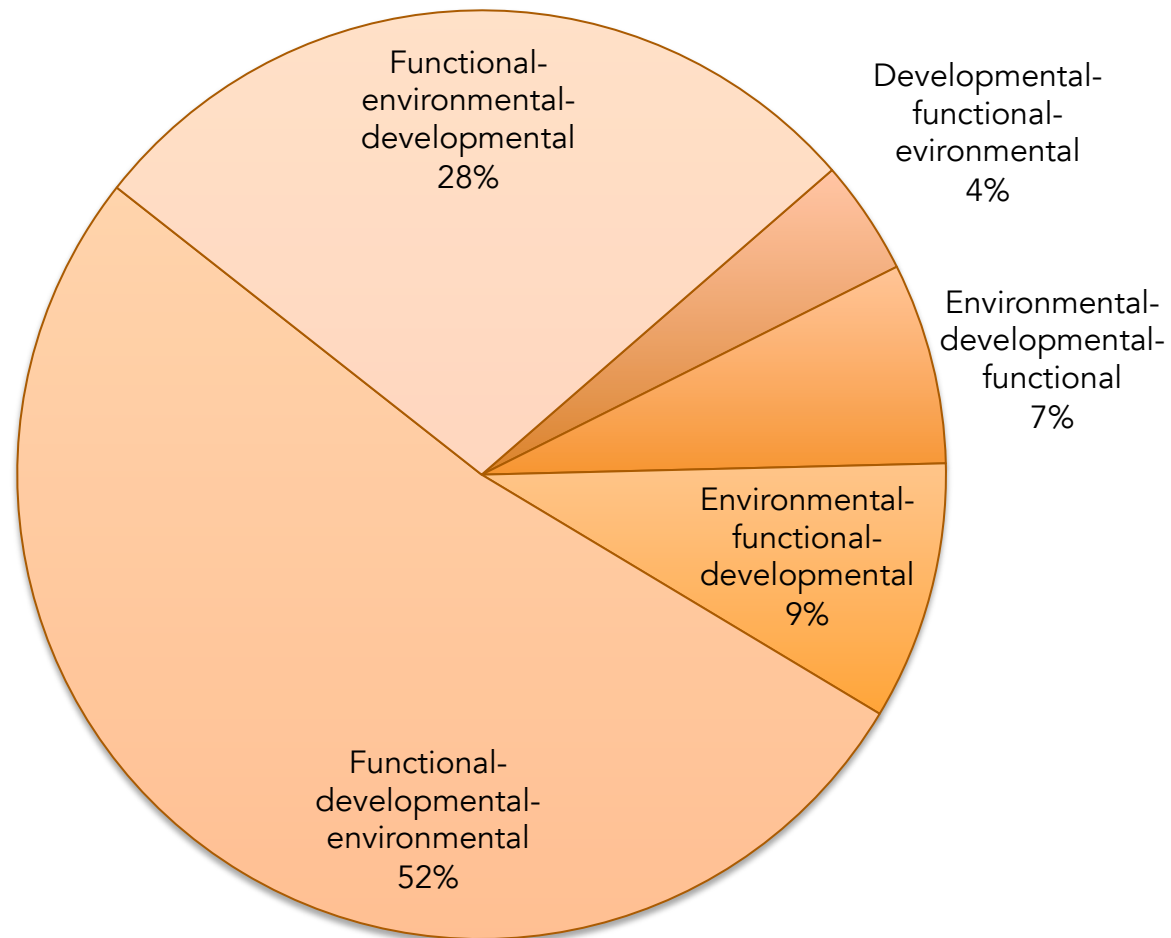


Please list the following statements to represent the order of importance they have to you when selecting initial AAC vocabulary for individuals with severe ID.

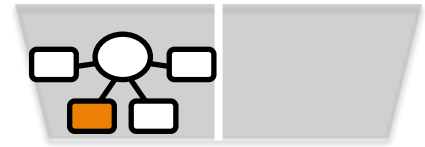
- Vocabulary reflects typical language development and vocabulary used by typically-developing peers
- Vocabulary reflects the user's needs and preferences in each setting/environment they access
- Vocabulary allows communication for multiple functions (e.g., request, reject, comment)



# Philosophy - Results



# Experience



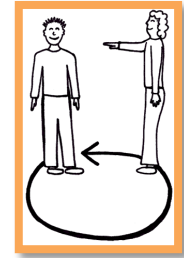
- AAC evaluation experience
- AAC vocabulary selection experience
- Experience providing AAC intervention and support
- Experience communicating with AAC users
- Experience with AAC user's life

(Balandin & Iacono, 1998a, b; Dark & Balandin, 2007; Fried-Oken & More, 1992; Morrow et al., 1993)





# Experience – Your Turn



Note the age of individuals with severe ID & CCN with whom you have worked.

- ☐ Early intervention (birth to age 3)
- ☐ Early childhood (3 - 5 years)
- ☐ Kindergarten – 5<sup>th</sup> grade
- ☐ 6<sup>th</sup> – 8<sup>th</sup> grade
- ☐ 9<sup>th</sup> – 12<sup>th</sup> grade
- ☐ 18- to 21-year-olds
- ☐ None of the above

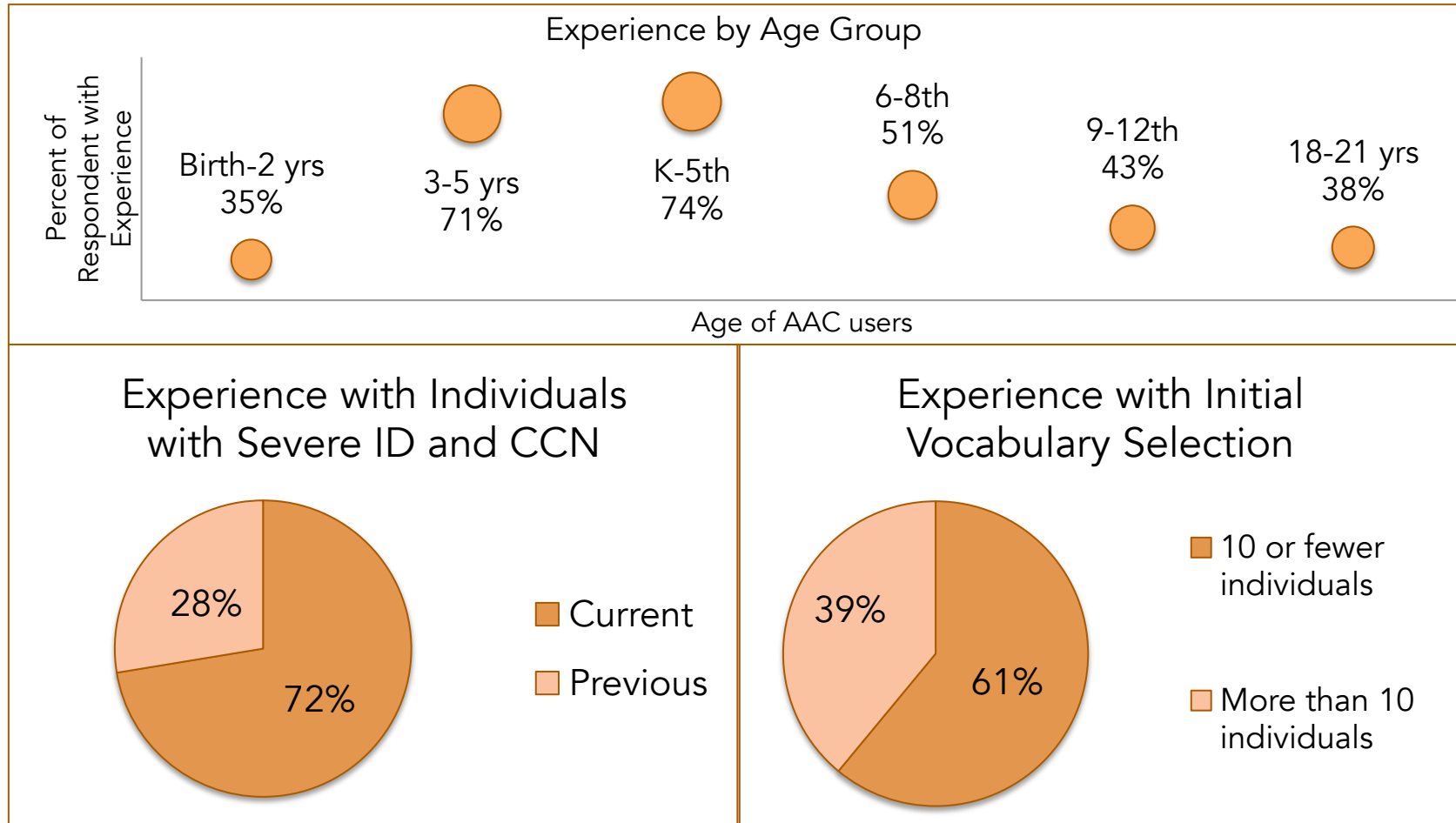
How many total years of experience do you have with AAC for individuals with severe ID in a professional capacity?

In your career, for approximately how many individuals with severe ID and CCN have you participated in:

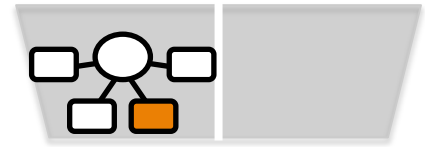
- Selecting vocabulary for their initial AAC system?
- Vocabulary selection after the individual has already learned some AAC vocabulary?



# Experience - Results



# Technology



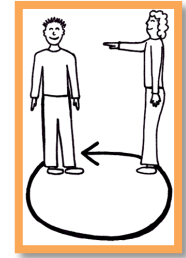
Technology encompasses many influences, but we focused on preprogrammed vocabulary sets available in AAC devices.

- More familiar and/or readily available
- May be used even if incongruous with philosophy

(Bryen, 2008; Rackensperger, Krezman, McNaughton, Williams, & D'Silva, 2005; Soto, Yu, & Henneberry, 2007; Wilkins & Ratajczak, 2009)



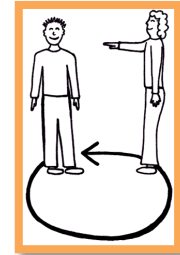
# Technology – Your Turn



When selecting an initial AAC vocabulary for an individual with severe ID and CCN, please indicate *how often* you use each preprogrammed vocabulary set for AAC devices in your practice, either to program a device or inform vocabulary for a different mode of AAC.



# Technology – Your Turn



<u>Used</u> in my practice				
Never	Rarely	Sometimes	Often	Almost Always

## DynaVox

- Communicate 4
- InterAACt®
- Word Power®

## Proloquo2Go®

- Basic Communication Vocabulary
- Core Communication Vocabulary

## Tobii

- Communicator
- SonoFlex
- Sono Primo

## Prentke Romich Company (PRC)

- LAMP
- Picture Word Power™
- The Pixon™ Project
- TALK-ABOUT-AAC®
- Unity®

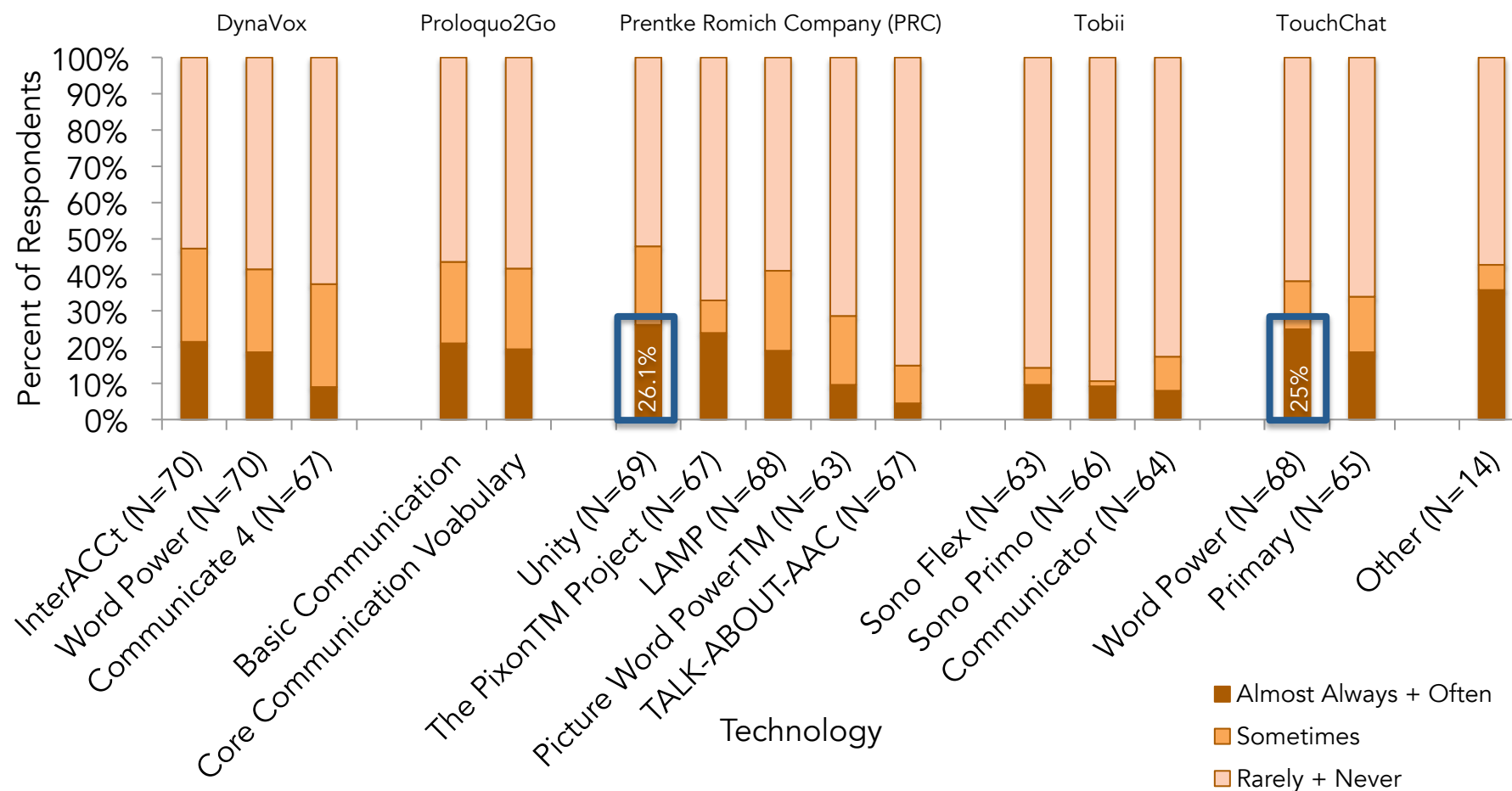
## TouchChat

- Primary
- Word Power®

## Other



# Technology - Results



# Technology - Results

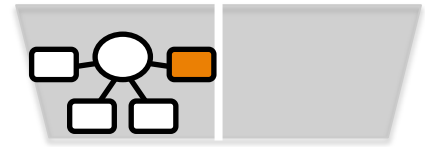
## Other

- NovaChat by Saltillo
- AltChat by Saltillo
- Sounding Board™
- Verbally©
- GoTalk® selection

(n = 1)



# Curriculum Resources



Curricula or curricula materials used in schools/intervention/therapy

- E.g., Books, classroom curricula, reading/ spelling lists

Specific communication teaching strategies

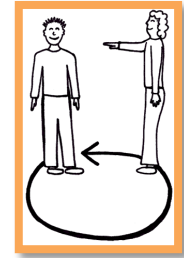
- E.g., Picture Exchange Communication System (PECS); Functional Communication Training (FCT)

(Carr & Durand, 1985; Da Fonte et al., 2010; Frost & Bondy, 2002; Rackensperger et al., 2005; Soto et al., 2007; Wilkins & Ratajczak, 2009)





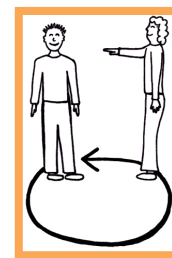
# Curriculum Resources – Your Turn



Please indicate how often you use  
each curriculum resource in your  
practice.



# Curriculum Resources – Your Turn



<u>Used</u> in my practice				
Never	Rarely	Sometimes	Often	Almost Always

## Classroom/Grade level/Course

- Subject area curriculum
- Unit of study
- Routines (e.g., morning meeting, circle time, Daily Language Review<sup>©</sup>, etc.)

## Sign Language

- Baby Signs Classroom Kit<sup>®</sup>
- Signing Smart<sup>™</sup>
- Talking Hands<sup>®</sup>

## Communication

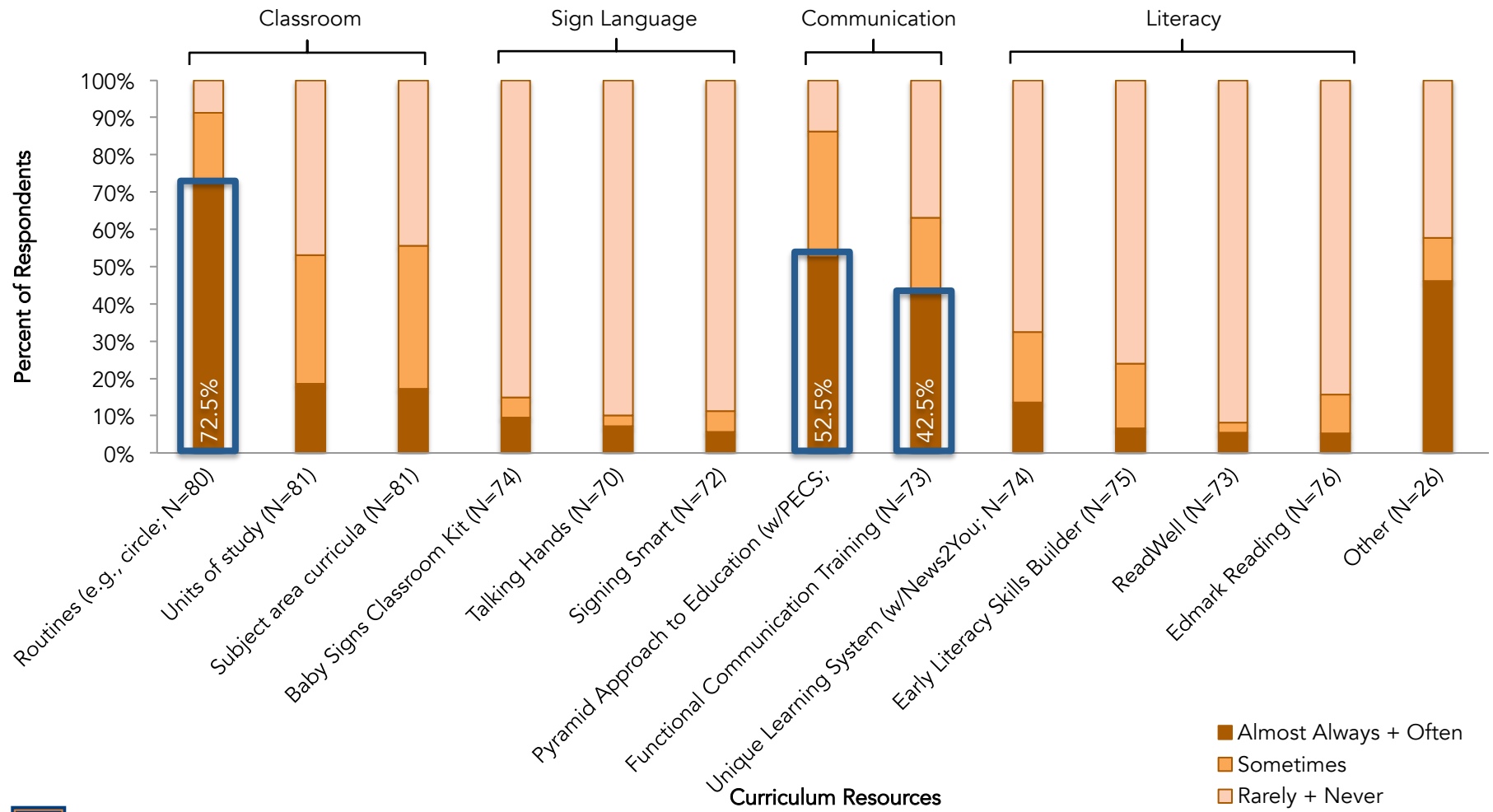
- Pyramid Approach to Education<sup>™</sup> (including PECS)
- Functional Communication Training (FCT)

## Literacy

- Edmark<sup>®</sup> Reading Program
- ReadWell<sup>®</sup>
- Unique Learning System<sup>®</sup> (including News2You<sup>®</sup>)
- Early Literacy Skills Builder<sup>©</sup>



# Curriculum Resources Use - Results



# Curriculum Resources - Results

## Other

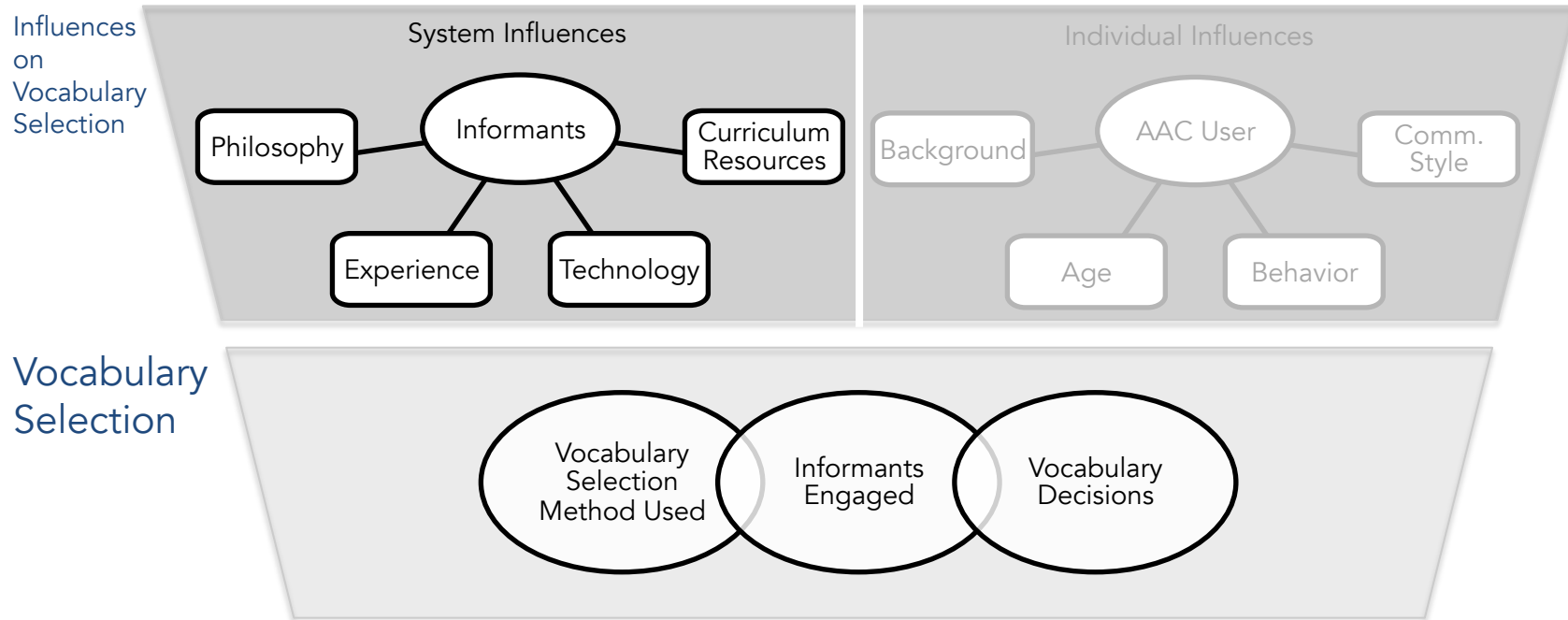
- Language for Learning<sup>©</sup>
- Every Move Counts, Clicks and Chats<sup>©</sup>
- Gail Van Tatenhove's Core Vocabulary Approach
- Environmental Communication Training (ECT)
- Simple Sign Language
- PODD Training<sup>©</sup>
- Sign to Speech
- Tangible Symbol Systems<sup>©</sup> by Design to Learn<sup>\*</sup>
- Laureate Learning<sup>©</sup>

\*Technology

(n = 1)



# A Framework



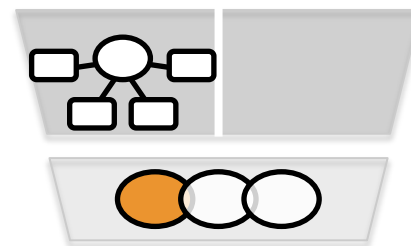
- E.g., Beukelman et al., 1989  
Fallon et al., 2001; Fried-Oken & More, 1992; Marvin et al., 1994; Morrow et al., 1993; Reichle et al., 1991; Snell et al., 2006; Trembath et al., 2007; Yorkston et al., 1988

- E.g., Beukelman et al, 1991; Beukelman & Mirenda, 2013; Bornman & Bryen, 2013

- E.g., Beukelman et al., 1992; Beukelman & Mirenda, 2013; Calculator & Black, 2009 Morrow et al., 1993



# Vocabulary Selection Methods Used



## Environmental Inventory

- Observe AAC user and peers in environments the AAC user accesses/ may access (Mirenda, 1985; Morrow et al., 1993)

## Categorical Inventory

- Identify words from a set of categories (e.g., *people, places, feelings, actions*) (Carlson, 1981; Fallon et al., 2001)

## Communication Diary

- Record all words AAC user communicates/ attempts to communicate (Yorkston et al., 1989)

## Preference Assessment

- Identify highly motivating items, etc.; identify communicative behaviors (Logan & Gast, 2001; Reichle et al., 1991)

## Functional Behavior Assessment

- Identify communicative functions of existing behavior (Reichle et al., 1991; Snell et al., 2006; Walker & Snell, 2013)

## Core Vocabulary Lists

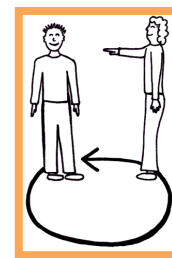
- Lists of most frequent or essential vocabulary used by others (E.g., Beukelman et al., 1991; Fallon et al., 2001; Morrow et al., 1993; Yorkston et al., 1988)

## Blank Page Method

- Informants list all words they think may be needed by the AAC user (Fallon et al., 2001; Morrow et al., 1993)



# Selection Methods – Your Turn



I have tried this.		I use this to select initial vocabulary.				
Yes	No	Never	Rarely	Sometimes	Often	Almost Always

## Environmental inventory

- Observing the AAC user and peers without disabilities in environments that the AAC user may access and identifying words that are important in each setting

## Categorical inventory

- Identifying words an AAC user may need for provided categories, such as *people*, *places*, *feelings*, etc.

## Communication diary

- Keeping a record of all words an individual communicates or attempts to communicate over a specified period of time

## Blank page method

- Asking people to write down all of the words they think may be of importance to the AAC user

## Word lists/vocabulary checklists

- Selecting and prioritizing words from standard and/or core vocabulary lists

## Preference assessment

- Identifying highly motivating items, activities, and other referents, and including the words for the individual's identified preferences

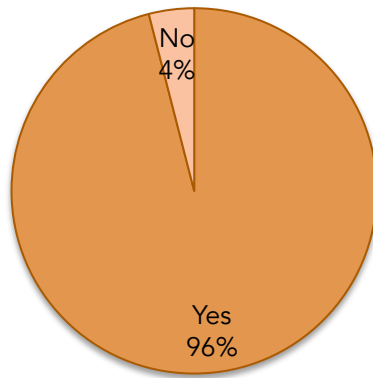
## Functional behavior assessment (FBA)

- Identifying the communicative functions of existing behaviors and providing vocabulary that can be taught to replace or clarify those behaviors

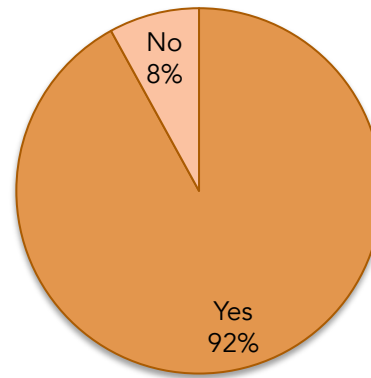


# Selection Methods Tried - Results

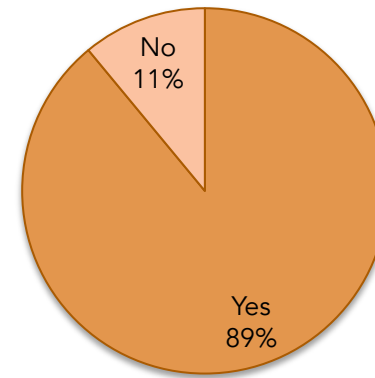
Categorical Inventory



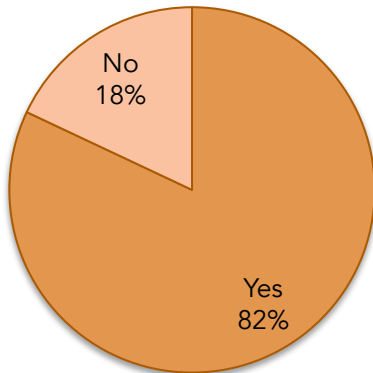
Preference Assessment



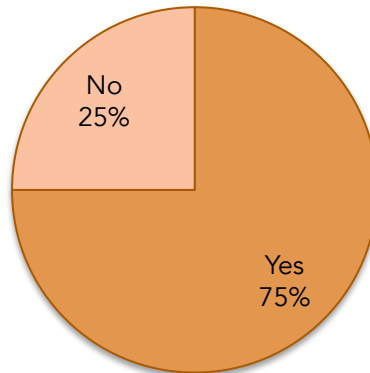
Environmental Inventory



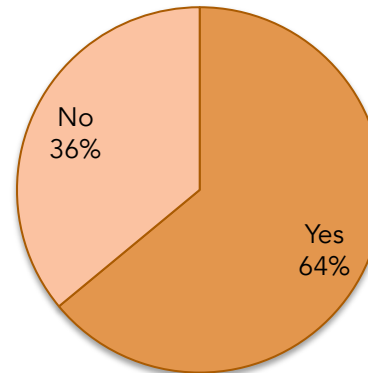
Checklists/Word Lists



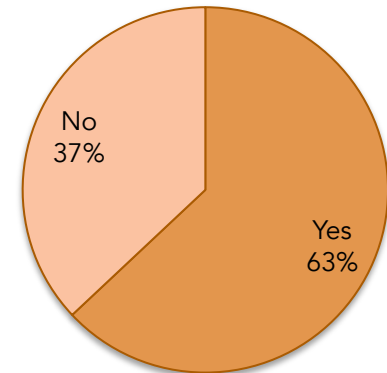
FBA



Blank Page

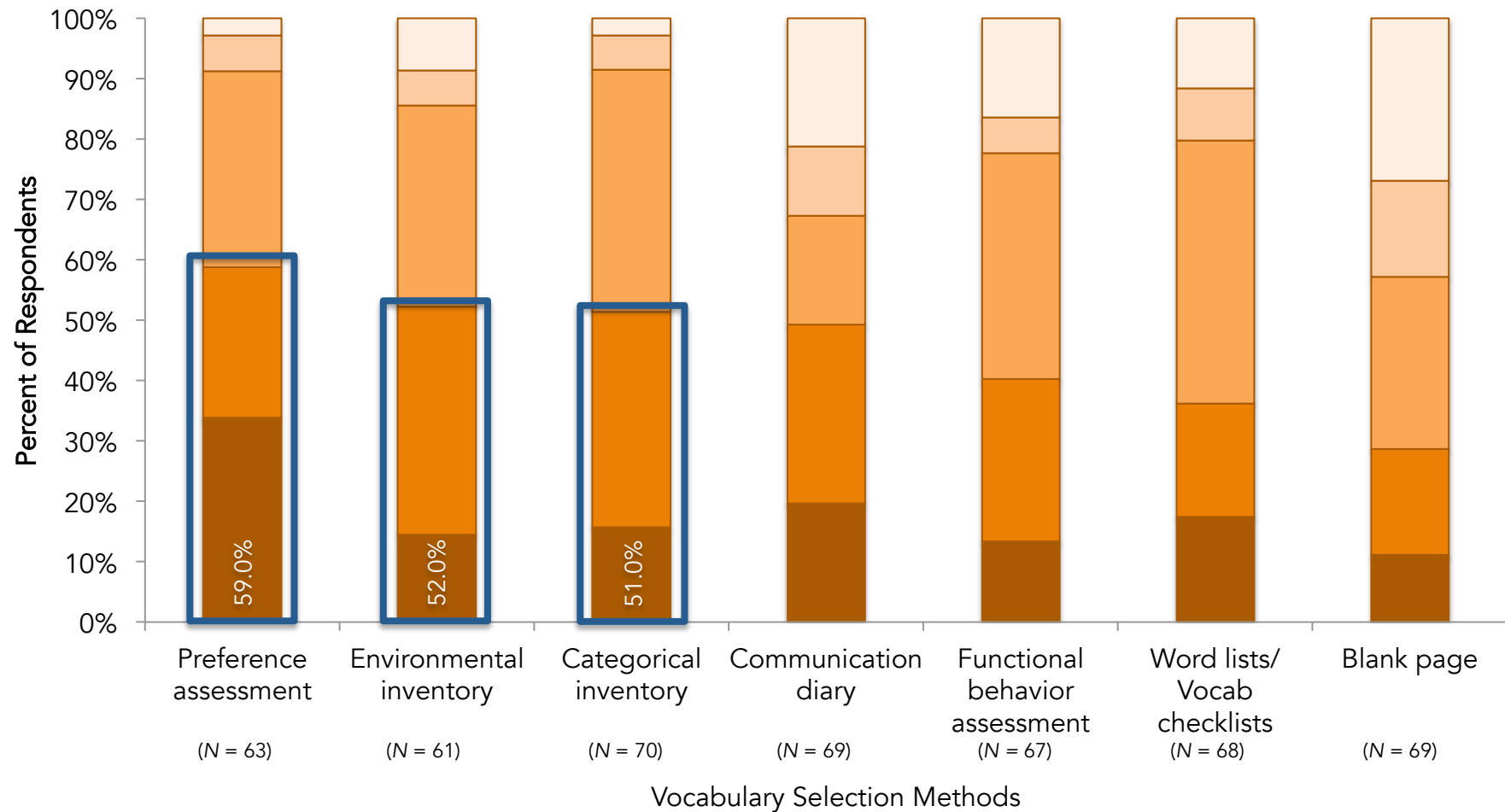


Communication Diary

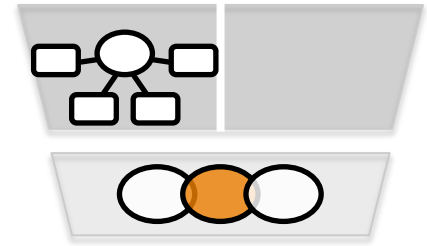




# Selection Methods Use - Results



# Informants Engaged



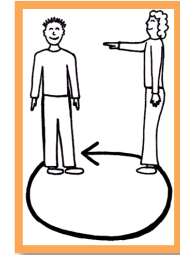
Who participates in vocabulary selection?

What  do they bring?

What level of influence over the vocabulary do they hold?



# Informants Engaged – Your Turn



Please indicate how often the following people have participated in the initial vocabulary selection process for individuals with severe ID and CCN in your practice.

Never	Rarely	Sometimes	Often	Almost Always
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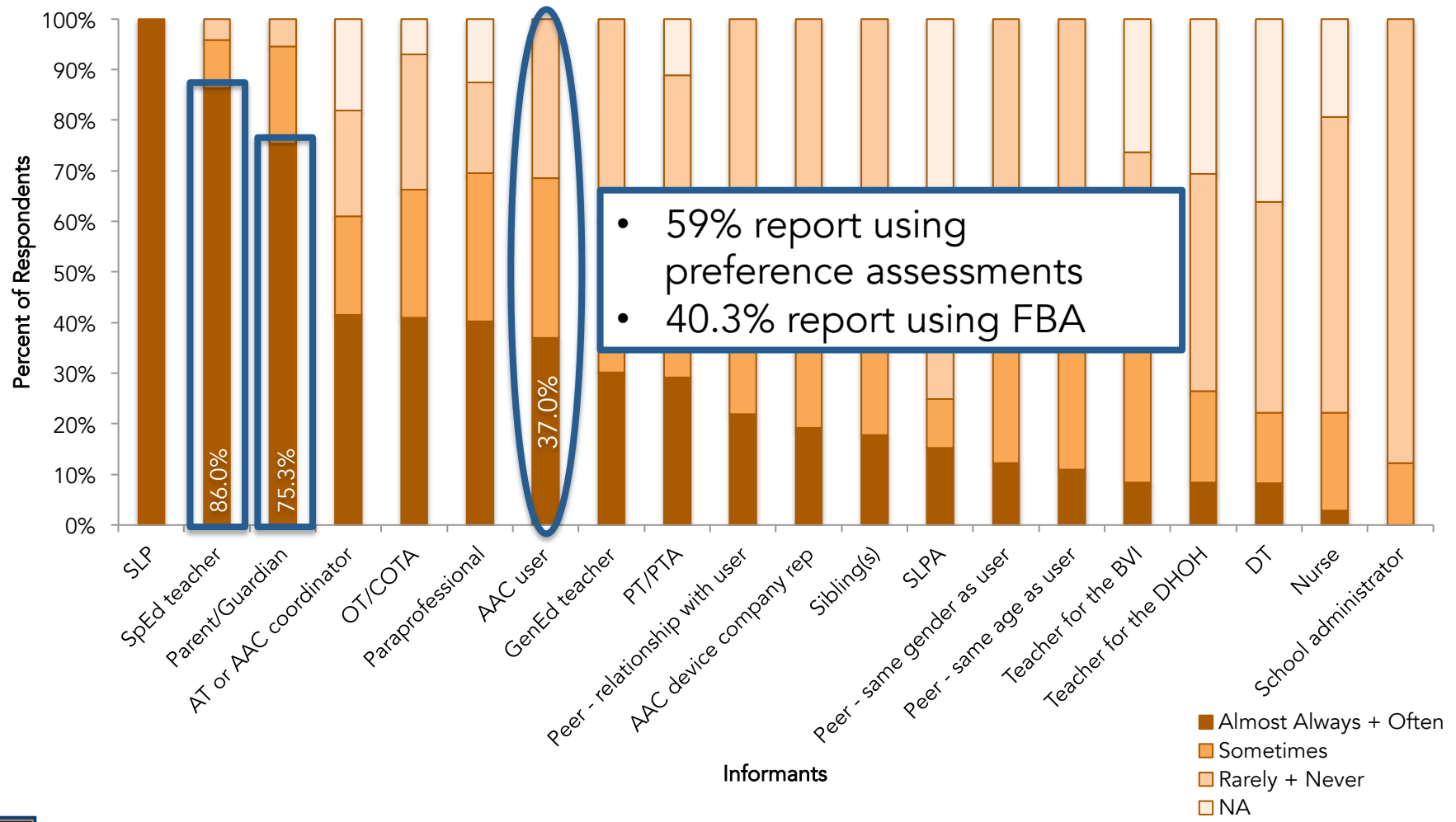
- AAC user
- Parent/Guardian
- Sibling(s)
- General education teacher
- Special education teacher
- Speech language pathologist
- School/district administrator
- Peer(s) – same age as AAC user
- Peer(s) – same gender as AAC user
- Peer(s) – have relationship with AAC user
- AAC device company representative

## When a member of the AAC team:

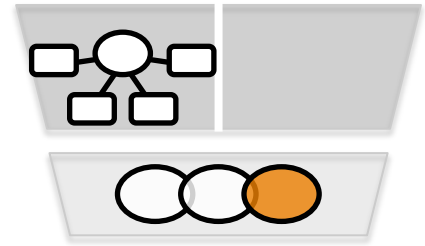
- Paraprofessional(s)
- Speech pathology assistant
- School/district assistive technology or AAC coordinator
- Occupational therapist/OT assistant
- Physical therapist/PT assistant
- Teacher for the visually impaired
- Teacher for the Deaf/hard of hearing
- School nurse
- Developmental therapist



# Informants Engaged - Results



# Vocabulary Decisions

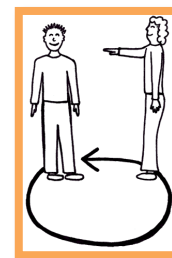


How will the vocabulary be presented to the AAC user in the initial system?

- How many vocabulary items will be included?
- How will the vocabulary items be presented?
  - Single words, phrases, whole messages



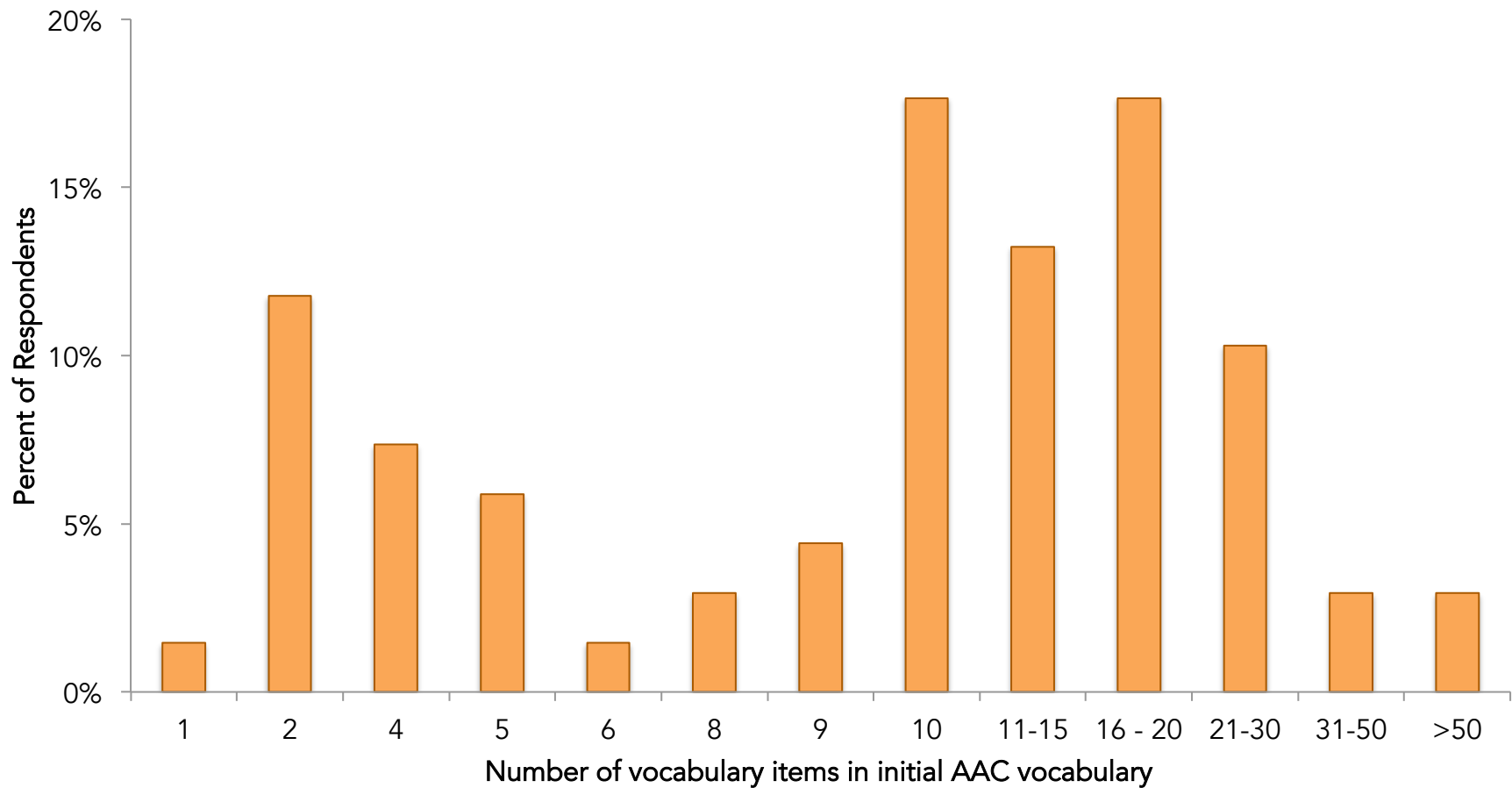
# Vocabulary Decisions – Your Turn



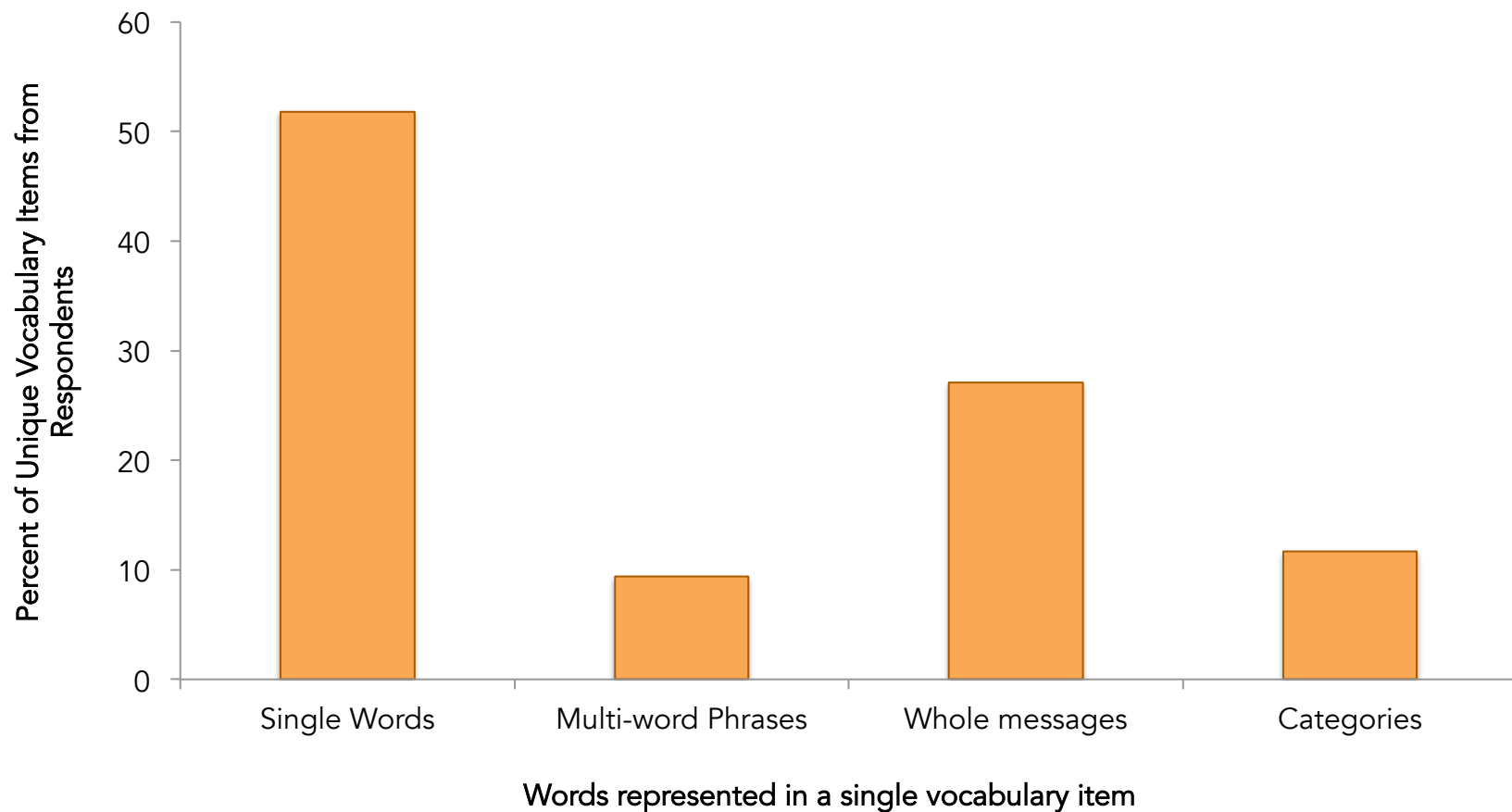
- How many words do you typically include in an initial AAC system for individuals with severe ID and CCN? \_\_\_\_\_
  - What is the minimum number of words you would put in their initial AAC system? \_\_\_\_\_
  - What is the maximum number of words you would put in their initial AAC system? \_\_\_\_\_
- Return to your initial list of 10 vocabulary items. How many were:
  - Single words?
  - Phrases?
  - Whole messages?
  - Categories?



# Vocabulary Decisions: Size - Results

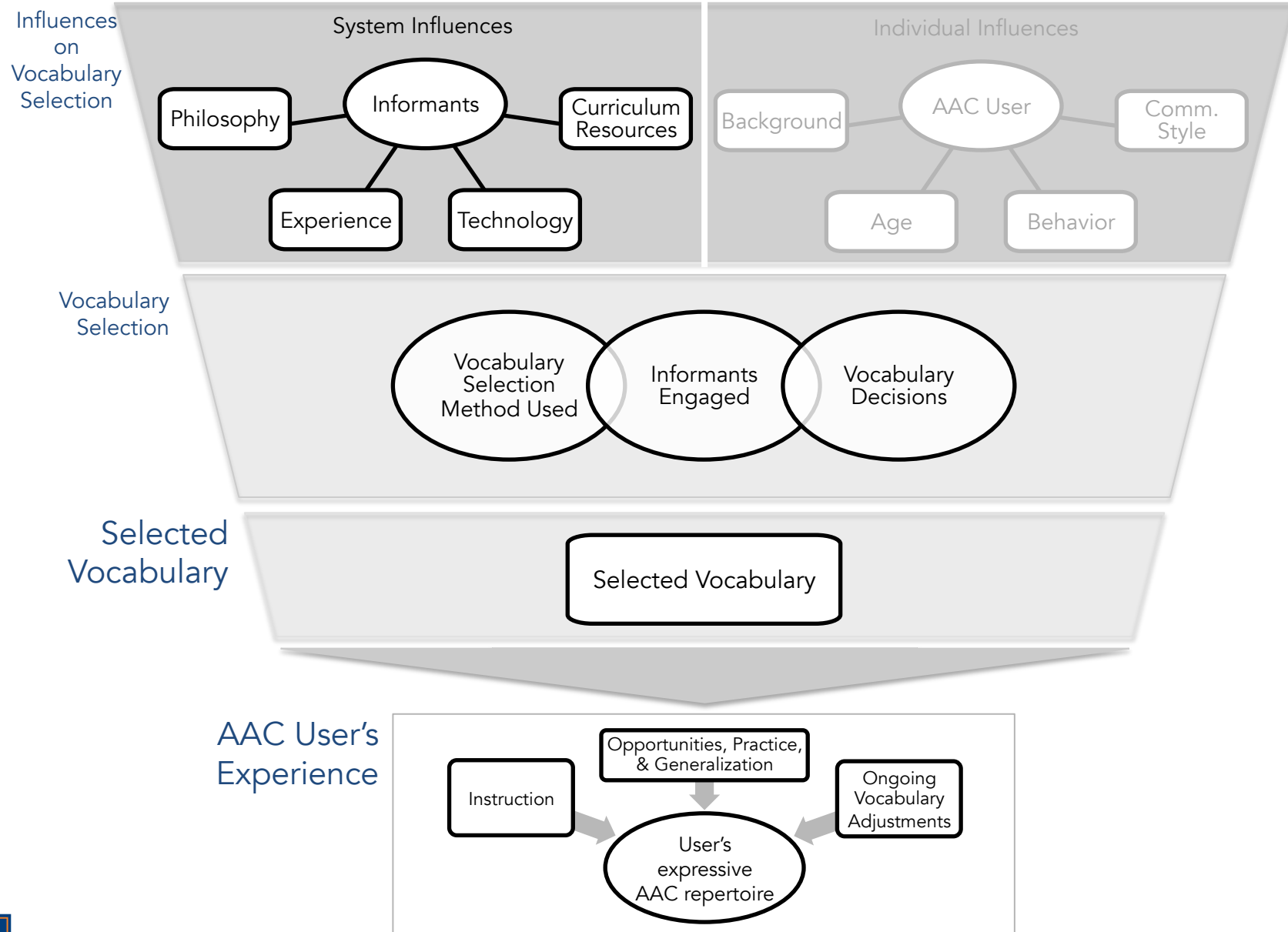


# Vocabulary Decisions: Words per Item - Results

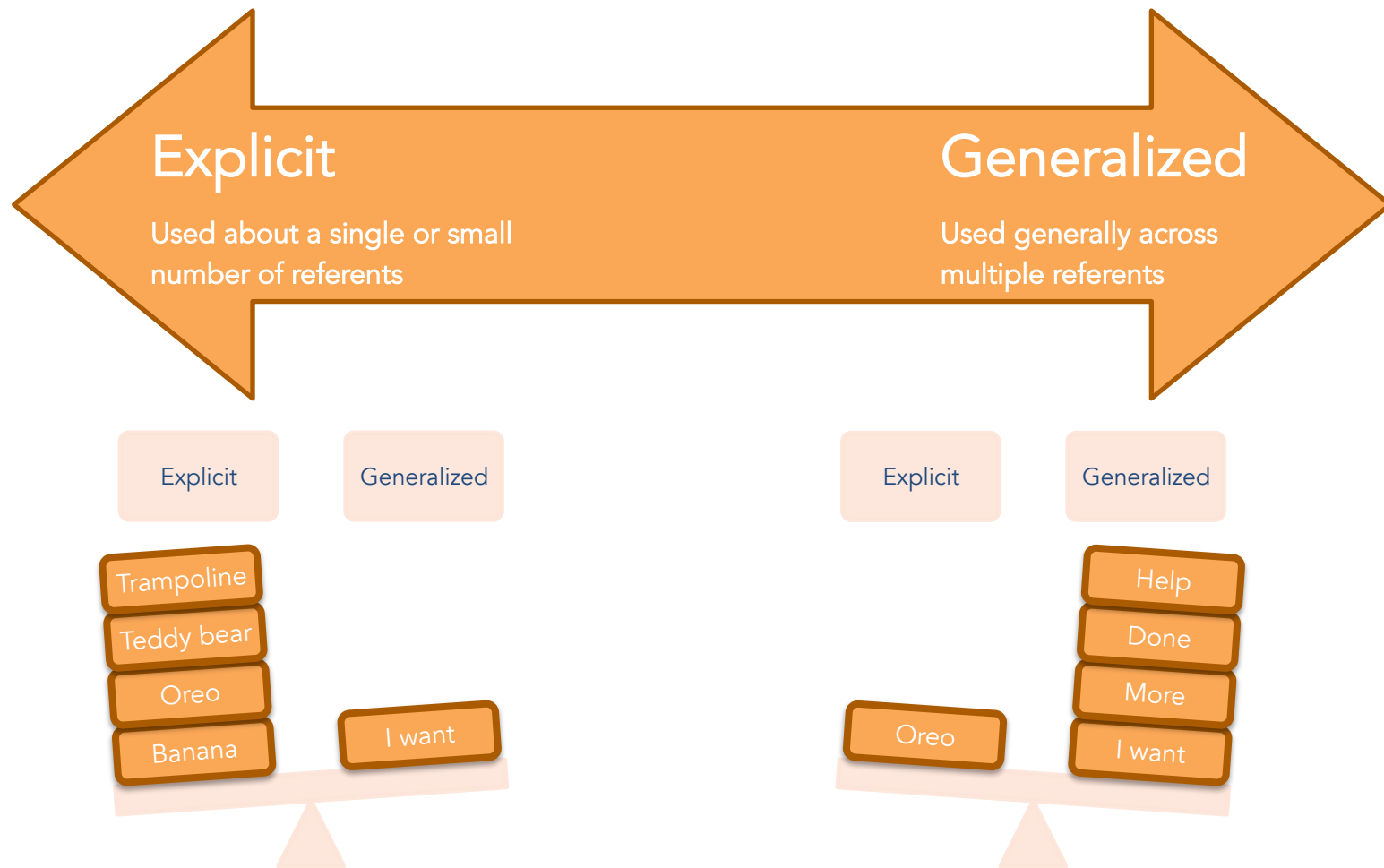




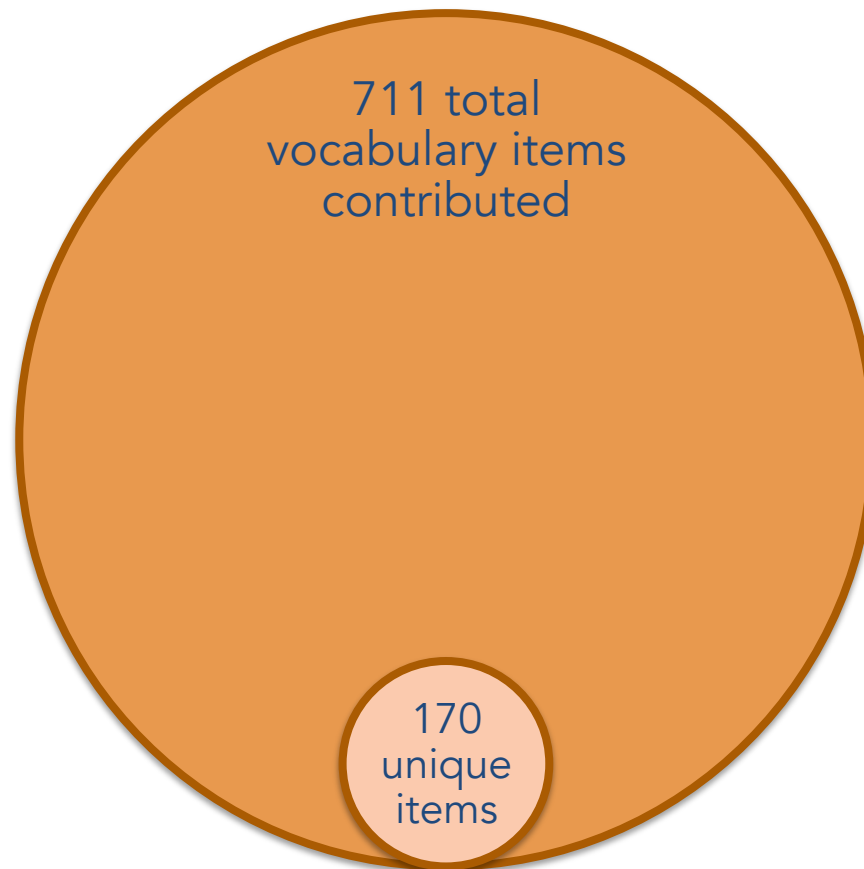
# A Framework



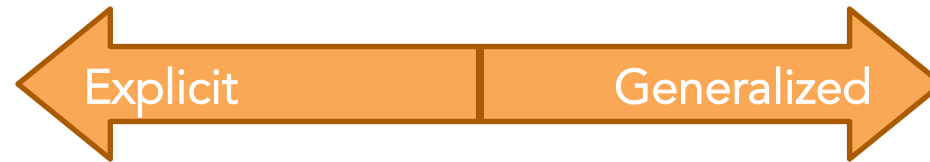
# Vocabulary Type Results



# Vocabulary Type - Results

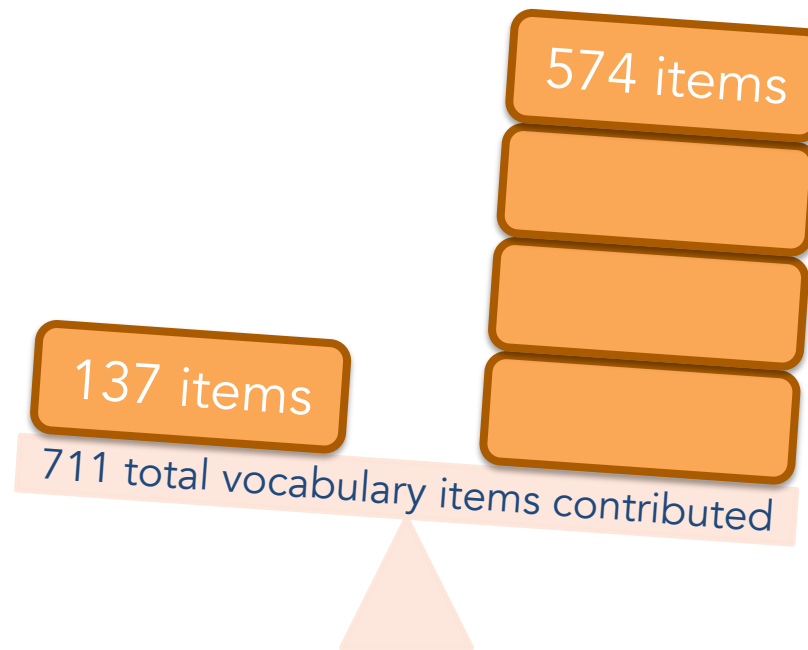


# Vocabulary Type - Results

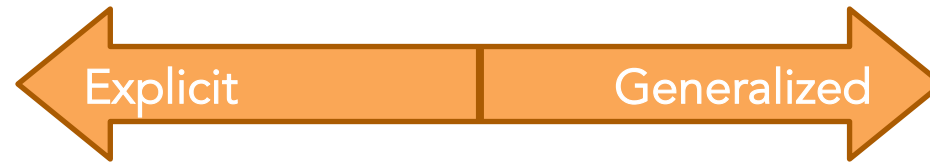


19%

81%

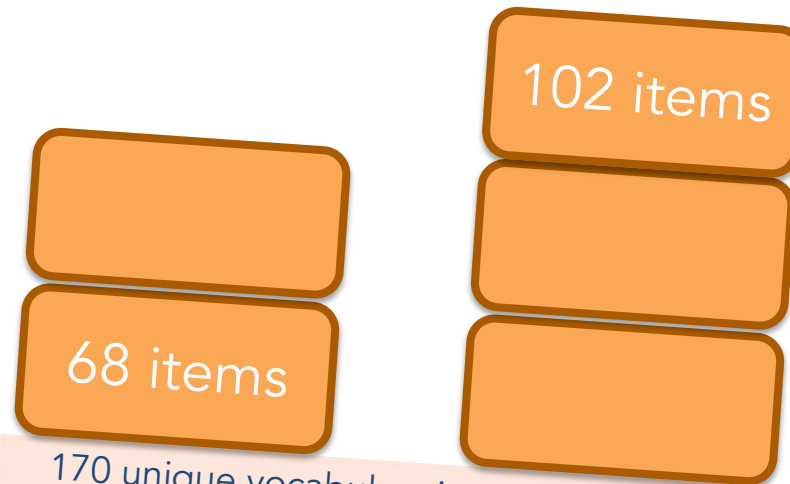


# Vocabulary Type - Results



40%

60%



170 unique vocabulary items contributed



# Influences on Vocabulary Type

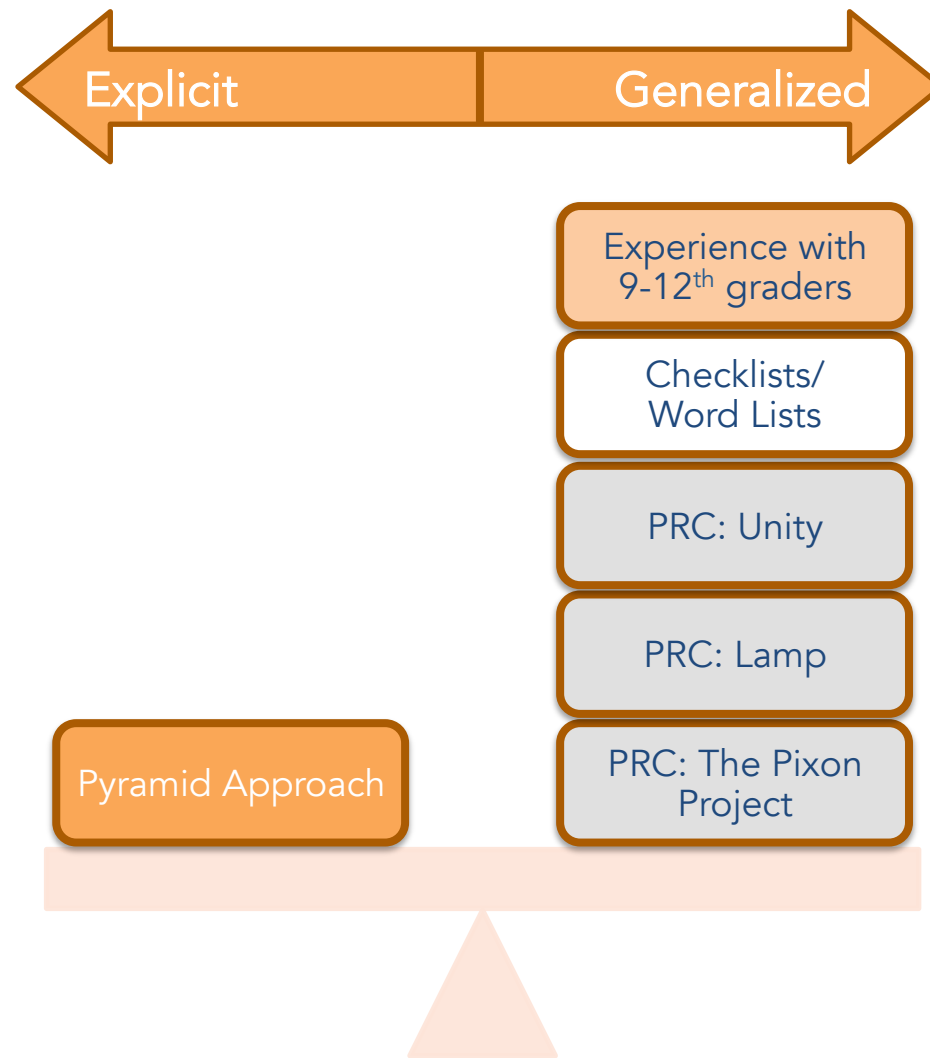
## *Selected Mann-Whitney U Tests of Differences in Mean Ranks of Vocabulary Type by Reported Use of Tools*

Curriculum Resource	Group	<i>n</i>	Mean Rank	<i>U</i>	<i>p</i> *
Pyramid Approach to Education™ (with PECS)	Not used	30	39.22	398.5	.039**
	Used	37	29.77		
Technology	Group	<i>n</i>	Mean Rank	<i>U</i>	<i>p</i> *
Prentke Romich Company (PRC): LAMP	Not used	48	26.38	90.0	<.001***
	Used	12	47.00		
PRC: The Pixon™ Project	Not used	45	27.34	195.5	.004**
	Used	16	41.28		
PRC: Unity®	Not used	45	27.60	207.0	.008**
	Used	16	40.56		
Vocabulary Selection Method	Group	<i>n</i>	Mean Rank	<i>U</i>	<i>p</i> *
Word Lists/Vocabulary Checklists	Not used	41	28.28	298.5	.012**
	Used	23	40.02		
Experience	Group	<i>n</i>	Mean Rank	<i>U</i>	<i>p</i> *
9 <sup>th</sup> – 12 <sup>th</sup> graders	No experience	38	29.79	391.0	.012**
	Experience	28	35.79		

Note. \*2-tailed probability; \*\**p* < .05; \*\*\**p* < .001



# Vocabulary Type - Results



# Implications

- The SLPs who responded to this survey were
  - Aware of and using many of the resources and vocabulary selection tools.
  - Primarily single-word, generalized vocabulary items in initial AAC.
- Some of the influences examined did affect vocabulary type.
- The AAC Vocabulary Selection Framework can be useful in guiding self-reflection about one's influence as an informant
  - Refining and using the framework with AAC teams





# Limitations

- Small number of respondents
- Self-report
- Questionnaire content was skewed toward school-based interventions specific to US/Midwest
- Questionnaire validity untested
- Only SLP and English language AAC perspectives



# Next Steps

- Refine the AAC Vocabulary Selection Framework based on these findings for use by AAC teams
- Revise questionnaire and administer to other AAC team members (e.g., parents, teachers)
- Integrate information from practitioners into research efforts
- Examine vocabulary selection efforts of teams



# Questions? Comments?



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