Communication using graphic symbols:
Challenges and solutions for classroom contexts

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Outline

- Graphic symbols for expression: ad-/disadvantages
- Considerations for use:
  - Access
  - Vocabulary selection
  - Vocabulary organization
  - Creating opportunities for use
  - Availability and safety
- GoTalk Now application as one example of an aided graphic-symbol-based system

What are graphic symbols?

- Collections of single-meaning pictures designed for communication

Examples of picture libraries:
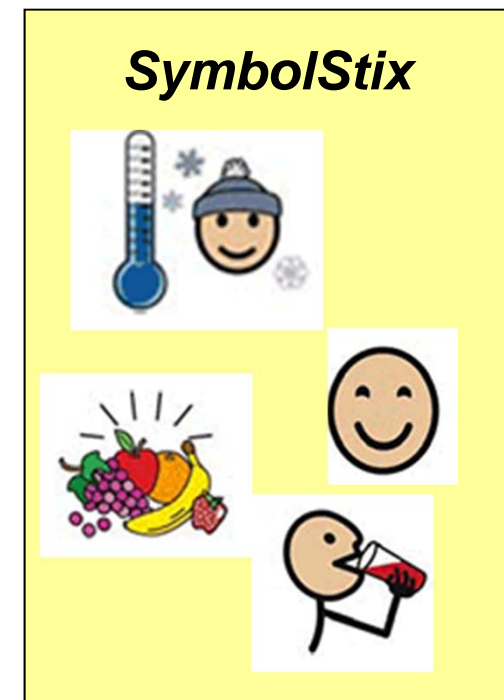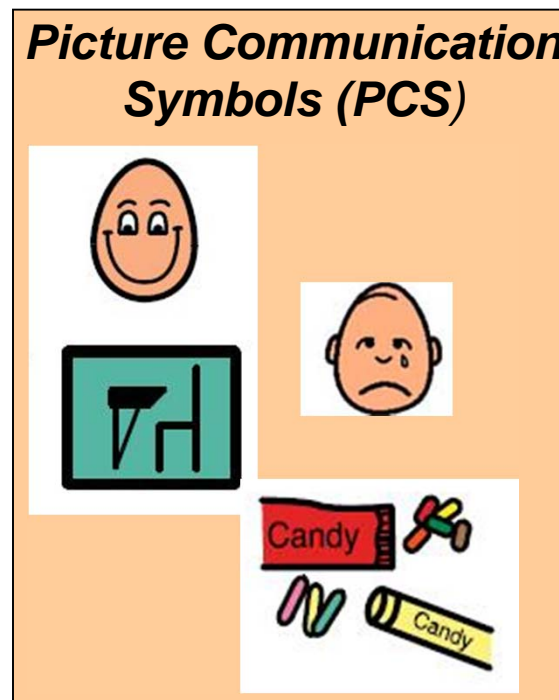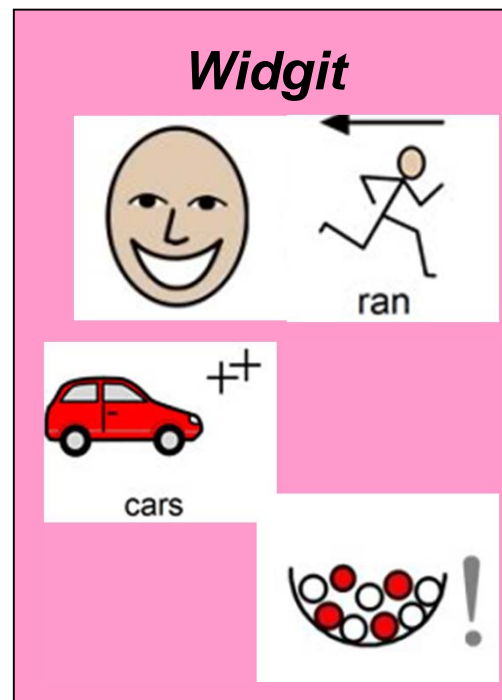
Use of graphic symbols

To promote comprehension

- Children with poor receptive skills
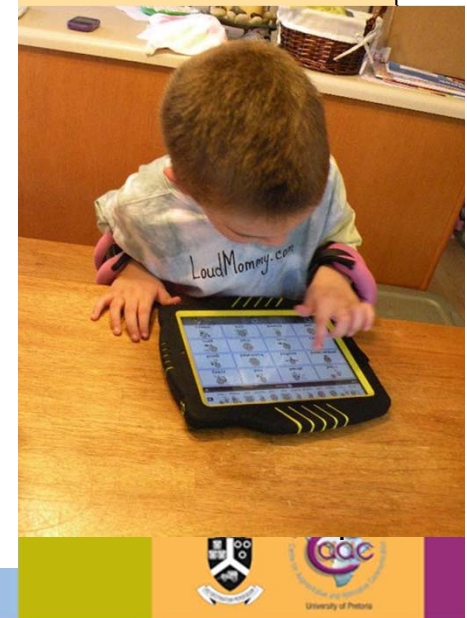- Second-language learners
- Instructional tool

For organization and behaviour control

- Visual schedules
- Contingency maps

For expression

- For learners whose speech is not sufficient to meet all their communication needs

Graphic symbols for expression

- Used on:
  - *non-electronic communication boards, books, files*

 - *speech generating devices (SGDs)*

Advantages of graphic symbols

- For children with physical disabilities: Reduced motor demands as compared to gestures and manual signs

- More easily understood by partners:

    - *Written word accompanies the picture*

    - *Speech is 'generated' by a device*

- Communication less context- and partner-dependent than gestures/facial expression/yes-no responses

- Pictures seem 'easy' – user does not need to be literate

Challenges of graphic symbols

- Not produced by user – need to be selected and printed/programmed in advance
- Not generative – one symbol – one meaning. Each concept needs a 'physical' location. System navigation makes cognitive demands and limits the vocabulary available at any given time
- Symbols may not be as 'easy' as they appear – many words are not 'picture producers'
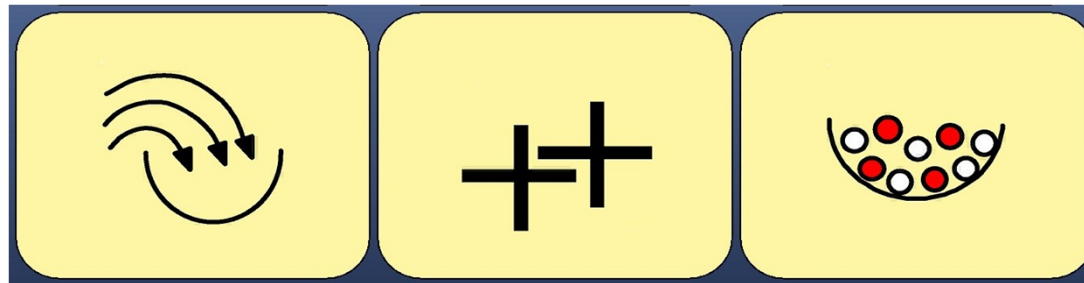
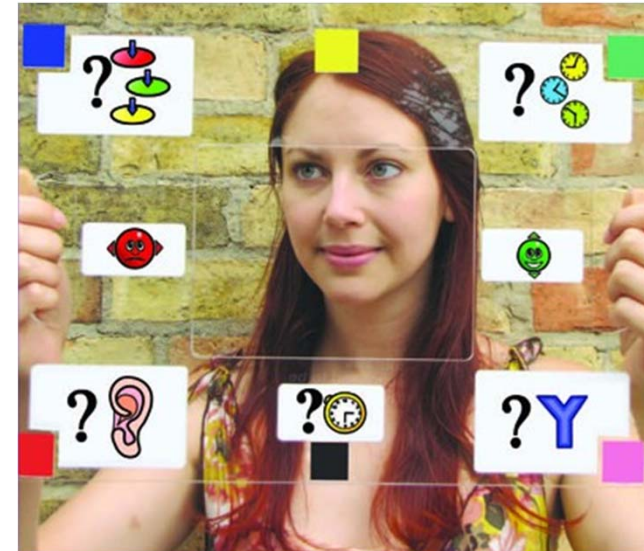- There are no natural 'models' who use graphic symbols

Considerations for use

- **Part of a multimodal communication system**

- **Access**

- **Vocabulary selection:** How much? Which words?

- **Vocabulary organization**

- **Creating opportunities for use**

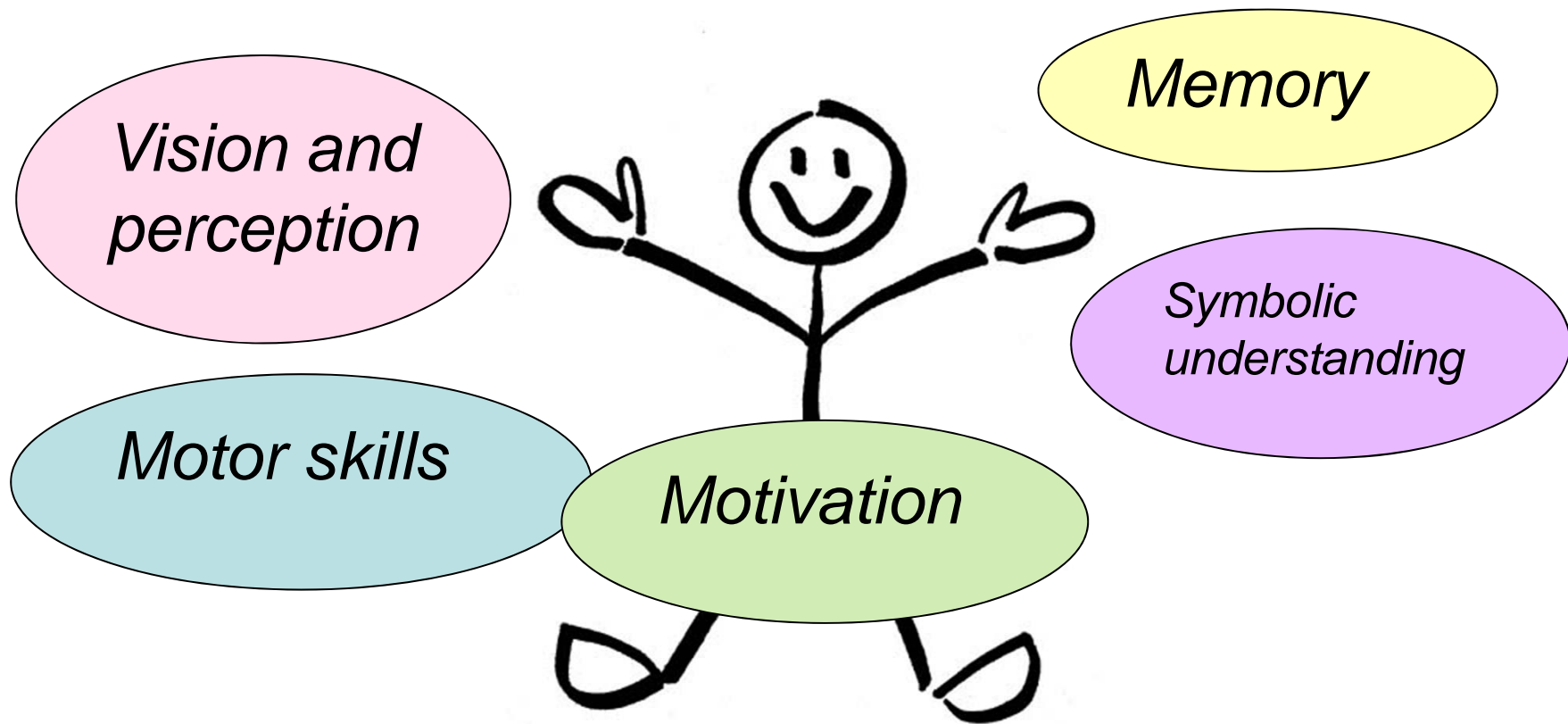- **Availability and safety**

Access

Vocabulary selection

Vocabulary selection

How many items? How many on a page? How many pages?
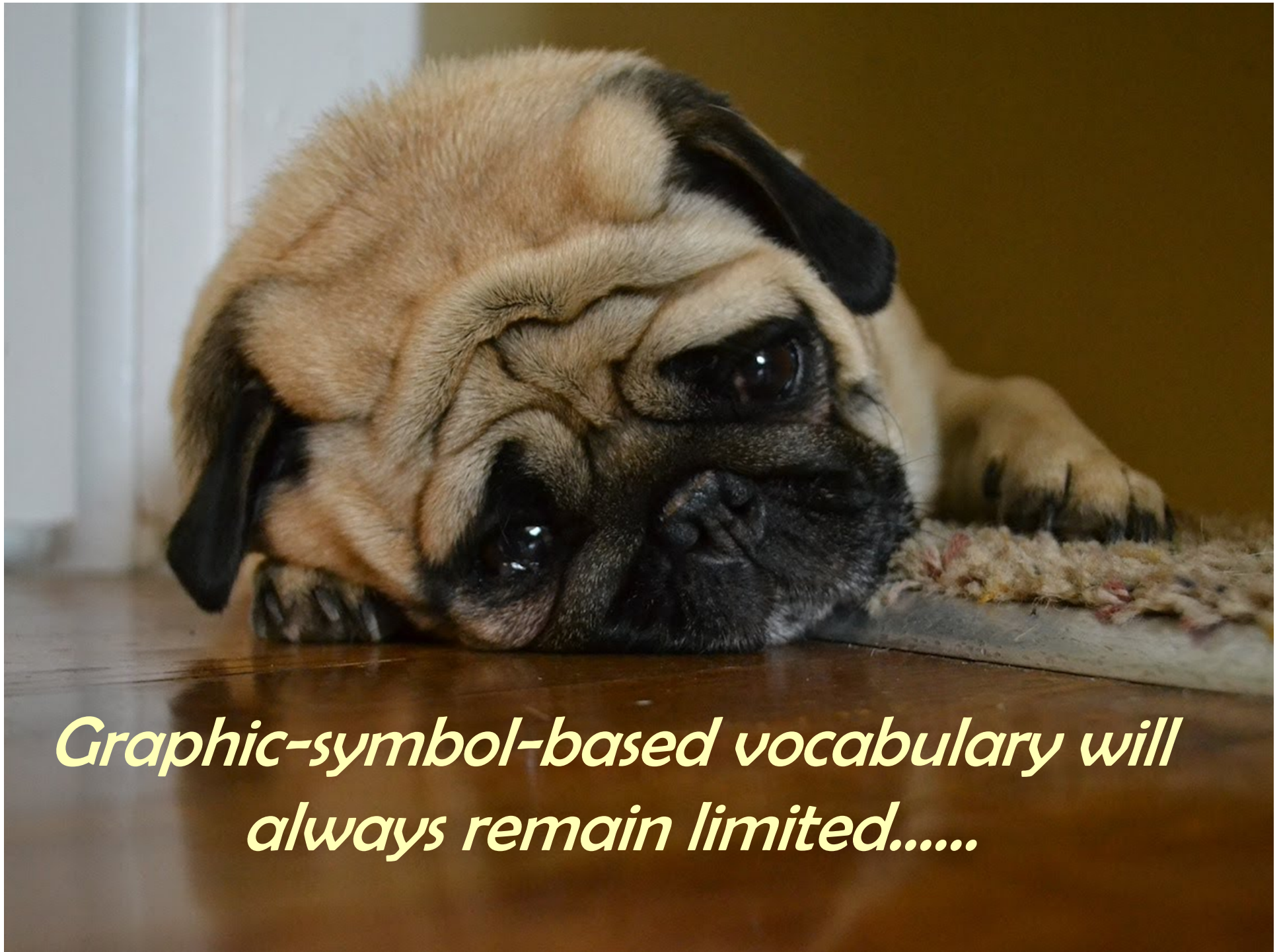
Graphic-symbol-based vocabulary will always remain limited......

Vocabulary selection: Which words?
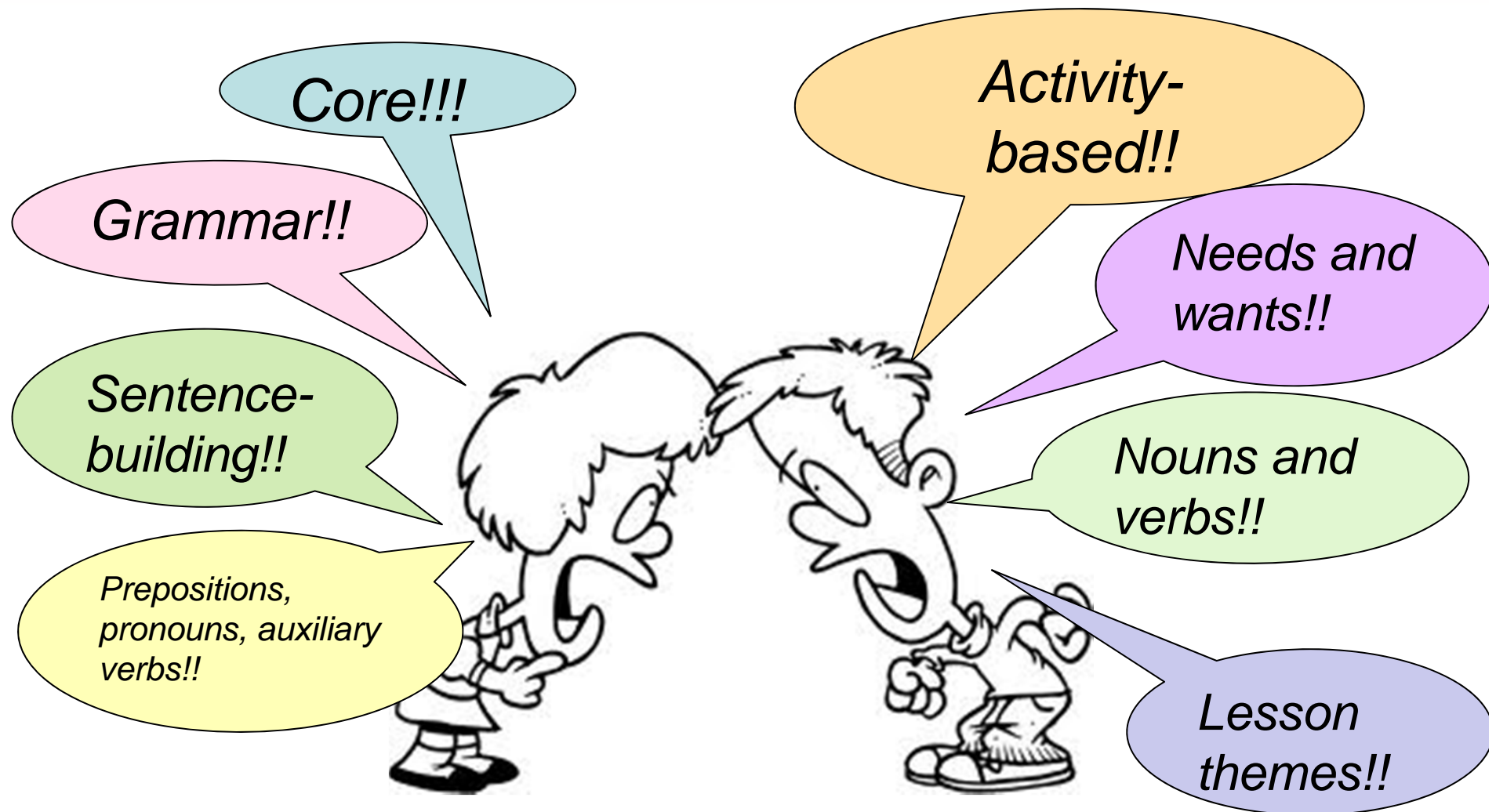
What are core words?

- Reaction to problems with graphic symbol-based vocabulary: limited size

- Core Vocabulary: small set of high frequency, re-usable words

- Makes up around 80% of our spoken words

- Important for syntax – moving beyond single words

- Aim is to build LANGUAGE rather than building VOCABULRY

- Say more with less

- Some research-based lists can be obtained from http://www.minspeak.com/CoreVocabulary.php

Example of a 56 item core vocabulary board (adapted from Pixon™ 50 location board from Prentke Romich)

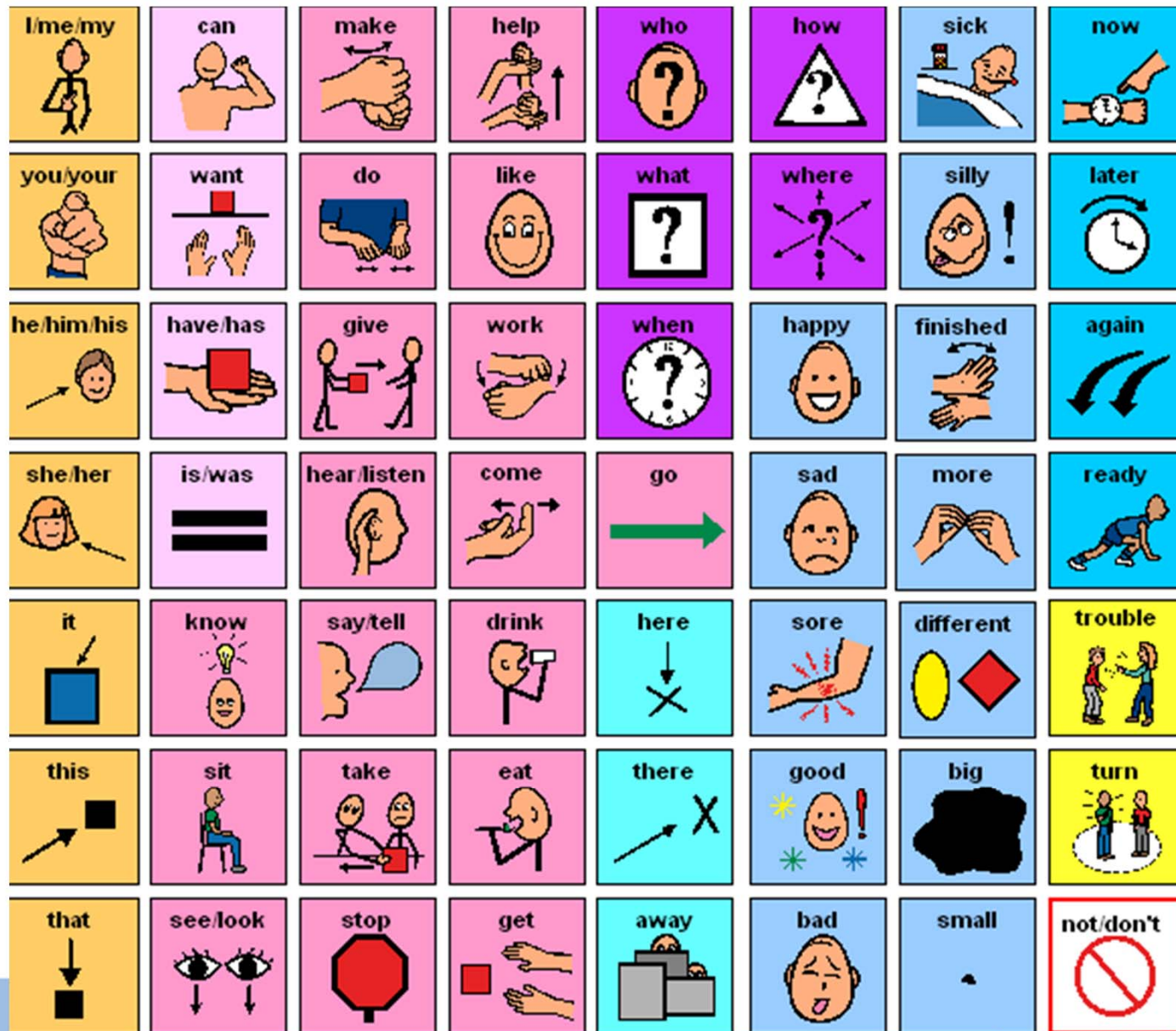| I/me/my	can	make	help	who	how	sick	now
you/your	want	do	like	what	where	silly	later
he/him/his	have/has	give	work	when	happy	finished	again
she/her	is/was	hear/listen	come	go	sad	more	ready
it	know	say/tell	drink	here	sore	different	trouble
this	sit	take	eat	there	good	big	turn
that	see/look	stop	get	away	bad	small	not/don't

A matter of emphasis….

Emergent communicators

- Do not have a symbolic form of communication
- Learning meaning of graphic symbols
- Motivation is key
- Don't reduplicate (many use some unaided methods)
- Requesting
- Choices
- Activity-specific (not only)
- Phrases (not only)
- Core: More, not/don't, want, go

Increasingly independent

- Bigger vocabulary
- Move towards sentence building and grammar
- Core words (frequently-used in typical communication = grammar, full sentences…)
- Appropriate fringe vocabulary
  - Observe peers
  - Participation inventory
  - Role play
  - What words do you use?
- Cannot put every word in there!
- Output still often 'agrammatical'
- Ultimate goal: literacy

http://depts.washington.edu/augcomm/original_modules/module_customizing/custom_vocab_intro.html

Vocabulary selection

- The system should allow for expressing a variety of communication functions
  - Requests
  - Choices

  - Comments
  - Protests
  - Giving directions
  - Answering questions
  - Asking questions
  - Being polite
  - Giving a compliment…
- Should contain a variety of words (nouns verbs, adjectives, adverbs, prepositions, pronouns….)

Vocabulary organization

- **Activity-based**: All vocabulary for a specific activity is on one page (e.g. snack time)

- **Core-fringe**
  - Core words are in an easily accessible location
  - Fringe words organised by
    - Word type (e.g. actions, describing words, location words/prepositions)
    - Theme (body parts, food, colours…)
    - Activity (Watching TV, story-reading, snack time…) – not so much – attempt to be more generic…
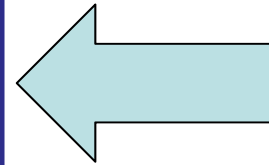 - *Activity 1*

Creating opportunities for use
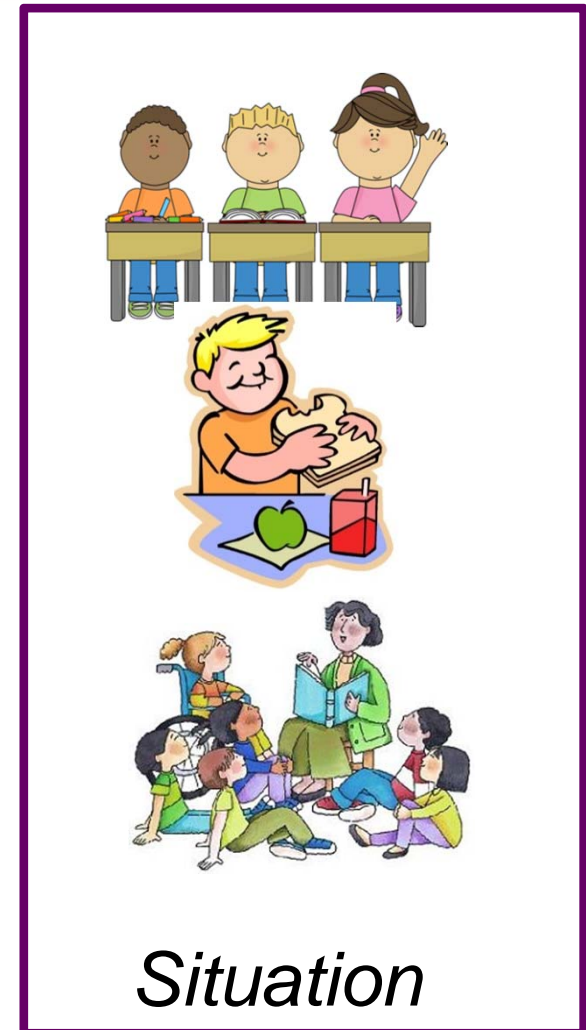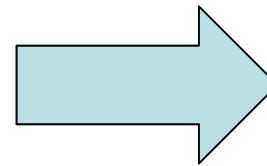
- Aim for real communication

- Aim for motivating communication

- Learner should eventually share unknown information with you

- *Planning* is essential

- Communication should be fun sometimes

- Expectations, being prepared to wait

Creating opportunities for use

Vocabulary

???

Situation

Creating opportunities for use

Emergent communicators

- Select specific motivating (predictable) situations during the school day
- Examples:
  - Choices: Choose a classmate for an errand/task, to answer a question…, choose an activity, a book, a song…
  - Deliver a message to another teacher (programme into a device)
  - Morning ring: Greeting, weather, calendar, role call
  - Story time: Generic vocabulary such as 'turn-the-page', comments (good, bad, silly….)

Creating opportunities for use

Emergent communicators (cont.)

- SLP and teacher work together to choose and program vocabulary
- Focus may initially be on single words and phrases stored under one symbol
- Work towards symbol combinations
- Remember generic vocabulary: Stop, more, again, finished, go, want….

Creating opportunities for use

More independent communicators

- Typically have quite a few words in their system
- It may work to start with the vocabulary rather than the situation – check if there are words that can be used for the proposed activity
- Knowledge of what words are in the system
    - Alphabetical lists
    - Vocabulary maps

Creating opportunities for use

More independent communicators (cont.)

- Move from 'referential model' of teaching (teaching and testing facts) to a descriptive model
- Example:

| Q: What is the biggest mammal? | Q: Tell me about the biggest mammal. |
| A: Blue whale | A: It is in water. It eat small things. It is blue. |

- This requires the user to build some sentences!

- *Activity 2*

Creating opportunities for use

More independent communicators (cont.)

- Decide if the learners will use single words, or whether he/she can combine words from different pages
- Choose what you want to elicit
- Practice finding the words on the learner's system so that you can help him/her (can use vocabulary map)
- Prepare how you will elicit the word/phrase/sentence – write it down for yourself

- *Activity 3*

Involving the class

Material
- Big core vocab board with loose copy of each symbol that can velcro on and off
- Therapist/teacher uses core vocabulary to construct sentences which learners have to interpret/read

- Sequence loose symbols on a strip of velcro
- Learners can change sentences/ create their own
- Learners using AAC can point to their own board
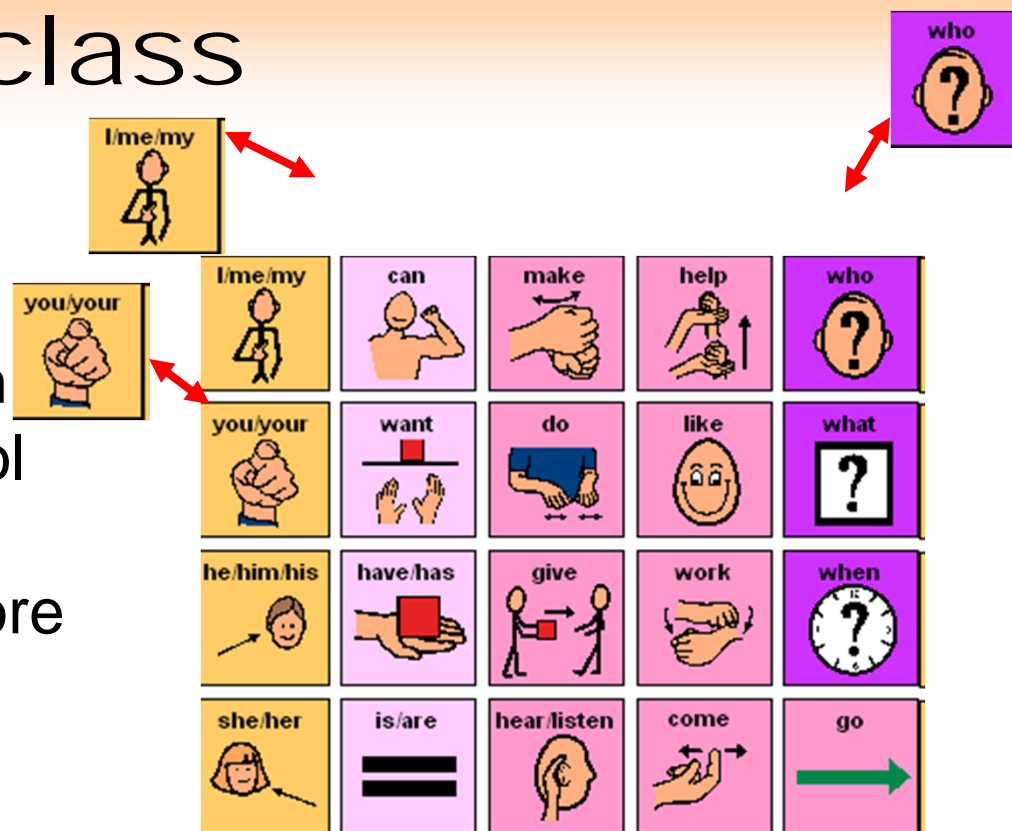
One-on-one

- Ensure AAC user has optimal access and learns the location of the symbols on the board/device
- 'Language therapy' with a different expressive mode
- Receptive and expressive
  - Single words
  - Word combinations
  - Syntax and grammar
- Expand the vocabulary as appropriate
- Add customised fringe vocabulary

Availability and safety

Availability and safety

The reality is….

….any device/book/board can be stolen, lost, damaged……

BUT

an AAC system that is ONLY in the cupboard is about as good as no system at all!

Availability and safety

- Have device available as often as possible
- It is NOT always possible/practical – and there are other ways of communicating (e.g. yes/no, partner-assisted choice-making, gestures….
- Devices: Add protective casing, add screen protectors
- Back up communication books on iPads etc.
- Insurance?
- Boards: Laminate, save electronically
- Books: Flip files

Conclusions

- AAC systems based on graphic symbols can be used successfully to increase communication and participation
- Need to circumvent the challenges
  - Planning, scripting and programming the right vocabulary
  - Organization of big vocabulary
  - Training
- Requires planning to integrate AAC meaningfully into natural contexts
- Motivation of person with LNFS and support available to him/her are crucial for success

Overview of GoTalk Now

- Expandable and versatile app for iPad

Displays:
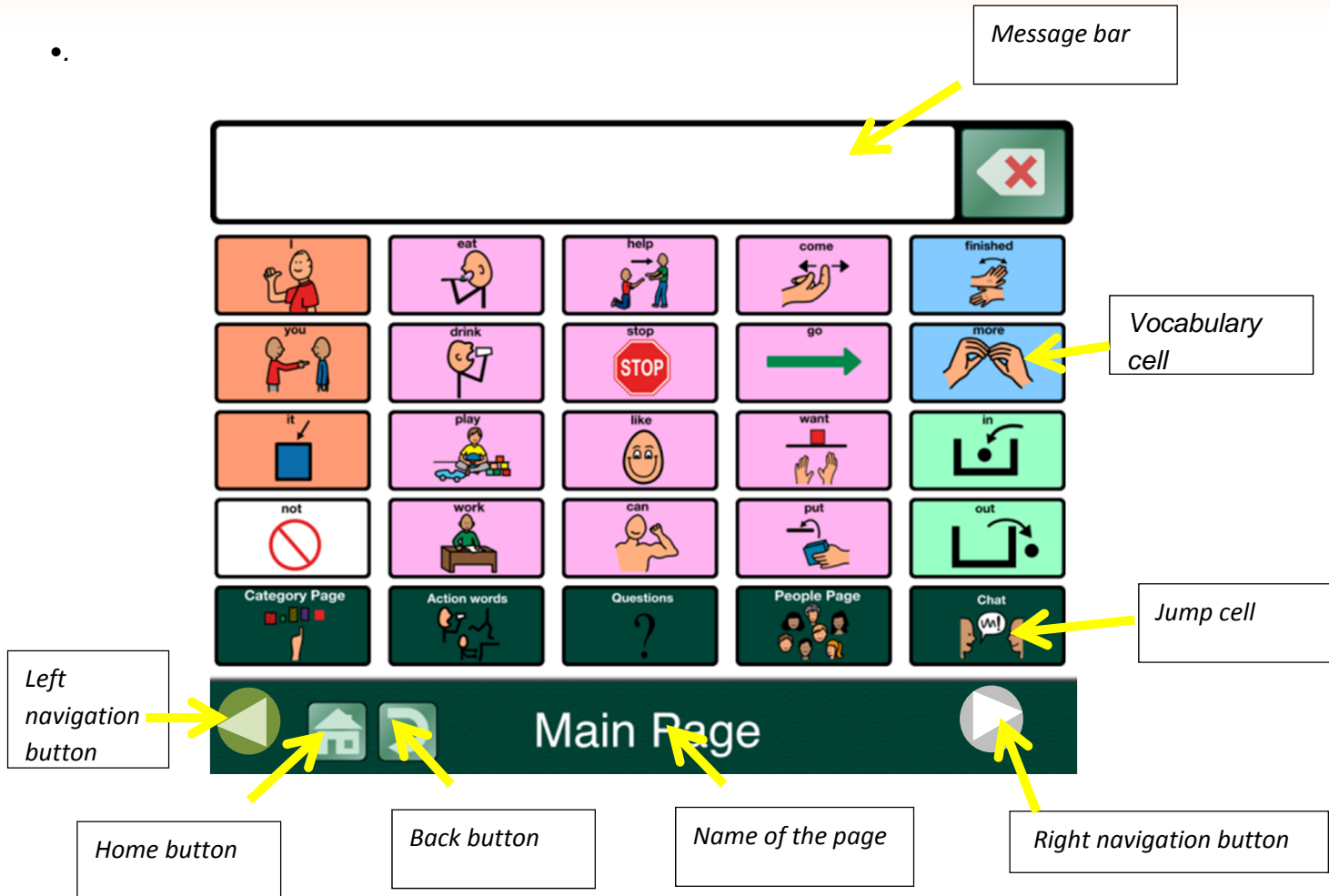- Visual scene
- Standard grid
- Express (with sentence bar)

Symbols
- Take photos with iPad camera or off web
- Imagine symbol library (3600+)
- Symbol stix (in-app purchase; 18 000 symbols)
- PCS (in-app purchase; over 11 000 symbols)
- Widgit (in-app purchase, 12 000 symbols)
- Text-to-speech (for beginning literacy)

Overview of GoTalk Now

Message bar

Vocabulary cell

Jump cell

Left navigation button

Home button

Back button

Name of the page

Right navigation button

Overview of GoTalk Now

Access

- Direct
- Scanning (RJ Cooper switch, Attainment switch, using the screen as a switch….): step/automatic, linear/row-column

Voices

- Free 'Mr Robo' voice
- iOs device voices
- Acapela high quality voices as in-app purchase
- Can set speed of voice

References

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