

THE PENNSYLVANIA STATE UNIVERSITY  
SCHREYER HONORS COLLEGE

DEPARTMENT OF COMMUNICATION SCIENCES AND DISORDERS

INSTRUCTING WRITTEN WORDS TO A CHILD WITH MILD INTELLECTUAL  
DISABILITIES USING FAST MAPPING

JAMIE LITKE  
Spring 2012

A thesis  
submitted in partial fulfillment  
of the requirements  
for a baccalaureate degree  
in Communication Sciences and Disorder  
with honors in Communication Sciences and Disorder

Reviewed and approved\* by the following:

Dr. Krista Wilkinson  
Professor  
Thesis Supervisor

Dr. Carol Miller  
Professor  
Honors Adviser

\* Signatures are on file in the Schreyer Honors College

## Abstract

Fast Mapping is a set of natural learning procedures in which children rapidly learn vocabulary after they are presented with limited exposures. This occurs when children take an unknown object and link it to an unknown referent in the presence of known objects. Previous studies have indicated that adapted fast mapping programs have the ability to facilitate rapid word learning. In this study, we analyze the effectiveness of a fast mapping computer program and its ability to teach multiple new written words to a child with an intellectual disability. It particularly focuses on when refinement of a session is needed due to a learning breakdown. Once the refinement is implemented will learning continue to be successful? The program displayed the unknown words as written words and the known words as photographs. After the unknown word was learned, the following sessions implemented those words in the teaching trials for the new unknown target. This allowed for maintenance throughout each session.

## Table of Contents

Abstract .....	i
Acknowledgments .....	iii
Introduction.....	1
Fast Mapping Assumptions .....	1
Teaching Multiple Words .....	3
Vocabulary Learning: Benefits For Reading.....	5
Sight Word Teaching .....	6
Research Question.....	9
Method .....	10
Results .....	21
Instruction and Outcome .....	21
Final Assessment of All Words.....	24
Discussion .....	25
Learning.....	25
Future studies.....	27
References .....	29
Appendix.....	A-1

## Acknowledgments

I would like to thank Dr. Krista Wilkinson for advising me and providing me with an amazing learning environment, where her support and teaching were greatly valued. I am also greatly thankful for Dr. Carol Miller for advising me with all topics related to the honors college and for reviewing my thesis.

## Introduction

### Fast Mapping Assumptions

Fast Mapping is defined as the ability for children to learn about an unknown word without an explicit definition. Without a definition, a typically developing child is able to map a novel word to an unknown object, in a set of other known objects.

Children are able to sketch incomplete maps of word meanings after very limited exposures; this process is called “fast mapping.” Over time, after continued exposure, they are able to build on their knowledge of words (Carey & Bartlett 1978). Typically developing children acquire their vocabulary very rapidly at an early age.

It has been argued that the rapidity of this learning is due to the creation of lexical representations on the basis of fast mapping, in event and linguistic context (Cary & Bartlett, 1978; Dollaghan, 1985). One proven assumption of why fast mapping occurs is exclusion. Exclusion occurs when a child is shown two familiar words along with one novel word, and their decision to choose the novel word and its matching novel referent.

Children tend to match one word with one referent, therefore, when two familiar words

are shown with their relative referents they are likely to match the word they do not know with the unknown associated referent.

Fast mapping can be adapted to work for individuals who have difficulty succeeding with initial learning and therefore can allow for error-free learning. Some children with disabilities do not naturally learn language as rapidly as typically developing children do at an early age (Wilkinson & Green, 1998). Research studies have supported that children with Down syndrome, when facilitated, are able to fast map (Mervis & Bertrand 1993, 1994, 1995). Wilkinson and Albert (2001) believe fast mapping, if properly adapted, can be used as an intervention tool for intellectually disabled children. A computer based teaching program to test fast mapping abilities was created to facilitate fast mapping and to test ability for retention. This adapted instructional method implemented fast mapping, teaching without explicit instruction, by contrasting known items and unknown items with their associated referents (Wilkinson & Albert 2001).

## Teaching Multiple Words

Teaching one novel word has been the fundamental learning strategy for most research conducted on fast mapping. Wilkinson and Green (1998) examined fast mapping for teaching multiple words. Two teaching procedures were tested, concurrent and successive. In the concurrent teaching method, multiple novel words and their corresponding referents are introduced separately and compared with known words and their referents. Each unknown word and its referent are never presented with the other unknown words within the same trial. A new learning strategy was introduced, called successive learning. Successive learning is a procedure in which the new unknown words are taught by showing them with other recently learned unknown words. Therefore, throughout each session the recently learned unknown words are contrasted with the current unknown words in a trial.

Wilkinson and Green (1998) examined these two methods with a sample of ten children with moderate/severe intellectual disabilities to fast map multiple words. The mean chronological age of the participants was 16 years 1 month and an average mental age, estimated by the Peabody Vocabulary Test Score, of 3 years 6 months. The stimuli contained “known” items displayed as simple line drawings and “unknown” items as bolder line drawings. Auditory stimuli were presented through the computer speakers.

The study consisted of three sessions of concurrent introduction and three sessions of successive introduction.

In the work of Wilkinson and Green (1998) both concurrent and successive procedures were tested. With the use of a one tailed t-test the performance on outcome tests were considerably higher during the successive learning procedures. When two new words were taught using both procedures, 8 out of 10 successfully acquired the words with the successive procedure and 3 out of 10 tested correctly when taught with the concurrent procedure. That means, 80% of the participants learned with successive procedure while only 30% of the participants learned the two words when taught with the concurrent procedure (results were replicated in Wilkinson (2005) with a larger sample size). These results indicated that fast mapping could, in fact, occur when multiple words were taught. Individuals with intellectual disabilities performed more efficiently with successive learning compared to concurrent learning. There was a facilitating effect of successive learning, as the newly learned word and its referent were shown throughout each additional trial, the greater exposure to the new words and its referent generated a greater learning outcome. Therefore, the effectiveness of successive learning procedures demonstrated the ability that children with intellectual disabilities are able to learn multiple words. Successive learning has proven to be more



efficient in learning multiples words shown in the work of Wilkinson and Green (1998) and Pu (2011). This study will further examine the successive learning procedure as well as the analysis of when learning breaks down. Is it possible to rebuild and continue the program successfully?

### Vocabulary Learning: Benefits For Reading

Children are expected to learn a certain number of words and be able to read proficiently at a typically developing age, however, children with intellectual disabilities who have initial vocabularies show difficulties with rapid expansion of vocabulary. Due to their failure to learn through traditional means, strategies have been created to adapt fast mapping in order to foster greater learning for this population. Efforts have been made to create an adapted program to facilitate fast mapping as an instructional vocabulary program (Wilkinson & Green 1998). The National Institute of health (NIH, 2000) stated in The National Reading Panel, that vocabulary instruction is essential for reading and comprehension. Those students who have received vocabulary instruction in grade 4 developed better semantic skills than those without (Beck, Perfetti, & McKeown, 1982). Reinking and Rickman (1990) as cited by The National Reading Panel, further stated that computers can be a strong way of increasing vocabulary

comprehension and that incidental learning can be just as beneficial as formal learning (NIH,2000). The Reading Panel statements provide a legitimate reason for this facilitating study to be conducted for those who fail to learn vocabulary naturally. Wilkinson and Green (1998) successfully demonstrated that fast mapping of multiple receptive words could occur with individuals who have learning difficulties.

## Sight Word Teaching

Sight words are considered high frequency words for an age group that most commonly occur in reading material. Learning sight words allows for a good foundation to begin reading. Monroe and Staunton (2000) stated that children must learn to identify high frequency words in order to be a successful reader. When words are recognized by sight, a meaning is formed and the child's comprehension increases. Children with intellectual disabilities often have more difficulty with learning sight words on their own and may need more time for teaching (Monroe & Staunton, 2005). If these skills are not obtained by a certain age, the gap of knowledge increases and the probability for a child to become a good reader decreases (Allen, 1998). Wilkinson and Albert (2001) successfully conducted a study using sight word stimuli with two children who had been diagnosed with moderate/severe intellectual disabilities. Both of the participants

demonstrated accuracy with essentially no errors after teaching. Wilkinson and Albert's (2001) preliminary study has exhibited that fast mapping programs can be modified from teaching solely novel nonsense words to instructing sight words from the participant's communicative environment.

Edmark, is a paper based program made for children to learn sight words more efficiently and has been effective with many children. It is not universally accessible because it is expensive, ranging from 500 dollars per subject and grade ("Edmark Reading", 2008). There are also a percentage of children, including this study's subject, for whom it did not provide successful learning.

This study focuses on an adapted computerized sight word program that is individualized for the participant. Computer assisted instruction has many qualities that improve accuracy of learning sight word comprehension for intellectually disabled children ("Computer Assisted", 2004). This program, in particular, allowed for refinement when it was needed for the participant. If a specific unknown word was not retained and continued to produce errors, changes in the following sessions were made. For example, if the participant made a significant number of errors on a specific session, the experimenter would go back to the previous sessions to reteach and hopefully improve the comprehension. It is also interactive with sound and color to keep the participant

attentive. Additionally, computer based programs provide immediate feedback of reinforcement. Sight words need remediation to be learned and this study reflects this point by using successive learning.

The program created for our participant is an adapted fast mapping computerized program for learning sight words. Wilkinson and Green (1998) demonstrated preliminary success of teaching sight words with an adapted fast mapping program to individuals with cognitive disabilities. Continual adaptations of a fast mapping program could lead to useful clinical instruction. The use of written words to referent-spoken words has been found to be a useful teaching opportunity. Wilkinson and Green (1998); Wilkinson and Albert (2001) have previously tested types of stimuli such as; written words, picture symbols, and line drawings to test their success in fast mapping. In particular, the study, which implemented written words as referents, was concluded to be successful with intermittent teaching sessions. Fast mapping can occur regardless of stimulus type without prior knowledge or representation of the symbol type. Therefore, more research could be beneficial in determining if adaptations of fast mapping could be useful in teaching a greater number of written vocabulary words. In addition, the inclusion of words derived from frequent communication environments within a teaching session,

compared to the teaching of nonsense words, could be more useful as a teaching program when further applied to the classroom.

## Research Question

Multiple words have been successfully taught to children with intellectual disabilities using fast mapping (Wilkinson & Green, 1998). This study focuses on the outcomes of rapidly teaching multiple words and at what point a breakdown occurs.

As prior research has exhibited, the use of photographs as stimuli is the easiest way to perform fast mapping. Recently, it has been stated by Wilkinson and Albert (2001), that the stimulus can vary and indeed be in the form of a written word. This study focuses on using noun vocabulary from communication environments, items the client has seen before in object form but not as written words, and teaching them using fast mapping.

The study's participants included a child with a mild intellectual disability. The purpose of this study was to rapidly teach multiple sight-words and examine at which point the participant's learning broke down.

## Method

### Participant

ELT was 10 years 11 months old at the outset of the study. Her receptive vocabulary age estimate as measured by the Peabody Picture Vocabulary Test-III was 6;3 (years; months) and her expressive vocabulary age estimate as measured by the Expressive One Word Picture Vocabulary Test was 6;8. She was diagnosed with mild intellectual disability, seizure disorder, and attention deficit disorder. She attended school at a self-contained private school for children with significant disabilities.

### Stimuli/Materials

The stimuli for this study were audio recordings with baseline stimuli as photographs and target stimuli as written words. At first, only the photographs served as “known” baseline stimuli. However, as ELT learned the written words through the fast mapping instruction (and thus became “known” to ELT), we began to integrate those written words into the baseline. Thus, after the initial instructional sessions had

successfully taught the first few written word targets, the baseline increasingly consisted of a mix of previously known photographs and newly learned written words.

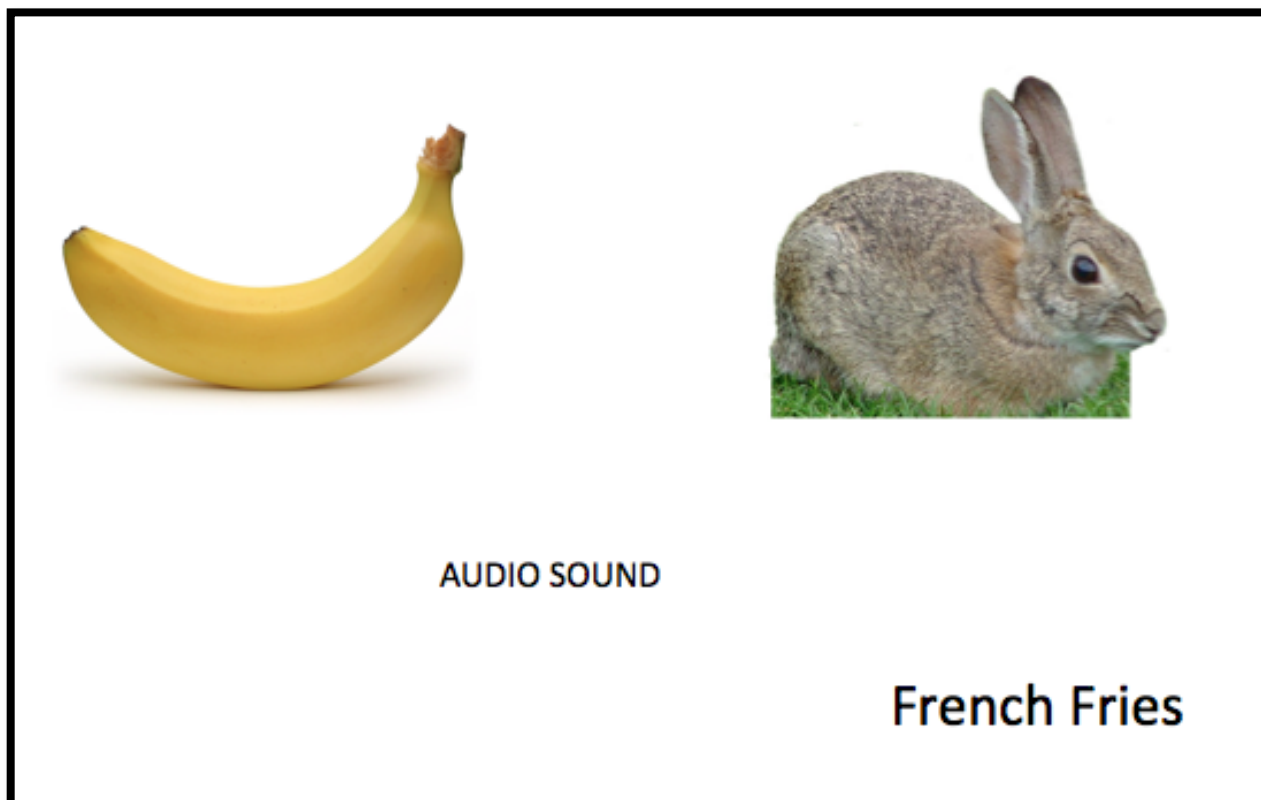
There were 30 photographs used throughout instruction. The novel/target words were all in the category of common foods. Twenty-seven novel words were taught through set 1 set 2. Pretesting was conducted prior to teaching to verify baseline stimuli and identify target stimuli (to be further described in Procedures)

## Environment

ELT was tested twice a week in a quiet room at her school. The stimuli were presented on a MAC computer, which also recorded each response. On the computer screen, depending on the session, target (written words) and baselines (photographs) were presented as answer choices in each corner of the screen. An audio recording played the stimuli. ELT was instructed to click with the computer mouse, the icons that corresponded to the word spoken. An experimenter sat behind her to monitor ELT and the computer.

The figure below shows an example of an exclusion trial. A new unknown word, “French Fries” is shown with two baseline photographs. The target word, the audio sound, is “French Fries”.

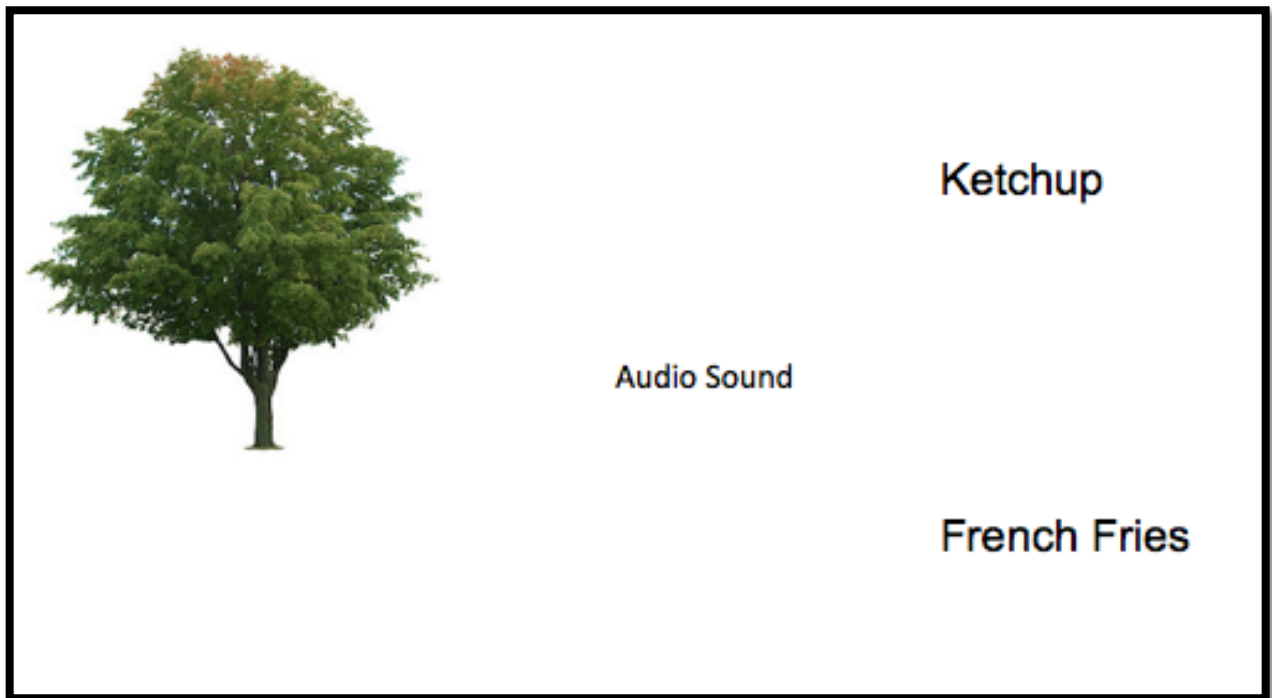
Figure 1: Sample stimuli display





The figure below is representative of an outcome trial. The one written word, “French Fries”, was recently taught in previous trials but is now acting as a known word to the participant. The written word, “ketchup”, is the new unknown word and represents the target in this trial (audio sound). This concept displays an example of successive procedure, where recently learned words are shown with a new unknown.

Figure 2: sample stimuli display



## Procedures – trial types:

Within each session there were different trial types: Pretest, Exclusion, Outcome

### Pretest:

ELT was pre-assessed on her knowledge of baseline photos as well as the targeted written food words.

All of the pretest trials had the spoken word presented as an audio bite through the speakers of the computer. There were two types of trials. When the correct answer was a baseline, the answer choices were presented as photographs. The baselines were words that the experimenter expected ELT to know prior to teaching. These would be used for future exclusion trials with unknown target words. The second type of trial occurred when the target was a novel word and the answer choices were written words. The criterion for determining which words were unknown was when there was a score 50% or below on the pretest trials of that word. The outcomes of the pretests helped to determine which words would be most successfully used as either baselines or novel words. This was to ensure ELT did not know the novel words that would be taught in future trials.

The final sets of novel target words ELT was taught and tested on were; Set 1: Vanilla, French Fries, Ketchup, Sandwich, Mustard, Pickles, Lettuce. Set 2: Chocolate, Dr. Pepper, Mayonnaise, Onion Rings, Tomato, Burger, Juice, Ice Cream, Baked Potato, Coke, Submarine, Sundae, Cookies, Pie, Fish, Chilidog, Bologna, Ham, Turkey, Roast Beef.

## Instructional trials

### Exclusion Trial Using Successive Learning

#### Set 1:

During exclusion trials the participant was to learn novel words by mapping the auditory stimuli to the correct written word. Each trial was set up on the computer screen with two photographs (baselines) and one written word (target) in each of the corners. The target word was spoken through the speakers and the participant would then proceed to choose an answer.

In this study successive introduction was used. For the first trial the first novel word was introduced and taught against baselines. If exclusion occurs the word would be learned through fast mapping. After the target word was taught in session 1, it was

then placed into the following sessions as a potential answer choice for the subsequent novel words.

For example, "vanilla" is the first novel word. The trial was presented with two baseline photographs in each corner of the screen and the written word "vanilla" in the other corner. If fast mapping occurred through exclusion the participant would select the correct word.

Later in the session, a second novel word was introduced, "French Fries", rather than contrasting the novel word with two baseline words, it was contrasted against one baseline and the previously learned word, "vanilla". The screen was presented with the choices of; one baseline photograph, the written word "vanilla", and the written word "French Fries", each in a corner of the screen. This type of learning allowed the participant to differentiate between the recently learned word and the new word that was being introduced. Successive introduction continued to be used throughout the sessions of the set.

When the third novel word was introduced, the new novel word, "ketchup" was contrasted with the previous two target words. The participant was given the written word choices of the previously learned target words, "vanilla" and "French Fries" as well

as the new target word “ketchup”. The participant must recognize the recently learned words to choose the correct answer.

This type of procedure continued as a teaching tool throughout the exclusion trials.

**Set 2:** Set 2 differed slightly with the type of exclusion procedures. Both concurrent and successive learning procedures were tested within the sessions. When a novel word was initially presented to the participant, the written word answer choice was contrasted with two baseline photographs. This type of introduction procedure was called concurrent. The participant needed to distinguish the novel word from the baselines. Following 9 trials, successive introduction was implemented. The novel word was then contrasted with two previous novel written words.

## Outcome

The outcome trials were created to “test” the participant on whether or not learning had occurred from the exclusion trials and if there was retention of the material. The outcome trials are set up the same as exclusion trials however the participant was unaware which word would be the sample. In exclusion trials when one novel word was

taught in a session the target word could either have been baseline or the recently taught novel word. However, in an outcome trial there were multiple novel words used as targets, which have recently been taught to the participant. Outcome trials were a way to test maintenance of recently learned novel words. This type of teaching had the ability to show true learning of the novel words because it tested the participant on whether they were able to distinguish between all of the newly learned words. As new words were taught throughout each set, outcome trials continued to build and the most recently learned word was added.

### Refinement of trial structure and maintenance

Refinement of trial structure allowed for re-teaching to occur in order to benefit the client's learning and retention of the novel words. In Set 1 there was a change in the trial structure, backtracking and refinement of previous novel words was implemented after trial 7. In Set 2, there was a change in the trial structure where multiple words were taught in one session. Refinement of trial structure occurred after that session where those multiple new novel words were broken down into separate sessions.

## Outcome Expansion

As more novel words were taught throughout the sets, the outcome trials began to expand. Once the novel word was taught through exclusion it was then added to the group of recently learned novel words. The session of outcome trials became more challenging with the addition of each new novel word. If correct answers were chosen we could then establish if the participant had successfully mapped the word with the referent and learning had occurred.

## Reinforcement and Cueing

The computer provided pre-programmed feedback on a variable ratio 5 reinforcement schedule. Therefore, the participant did not receive computer feedback on the basis of correct or incorrect answers. Additionally, the experimenter provided verbal encouragement as needed for working nicely.

## Example of a Detailed Set

Table 1

<u>Session type</u>	<u>Number of trial/type</u>	<u>Sample</u>	<u>Examples Only- Target words in bold</u>		
<i>Session 1: Pretest</i>	27 Baseline	"dog"	dog	apple	tree
	12 Exclusion	"vanilla"	<b>vanilla</b>	roast beef	pie
<i>Session 2: Exclusion</i>	15 Baselines	"horse"	horse	<b>vanilla</b>	banana
	6 Exclusion	"vanilla"	<b>vanilla</b>	banana	shoes
	6 Exclusion	"french fries"	<b>french fries</b>	tree	bunny
<i>Session 3: Exclusion(reminder)</i>	6 Baselines	"grapes"	grapes	tree	shoes
	3 Exclusion	"vanilla"	<b>vanilla</b>	grapes	<b>french fries</b>
	3 Exclusion	"french fries"	<b>french fries</b>	tree	<b>vanilla</b>
<i>Session 4: Outcome</i>	24 Baselines	"shoes"	shoes	vanilla	banana
	3 Outcome	"vanilla"	<b>vanilla</b>	bunny	<b>french fries</b>
	3 Outcome	"french fries"	<b>french fries</b>	tree	vanilla
	3 Exclusion	"ketchup"	<b>ketchup</b>	<b>vanilla</b>	<b>french fries</b>
<i>Session 5: Outcome/Exclusion</i>	24 Baseline	"tree"	tree	banana	shoes
	2 Outcome	"vanilla"	<b>vanilla</b>	<b>ketchup</b>	<b>french fries</b>
	2 Outcome	"french fries"	<b>french fries</b>	<b>vanilla</b>	<b>ketchup</b>
	2 Outcome	"ketchup"	<b>ketchup</b>	<b>french fries</b>	<b>vanilla</b>
	3 Exclusion	"sandwich"	<b>sandwich</b>	<b>french fries</b>	<b>ketchup</b>



## Results

Tables 2 and 2.1 below present the accuracy of ELT on both Set 1 and Set 2. Each of the tables displays the targeted stimuli at the top, as well as the outcome of each trial.

### Instruction and Outcome

#### Pretest:

Throughout the 6 sets of pretest sessions, ELT scored at 96% accuracy on all baseline photograph-word matching. The target words were each tested twice during the pretest trials. Five (18.5%) of the 27 words were chosen correctly one time and the remaining 22 were incorrectly chosen both times. The words chosen correctly are most likely by chance, because the participant was given three choices per trial, which provides a 1/3 chance of guessing it correctly. If ELT had recognized the words and correctly chosen them, the percentage would have been at or above 33%, ELT scored at 18.5%.

## Exclusion

### Set 1

Exclusion training began about a month after pretesting ended. There were three exclusion trials for each session. After the first 2 sessions, unknown target words began to be paired against the recently taught unknown written words. In set 1, ELT tested at 100% accuracy on sessions 1 through 6. Two errors occurred in sessions 7 and 8. ELT was able to immediately learn five new words with 100% accuracy. (Note: there was a refinement of trials due to outcome accuracy)

### Refinement

The experimenter refined the progression of the sessions and worked her way back to re-teach. This began after ELT made errors in sessions 6 and 7. The experimenter began to reteach with session 6, resulting in 50% accuracy of previously taught words, followed by session 5 resulted in 100% accuracy. Since ELT finished session 5 errorless the experimenter moved on to Session 6 which resulted in 87% accuracy, one error in previously taught words, followed by session 7 with 100% accuracy. Finally, session 8 resulted in 87% accuracy for previously taught words and

33% accuracy for new target word. On the last session of the set, all of the recently taught unknown words were tested, resulting in 61% accuracy.

## Set 2

ELT performed at 100% accuracy for all sessions. There were six exclusion trials per session. Three exclusion trials paired the unknown target with baseline photographs, and the other three trials paired the unknown target with recently taught written words.

## Outcome

### Set 1

ELT performed at 100% accuracy on sessions 1 through 5. Session 6 had a 87.5% accuracy with one error. Session 7 had 80% accuracy with one error. The experimenter refined the progression and worked her way back to reteach sessions 5 and 6 in the order; 6,5,6,7. The second time session 6 was taught ELT performed with 50% accuracy. Session 5 resulted in 100% on the second time, but session 6 resulted in 87.5% accuracy on the third time (the same percentage as the first try, but an error on a different unknown word). The second try on session 7 resulted in 100% and the

first and final trial, session 8 resulted in 80% accuracy. Set 1 had 67 trials overall and ELT performed with 86.5% accuracy.

## Set 2

ELT performed at 100% accuracy on sessions 1 through 11. Session 12 consisted exclusively of 18 outcome trials, which resulted in 50% accuracy. Subsequently, session's 13 and 15 were performed at 100%, and session 14 resulted in 91.3%(two errors) while session 16 was complete at 92%(two errors) accuracy. Overall, there were 227 outcome trials in set 2 and ELT performed with a 94.3% success rate.

## Final Assessment of All Words

Set 1 had a maintenance assessment of the 8 unknown words after all of the sessions were completed. ELT performed at 61% success rate with 7 errors. Set 2 had three maintenance assessments because the participant was not on her medication on the first two days. The first assessment resulted in 81% success rate followed by 85% on the second try. The final attempt, when ELT was back on her regular medication, resulted in 93% success rate. Overall ELT was able to maintain her knowledge of the unknown words she was taught throughout the sessions

## Discussion

These results demonstrate that it is possible for fast mapping, using successive procedure, to facilitate multiple rapid word learning. This study shows that adaption of procedures should be viewed individualistically to produce the best outcomes for a child. An overload of new words can prompt a learning breakdown, however, refinement/review allows the word to be retaught and assessed successfully. Vocabulary words are a vital part of language and learning to read and write. The success of the study allows for further research to be done and to eventually be possibly implemented in a school setting.

## Learning

ELT demonstrated successful learning of new words in the context of written words on a computer screen. Nearly errorless learning occurred in both sets 1 and 2. Set 1 results show that ELT had the ability to learn multiple words over a short period of time and with the help of refinement throughout the sessions. ELT may have succeeded more in set 2 due to the additional teaching trials. She was able to learn the new target against baselines prior to the trials with the new target shown with other unknown words. ELT was able to learn multiple words yet learning began to breakdown at certain

points of the sets. Learning of new words became a challenge earlier in set 1 than in set 2. It took ELT to learn four unknown words in set 1 before she became confused and started to make errors. However, in set 2 it took her 14 words before learning broke down and she began to make errors.

Additionally, in each session of set 2 there were multiple outcome trials, which tested for true learning of the previously taught unknown words. ELT was extremely successful in these outcome testing trials which further displayed her ability to retain the taught information over an extended period of time.

This study suggests rapid learning can occur; yet breakdowns are also a factor that must be influential in the process of refining the sessions to fit the individual. Manipulating the program for individual success proves to be possible in this study. When ELT made multiple errors, facilitating the situations and going back to teach previous sessions improved her learning. In set 2 the program was changed to fit her needs by providing her with additional testing and teaching trials.

## Future studies

Although ELT demonstrated success in learning multiple words rapidly with fast mapping, there are multiple additions that can be added in future studies. ELT was only apart of one group of etiologies as a child with a mild intellectual disability. Future studies could choose children with different etiologies. A larger group tested would also provide a more diverse and comprehensive sample set. ELT was 9 years old, further studies may choose multiple children of various ages to see if this type of rapid learning could occur in earlier development.

A limitation in this study was that ELT was only taught and tested in the context of single word vocabulary. Further studies could work with their participants to see if the words learned in the study could translate to an ability to read when the vocabulary words are in the context of a sentence. If these studies were successful, fast mapping could be implemented as a prominent teaching strategy.

Another limitation to this study was the number of assessments at the end of each set. If set 1 had more than one assessment, ELT may have been able to succeed at higher accuracy. She had a few difficulties in set 1, another all word assessment may have helped the words become fully embedded prior to beginning the next set with new

unknown words. In future studies multiple assessment may benefit the participant to have a longer retention rat



## References

- Allen, L. (1998) An Integrated Strategies Approach. *The Reading Teacher* vol 52 # 3. 225.
- Beck, I. L., Perfetti, C. A., & McKeown, M. G. (1982). Effects of long-term vocabulary instruction on lexical access and reading comprehension. *Journal of Educational Psychology*, 74(4), 506-521.
- Carey, S., & Bartlett, E.(1978). Acquiring a single new word. *Papers and Reports on Child Language Development*, 15, 17-29.
- Dollaghan, C. (1985). Child meets word: "Fast mapping" in preschool children. *Journal of Speech and Hearing Research*, 28, 449-454.
- Mervis, C.B, & Bertrand, J.(1995) Acquisition of the novel name-nameless category(N3C) principle by young children who have Down syndrome. *American Journal on Mental Retardation*, 100, 231-243
- Monroe, J., & Staunton, J. (2000). Improving student reading skills through sight word instruction. Retrieved from Education Resource Information Center. ED443101
- Pu,Helen. (2011). Instructing novel names to a child with Down syndrome using principles of fast mapping. Retrieved from Pennsylvania State University
- Romski, M.A. , Sevcik, R.A., & Robinson, B.F , Mervis, C.B, Bertrand, J.(1995). Mapping the meanings of novel visual symbols by youth with moderate or severe mental retardation. *American Journal on Mental Retardation*, 100, 391-402.
- The Access Center. (2004). Computer Assisted Instruction and Reading. Retrieved from [http://www.k8accesscenter.org/training\\_resources/computeraided\\_reading.asp](http://www.k8accesscenter.org/training_resources/computeraided_reading.asp)

The Florida Center for Reading Research. (2008). Edmark Reading Program. Retrieved from <http://www.fcrr.org/FCRRReports/PDF/EdmarkReadingProgram.pdf>

The National Institute of Health. (April 2000). Report of the National Reading Panel: Teaching Children to Read. Retrieved from <http://www.nichd.nih.gov/publications/nrp/report.cfm>

Wilkinson, K., & Green, G.(1998). Implications of fast mapping for vocabulary expansion in individuals with mental retardation. *Augmentative and Alternative Communication*, 14, 162-170.

Wilkinson, K. M., & Albert, A. (2001). Adaptations of fast mapping for vocabulary intervention with augmented language users. *AAC Augmentative and Alternative Communication*, 17, 120-132.

Wilkinson, K. M. (2005). Disambiguation and mapping of new word meanings by individuals with intellectual/developmental disabilities. *American Journal on Mental Retardation*, 110,71-86.





## ACADEMIC VITA of Jamie Litke

Jamie Litke

111 East Patcong Ave.

Linwood, NJ 08221

[Jil5203@psu.edu](mailto:Jil5203@psu.edu)

### Education:

Bachelor of Science Degree in Communication Sciences and Disorders

Penn State University, Spring 2012

Honors in Communication Sciences and Disorders

Thesis Title: Instructing Written words to a Child with Mild Intellectual Disabilities Using Fast Mapping

Thesis Supervisor: Krista Wilkinson

### Work Experience:

Hamilton Pediatrics, Mays Landing NJ

Dr. Stuart Goldman

May 2011-August 2011

Business Assistant

Supported patient care by assisting parents with medical paperwork, creating awareness of vaccination timing, and maintaining a safe clean environment in the waiting areas.

### Presentations/Activities:

Alpha Sigma Alpha Sorority: Vice President of New Member Education

National Student Speech Language Hearing Association