

# Reading Skills in an Individual with Aphasia: The Usefulness of Meaning-Based Clinical Applications

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This case study investigates the impact of a meaning-based reading intervention program on an individual with aphasia. Though this qualitative method of inquiry, pretreatment and post-treatment change is documented and results indicate that the meaning-based approach had an impact on the recovery of literacy skills—particularly comprehension. In addition to describing the individual with aphasia and her reaction to the intervention, the program itself is detailed. Considerations of how the program is organized, its treatments objectives, the materials employed, and the various procedures that incorporate authentic reading and writing into the program are described.

**Key Words:** aphasia, literacy, intervention, therapy, reading

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## Introduction

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Assisting in the re-establishment of communicative skills after aphasia is the primary objective of the clinical aphasiologist. This is especially true when efforts are directed toward the remediation of oral language skills that improve quality of life (Byng, Pound, & Parr, 2000; Chapey et al., 1994; Holland & Forbes, 1993). An area that has received less attention than oral language functioning, however, is the remediation of reading skills. Although there has been some focus on describing and treating reading deficits due to aphasia (Beeson & Henry, 2008; Beeson & Hillis, 2001; Hillis & Caramazza, 1992; Patterson, 1994), these efforts often are directed toward experimentally derived syndromes (i.e., deep dyslexia, phonological alexia) and the emphasis is on single-word reading and letter-by-letter processing rather than authentic reading. A review of the literature on reading and aphasia provides some explanation for this tendency.

A vast majority of the reading intervention described in the aphasia literature is based on traditional cognitive neuropsychological models of reading (Mayer & Murray, 2002) and involves single-word tasks undertaken in a therapy room. These approaches have developed in response to experimental research conducted by cognitive neuropsychologists attempting to discover the fundamental processes that underlie the reading deficits observed in brain-damaged adults. As this research is experimental in design, the tasks used and the foci on reading typically involve decontextualized, single-word tasks that fit within the experimental paradigm (Danziger, 1990; Mills, 1998).

Although the cognitive neuropsychological models may provide us with partial insights, because these theories have been tested using decontextualized tasks measuring single-word knowledge in carefully controlled experiments and because they cannot replicate all that happens in a human brain and in human meaning making, they are inadequate to explain the whole story of

what people do when they read. As Mayer and Murray (2002, p. 741) stated:

A multifactorial model of reading which integrates single-word models from cognitive neuropsychology with central linguistic text-level processes (e.g., integration of world knowledge, abstract language processing) and cognitive factors (e.g., motivation, attention, and working memory) is necessary to describe the nature of acquired disabilities in reading and subsequently to treat high-level reading deficits.

## A Meaning-Based Model of Reading

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In contrast to the cognitive neuropsychological models of reading and their resultant therapies, the field of language arts has provided us with another orientation toward reading that may lead to even more productivity in understanding reading deficits due to aphasia and how this knowledge can be employed clinically. Specifically, the theory and data employed for nearly 40 years in the discipline of language arts to understand emergent literacy in children and to create effective methods to assist both children and nonbrain-damaged adults in acquiring literacy may offer additional ideas and applications in clinical aphasiology. The best representative of this more meaning-based orientation is the transactional sociopsycholinguistic (TSP) model (Goodman, 1994), which posits that reading is accomplished when an individual uses all aspects of his or her knowledge system, environment, and culture to help construct meaning out of print. In fact, as Goodman (1996, p. 27) points out,

To make sense when we read, we must know the context of the situation out of which the print arises: where and when it's occurring, who's involved and what their relationships are, why the language takes this mode. A literacy event is *authentic* (emphasis ours) only within a situational context and a genre.

In this model, a reader is one who transacts with any specific written text by using multiple strategies to construct meaning from what he or she is reading. Such strategies include sampling just enough of the text to confirm or disconfirm the inferences and predictions they are simultaneously implementing based on the particular text being read, their background experience of the world, and their knowledge about how language works. In authentic reading the input from the page is juxtaposed with the reader's background information to construct meaning within the text (Smith, 2004). This meaning-focused approach using sampling and prediction strategies based on one's background information and adequate print input has been described as a "psycholinguistics guessing game" (Goodman, 1967). Within this model, all these processes occur quickly and primarily at a subconscious level allowing for a reader's focus to remain on comprehension (Goodman, 1996). Importantly, this model has numerous clinical and pedagogic implications and applications that have served the language arts community well during reading instruction and intervention (Calkins, 2001; Damico, Nelson, & Bryan, 2005; Smith, 1977; Weaver, 1990).

In view of the implications of the TSP model and to examine the effectiveness of an intervention centered on this meaning-based model of reading, the present study focuses on the therapy designed and employed over an 8-month period for one individual with aphasia who exhibited reading deficits as a result of her aphasia. A brief discussion of the treatment, her pretreatment and post-treatment performances during reading, and the implications based on the results follow.

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## The Study

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To investigate the impact of a meaning-based reading intervention approach for this individual with aphasia a case study method was employed. This is a commonly used

qualitative research approach that enables a specific focus (the intervention method) within a separate object of inquiry (the individual with aphasia) by bounding particular phenomena (reading behaviors) in such a way that they can be studied (Creswell, 1998; Ragin & Becker, 1992). The case study has had a long history of application in speech-language pathology research because it enables the researcher to provide both a rich description and adequate explanation of the phenomena under scrutiny (Damico & Simmons-Mackie, 2003; Simmons-Mackie & Damico, 2003).

Within this case study, three analytic data collection methods were used. First, artifactual analysis of the therapy plans, therapy notes, and summaries of the interventions both before and during this investigation were conducted. This enabled the researchers to determine the types of interventions employed, note any rationale involved in choosing the interventions, verify the amount of effort spent within the sessions on each intervention, and gain access to any evaluations or opinions documented regarding performance and/or progress. Importantly, a focus on these documents helped to determine treatment fidelity—especially in the 13 months prior to this case study. Second, ethnographic interviews of the individual with aphasia (Ms. A) and her clinicians during the 8-month intervention period were obtained. These interviews enabled the researchers to incorporate the perspectives of these three individuals (the participant and two different student clinicians) while actual treatment occurred. Two interviews were conducted with Ms. A—one at 4 months and one at 7 months into the case study. Clinician 1 was interviewed near the 4th month of intervention and Clinician 2 was interviewed during the 7th month. Finally, video-analysis of Ms. A's reading performances during six therapy sessions (three at case study initiation and three at the end of intervention) and during more formal assessment processes were employed to obtain the primary data used within this case study.

## The Participant

Ms. A was a 61-year old woman diagnosed with moderate Broca's aphasia at the initiation of this investigation. She was 13 months postonset at this time and was not employed. Prior to her stroke, she was employed as a public relations manager in a moderately sized company where she had worked for many years. In this position, she frequently worked with the press and attended board meetings on a daily basis. Although she had two years of college, she stated that she primarily learned to be a public relations manager "on the job." Since her stroke, Ms. A had experienced ongoing and significant deficits in her ability to speak, read, and write and had been unable as of yet to return to work. She stated that she was a "voracious reader" before the stroke, that her literacy skills were extremely important to her, and that she was willing to do "whatever it takes to get back on my feet and work again."

## Relevant Therapeutic History

Prior to this investigation (verified by artifact analysis), Ms. A received continual speech and language therapy in an acute-care hospital setting and then at a rehabilitation hospital for a total of 11 months of intervention. Her therapy occurred two hours a day for five days a week and focused on verbal language, memory, reading, and writing skills. A review of her therapy plans over the previous year revealed traditional approaches to reading therapy. Specifically, she engaged in the following therapy activities:

- visual matching of letters and words,
- practice on reading single words in a confrontational naming format,
- practice in reading a limited number of headlines and short passages repeatedly.

Additionally, she was encouraged to complete crossword puzzles. Based on the therapy plans and the therapy notes available, approximately 40% of her therapy time

was devoted to these literacy activities. During these sessions, the clinicians noted her accuracy in letter/word identification and her accuracy and speed while reading headlines and short passages. Based on an analysis of her therapy plans, notes, and reports, this reading intervention was considered in keeping with the traditional approaches discussed previously in this case study. However, Ms. A was not satisfied with her progress—particularly in literacy skills—and sought different intervention arrangements.

## Functioning at the Initiation of the Investigation

When Ms. A was referred to the University Speech and Language Clinic by an acquaintance, she stated that she was interested in working on her literacy abilities. Given her stated motivation and due to some ongoing research within our clinic, Ms. A was selected for this case study. A detailed evaluation at the start of this investigation indicated mild-to-moderate word retrieval difficulties, response delays, agrammatism and difficulty with topic maintenance. The Porch Index of Communicative Ability (Porch, 1981) was administered, and the participant scored at the 64th percentile overall which suggests a moderate communication impairment. Additionally, her modality scores suggested moderate verbal, auditory, reading and graphic problems. Her pantomime ability and her visual modality appeared moderately to severely impaired (Table 1).

Even though Ms. A evidenced some continuing oral language deficits, her primary focus and the area in which she perceived her greatest weaknesses involved reading and writing. Given her concern for reading and our interest in investigating a meaning-based approach to reading therapy, a detailed authentic reading assessment was conducted. She was asked to read passages from several texts and four types of reading data were obtained.

These data focused on reading comprehension since the primary function of reading is to derive meaning from the texts

**Table 1.** Initial Porch Index of Communicative Ability Modality Scores for Ms. A

Modality	Numerical Score	Percentile Score
Overall Score	12.01	64%
Graphic Score	10.07	67%
Verbal Score	13.07	68%
Reading Score	12.55	63%
Visual Score	14.60	17%
Pantomime Score	9.95	36%
Auditory Score	14.45	55%

(Cambourne, 1988; Clay, 1991; Goodman, 1996; Smith, 2004). First, her performances on the several passages were reviewed and **miscue analyses** were performed on each. Miscue analysis is a well-researched assessment technique that can be employed to assist professionals in gaining insight into an individual's reading process (Goodman, 1969; Goodman & Goodman, 1994). Providing both quantitative and qualitative evidence, these analyses detail how Ms. A used her linguistic knowledge and various reading strategies while reading for meaning. Goodman (1969) defines a miscue as an observed response that does not match what the person listening to the reader expects to hear; when the reading involves words and sounds not in the actual text, these are noted as miscues.

During oral reading of the selected texts (excerpts from Kate Chopin's book *The Awakening*), Ms. A's principal miscues were substitutions (e.g., "*dedicaty*" for "*delicacy*" and "*lazidly*" for "*bazily*") and word or phase omissions during reading. She exhibited a high percentage of low quality miscues (73% of all miscues; 33% of total words read) and this indicated poor comprehension. Table 2 provides the exact numbers of and percentages of miscues.

Ms. A's reading comprehension was also assessed by having her **respond to comprehension questions** prepared from the

selected texts she was asked to read. One of the passages was read aloud; one passage was read silently. Ms. A performed poorly on both passages; this also indicated poor comprehension. On the passage read aloud, she was only able to answer 50% of the questions asked (5/10). When reading silently, she performed more poorly (correctly responding to only 20% of the questions posed (2/10).

The third assessment of reading comprehension involved her **fluency while reading**. Numerous researchers have suggested that reading fluency is an indirect measure of comprehension as one must understand what one is reading in order to be fluent enough to read with speed and meaning during oral reading (Damico, Damico, Lynch, Nelson, & Doody, submitted; Pressley et al., 2001; Rasinski, 2003; Rasinski & Padak, 2001). On the Multidimensional Fluency Scale (Rasinski, 2003), a tool that looks at four dimensions of fluency (accuracy, phrasing, smoothness, and pace) and employs a 4-point scale for each of these dimensions, Ms. A scored 6 of 16 points. This indicated marginal word accuracy during, reading, choppy reading of only single words or short two- and three- word phrases, frequent extended pauses, false starts, and hesitations, and slow and laborious pacing. Indeed, the fourth reading measure obtained, Ms. A's **reading rate** in terms of words read

**Table 2.** Results from Ms. A's Miscues Analyses Conducted During Initial Evaluation

Type of Variable	Numbers	Percentages
Words in Total Reading Passages	752	
Total Miscues	338	45% of total words
Low Quality Miscues	248	33% of total words
Substitutions	161	65% of low-quality miscues
Omissions	82	33% of low-quality miscues
Additions	5	2 % of low-quality miscues

per minute indicated a rate of 47 words per minute (wds/min) which placed her lower than second-semester first graders in terms of reading speed.

In summary, Ms. A exhibited limited authentic reading abilities when recognized comprehension measures were employed. Although this is somewhat surprising given the amount of time her traditional aphasia therapy devoted to reading exercises, it is an indication that she had yet to improve to a functional level even after 11 months of intensive therapy. It was at this point that the case study was initiated.

### Meaning-Based Reading Intervention

Consistent with acceptable practices in language arts, the reading intervention program employed within this case study utilized a meaning-based literacy approach that involved authentic reading with a focus on meaning rather than accuracy (Allington, 2001; Calkins, 2001; Cambourne, 1988; Fader, 1968; Goodman, 1996; McIntrye & Pressley, 1996; Routman, 1994; Smith, 2006; Soundy, 1991; Weaver, 1990). Consequently, rather than attending to letters, words, or sounds, the focus was on the story narrative and the message within the text.

In addition to placing the stress on meaning, only trade books and magazines were read and these were never broken into artificially shortened texts. Rather, any reading

involved full pages or articles. Using the authentic texts as intended ensured that reading materials were always laden with plenty of contextualized vocabulary and concepts, strong and redundant grammatical constructions, and well-written and motivating narratives (or informational expositions).

### *The Goals of Meaning-Based Reading Intervention*

Although her reading intervention goals at the rehabilitation hospital prior to this case study were fairly fragmented (analysis of lessons plans), for the meaning-based intervention, comprehension and the means to accomplish it with the goal of deriving pleasure from reading were the overall objectives. Toward these objectives, six intervention goals were established:

- Increase clinician demonstrations of reading and writing in Ms. A's presence.
- Increase client's opportunities to read and write authentic texts.
- Increase the client's focus on meaningfulness while engaging in authentic reading and writing.
- Establish and increase effective word attack strategies for the client during authentic reading.
- Increase the client's recognition and monitoring of her comprehension during authentic reading.



- Empower the client to believe that she can re-establish her reading and writing skills.

Each of these goals involved authentic reading and writing and enabled the focus on meaningfulness.

### ***The Materials Employed during Intervention***

As reading is viewed as a “psycholinguistic guessing game,” the materials used in reading intervention must be of high quality (Goodman, 1967; Smith, 2006); that is, they must be well-written so that the texts are predictable in terms of language structure and motivating in terms of story narrative. Furthermore, the texts used during intervention must be long enough so that there is sufficient context from which to make predictions during reading. Without well-written and motivating texts of sufficient length, the task of reading becomes very difficult.

The reading materials chosen for Ms. A were well-written and interesting trade books and magazines that were favorites of the client. It was important that the materials appeared to be appropriate to the client’s age and interests. Children’s books and books that adults would not prefer due to a perception of being “too easy” were avoided. Books such as *The Awakening* and *The Storm*, both by her favorite author, Kate Chopin, *Chicken Soup for the Soul*, Willa Cather’s *The Professor’s House* and *Strange True Stories of Louisiana* were books completed during this case study in addition to various magazine articles and newspaper stories.

Once the reading materials were chosen, they were used in a strategic manner during intervention. During each session, the first text used included material familiar to Ms. A, books or stories she had previously worked with in therapy or that had been read aloud to her several times previous to their introduction. After some therapy time was spent reading the familiar text, material

less familiar was employed. This enabled her to have an easier time with the familiar text and to gain more practice using the strategies that she was learning, followed by introduction of the unfamiliar text which provided the opportunity to learn to apply new strategies or to use emerging strategies with novel material. It was not unusual to use the same texts (but new passages) over a several week period—or until the end of the text was reached.

### ***The Procedures and Strategies Employed***

The procedures employed during intervention incorporated authentic reading and writing activities. At no time were there drills or fragmented tasks that focused on splintered skills. The materials used consisted of trade books and articles as described in the previous section. Two actual procedures were used throughout Ms. A’s intervention—reading and writing aloud and shared reading and writing.

### **Reading and Writing Aloud**

As the name implies, this procedure involves reading or writing out loud to the client. In terms of **reading aloud**, reading the selected material to the client provides demonstrations of how strong readers employ their meaning-making strategies to comprehend any text. In effect, the modeling of effective strategies occurs in the presence of the individual with aphasia. Importantly, reading aloud to the client also exposes this individual to the patterns of language in terms of meaningfulness, familiar structural schemes, different literary genres, literary standardizations and conventions, and essential vocabulary. Additionally, hearing effective reading of well-written passages further emphasizes meaning as the goal of literacy and results in an increase in the client’s ability to use grammatical redundancy, semantic variability and narrative structure to enhance the predictability of written text which is so crucial to effective and effi-

cient meaning-making during literacy activities (Teale, 1982; Trelease, 2001).

**Writing aloud** is another facet of this procedure that is preferred during literacy intervention. As previously discussed, the weaving together of reading and writing only enhances the authenticity of each modality and enables a more effective framework of acquisition (Calkins, 2001; Holdaway, 1979). By definition, writing aloud occurs when the clinician writes in the presence of the client and also verbalizes what she or he is thinking and writing. In this procedure, an everyday writing activity is chosen (e.g., writing a letter to a friend, using email, keeping a diary, making a picture scrape book with narratives for each picture) and the clinician provides a model by demonstrating and completing the task while “thinking aloud.”

### Shared Reading and Writing

The most important procedure used for reading intervention with Ms. A involved shared reading and writing. This procedure, when linked with meaning-based mediational strategies, provided the bulk of the intervention program. Research and clinical experience suggests that shared reading and writing has been a very effective intervention technique with struggling readers of all kinds (Damico, 2006). Routman (1994) defines **shared reading** as any rewarding reading experience in which the client sees the text, observes a more competent individual reading it with fluency and expression, and is invited to read along. That is, the clinician and the client sit with the book and engage in genuine reading; initially in this activity, the clinician may have to do a majority of the reading but eventually the client becomes more proficient and takes on a progressively greater role in reading, ideally becoming an independent reader with no need for such mediation or support.

In a similar manner, **shared writing** accomplishes the same objectives and has the same benefits as shared reading. This version of the procedure is designed to enable the client to engage in authentic writing

by observing a more competent individual writing effectively and then progressively becoming involved in this process her or himself. In effect, the clinician and client engage in bona fide literacy tasks (see Writing Aloud) and move toward collaborative composition, and the individual with aphasia eventually takes the lead and moves to writing independence.

### Strategies for Mediation

Within the two general intervention procedures described above for providing authentic reading and writing opportunities, the therapeutic impact typically is achieved by the types of mediational strategies employed by the clinician during shared reading and writing. These strategies enable the clinician to figuratively stand between the individual with aphasia and the text that she or he is trying to read or write when there are problems with meaning-making. Rather than let the individual with aphasia struggle needlessly, the clinician mediates and uses one of a number of strategies that assist the client in re-establishing the meaning in the text so that comprehensible reading may continue. Three of these primary mediation strategies are described below:

- **Modeling**—this refers to the clinician providing a model of what a proficient reader does by reading in the presence of the individual with aphasia. During shared reading, this is accomplished when the clinician simply takes a turn reading a page or so before or after the individual with aphasia. This may be done on an informal schedule so that there is a ratio of clinician-to-client reading. This ratio will tend to be more heavily weighted toward the clinician at the initiation of shared reading as an intervention activity, but the ratio tends to shift once the individual with aphasia gains confidence and proficiency.
- **Foreshadowing**—To employ this strategy, the clinician quickly provides an accurate indication of what is to come in the subsequent immediate passages. To em-



ploy this strategy, of course, the clinician has to read ahead of the client before the therapy session so that accurate foreshadowing can occur. Foreshadowing provides a schema for the participants so that meaning of the future passage is more easily constructed.

- **Employing Meta-Literacy Comments—** This strategy refers to the practice of highlighting a particular problem that the individual with aphasia has while reading and explaining how it can be processed, interpreted, or overcome. For example, there are a number of meaning-based strategies that can be employed to move beyond word-finding difficulties while reading (e.g., “*skip the word, go to the end of the sentence and then just put in a word that makes sense.*”) As with the other strategies, this particular technique is not sufficient if used only once or infrequently. It must be employed recurrently in context for learning to occur.

Ms. A began therapy with a supervised student clinician and, as described, the intervention was oriented towards genuine literacy via reading aloud, shared reading, and shared writing procedures. These interventions employed the contextual implementation of reading strategies involving meta-literacy statements (e.g., replacing a difficult word with a word that had similar meaning) and appropriate modeling and mediation throughout her two shared reading segments in each intervention session. Initially, Ms. A was encouraged to use visual cues (pictures within the story) and her own auditory cues while trying comprehend the reading material. In the shared writing project and as a home writing activity, Ms. A and the clinician collaborated on the task of making a photo album. Ms. A was assisted in writing phrases and narratives describing the pictures she chose to include in the album, and her clinician modeled writing strategies via think alouds in order to reawaken Ms. A's awareness of the concepts, processes, and functions of writing. Additionally, Ms. A was given weekend assignments such as reading to

her grandchildren and silent reading for pleasure to continue literacy practice at home.

## Results

During the eight months of the case study, Ms. A attended therapy one hour a day for two days a week with the exception of five weeks of vacation. This accounted for approximately 58 hours of direct intervention. Within this direct intervention, she spent approximately 70% of her therapy time on reading and writing activities. As previously discussed, data were collected at the initial evaluation, in three sessions within the second and third week of therapy (pretreatment) and in three sessions within the 31st and 32nd week of therapy (post-treatment).

These six sessions were videotaped and Ms. A's performances within these sessions were analyzed with the same four measures applied to her initial evaluation. As these measures were well-documented ways of assessing comprehension in authentic reading activities (Goodman & Goodman, 1994; Goodman, Watson, & Burke, 1996; Johnston, 1997; Smith, 2004) they were appropriate as measures of change and progress in this case study. Additionally, data from the interviews and the artifacts of therapy (e.g., lessons plans, comments sheets, therapy logs) provided collaborating data.

Although data were collected on six different occasions—three for the pretreatment phase and three for the post-treatment phase (see time span above)—the miscue analyses found very little variation for the three session in each phase. Similarly, there was little variation in fluency within each phase. Consequently, the data have been combined into two large data sets, the pretreatment phase and the post-treatment phase.

The actual data for each general measure within the pretreatment and post-treatment phases may be found in Table 3.

As noted in Table 3, Ms. A appears to have made significant progress over the eight

**Table 3.** Case Study Results from the Comprehension Measures Comparing Performance Prior to Meaning-Based Treatment (Pretreatment) and Subsequent to the Treatment (Post-Treatment)

Measurement Variable	Pretreatment Phase	Post-treatment Phase
Miscues		
Total Miscues	42%	66%
Low-Quality Miscues	35%	13%
Substitutions	67%	87%
Omissions	32%	11%
Additions	1%	2%
Comprehension Questions		
Number correct and percentage of accuracy	14/30 47%	24/30 80%
Multidimensional Fluency Scale	6/16	12/16
Reading Rate (words/min)	60	146

months in terms of the four reading comprehension measures. Each measure has documented significant improvement. In terms of the ability to read and answer comprehension questions, for example, her percentage of accurate responses doubled from 47% accuracy in the pretreatment phase to 80% accuracy in the Post-treatment phase. Similarly, her reading rate, as measured in words read per minute, increased from a rate of 60 words per min to 146 words per min. This latter figure places her reading rate at a second semester fourth grade reading level when reading books that are appropriate to her age group. As her pretreatment reading rate was less than that of second semester first grade readers, this is quite a change and it suggests strong improvement in the fluent and effective application of reading strategies (Damico et al., submitted; Johnston, 1997; Rasinski, 2003).

This suggestion of increased fluency in reading performance is verified by her improvement on the Multidimensional Fluency Scale (Rasinski, 2003). Although Ms. A's documented change from a score of 6 out of 16 possible points to a score of 12 out

of 16 points is one indication of significant fluency modification, an analysis of the actual ratings according to the four dimensions that make up the scale is even more impressive. In terms of the smoothness of her oral reading, Ms A exhibited extended pauses, many hesitations, and multiple repetitions when this treatment study was initiated. By the end of the study, however, she evidenced only occasional breaks in smoothness when her word finding difficulties appeared during reading. As the miscue analysis will show, however, she has even learned to overcome many of these occurrences through the use of meaningful substitutions. Consistent with her increased reading rate, Ms. A no longer exhibits a slow and laborious pace while reading, one that suggested uncertainty with comprehension. Although she still has some occurrences of slow reading when the material is new or difficult, she is also able to read at a fast rate on familiar material or material that has captured her interest.

Ms A's oral reading behavior as measured by the frequency and types of miscues provide a more detailed picture of change. As

noted in Table 3, Ms. A has increased the total percentage of miscues that she produces while reading (from 42% of the total words read to 66% of the total) but, at the same time, she has greatly decreased the number of low-quality miscues that she produces. In the pretreatment phase, 35% of her total words read were low quality miscues. This indicated that nearly one-third of the time, she did not effectively recognize the text nor could she make any reasonable and meaning-based substitutions. This is a very high percentage of low-quality miscues and indicated a rather severe comprehension problem. In the post-treatment phase, however, only 13% of the total words read are of low quality. Although not as effective as one would like, this is a vast improvement in comprehension. Indeed, improved comprehension is the most likely basis for two patterns observed in Ms. A. oral reading. First, as mentioned previously, she has increased her percentage of miscues while reading but has greatly reduced the low quality versions. Given her aphasia and its resultant word finding and grammatical difficulties, it is likely that Ms. A has employed her increased reading comprehension skills and the use of context during reading to make meaningful substitutions while reading. She has learned to focus on meaning not accuracy and she has created a contextual strategy to overcome her word finding difficulties during reading. As word selection is sometimes a problem and as she no longer worries about accuracy but, rather, she is attuned to meaning, she makes more miscues in the form of appropriate substitutions but they are more often meaningful substitutions and because of this her reading comprehension has significantly improved.

In terms of her writing, Ms. A had stated early in the case study that writing was continuing to cause difficulty for her. However, according to the therapy logs, she began to use some strategies that she had learned during shared writing activities (e.g., reading over what she had written; reciting the alphabet to cue her for spelling) and she started writing more. She eventually started

keeping a journal and she was encouraged to continue. Another writing activity that had been introduced in intervention was the construction of a book entitled "Places I've Been." After looking at and discussing pictures of some of these places, such as China, Santa Fe, and various spots in Louisiana, Ms. A then wrote about her experience and this became a frequent activity outside of intervention. According to therapy records maintained during this time, Ms. A started becoming aware of her errors during writing and was able to correct them independently. Additionally, she continued to increase her production of grammatical sentences and to decrease the use of sentence fragments and single words during writing. As she continued to write journal entries with mediation as well as constructing texts about familiar topics, Ms. A began to write more descriptively and produced texts that were interesting to her audiences.

During an interview approximately four months into the case study, Ms. A indicated that she was interested in serving as a volunteer for the Performing Arts Society of Acadiana (PASA) and was encouraged to apply. As part of her duties at PASA, Ms. A filed papers, answered phone calls, and took phone messages. She also indicated that she had become interested in reading poetry, especially by Robert Frost. At the end of the case study period, Ms. A continued to progress in literacy skills as well as expanding her participation in community activities. She expressed her love of poetry and literature and her involvement with the Performing Arts Society of Acadiana. These comments and interests demonstrate that Ms. A once again was seeing herself as a literate individual who could contribute to her community.

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## Conclusions

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When analyzing these data to comment on the impact of the meaning-based reading approach to aphasia intervention, several points are evident. First, Ms. A did make significant improvement in reading and writing

during the intervention period. Her comprehension improved, her writing improved, and she made significant strides toward re-establishing herself as a meaning-maker in the community. Although not all of the credit can be claimed by this program, several factors do suggest it had an impact.

- She was over one year postonset when she enrolled in this meaning-based intervention program. Although the belief that there is a limitation to “spontaneous recovery” after six months or one year cannot be easily sustained, the chance that Ms A.’s significant recovery was due to physiologic changes alone after one year seems even less sustainable.
- Prior to this meaning-based literacy approach, Ms. A had received a significant amount of traditional reading intervention. The artifact analyses of the materials available from her prior therapy setting established significant effort (two hours/five days a week for 11 months) in which approximately 40% of the therapeutic effort was oriented toward traditional reading intervention. Furthermore, the treatment logs indicated that there was ongoing attention to these reading tasks. Despite this effort, she did not make progress in authentic reading and writing.
- At the beginning of the meaning-based treatment, it was clear that Ms. A had significant reading and writing difficulties and these were documented by an evaluation, the pretreatment data, and by her desire to seek a different kind of intervention due to her dissatisfaction with her previous therapy plan. Indeed, if the evaluation and pretreatment data are compared, her significant comprehension deficits were quite stable at the initiation of the meaning-based treatment program.

A second point is that this more authentic and meaning-based approach did appear to result in greater change than did the more traditional approach to reading intervention. As measured by authentic reading tasks, the more traditional approach to reading inter-

vention did not result in functional literacy skills nor did it impact reading comprehension. This is not surprising as this traditional approach to reading never really focused on authentic reading and writing or the synergistic skills and strategies needed to engage in proficient literacy. In contrast, the meaning-based program that invested less than 30% of the effort expended by the traditional program did document significant progress. This is expected if one is familiar with the wealth of theoretical, pedagogical, and empirical information available on meaning-based literacy intervention over the past 40 years.

Perhaps due to the rather significant changes that occurred with Ms. A, another point (number three) is that the progress made by this individual with aphasia may not be typical. First, this client was a good candidate for a meaning-based approach to reading intervention. She had moderate deficits due to her aphasia with little or no motor involvement. Additionally, she had a long history of significant involvement with literacy and she indicated that she was a voracious reader prior to her stroke and was highly motivated to return to literacy for practical and leisurely purposes. Finally, she had the health and resources to pursue literacy activities outside the therapy room so that more effort might have been expended on reading recovery. It is important to note that the kinds of changes documented in Ms. A may not be typical. Several researchers have demonstrated that the trajectories of acquisition or recovery when dealing with literacy skills are quite varied and cannot easily be predicted (Clay, 1998; Nelson, 2004). What does seem predictable, however, is that good intervention will result in progress over time—albeit the trajectory of change may vary.

A fourth point is that the theory and practice that works so effectively in language arts when applied to normal and struggling readers can easily and effectively be adapted to other individuals in need of strong theory and sound pedagogic practices. There are resources available to advance toward more meaning-based approaches to reading inter-

vention in aphasia (Damico, 2006; Damico & Damico, 1993; Damico et al., 2005; Moyer, 1979; Obregon, 2002; Parr, 1991, 1996). The resources and opportunities are numerous; all that is needed is the awareness and the motivation.

This case study suggests that working with a meaning-based model of literacy holds potential for aphasia intervention. If there is a greater orientation toward meaningfulness and comprehension in literacy, if there is a focus on authentic reading and the use of integrated skills and strategies rather than a focus on cognitive models and decontextualized drills, then a different and more effective perspective on literacy in aphasia can be implemented. This different perspective may benefit both the clinical aphasiologist and the individuals with aphasia that rely on this professional and her or his professional skills and judgments.

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