

Languaging as Agent and Constituent of Cognitive Change in an Older Adult: An Example¹

Merrill Swain

*The Ontario Institute for Studies in Education
University of Toronto*

Sharon Lapkin

*The Ontario Institute for Studies in Education
University of Toronto*

Abstract

Vygotsky's writings have established the critical importance of language in the development of higher mental functions, including memory and attention. One of the processes involved in this development is languaging, the activity of mediating cognitively complex ideas using language (Swain, 2006). The present study of an older adult with mild cognitive impairment living in a long-term care facility involves Alise (the resident) narrating a fragment of her life over time. We investigate the hypothesis that languaging restores aspects of cognitive functioning through a microgenetic analysis of this fragment which was revisited over a two-month period. We demonstrate that languaging mediates Alise's ability to recall details of this fragment of the life history she is recounting with increasing syntactic and lexical sophistication, thus documenting cognitive change.

Résumé

Les écrits de Vygotsky ont établi l'importance critique de la langue dans le développement des fonctions mentales supérieures, y compris la mémoire et l'attention. L'un des processus impliqués dans ce développement est le « languaging » (mise en mots), l'activité de médiation cognitive des idées complexes à l'aide de la langue (Swain, 2006). La présente étude d'une personne âgée atteinte de troubles cognitifs légers et vivant dans un établissement de soins de longue durée porte sur Alise (la résidente) qui raconte, au cours d'une période de temps, un fragment de sa vie. Nous enquêtons sur l'hypothèse selon laquelle le « languaging » restaure des aspects du fonctionnement cognitif et ce, par le biais d'une analyse microgénétique de ce fragment qui a été revu au cours d'une période de deux mois. Nous démontrons que le « languaging » médiatise la capacité d'Alise de se souvenir des détails de ce fragment de l'histoire de sa vie qu'elle raconte avec une sophistication syntaxique et lexicale croissante, documentant ainsi des changements cognitifs.

¹ This research was made possible by a grant to Merrill Swain and Sharon Lapkin from the Social Sciences and Humanities Research Council of Canada (#410-04-2099). We are grateful to the staff of the facility, Magnolia Place, and to Alise, our participant.

Languaging as Agent and Constituent of Cognitive Change in an Older Adult: An Example

Introduction

Among older adults, mild cognitive impairment (MCI) is estimated to characterize approximately 15% of those who do not already have some form of dementia (e.g., Alzheimer's disease). From studies around the world, the rates of MCI converge in the 14% to 18% range for persons aged 70 years and older (Petersen, Roberts, Knopman, Boeve, Geda, Ivnik, Smith, & Janck, 2009). Only a small percentage of these individuals progress to becoming an Alzheimer's patient. In this study, our goal was to locate older adults who were on the verge of MCI, or who were already mildly cognitively impaired, in order to implement a "languaging" intervention.

Rationale for the Study

"Languaging" is the term we have been using to refer to the activity of mediating cognitively complex ideas using language (see, for example, Knouzi, Swain, Lapkin, & Brooks, 2010; Swain, 2006; 2010; Swain, Lapkin, Knouzi, Suzuki, & Brooks, 2009). The term languaging characterizes language as a process (verb) rather than a product (noun). The term suggests that speaking and writing are themselves language production activities that mediate remembering, attending, and other aspects of higher mental functioning. In other words, as we talk or write, our attention is focused on certain objects or ideas and not others; we create artifacts that we can refer back to, challenge and change – processes that help us to remember and learn (Swain & Lapkin, 2006, p. 2). One form of languaging, particularly for an older adult who has little opportunity to talk about his or her past, is the telling of one's life history, a form of narrative. The recalling of past events in a coherent manner with rich details may be a cognitive struggle for older narrativists, and hence constitute languaging (Lenchuk & Swain, 2010). Languaging is not just communicating; the construct of languaging adds to the meaning of communication the power of language to mediate attention, recall, and knowledge creation.

Vygotsky (1978) argued that language is one of the most important mediating tools that human beings have at their disposal for the development of higher mental (cognitive) processes. Thus, one possible reason for cognitive loss (MCI) among older adults may lie in the lack of opportunities they have to use language. If opportunities are limited, then cognitive loss rather than cognitive maintenance or development might occur. In this article, we make this case by demonstrating that when language is used to mediate the recollection of past events by an older adult with mild cognitive impairment, cognitive functioning can be enhanced.

The argument entails three points, each having to do with the role of languaging in cognitive functioning. Each of the three points is based on the work of Vygotsky (e.g., 1978; 1987) and others (e.g., Lantolf & Thorne, 2006) who have been working within Vygotsky's framework of a sociocultural theory of mind. The first point is that the source

of an individual's cognitive processes—or as Vygotsky would call them, higher mental processes such as voluntary memory and attention—is *in* the interaction between the individual and the social world of people and its artifacts. The interactions between an individual and others, as well as with self-created or other-created artifacts, are, over time, transformed and internalized as higher mental processes. Language (and other semiotic tools) mediate both the interactions and the process of internalization.

The second point is that, developmentally, mental processes are first controlled—or, as Vygotsky would say—regulated by objects in the external world. Then mental processes are regulated by others, particularly through the mediating tool of language. Finally, as language is internalized, it comes to regulate the individual's own cognitive processes. Although described as a developmental sequence—from object regulation to other regulation to self regulation—the locus of control moves among them, depending on an individual's need for support from the environment to carry out the mental tasks at hand.

The third point concerns the relationship between language and thought. According to Smagorinsky, speaking is “an agent in the production of meaning” (2001, p. 240), not merely a conveyor of thought. He argued that “the process of rendering thinking into speech is not simply a matter of memory retrieval, but a process through which thinking reaches a new level of articulation” (Smagorinsky, 1998, pp. 172-73). To quote Vygotsky (1986): “Thought is not merely expressed in words; it comes into existence through them” (p. 218). Further, “thought undergoes many changes as it turns into speech. It does not merely find expression in speech; it finds its reality and form” (p. 219). In short, languaging completes thought. A crucial point here is that the process of producing language—of languaging—is not just a brain dump. It is not just taking what is in the head and saying it; nor is it articulating a memory trace (O'Connell, 1988). Languaging is not simply a vehicle for communication, but plays critical roles in creating, transforming, and augmenting higher mental processes. As Vygotsky (1987) argued, language is a tool of our mind which permits our mind to engage in a variety of new cognitive operations and manipulations. Clark (1998), one of the cognitive scientists who have entered the debate about the relationship between language and thought, states: “[language] enables us, for example, to... ‘stabilize’ very abstract ideas in working memory. And it enables us to inspect and criticize our own reasoning in ways that no other representational modality allows” (p. 178). Together these three points make a powerful case for the role of language in cognition—as an agent in its creation, as a regulator of it, and as a mediator of it. Importantly, through interaction with others and with the self (through private and inner speech), higher mental processes are created and used.

Based on what we have argued so far, our hypothesis is that languaging by older adults will restore aspects of memory and cognitive functioning. In other words, we are looking for evidence of cognitive change amongst those with MCI, who, over time engage in languaging; those who use language to engage in cognitively complex thinking such as recalling past events. As we will see below, evidence of cognitive change is reflected in the language of the older adult. If, over time, an older adult's narrative displays greater syntactic complexity and enriched vocabulary, our claim is that it is because the use of language has enhanced access to memory, focused attention, and re-created past events. In

other words, languaging is an essential process inherent in positive cognitive change. Language reflects (is the product of) this process.

In the next two sections, we summarize three articles which are relevant to the current study: a synthesis of research concerned with social isolation and loneliness in older adults, another in the series of case studies conducted by our research team, and an experiment concerned with the causal relationship between social interaction and cognition.

Social Interaction and Cognition

Social isolation.

Cattan, White, Bond, and Learmouth (2005) wrote a synthesis of studies involving interventions designed to prevent social isolation and loneliness among older adults. They defined social isolation as “the objective absence or paucity of contacts and interactions between an older person and a social network” (p. 43) and classified as “effective” those interventions that “demonstrated a significant reduction in loneliness and/or social isolation” (p. 43). They included 30 quantitative outcome studies and 12 qualitative evaluation studies and surveys in their analysis.

The studies they reviewed included group and one-on-one interventions. Findings were quite uneven, but the authors were able to list several characteristics of interventions judged to be effective. These included interventions with focused educational input and targeted support activities, and those enabling “some level of participant control” (p. 57). The intervention we report on in our study entailed some participant control and discussions that could be considered broadly knowledge-building or knowledge-using.

In the studies Cattan et al. reviewed, changes in loneliness and social isolation were evaluated through scales and checklists and sometimes through process evaluations. Although Cattan et al. do not discuss the language-rich nature of the interventions included in the studies they reviewed, we may infer that many of them involved languaging on the part of the participants. The interventions reviewed included some that were cognitively challenging (e.g., discussion of topics that were of interest to the participants), and that involved input from the participants. Participants therefore had some ownership of the activities they chose to engage in and their languaging was associated with improvement in affect.

Lapkin, Swain, and Psyllakis (2010) reported on a case study of an older adult living in the same long-term care facility as Alise. Mike, a resident, interacted with a researcher over a two-month period in 11 one-hour meetings. Together, they created a positive affective climate that was conducive to extended languaging on a variety of topics. A microgenetic analysis of selected, representative excerpts from the transcripts of the sessions suggested that Mike was able to reclaim lost expertise over time, and to tackle new cognitive challenges. The findings suggested that the languaging activities enhanced Mike’s cognitive development and self-esteem.

Relationship of social interaction to cognition.

Past research with older, cognitively impaired adults has focused on the language used by caretakers, rather than on the language used by the person being cared for. Furthermore, the research has looked for evidence of affective change rather than cognitive change (e.g., Cattani et al., 2005). In 2008, Ybarra, Burnstein, Winkielman, Keller, Manis, Chan, and Rodriguez claimed that their study provided the first evidence “that social interaction can have a direct, causal influence on cognitive performance” (p. 251). Their study was conducted with young adults who were asked to talk about privacy protection, especially in the light of recent technological advances and political events. Their research, based in the field of social cognition, assumed that the inferential processes underlying social interaction involve a complex set of computations. “For example, a simple exchange of views between two people requires that they pay attention to each other, maintain in memory the topic of the conversation and respective contributions, adapt to each other’s perspective, infer each other’s beliefs and desires, [and] assess the situational constraints acting on them at the time” (p. 249). Thus, according to Ybarra et al., “social interaction and relationships not only sharpen our knowledge and social skills, but also strengthen the cognitive processes that underlie those skills... Thus, an important outcome of social interaction appears to be mental sharpness” (p. 257). We find the results of this study of significance to our work, but we also find it astonishing that not once in their article is the word “language” used. They do not acknowledge that language mediates the cognitive processes they discuss in their article.

While there is no explicit mention of language in the Ybarra et al. study, the social interaction based on the cognitively complex topic of privacy protection would obviously have involved languaging. As we have argued in this article, and elsewhere (e.g., Swain, 2006, 2010; Swain et al., 2009), languaging mediates attention, recall, and knowledge creation, each being important aspects of cognitive enhancement. Unique to our study is the recognition that the construct of languaging not only incorporates social communication, but also adds to it the idea that new knowledge (cognitive development) is created in the process of effortful language use.

Methodology

Research Question

The question we address in this article is: How does languaging effect cognitive change in an older adult?

Context

We assigned the pseudonym Magnolia Place (MP) to the long term care facility (LTCF) where we collected our data. Constructed in the late 1990s and housing 350 residents, MP is modern and appealing: each half floor has a large common room, dining room, and recreational room. The rooms are private with large windows overlooking the tree-lined residential neighborhood.

The study we report on here is one component of a larger study involving five residents of MP (e.g., Lapkin, Swain, & Psyllakis, 2010; Lenchuk, & Swain, 2010). Each resident was paired with a researcher. Residents were selected using two criteria: first, that s/he have mild cognitive impairment (MCI), and second, that s/he be relatively socially isolated. The resident we are concerned with in this article met both criteria, scoring 24 on the Mini-Mental State Exam² (MMSE; Folstein, Folstein, & McHugh, 1975) which indicates MCI (see Barkaoui, Swain, & Lapkin, 2011 for a discussion of the test and its limitations). Alise, the resident who is the focus of attention in this article, rarely had visitors. Her interactions with the first author of this article (henceforth referred to as the researcher) demonstrated that she welcomed the opportunity for rich conversation on a regular basis with an involved interlocutor.

A Profile of Alise (Pseudonym)

At the time of data collection, Alise had been residing in MP for three years. The researcher's first impression of Alise was of an attractive, well-cared for person with a sense of humour and curiosity. Every available surface in Alise's room was covered with books and, without fail, there was an open book on the tray of her wheelchair. Alise was 75 years old and had suffered from multiple sclerosis for about 20 years. Confined to a wheelchair, some of her symptoms were severe: she had difficulty moving her fingers and as a result she was not capable of performing a number of daily routines; for example, cutting her food, feeding herself, dialing a phone, or co-ordinating her movements in order to write legibly.

Alise was born in Latvia and immigrated to Canada. In Canada, she married and had four children, two of whom died of HIV/AIDS. As a strong Catholic, she could not understand why God would punish her in this way. Of her two remaining children, she was estranged from her daughter and rarely saw her son. Occasionally, members of the church dropped by to offer a prayer and blessings. She had a nurse-aid who helped her with meals, the same person who had helped her dying sons. Other than that, various care staff dropped by to give her pills, snacks, clean clothes, and so on. She reported preferring not to talk to them because they already thought she was "nuts" (Lenchuk & Swain, 2010). She had not made friends with other residents. She acknowledged that she was lonely, and was delighted to learn that the researcher would be visiting regularly. From the beginning of the researcher's visits, Alise was an enthusiastic participant in their languaging activities.

When Alise was about 10 years old (1941), the German army invaded Latvia, a country which was then occupied by the Russians. The Germans conscripted young people, among them Alise's brother. At some point, Alise had the opportunity of leaving war-torn Latvia for Germany. She did this, and did some secondary schooling there, in a camp for displaced persons. As a young adult, she then immigrated to the United States where she worked on a farm in Iowa. As a former member of the German army, her brother was

² One item of this test involves writing a sentence; at the time of testing, because of her multiple sclerosis, Alise was unable to write. A score of 26 or lower on the MMSE indicates cognitive impairment.

unable to go to the U.S., and immigrated to Canada instead. Alise visited her brother in Canada and met her future husband during her visit. She lived her adult life using English as her main language of communication.

Although Alise and the researcher spent many hours talking, her initial comment to the researcher who expressed interest in learning about her and her life was “there’s nothing.” (For a more detailed description of Alise, see Lenchuk & Swain, 2010.)

The Intervention and Timeframe

The research team met regularly before the data collection began to plan a series of languaging activities that could be used or adapted to elicit effortful, cognitively demanding talk from the focal residents. We emphasized the need to build on residents’ interests and often began with a life history discussion as a way of getting to know each resident. In Alise’s case, she had a passion for reading and for the actor, Richard Burton. She also had a fascinating life story as an immigrant who made a new life in Canada after the Second World War.

The researcher met with Alise in her room 13 times, approximately once a week, during July through September 2006. The initial session was not recorded, nor were two sessions where the researcher and Alise watched a movie starring Richard Burton. Thus, there were 10 recorded sessions in all, totaling 18 hours of talk. The researcher also kept field notes, written after each session. The sessions were audio recorded digitally, stored on a secure computer, and transcribed in full.

Data Analysis

In a previous article (Lenchuk & Swain, 2010), the researchers addressed Alise’s social identity as it emerged over the course of the sessions through an analysis of how she positioned herself as she narrated her “small stories.” Their goal was to index Alise’s “re-emerging social identity as a capable narrator in contrast to the larger discourse of the LTCF, which positioned her as cognitively impaired” (p. 11). The researchers (Lenchuk & Swain) documented a change over time: as Alise languaged with the researcher, her well-being and self esteem were enhanced.

In the present article, the method of analysis is microgenetic; we undertake a close linguistic examination of a fragment of Alise’s life history relating to her brother’s leaving Germany and eventually finding himself in Canada. Microgenetic analysis involves “the dynamic process of developmental change” (Wertsch & Hickman, 1987, p. 252), in this case a detailed account of what occurs each time the fragment is re-narrated as it becomes a more complex narrative. We document the changes that occurred in Alise’s languaging as evidence of her increasing control over the sequence and detail of her account of the role her brother played in her emigration to Canada. This microgenetic analysis makes evident the cognitive changes mediated by language across time that led to Alise’s final coherent, lexically rich, narrative episode. In this way, Alise’s cognitive improvement is demonstrated (see also Dijkstra, Bourgeois, Allen, & Burgio, 2004).

The episode we present below occurs at the end of a sequence of excerpts (see the

last column of Figure 1); we reproduce here Alise's narrative in the tenth session that the researcher spent with her:

And what happened, my brother had been in the German army, but not because he wanted to be. He was [there] because the Germans had mobilized everybody... So my brother, it was on his record that he was in the German army....So he couldn't get to the States.

This is a coherent and comprehensive account of what happened to Alise's brother during and after the Second World War. This narrative, acknowledged three times by the researcher's interjections (Mm hmm; see last column of Figure 1, i.e., Session 10), incorporates all the key points of information that Alise has provided in a less coherent way through four other sessions that occurred prior to this one.

Figure 1. Excerpts from the Transcript: Evidence of Cognitive Change

From Session 1			From Session 2			From Session 4		
1.69	M	Tell me how you got from Germany to Canada, or to the States.	2.473	M	So you haven't told me yet how you got from Des Moines to Canada.	4.124	Alise	I came here [Canada] because <i>my brother couldn't get into the States 'cause he had been in the German army, which was nothing</i>
1.70	Alise	Uh, oh it was simple. In the States they had programs where they hired people, and I ended up on a farm.	2.474	Alise	Oh, to Canada. My brother wasn't able to go to the States, because he was in the German army.	4.125	M	Right.
1.71	M	Oh! And that was straight from Germany?	2.475	M	Mm hmm	4.126	Alise	But it [his having been in the German army] <i>was on the list, you know.</i>
1.72	Alise	Yeah, from Germany [...]	2.476	Alise	And those days he couldn't go to the States. <i>So, he came to Canada.</i> And he, in his mind, thought that maybe he'll somehow get to the States eventually. At least, he'd be close enough. And... <i>so I came to visit him.</i>	4.127	M	Right, right. So they wouldn't let him into the States.
1.75	M	In what state was that?	2.477	M	Okay.	4.128	Alise	No, no, <i>when he applied.</i>

1.76	Alise	Iowa.
1.77	M	Iowa.
1.78	Alise	Yeah, but my brother had been in the army. It was no big deal you know. They called up teenagers [laughs] and that was it
1.79	M	in the German army?
1.80	Alise	Yeah.
1.81	M	Mm hmm
1.82	Alise	But it didn't last long because they lost the war. So, so all that was for nothing- a bunch of papers [laughs], bunch of uniforms, used up...
1.83	M	Used up. And he didn't do anything with them?
1.84	Alise	No, no.

4.129	M	But Canada would, Canada let him in.
-------	---	--------------------------------------

From Session 6

6.331	Alise	...cause everybody wanted to go to America [laughs].
6.332	M	Right. Right. They wanted to escape to America. Right.
6.333	Alise	Everybody.
6.334	M	Uh huh. But only some people made it.

From Session 10

10.621	Alise	And what happened, my brother had been in the German army, but not because he wanted to be He was [there] because the Germans had mobilized everybody.
10.622	M	Mm hmm
10.623	Alise	and teenagers.
10.624	M	Mm hmm

6.335	Alise	That's right. Well, first of all, what they did in those days... they didn't take anybody who'd been in the German army.	10.625	Alise	So my brother, it was on his record that he was in the German army.
6.336	M	Mm hmm	10.626	M	Mm hmm
6.337	Alise	You were a kid, a high school kid. <i>Germans called you up when they went there [to Latvia].</i> My brother wasn't in that group [those who made it to the U.S.], and he couldn't go.	10.627	Alise	So he couldn't get... get to the States.

The following temporal and logical markers, bolded in the last column of Figure 1, ensure its coherence: the use of “had been” (past perfect) as background to the reason Alise’s brother could not emigrate directly to the United States; two subordinate clauses introduced by “because” to provide the reason for his having found himself in the German army; and the logical connector “so,” used twice to provide the reason for his inability to get to the States. Certain vocabulary choices are also of interest in this segment, specifically the words “mobilized” and “record,” as we will see.

Our analysis makes evident the fact that Alise’s reminiscing about this part of her life became increasingly complex and coherent over the five sessions, numbered 1, 2, 4, 6, and 10 to represent the sessions from which the excerpts were taken. We will also document how the need for other-regulation via the researcher’s questions or other substantive interventions decreased over time as Alise’s narrative became more self-regulated. Wells (2002) explains how an outcome (here, each excerpt of Alise’s narrative) can also serve to mediate a new outcome: “Frequently, over the course of an activity, the material artifacts created as outcomes in one phase serve as mediational means in a subsequent phase” (p. 50). We will see that each telling of the story of her brother’s coming to North America serves as an artifact that Alise then builds on for subsequent tellings of the story, culminating in the session 10 narrative episode.

The relevant excerpts are reproduced in Figure 1. The first begins with the researcher’s question to Alise about how she got from Germany to North America. Alise provides an answer; namely, that there were opportunities for immigrants to work, and that brought her to the States. As it turns out, she ended up working on a farm. The researcher asks if she came directly from Germany, and she confirms (turn 1.72) and specifies (turn 1.76) that she went to Iowa. Alise then introduces the topic of her brother, saying that he had been in the army (turn 1.78) and, in overlapping speech, the researcher asks if it was the German army. Alise also tells the researcher that teenagers were called up (or conscripted) into the army. Apparently her brother’s time in the army was not prolonged, as Alise explains to the researcher in turn 1.82 that “they [the Germans] lost the war.” Notice that in this excerpt, the researcher asks the initial question, and extends

Alise's account in turns 1.71, 1.75, 1.79, and 1.83 on four separate occasions by continuing to add substantive questions intended to elicit further information in each case.

In the second meeting with Alise, the researcher pursues the topic of Alise's time in North America, asking (turn 2.473) how Alise got from Des Moines, Iowa, to Canada. Alise explains (turn 2.474) that her brother could not go to the States, and in turn 2.476, that he went to Canada, and the researcher must deduce that this has something to do with Alise's ending up in Canada. In turn 2.474, Alise also specifies that her brother was in the German army, a piece of information that the researcher had questioned in session 1 (turn 1.79). Alise also adds in session 2 (turn 2.476) that her brother chose Canada for its proximity to the States, reasoning that "maybe he'll get to the States eventually." So, Alise visited him in Canada. The new information added in session 2 (shown in Figure 1 in italics) is that Alise's brother could not immigrate to the United States because he had been in the German army; hence he went from Germany to Canada, which did admit him. Alise visited him there. On this occasion, one opening question from the researcher suffices to elicit this new information.

In the excerpt from session 4, Alise tells the researcher that she had come to Canada because her brother was in Canada, having been in the German army. The researcher does not yet understand why this is relevant, until turn 4.126, when Alise explains that her brother's name "was on the list." She had to infer what kind of list and what the implications of being on the list might be. In fact, the researcher makes that link in turn 4.127 when she says, "so they wouldn't let him into the States," continuing the explanation in turn 4.129 that "Canada let him in."

In the fourth session, new information includes the fact that Alise's brother was on some kind of unspecified list and had applied for admission to the U.S. Here the researcher completes two of Alise's statements in turns 4.127 and 4.129.

In session 6, Alise is better able to make the logical links: in turn 6.335 she explains that the States "didn't take anybody who'd been in the German army." Alise adds some detail to the story that has been developing about her brother in turn 6.337 when she explains that when the Germans invaded Latvia during the war, they conscripted young men ("high school kids"). Her account is not entirely clear when she states that "my brother wasn't in that group"; we infer that she meant "in the group that made it to the U.S.," but the referent of the phrase "that group" is not clear. In the first part of this excerpt, the researcher reinforces Alise's initial statement in turn 6.331 that "everybody wanted to go to America" and points out that "only some people made it" (turn 6.334). Following that, the researcher simply acknowledges (turn 6.336) the further details that Alise supplies in turns 6.335 and 6.337.

In session 10, Alise brings together the relevant pieces of information from earlier sessions that we have reviewed here, and tells us using sophisticated vocabulary and syntax that her brother, along with many others, had been "mobilized" (turn 10.621) and that later it was "on his record" (turn 10.625) that he was in the German army, thus making it impossible for him to emigrate to the U.S. after the war (turn 10.627).

Summary and Discussion

Because the researcher in the present study expressed keen interest in Alise's personal family history, an opportunity was created for Alise to remember in increasing detail the story (among many stories she told) of her brother's immigration to Canada from Germany after World War 2. Languageing this story led Alise to a level of control of the details and sequence of events that she would otherwise likely not have attained because of her relative social isolation and concomitant lack of opportunity for effortful communication.

Returning to the three points we made in the introductory section, we can see that Alise's languageing in her social interactions with the researcher mediated the internalization of her story. Each articulation of the story serves as a stepping stone to the next, and each is somewhat more elaborate and clear. As Wells (2002) explained, each telling of the story is a material artifact that mediates the new telling in the next session. We argue that the increasing sophistication of each telling reflects the cognitive enhancement taking place.

Second, over time, Alise moves in her conversations with the researcher from being other-regulated to self-regulated. In other words, initially the researcher more or less controls the conversation by asking questions and prompting/completing Alise's sentences, but as they spend more time together, Alise needs fewer and fewer of the researcher's questions and prompts. The researcher's role becomes that of an engaged listener.

Third, Alise's languageing mediates her attention and memory such that she is able, over time, to construct and reconstruct her narrative so that it becomes more coherent and lexically richer. Alise was not conveying already formulated thought; rather languageing brought her story into existence, mediating, and thus strengthening and augmenting her higher mental (cognitive) processes.

This article presents one aspect of the data from the case study of Alise. Overall, the findings from the larger study are consistent: providing older adults with MCI an opportunity to language enhances cognitive functioning. But the story does not stop there; indeed, it may be that the story starts with the enhanced self-esteem experienced by our participants associated with their interaction with the researchers. We do not think of cognition and affect as being linearly related, but rather as interacting (see Swain, Kinnear, & Steinman, 2011). Among our participants, the relationships between their affective selves and their cognitive selves spiraled in a positive trajectory; it could have been otherwise. Our plan is to make use of our findings to provide the basis for the development of a handbook for volunteers in long-term care facilities. The handbook will include suggestions for a number of languageing activities intended to impact positively on the cognitive and emotional processes of older adults with mild cognitive impairment.

References

- Barkaoui, K., Swain, M., & Lapkin, S. (2011). Examining the quality of measures of change in cognition and affect for older adults: Two case studies. *Journal of Aging Studies, 25*, 62-72.

- Cattan, M., White, M., Bond, J., & Learmouth, A. (2005). Preventing social isolation and loneliness among older people: A systematic review of health promotion interventions. *Ageing and Society, 25*, 41-67.
- Clark, A. (1998). Magic words: How language augments human computation. In P. Carruthers & J. Boucher (Eds.), *Language and thought: Interdisciplinary themes* (pp. 162-183). Cambridge, U.K.: Cambridge University Press.
- Dijkstra, K., Bourgeois, M. S., Allen, R. S., & Burgio, L. D. (2004). Conversational coherence: Discourse analysis of older adults with and without dementia. *Journal of Neurolinguistics, 17*, 263-283.
- Folstein, M., Folstein, S.E., & McHugh, P.R. (1975). "Mini-Mental State": A practical method for grading the cognitive state of patients for the clinician. *Journal of Psychiatric Research, 12*(3), 189-198.
- Knouzi, I., Swain, M., Lapkin, S., & Brooks, L. (2010). Self-scaffolding mediated by languaging: Microgenetic analysis of high and low performers. *International Journal of Applied Linguistics, 20*, 23-49.
- Lapkin, S., Swain, M., & Psyllakis, P. (2010). The role of languaging in creating zones of proximal development (ZPDs): A long-term care resident interacts with a researcher. *Canadian Journal on Aging, 29*, 477- 490.
- Lantolf, J. P., & Thorne, S. L. (2006). *Sociocultural theory and the genesis of second language development*. Oxford, UK: Oxford University Press.
- Lenchuk, I., & Swain, M. (2010). Alise's small stories: Indices of identity construction and of resistance to the discourse of cognitive impairment. *Language Policy 9*, 9-28.
- O'Connell, D.C. (1988). *Critical essays on language use and psychology*. New York: Springer-Verlag.
- Petersen, R. C., Roberts, R. O., Knopman, D. S., Boeve, B. F., Geda, Y. E., Ivnik, R. J., Smith, G. E., & Jack, C. R. (2009). Mild cognitive impairment. *Archives of Neurology, 66* (12), 1447-1455.
- Smagorinsky, P. (1998). Thinking and speech and protocol analysis. *Mind, Culture, and Activity, 5*, 157-177.
- Smagorinsky, P. (2001). Rethinking protocol analysis from a cultural perspective. *Annual Review of Applied Linguistics, 21*, 233-245.

- Swain, M. (2006). Languaging, agency and collaboration in advanced language proficiency. In H. Byrnes (Ed.), *Advanced language learning: The contribution of Halliday and Vygotsky* (pp. 95 -108). London: Continuum.
- Swain, M. (2010). Talking it through: Languaging as a source of learning. In R. Batstone (Ed.), *Sociocognitive perspectives on second language learning and use* (pp. 112–130). Oxford: Oxford University Press.
- Swain, M., & Lapkin, S. (2006, June). *Languaging and cognition and affect in the elderly*. Paper presented at the annual conference of the Canadian Association of Applied Linguistics, University of British Columbia, Vancouver, British Columbia.
- Swain, M., Kinnear, P., & Steinman, L. (2011). *Sociocultural theory in second language education: An introduction through narratives*. Bristol, UK: Multilingual Matters.
- Swain, M., Lapkin, S., Knouzi, I., Suzuki, W., & Brooks, L. (2009). Languaging : University students learn the grammatical concept of voice in French. *Modern Language Journal*, 93, 5-29.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes*. (M. Cole, V. John-Steiner, S. Scribner & E. Souberman, Trans.). Cambridge, MA: Harvard University Press.
- Vygotsky, L. S. (1986). *Thought and language*. (A. Kozulin, Trans.). Cambridge, MA: The MIT Press.
- Vygotsky, L. S. (1987). *The collected works of L. S. Vygotsky, Volume 1: Problems of general psychology*. (R. W. Reiber & A. S. Carton, Eds.). New York: Plenum Press.
- Wells, G. (2002). The role of dialogue in activity theory. *Mind, Culture, and Activity*, 9, 43-66.
- Wertsch, J. V., & Hickman, M. (1987). Problem-solving in social interaction: A microgenetic analysis. In M. Hickman (Ed.), *Social and functional approaches to language and thought* (pp.251-266). Orlando, FL: Academic Press.
- Ybarra, O., Burnstein, E., Winkielman, P., Keller, M.C., Manis, M., Chan, E., & Rodriguez, J. (2008). Mental exercising through simple socializing: Social interaction promotes general cognitive functioning. *Personality and Social Psychology Bulletin*, 34, 248-259.