CHAPTER 6:
RESEARCH QUESTION 3: CASE STUDIES

The previous chapters have analyzed the data according to the numerical and

video data collected by the eye tracker and the screen monitor. This chapter changes the

perspective and places the reader centrally in the process. Whereas the reader was

definitely involved in the two previous chapters and analysis, this chapter places the

reader in the front seat, metaphorically speaking, as a driver. Placing the reader back into

the reading process, he or she is now seen in his/her relationship between the text that is

being transacted with, and the reader's personal background that is being used in this

transaction now becomes a principal part of this process.

Figure 6.1 The place of the reader in a Multimodal Multimedia Communicative Event.
The person's background is included in the event, while the TV icon could also represent
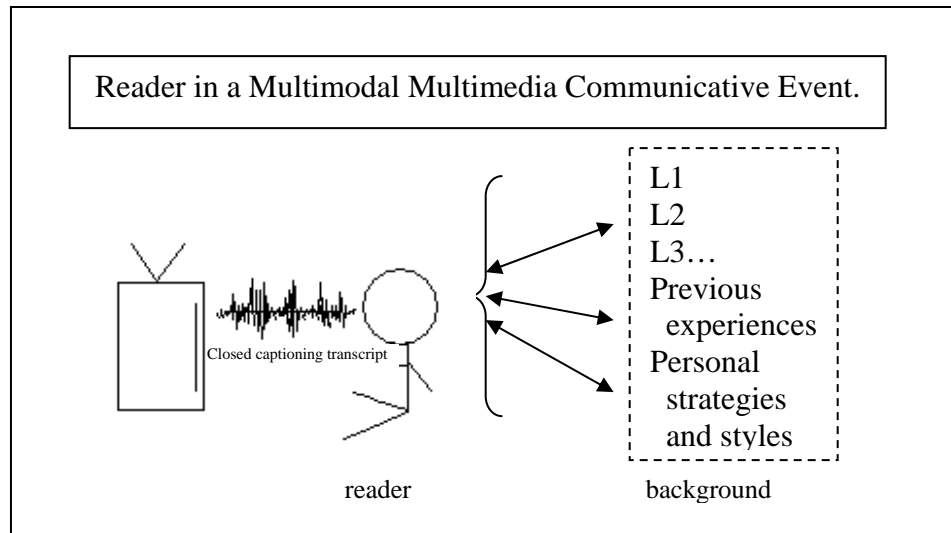movies or the internet.

Figure 6.1 illustrates the complexity involved in a Multimodal Multimedia

Communicative Event in which readers/viewers bring their background with them to the

event. Their background includes not only the languages that they are familiar with, but the cultural meanings attached and integrated in those languages, and the previous experiences with associated texts and themes similar to the one being viewed/read. The transaction with the Event[1] not only draws on the previous experiences and linguistic knowledge of the participant, but also adds to the participant's background and context, as illustrated by double-headed arrows in Figure 6.1. It is a circular exchange within the participant. In short, everything that makes that individual unique is used to interpret the multimodal text in his/her unique way.

6.1 Question 3: Overview of procedures and questions

Four participants were selected for this personalized observance of the textual interaction conducted during the experiment. Part of the methodology for the experiment entailed a retell protocol that was collected after each text was viewed. The participants were told at the beginning of the study that they would be asked a series of questions about the video or text that they were viewing and each participant had a sample (static) reading with retell questions to prepare them for the experimental texts. The last portion of the experiment also involved an extended interview and the completion of a learning styles questionnaire. The questionnaire was a series of questions that the participants answered on a computer. Afterwards, the answers were compiled into graphs from which a person could be placed into general categories regarding preferences for auditory or visual learning styles and activities. It is these parts of the data collection that will be

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[1] The "Event" could be labeled as a Literacy Event, a Communicative Event, a Media Event, etc depending on one's theoretical definitions. Here, as described in Chapter Two, I have made the Event one in which there is an attempt at communication, and the communication crosses the modalities of print, media and spoken discourse a Multimodal Multimedia Communication Event.

Specker, Elizabeth. (2008). L1/L2 Eye movement reading of closed captioning: A multimodal analysis of multimodal use.   ic.arc.losrios.edu/~speckee

sewn together to give an additional viewpoint with which to observe the multimodal

choices that a person makes when using a multimodal text and the individualized

background that influences and engages each individual in that process.

Research Question 3:

What are the relationships, if any, that can be established between the individual viewer's reading patterns and the self reported background history related to multimodal use?

Predictions for Research Question 3 include that there will be eye movement

differences that can be traced back to the learners' proficiencies and familiarity with

reading dynamic text in English.

The following forms of data are used to answer Research Question Three:
- Extended interviews and results from a learning styles questionnaire
- Fixplots showing the eye movements of one whole text that included all available modalities (video, sound, printed text)
- Retell protocols from that specific text

Four participants were selected based on the following criteria: two NS and two NNS

participants from Condition Two (the multimodal condition) for each text sequence

(airbag and biker). The four participants also had minimal amounts of data loss in the

eye movement data. Narrowing down the available participants resulted in the following

selection:

- NNS2 who viewed the biker text in Condition Two
- NNS 5 who viewed the airbag text in Condition Two
- NS 8 who viewed the biker text in Condition Two
- NS 7 who viewed the airbag text in Condition Two

From this point forward, the participants will be given pseudonyms, and their backgrounds are discussed in turn with a separate section for each participant. For each participant, age, background, experience with using multimodal mediums to learn, learning styles and strategies will be described with the addition of the fixplots of their viewing activity with the experimental text. This chapter is only meant to show the relationships between the participants, their self-reported backgrounds, and their eye movements. The research question involves the reflection of the person in his/her choices of attention in a multimodal text when comprehension will be asked about afterwards[2]. Direct quotes by the participants that are presented in the following sections will be in *italics*.

6.2 TARIQ

Tariq, at the time of the study, was 34 and studying English at an Intensive English Program (IEP) in a southwestern Research I university[3]. From Saudi Arabia, Tariq is married with three young girls, one of which is also enrolled in school in kindergarten. Tariq's wife speaks English as a second language as well, although at home Arabic is the main language of use with English used occasionally. Tariq studies quite diligently to improve his English, working his way over the last year from a low

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[2] Please note that all quotes are transcriptions of the interviews and that all grammatical and lexical creativeness reflects the actual words used by the participant.

[3] Studying in an IEP usually entails classes five days a week and about twenty hours of classroom time. Students usually study integrated skills such as listening, speaking, grammar, writing, pronunciation, etc. Students are placed into a level of general proficiency, and as their skills and abilities in the target language improve, they advance in the level of instruction. At this particular IEP mentioned in this study, level 30 is fairly low proficiency in English in which students may or may not be able to conjugate verbs and usually can use present tense. By level 70, or 'advanced', students are preparing to take the TOEFL (Test of English as a Foreign Language) exam and enter into undergraduate or graduate studies at a university.

level classroom (level 30, one of the lowest) to his present level of intermediate high

(level 70, the second highest level). His TOEFL score on the institutional paper based

version was most recently a 524. He is a motivated student who used materials outside

the classroom to try to actively improve his language abilities in his second language.

Tariq studied English starting at around eight years old and continued through

high school, however his English classes were conducted in Arabic by his teachers. Most

of his friends speak English, as does his mother and father. As mentioned, his wife speaks

English as well, and speaks it better than he does since, he jokingly added, "*females have*

better memory." He plans on using his English to get a new job back in Saudi Arabia and

so will get an MA in Finance in the United States, adding to his MA in Business

Management earned in his home country. Tariq likes a variety of topics, and uses them

to practice his reading in English, saying that management textbooks have easier

grammar and vocabulary while anthropology is an all new vocabulary for him. He uses a

strategy to help him understand the text in which he reads whole paragraphs and then

figures out the vocabulary from context and "*just keeps on reading*". Tariq likes to read,

but says that this is a habit he has forced since arriving in the United States to study

English.

Aware of his learning strategies, Tariq is pointed in his discussion about them.

For example, while he mentions that reading and writing are difficult for him, "*lots of*

people have same problem. Same difficulty. Mostly." Asked about why he thinks this is,

he responded that, "*first of all, in Arabic we don't have same characters. Uh, second, we*

usually for, I guess for most of Arabic people, they are listener then reader. For that

reason, um, my hope is to read… not to listen. To improve my reading." When he agreed

with my re-statement that he doesn't like to read as much as to watch or listen or talk, I

added, "So, it's a cultural thing." Tariq objected to this statement, saying that it is not a

cultural thing, but behavioral. He elaborated, stating that he guessed this, "*because I'm*

changing. Most of Arabic – good listener, good speaker… but not good reader. I change

that behavior when I came here."

Tariq utilizes his time as efficiently as possible, and after the exchange about

behavior versus culture, he gave me an example:

> Tariq: Now I'm reader and also as well as listener. While I walk from… while I
>   drove … while I rode a bike from my home to library or [IEP] or you I
>   usually have.. usually have… uh headphone, uh cd player listening to
>   lecture, listen to something to improve my language.
> Beth: In English?
> Tariq: In English. Yes. Yes.
> Beth: oh – wow. Good for you.
> Tariq: Thank you.   So that… also I have a job in library I spend four to six
>   hours to… this kind of job in library is boring .. is routine job… you do
>   every time – same thing. Put shelve the book, shelving the book in the
>   shelf… that give you, that give you feel boring.
> Beth: Yeah yeah yeah … routine.
> Tariq: Routine. yes. yes.
> Beth: So you listen to…
> Tariq: So listen to lecture or long conversation, short conversation .. to improve
>   my skills and enjoy my time.
> Beth: Do you ever do podcasts?
> Tariq: Yes yes.
> Beth: Where do you do your podcasts from?
> Tariq: Um National Public Radio.
> Beth: Me too!

In the above dialogue, Tariq explained to me that reading is a part of the English

language that he is consciously trying engage in, and that while he listens to podcasts,

watches movies and studies in his TOEFL book, he adds that "*the best way for me is to*

read. I read a book, any book. TOEFL book, anthropology, management… but, I guess, easy book is much better than difficult book" after which I had to agree.

Tariq didn't have time to watch much TV or movies when he lived in Saudi Arabia, but now he tries to watch when he has time. He mentioned watching the popular TV show "LOST" and reruns of "Friends", and tries to watch with subtitles when possible. Since he sometimes watches "LOST" on the internet, he can't watch it with the closed captioning on and wishes that he could since he uses television "*as an opportunity*" to improve his English skills. Tariq specifically added that he watches TV to get knowledge about "question-response" situations, such as "*how to say things, how to react*" and to gather cultural and behavioral insight.

Tariq's eye movements for the biker multimodal video text are presented below in a fixplot. On the Learning Styles Inventory (LSI) (see Appendix F for an example of questions asked), he scored a 13 out of 20 for 'visual language', and a 12/20 for auditory language, indicating that he is fairly balanced in preferences for learning visually as well as for learning aurally. He also scored 14/20 for both 'oral' and 'written expressiveness' indicating that he is balanced in feeling comfortable producing language both by talking as well as through writing.

Figure 6.2 Tariq's eye movements while watching the biker multimodal video text.
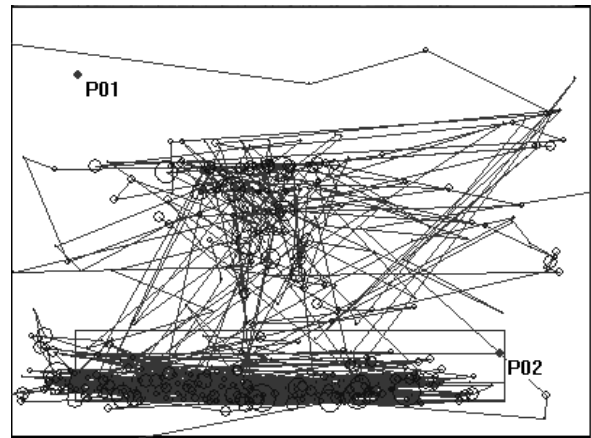
Tariq's eye movements show he is indeed fairly well balanced in choosing the different available modalities for gaining comprehension. Figure 6.2 shows many fixations and trail gazes in the middle of the screen, typically the position of the face of the person who is being interviewed in the news story. The dark lines towards the bottom of the figure are his eye movements, including fixations and trail gazes, as he reads the closed captioning. He spent about 61% of his fixations reading the closed captioning and about 39% watching the video modality. This result isn't far removed at all from what Tariq expressed in the extended interview: he reads as much as he can in English, but also realized that his strengths reside in listening. His familiarity with using closed captioning and subtitles could be reflected in his use of the closed captioning in the news clips used in the study, and although his retell protocol did not reflect that he understood much, he was able to produce more in response to the prompts with the multimodal text than he could in the condition with only closed captioning. Therefore, his eye movements seem to reflect his language strengths and habits used in learning English.

6.3 FARID

Farid, at the time of the study, was 24 and also studied English for the past year at an IEP at a southwestern university. Farid's first language is Arabic and English is his second language. Many family members, including three older brothers and one sister, know and/or speak English, mostly for business purposes and although his father knows English, Farid thinks that at this point he speaks English better than his father. Many of his friends in Saudi Arabia speak English, although he says that they don't use it much outside of the classroom. He has used English in the past when talking to foreigners, saying that English is useful because sometimes it is a common language. During the interview, Farid spoke of the use of English as a *lingua franca* a few times, telling stories about using it with people from India at the oil company where he interned as well as an example from the United States to talk to a Moroccan whose Arabic dialect was too different from his own to understand.

Farid has other influences and motivations to learn English besides the already present connections with English in his family and friends. While he officially began his study of English as a foreign language while young, in 7th grade, he didn't take it seriously until he started university. The university where he got his associate's degree in used English in the classroom, and so he had content courses in English for three years before coming to the United States. When asked about this, Farid elaborated and said that "*we use English also there and we have an idea that the ones who know English… he's really educated. Even like the companies, they don't look for the colleges or schools that they just teach in Arabic.*" Farid would eventually like to go back and work in Saudi

Arabia, but after he transfers to the University and completes a degree in Human Resources.

We discussed his experiences learning languages and English in particular. Of the interviewees, Farid is the only NNS who listed an L3. He is dabbling in learning Spanish by talking to a friend, saying he "*know[s] just a little… phrases or something*". He would also like to learn Japanese, since his girlfriend is from Japan. Farid's openness to learning languages and cultures is always based on learning from "talking". He does not like to read, and said so a few times throughout the interview. Therefore, Farid repeatedly said that he learns from speaking, and if he were to learn Japanese he would start with talking and then turn to reading by finding a text book. He would also use television or movies, but that would occur later on as well. He "*wants to speak and use it first.*" But when asked about reading and what he does read, beyond that required by his teachers in his IEP, Farid spoke of horoscopes and zodiacs and smaller texts. He doesn't like to read on the internet, and if he does then he will print it out first. It's not reading in English that Farid dislikes: "*even in Arabic… I try to read… honestly… but that kind of thing doesn't come to me…*"

Farid thinks that speaking and listening are the easiest parts of language for him, while writing and reading are "*kind of challenging. … I have to squeeze my mind*". There were two places where Farid mentioned using print as a tool to help him with English. One place where Farid doesn't object to reading was the use of subtitles and closed captioning. In fact, he is annoyed when he goes to friends' houses and they are watching TV or movies and the closed captioning is not turned on. He has used subtitles while

watching TV and movies in Saudi Arabia to help him with his language learning (and sometimes to understand the movie) and says that he uses them because "*sometimes I can't catch the word so I will read them.*"

The other place that Farid uses print is to learn vocabulary. Farid places pieces of paper with vocabulary that he wants to learn on the wall in his room and reads them while getting dressed or writing an essay. He tries to use these vocabulary words during the day. He says that learning vocabulary is easy, although he also adds that, "*When I learned English, like especially in the college, I had to memorize all vocabulary and it was very hard because, you know, like it was English only in the classes and outside it was puhhhh*" (and makes a gesture with hands that probably symbolizes empty, or nothing). He connects the idea of being able to actually use vocabulary with the ease of learning grammar while here in the United States: "*Grammar isn't hard*", he says, "*back home was hard, and here can apply it*". For Farid, learning English is almost equal with being able to use English in an environment outside of the classroom.

After talking with Farid, it was quite obvious that he presented himself as a learner who first uses speaking and listening as strategies to learn and then uses print in small doses to support his learning. When he took his LSI, he scored a 12 (out of a possible 20) in visual language and a 17/20 on auditory language, placing him in the range of an Auditory learner. He scored an 11/20 in written expressiveness versus an 18/20 in oral expressiveness, which was not a surprise given his favoritism towards learning by talking with others. In the figure below, Farid's eye movements are displayed while he was watching the airbag multimodal video text. Notice that his use of

the screen and the different visual modalities is not that skewed at all, but rather balanced

in his use of the available modalities for gaining comprehension of the text.

Figure 6.3 Farid's eye movements watching the airbag multimodal text.
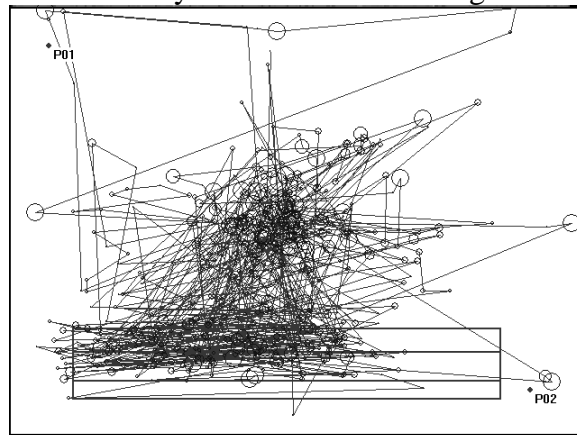
        Farid's eye movements actually represent the most balanced viewing pattern

between reading the closed captioning and viewing the video of all 13 participants. He

watched the video for 46% of the eye fixations and read the closed captions for 54%.

While he didn't produce the most accurate retells, it doesn't seem to have been his

proficiency in English that prohibited him from understanding the video text. Why he

didn't answer the retell prompts in detail is unknown. However, he did mention that he

understood the video condition better since, "*that one was kind of help me because there*

was video… even it's new topic for me". Farid seemed to warm up and speak more once

the extended interview started.

        As Figure 6.3 illustrates, Farid uses the closed captioning quite frequently. This

corresponds to what he described as one of his strategies for understanding text: using

subtitles and closed captioning. He is not a stranger to the movement and presentation

style of reading in this format. His balanced use of the video is also in line with his self-

Specker, Elizabeth. (2008). L1/L2 Eye movement reading of closed captioning: A multimodal analysis of multimodal use.   ic.arc.losrios.edu/~speckee

reported and LSI reported learning styles in that he prefers oral modes of languages. In Farid's case, his eye movements represent his background and learning styles fairly well.

6.4 ELENA

Elena, at the time of the study, was 20 and a sophomore at the same southwestern university. A native speaker of English, she had picked Journalism for her major and Communications as a minor. She loves to write and keeps a journal, favoring English as a subject. Originally from Seattle, Elena had already studied French for three years in high school and was starting her second semester of French at the college level. She showed a removed attitude about learning French during the interview, in that she studied because she had to as a requirement and although she had taken the placement exam for French, she did not place out of any classes and instead was placed in the first semester beginning French 101. During the interview she stated that she didn't think that studying French was difficult, but that it would be easier if she studied more. When talking specifically about her classes at the university, she pointed out that she thought her interest in French was related to her teachers, and that this semester she liked her teacher and was "*excited to go to French… so that helps too*".

While Elena's motivation wasn't strongly in favor of learning a second language, she didn't have an overt aversion to French. She likes to read French magazines and compare what the French say about Americans and Hollywood figures with what is said in American magazines. She says that she's comfortable reading in French, but her proficiency limits her so that she "*can't read word for word, but […] can definitely pick*

up the main idea" and that she's "*definitely a lot better at reading than speaking. Which is unfortunate*". Her years of studying in high school had helped her in her 101 class, but her 102 class is more challenging. She feels that she should have learned more in high school, but just didn't. When I asked her about whether she thinks she'd ever use French, she thought about it and slowly answered, "*I... I really want to use it. I mean, I want to maybe study abroad or something but… to be completely honest, if I don't go to … Europe, then no I probably, realistically, no I won't use it.*" She admits that French is helpful if she's reading something and there's a French word in it, but otherwise it isn't seen as very useful to her.

　　　　We talked about her study strategies, and Elena described practices associated with a person who loves to write, saying "*I make flash cards... um and … write things over and over again, like conjugations when I'm trying to remember them. And make up little… mnemonic devices. I make stuff up like that.. a lot of times. Well… usually before tests or something I'll make one up.*" I then asked her if she remembers them after the test and she laughed and responded "*no.*" In order to see what Elena would do with a fresh start at learning another language, I gave her a hypothetical language and asked her how she would start to learn it. She again started with written material, mentioning flash cards for learning vocabulary and verb conjugations, and then proceeded to audio but seemed unenthusiastic in her use of it:

> Elena: Uh… read the book and uh.. like
> Beth:　 You would definitely use a book?
> Elena: Yeah. And.. like in French we have a workbook and it comes with a CD
> 　　　　so some of the exercises are, like you listen, then you repeat, but I don't

> feel that helps that much but I'd do it. [laugher] Cause you never know…
> you might be able to soak it up.
> Beth: OK. So – you do that sometimes in French? or not really…
> Elena: Sometimes… but I usually have to write it down. I can't really just *hear* it.

Her relationship with French also comes out in the above dialogue when she talks about using the provided materials in her language class. Elena will use the CD half-heartedly hoping that she'll acquire speaking and listening proficiency in French although she recognizes that writing helps her the best with her second language. At one point, she talked about feeling confident in her French class with her pronunciation, but not with word choice and extended conversations in French, adding with a laugh that, "*I'm the kind of person who I would say a sentence and it would sound like an American trying to speak French.. it would be a direct translation and that's not the way that a French person would say it probably…*". Elena seems to know what studying strategies might work for her, but with a lack of motivation and potential use, she doesn't seem to employ them regularly.

Since part of the interview was inquiry into her learning strategies using available multimodal material such as TV and DVDs, Elena and I talked quite a bit about using French subtitles and closed captioning on television shows broadcast in English. She likes to use closed captioning in certain situations, such as when the television program is muted because her roommate is studying, when she's on the phone, or at a party. Elena will also play with the subtitles when she rents movies and put on the French dubbed version and the French subtitles, although she doesn't do that very often. She depended on the French subtitles when her French 101 class watched a French soap opera in class, and says that she misses it now in 102 since they've turned off the subtitles. She added

that she can still follow the plot, but mainly because of the body language and that "*it's a lot harder without the words on the screen*." Overall, Elena depends quite heavily on the printed material to help her with her second language learning. She has exposure to closed captioning and uses it from time to time in her daily activities, but particularly to learn. Below is the fixplot for Elena's eye movements as she watched the biker sequence:

Figure 6.4 Elena's eye movements watching the biker multimodal text.
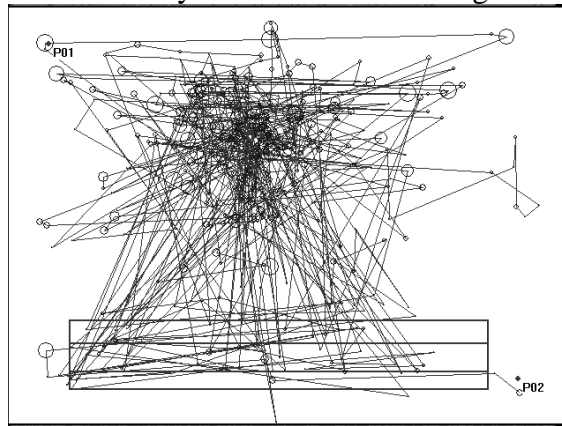
Elena's eye movement patterns reflect a greater use of the visual and audio modalities than the print modality, but she does look at the closed captioning from time to time. In fact, during her interview she was aware of it and she stated as much:

> …what I just watched like I didn't read the subtitles most of the time but then there was one scene where it wasn't pictures of people or anything it was just cars and you could hear the traffic and … then the lady was talking over the sounds of the traffic and I couldn't like really like listen to her so I just read it instead.

Her fixations represented a much lower use of the closed captioning than Tariq or Farid, the two NNS in this chapter. Elena, as a NS of English, only used the closed captioning for 17% of her fixations and spent the other 83% up in the visual area. However, her

reliance on the closed captioning for comprehension of the narration, such as in the example that she gave, does show support for Elena's use of the print modality and her favoritism of printed materials. Her LSI results also corroborate her interview and to a lesser extent her eye movements, as she was fairly balanced in her visual and auditory language learning styles and she favored expression of language through written modes over oral.

6.5 SARAH

Sarah was 21 at the time of study, and just starting the final semester of her Senior year at the University with a double major in Journalism and Psychology. She had also already been accepted to law school. A hard worker and voracious reader, Sarah excels in many different subject areas, but never found a strong interest or ability with second languages. Originally from Phoenix, Sarah spoke some Polish as a child since her father was a native speaker and her mom had lived in Poland, but when her parents stopped speaking it to her and her sisters, they lost most of what they had known. In high school, Sarah took four years of Spanish, was able to transfer her requirements, and so has not been in a foreign language classroom during her four years of university. I asked her about her Spanish proficiency when she started as a Freshman:

> Sarah: eh… it was ok. I don't know… Spanish was never my thing. I didn't have a very good accent and I really didn't like it that much and I didn't use it very much .. it was just this awkward thing… So I mean I could get away with stuff and I could speak more than I can now but… I don't know .. languages are not… it would take me a long time to really fluently learn to speak Spanish I think . and I don't know why that is – I consider myself pretty good in English .. pretty knowledgeable in English… so –

> and my parents – my dad speaks like four languages so.. and my mom
> speaks two at least… so …she picked it up in Poland and spoke basically
> without an accent and Polish isn't that easy to learn so…
>
> Beth: mmmhmmm…
> Sarah: but I kind of, I don't know -- maybe it skips generations.
> Both: [laughter]
> Beth: yeah – the language gene.
> Sarah: Yeah – I'm missing it.

Sarah knows what works for her as far as studying, but thinks that motivation is her

problem with becoming fluent in Spanish. In her other subjects she prefers to learn in an

unstructured environment, on her own, but with languages Sarah thinks that she needs a

more structured environment and wouldn't study well on her own. She adds,

> So it would be nice to know Spanish, it would be nice to know Polish, and I
> always admire people who can command more than one language – that's just
> very impressive to me, but, you know, if I had a lot of time, then, sure I would
> definitely try to learn Spanish. I think the thing about languages for me was I
> think I needed a structured environment and that's unusual for me cause I can
> learn a lot and I like learning in an unstructured environment where I control the
> pace … and I read and I do whatever, but with languages I would just not have the
> motivation to learn alone.

Sarah finds that, in Spanish, reading is easier than writing, and that vocabulary comes

easily but that "getting them to string together grammatically correct is not one of my

strong points." She doesn't appreciate the textbooks that are used in high school Spanish

classes, nor the audio supplements, such as CDs, that come with the textbooks, which she

called, "*lame recording CD things, spoken in a very unrealistic slow clear pace, and*

you're like 'yeah, I understand Spanish' and you get out and go 'I don't understand

Spanish' unless you're talking about desks and pencils... that's about it." All in all,

Sarah seems to know the limitations of learning Spanish in a foreign language classroom,

and yet has not made the effort to learn it outside the classroom either. For her, it is not a priority at this point in her life.

When I gave Sarah a hypothetical new language to learn, (Japanese), and asked her how she would go about learning it, she first responded with '"*I would enroll in a Japanese class at the university*" and then she would do whatever the teacher tells her to do, which is quite the opposite of her regular studying habits. She would also use flash cards, and maybe use Japanese media to watch and read and listen. She added that she had tried that a few times in the past with Spanish, to practice listening, but never pursued it. She feels that if she can't understand it, then it's a waste of her time. Sarah does recommend that particular learning strategy to the ESL students who she tutors in writing: watching children's shows "*where the vocabulary is slower and more limited and you can just grasp things*." She sees television as a tool for language learners, but finds it frustrating for herself.

Sarah also mentions that she doesn't like subtitles herself, since she finds them distracting. She gave me an example of the subtitles used at the opera, and how "*you just don't get the full experience… you have to watch twice*" and so she also doesn't watch many foreign films for the same reason. She does appreciate closed captioning and the practical uses of it not only for the hard of hearing, such as her grandmother, and for ESL students, but also to use to supplement the audio and "*clear stuff up that you didn't get*." Though she rarely uses it herself, Sarah readily concedes that she can "*much better recognize – at least in Spanish – written words than […] spoken words*."

When it came to viewing the multimodal text, which for Sarah was the airbag sequence, she could recall a large amount of details. She could also do that with the reading-only monomodal text. For Sarah, though, it wasn't the choices of modalities that affected her retelling rather it was the story; for her the airbag story was much more coherent and the biker story was fragmented. Her journalism experience and love of writing informs her critique. Overall, she expressed a tendency in the interview towards a reliance on reading and seeing printed words to help her comprehension with foreign languages, but as a native speaker of English, she rarely used the closed captioning in the experiment when audio and visual modalities were available. Her eye movements are represented in the fixplot below:

Figure 6.5 Sarah's eye movements while watching the airbag multimodal sequence
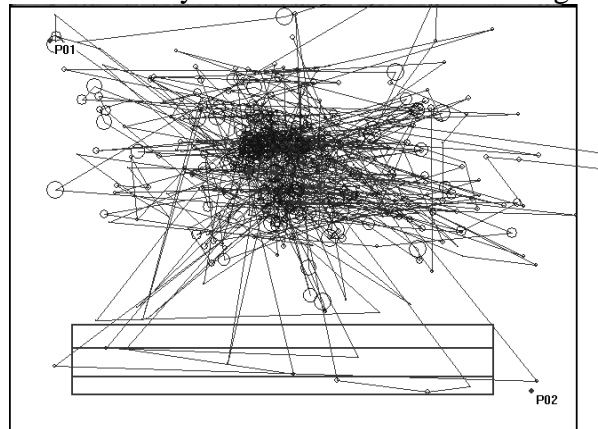
Sarah's eye movements reflect her interview statements about closed captioning: for her, personally, it's there to be used when something isn't understood, and Sarah understood almost everything in this text. She rated the text as unfamiliar, since she had had no prior knowledge of sodium azide or its use in airbags, but the text and the story presented little comprehension problems. Instead, Sarah uses the visual and aural

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modalities in the story as can be seen in the fixplot since she looks at the areas where people's faces are located in the middle part of the screen. Her fixation percentages were one of the lowest for the number of fixations looking at the printed text at only 3%, leaving 97% of her fixations on the visual zone of the screen. However, her scores on the LSI also represented Sarah's use of language in that her visual language was far higher (18/20) than her auditory language and so was her comfortableness with expression through writing (also 18/20). In Sarah's case, our interview discussion revealed more about what she prefers to do when learning and studying than the eye movements in her fixplot or her results in her LSI than either would alone.

6.6 Summary

In summation, this chapter answers Research Question Three and is an illustration of the intersection between the participant and a text. For all four of the participants, their eye movements reflected their individual patterns of comprehending text, that when taken into consideration with their discussion during the interview and coupled with their LSI responses, indicate that the eye movements could be representative to some extent of the individual's viewing and reading style when multimodal choices are available. The point is really that: the choices that are available in multimodal environments are used in different ways by different learners based on their individual needs. For these four participants, their backgrounds, which include their L1 and their previous experiences such as their schooling, culture, and behavior, impact their comprehension styles. The NNS, although in general they both did not like reading in English nor in Arabic, nonetheless used the closed captioning to a far greater extent than the NS who were of

course much more proficient in English, although who said that they rely on reading

printed text when they are using their L2 of Spanish or French. In sum, then, the closed

captioning seems to be used based on proficiency in the viewing language, rather than on

styles or strategies, with the caveat that a person's background is always present and

informing the transaction with the text.