

“Disaster Narratives and Embodied Cognition – A Qualitative Analysis”

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Introduction

This project analyzes oral narratives of disaster-related experiences with qualitative measures to identify links between embodied trauma, embodied cognition and narrative expression. Looking at the way the experiences are recounted, and specifically analyzing narrative structures and narrative employment, allows us to hypothesize about how the embodied trauma correlates with psycholinguistic metrics.

Background

Several established approaches in psycholinguistics, cognitive neuroscience, cognitive narratology, and cognitive studies fed into our interdisciplinary working model. Examples include the linguistic computational database, Linguistic Inquiry and Word Count (LIWC, [28]) (ref.), neuroscientific approaches to trauma studies such as *The Body Keeps the Score* [11, 14, 18, 20, 22-27, 29-30], as well as approaches in cognitive narratology [9, 15] and embodied cognition [1-2, 8, 10, 12-13, 16-17, 19, 21, 31-34].

None of these approaches in isolation allow us to identify narrative structures that indicate traumatic experiences. The LIWC, for instance, analyzes words and phrases, not sentences let alone narrative sequences. Cognitive narratology is focused on reader response, not the expressive function of language. Neuroscientific approaches are interested in brain functions involved in narrative comprehension and storytelling, not differences in stories or narrative expression. Finally, embodied cognition is focused on two main areas, our bodies' role in cognitive processes and our physical response to abstract comprehension, for example language comprehension.

Goal 1

Integrate these approaches from multiple disciplines into an interdisciplinary working model of narrated embodied trauma and develop a code system.

Goal 2

a. Test the model and code system with post-Katrina disaster narratives taken from the oral history collection Louisiana and Lower Mississippi Valley Collections. b. Refine the code system for the analysis of disaster narratives that can later be utilized for the analysis of comparable narratives.

Keywords: embodied cognition, disaster narratives, narrative medicine, trauma studies.

Methods

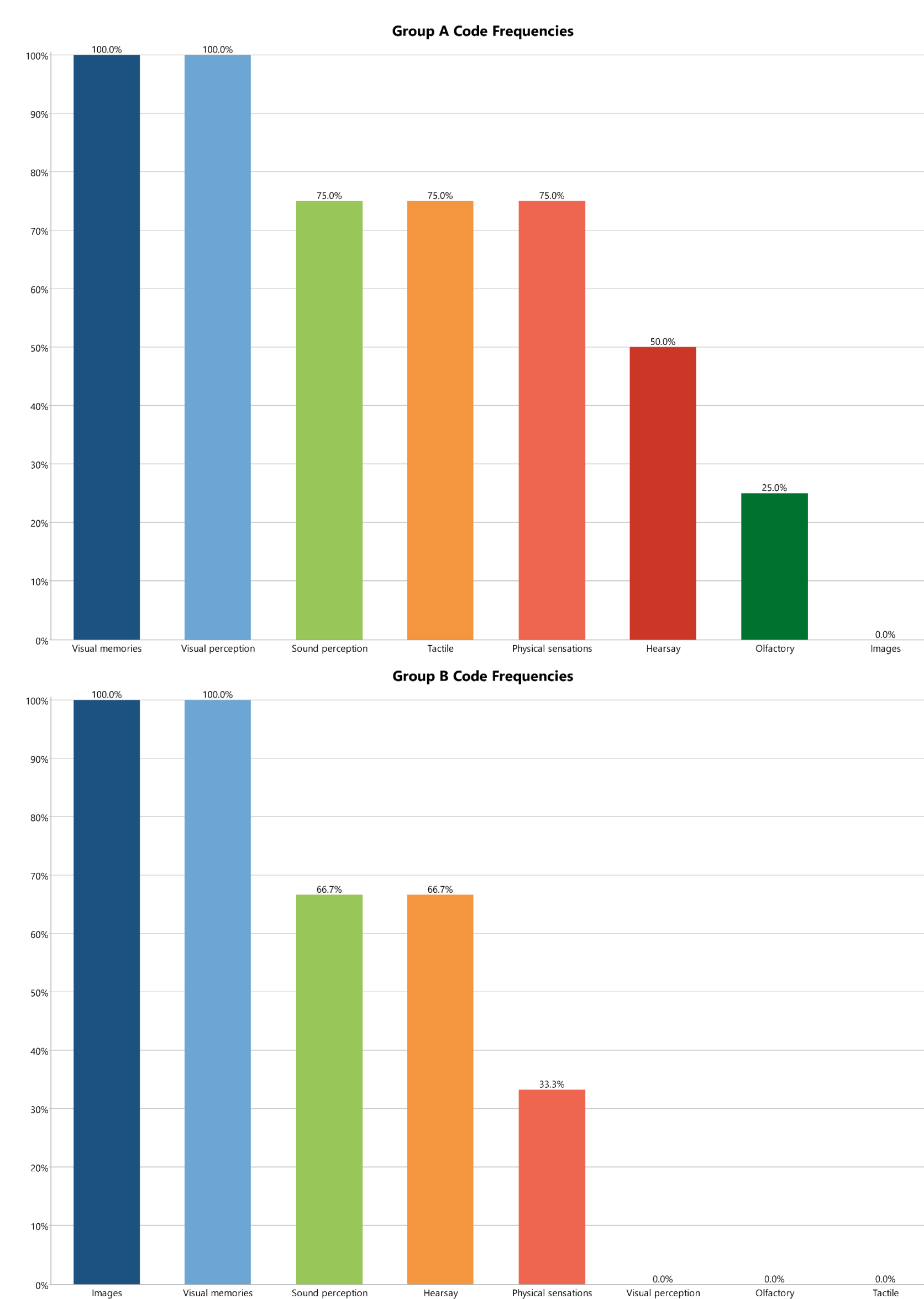
A qualitative analysis of seven interviews (average 60 min. in length) was conducted using LIWC for psycholinguistic analysis and MAXQDA for content analysis and discourse analysis. Both recordings and transcripts were used to develop a code system, including systemic, deductive, and inductive codes. The recordings were used to account for non-verbal information. First, codes were developed deductively based on somatic, cognitive, emotional, and narrative markers for embodied trauma. Recordings and transcripts were reviewed, and transcripts were coded with the code system. Additional review helped to establish an analytic framework and refine the code system to include inductive codes created to encompass the full breadth of interviewee experiences and meanings. Furthermore, LIWC was utilized to analyze and categorize the interview transcript text for comparison to data generated by MAXQDA. Interviewees are deidentified by group and number.

Results LIWC

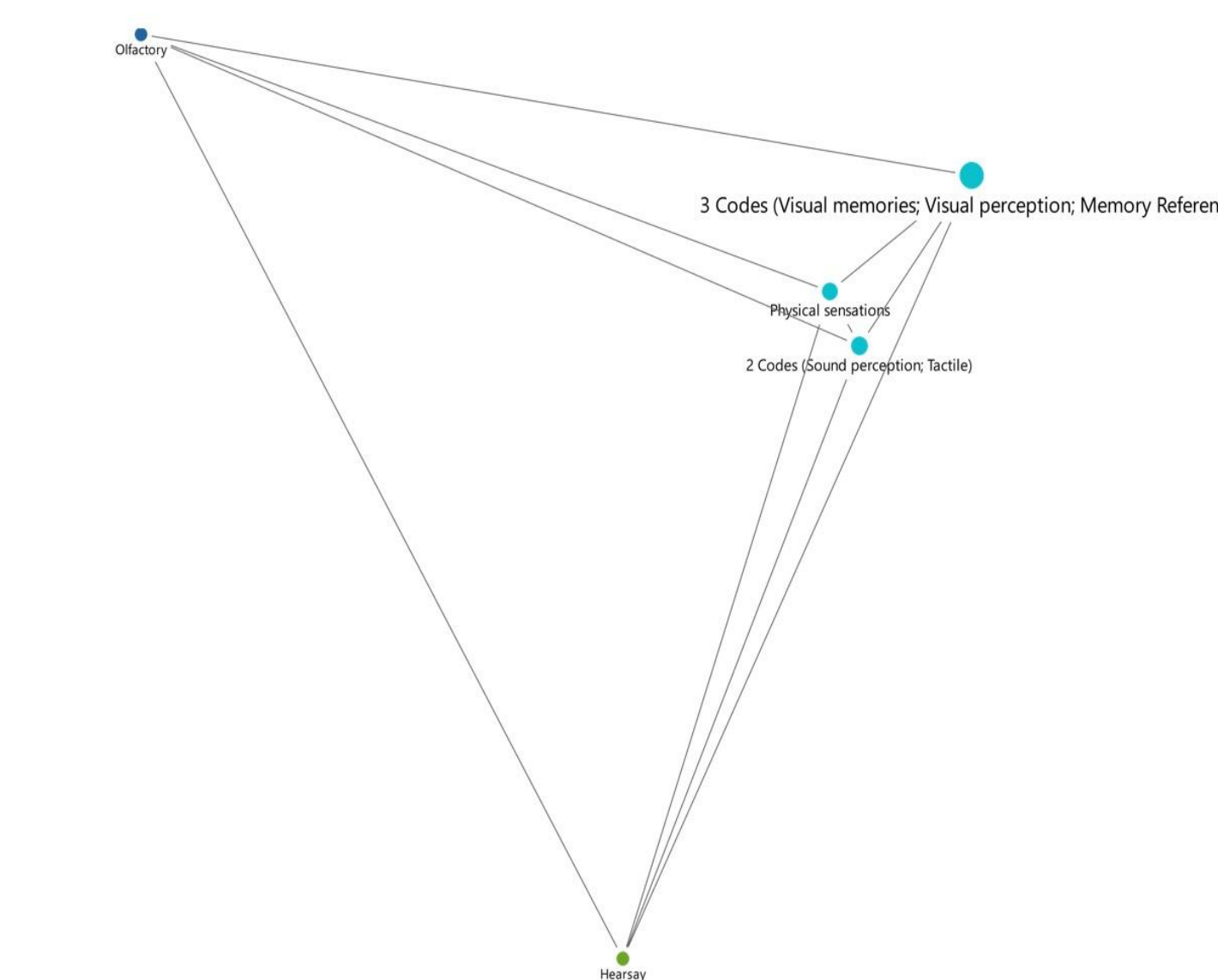
Group A	percept	see	hear	feel	bio	body	health	sexual	ingest
A.1	2.31	0.57	1.44	0.25	0.96	0.28	0.24	0.00	0.45
A.2	2.36	0.66	1.47	0.13	1.36	0.34	0.46	0.02	0.49
A.3	2.20	0.68	1.22	0.28	1.69	0.39	0.80	0.04	0.53
A.4	1.61	0.37	1.06	0.16	1.84	0.42	1.10	0.01	0.25
Group B	percept	see	hear	feel	bio	body	health	sexual	ingest
B.1	2.10	0.66	1.00	0.35	0.90	0.18	0.38	0.01	0.30
B.2	2.22	0.81	1.02	0.17	1.09	0.18	0.38	0.02	0.46
B.3	1.82	0.75	0.71	0.19	0.92	0.26	0.39	0.00	0.26

Table 1, LIWC analysis of 7 interviews

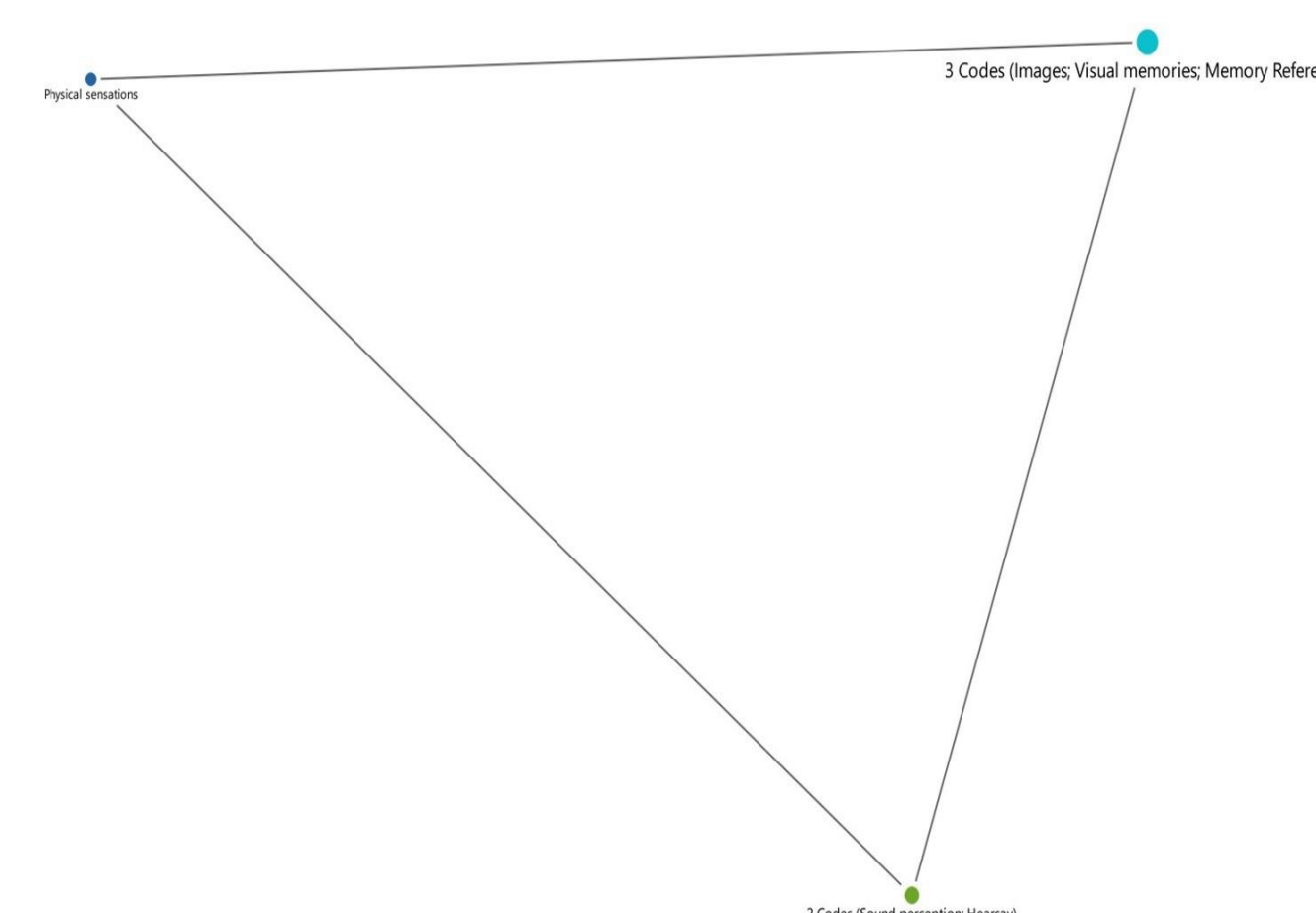
Results Qualitative Analysis



Group A – Code Map



Group B – Code Map



Results, cont.

Separating the interviews into two groups based on whether they evacuated (Group A) or not (Group B) showed significant results in the way they relayed their experiences that support the working hypothesis.

Group A's accounts utilize more sensory descriptions in contrast to Group B, including tactile 75% (vs 0%) and olfactory 25% (vs 0%).

Tactile: “And of course, I didn’t have any shoes. So the water, the carpet is damp.” – A.1

Olfactory: “And the smell was enormous. Because you had people who passed away. You have people with their bodily fluids everywhere, the feces. And it’s cooking. I mean, it’s just cooking in this heat. It was bad.” – A.3

Within auditory, 75% of Group A used sound perception (vs 66.7%) and 50% of Group A used hearsay (vs 66.7%).

Sound perception: “We could hear other people, other people on their roofs, talking from house to house, yelling at each other.” – A.1

Hearsay: “Then we heard, ‘Can’t take dogs with you. You are not allowed to take your pets.’” – A.2

100% of Group A narrated visual experiences (vs 0%).

Visual perception: “When I looked, she said, ‘Gwen, what do you see?’ I’m speechless. My neighbors’ cars are floating upside down. The water is above the fence.” – A.1

75% of Group A narrated physical sensations (vs. 33.3%).

Physical sensations:

- “Well, my heart was really racing.” – A.2
- “I said, ‘I’m hungry, I’m thirsty, I’m dirty, and I’m sleepy. And a few other things too...’” – A.4
- “I was tired.” – B.1

Group B

Within visual perception and visual memories, which are central to embodied trauma theories [30], 100% of Group B referred to media images (vs 0%).

Images: “The first pictures that came through on CNN, of the man on top of his roof, was two red lights from my house, so I knew my house was gone.” – B.2

100% of both **Group A and Group B** narrated visual memories.

Visual memories:

- “People on the I-10 in wheelchairs, with their baskets, with their babies, with their children. That’s when the tears just started rolling down everybody’s face. You say, ‘Oh my God.’ You see people on the I-10 coming to the bus...” – A.1
- “Now this was on a shelf, I guess about eye level, five foot. Now the water was four foot from the peak of the house. You could take her little Bible and flip the pages. How do you explain that?” – B.3

Discussion

Disaster narratives seem to foster distinct patterns of narrations, such as “strategies of visualizations” ([3], here ‘visual memories’). Though both groups recount experiences as traumatic, the narrated experiences rooted in (threats of) physical injury (Group A) utilize sensory-motor functions and sense perception differently, so we conclude that the narratives illustrate differences in embodied cognition. For example, the narrations of Group A differ from Group B in use of somatosensation, e.g., tactile touch, and special sensation, e.g., olfaction, visual and sound perception.

This project’s results differ in comparison to LIWC results (Table 1). The LIWC does not account for narrative strategies, descriptions and context, but instead counts words and places these into defined categories with correlation to psychological behaviors; therefore, the results may be misinterpreted as insignificantly different. To develop a sophisticated model of narrated embodied trauma, somatosensory and special sensory aspects in narratives, and the narrative strategies involved, would need to be further explored.

The project successfully developed an integrated interdisciplinary framework as well as a viable code system that can be utilized to analyze disaster-related narratives for the detection of embodied trauma symptomatology: Our data suggest there is a relation between embodied cognition, traumatic experiences and narrative accounts; however, the data is not yet generalizable, and the next steps in revision and refinement of the model would entail analysis of additional data points and inclusion of comparable disaster (and, later, PTSD) narratives before potential applications could be developed (such as computational, analytical tools to monitor early onset PTSD).

REFERENCES https://lsuhsc-my.sharepoint.com/:w/g/personal/rbodola_lsuhsc_edu/EbXIQw089MVDpVCGYyCokRUBVRiSK6gBeAerIQM-xC6ivA?e=F1crHO