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**Arizona State University  
Narrative Networks (N2) – Phase I  
Progress, Status and Management Report  
Quarterly Progress Report**

**Period Covered by the Report  
July 1, 2012 through September 30, 2012**

Date of Report: October 15, 2012

Project Title: Toward Narrative Disruptors and Inductors: Mapping the Narrative Comprehension Network and its Persuasive Effects

Contract/Grant Number: D12AP00074

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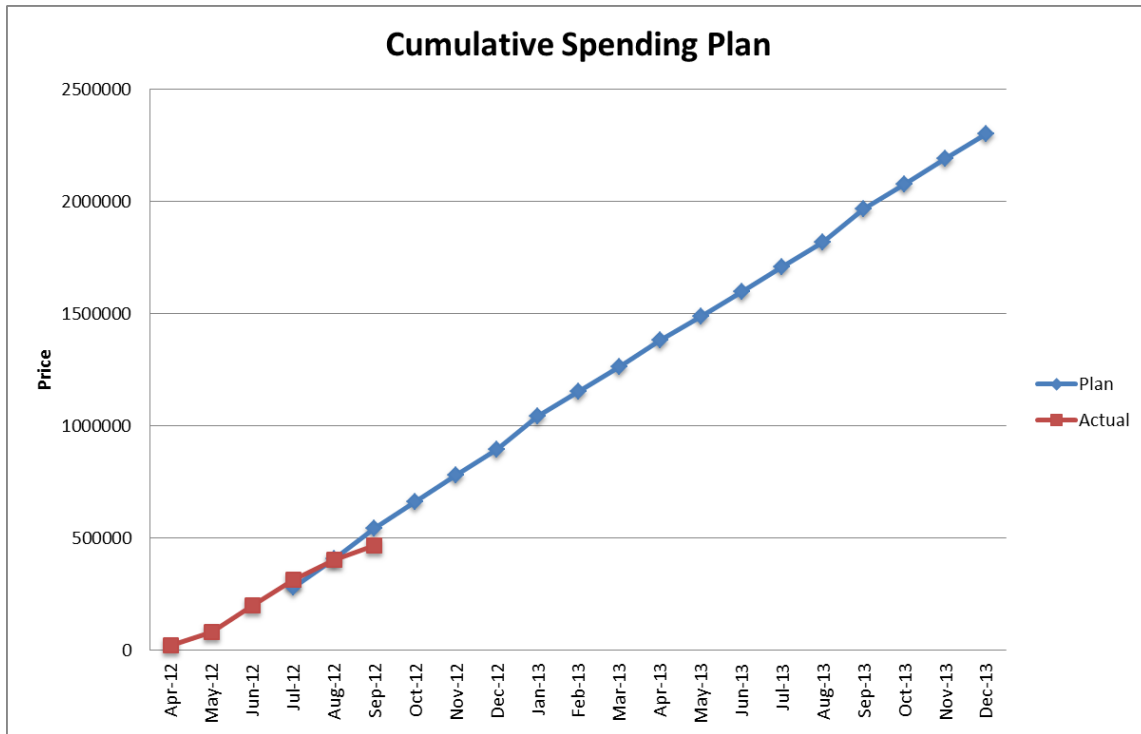
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## Technical Information – Financial Management

### 1. Technical Progress / Quarterly Expenditure Report (Please provide cumulative spending graph).

Figure 1. Cumulative Spending Plan



Please provide Pre-award schedule of tasks and events for this report period, with financial expenditures broken down by task.

- Task 1.1 – Startup task \$163,573.99
- Task 1.2 – Narrative Stimuli \$121,133.84
- Task 1.3 – Persuasion Protocol \$47,529.94
- Task 1.4 – Multi-model imaging \$37,705.23
- Task 1.5 – Knowledge Capture and Write results \$16,643.66
- Task 1.6 – Progress report \$64,756.42
- Task 1.7 – Travel \$14,887.38

Total expenditures for the reporting period - \$466,230.47 (estimated)

#### Actual Cost versus Planned Costs

	Current Cost (\$)	Total Phase 1 Cost (\$)
Plan	\$540,307.00	\$2,303,196.00
Actual	\$466,230.47	\$466,230.47
Difference	\$74,076.53	\$1,836,965.53

## 2. Technical Progress / Highlights – Observations

### Narrative Team

The Narrative Team made significant progress preparing the stimuli materials for the overall project. After final team assembly and preparatory research (learning about vertical integration theory, master narrative concepts), the Narrative Team began concept development for 22 videos (18 will be required for the Phase I experiment, 4 additional to provide for available alternates as well as additional material for Phase 2). Concept treatments include basic plot, characters and relationship to master narrative, exclusivity from other cultural traditions, and relationship to persuasive outcomes.

Following concept treatment development, the Narrative Team initiated Production Experiments, developing a sample of the concepts to script stage, and then producing in a variety of production styles. The first purpose of these experiments was to generate examples of different production styles to assess their suitability: for use in the scanner, for telling compelling/interesting stories, for making decisions about the potential for “style burnout” (the concern that a single, simple style may ultimately lose viewer interest in the confines, constraints and context of the scanner) balanced against any potential data impact by excessive variability in the audio-visual style of the stimulus videos. The second purpose of the Production Experiments was to have rough cut, low cost videos complete for use in the Focus Group event in order to gather some feedback/lessons-learned prior to investing time, financial and labor resources in producing final versions of the entire suite of videos.

Seven rough cut videos were produced in three broad styles: found footage (combination of pre-existing still photographs and moving images with voice over narration); still image/illustrated (still images with posterizing/rotoscoping affect applied with voice over narrative); animatic (hand drawn images with voice over narration). These videos facilitated in-depth discussions between the Narrative Team and the Neuropsychology Team in order to assess variability as an acceptable risk mitigated by consistency across all videos and randomization of video order during experiment.

### Neuropsychology Team

This quarter the Neuropsychology Team requested an increase in funding to purchase perhaps the best MR-compatible EEG system on the market from EGI. Representatives from EGI came to Phoenix and provided a successful demo integrating their 256 channel EEG system with our current MR system. We have now confirmed that the two systems work well together and that both are capable of co-registering reliable data with reasonable mitigation of artifacts. We are currently negotiating some minor details with EGI and plan to purchase the equipment immediately upon receiving IRB approval from Barrow Neurological Institute.

Additionally, the Neuropsychology Team has added a new Research Assistant Professor, Zhen Yuan, Ph.D. Zhen comes to us from the University of Florida and he possesses expertise in multimodal data integration and bioengineering that will be exceedingly important for analyzing the neuroimaging data that we plan to generate in the project. Despite only being at Arizona State University for less than one month, Zhen has been instrumental in crafting an EEG/fMRI calibration and pretesting plan. He has also been engaged in finding and developing algorithms for integrating the EEG and fMRI data.

### Subjects Team

In this reporting period the subjects’ team submitted and received approval from the ASU IRB for the non-scanning portions of the project with Exempt status. This includes pretesting of videos, and

initial work on persuasion measures. We encountered a long (4 month) administrative delay in secondary review and approval of the ASU application by DOINBC/MRMC. Approval was received in September.

In September we created and submitted the second IRB application, covering the scanning work, to Barrow Neurological Institute. We presented the case to their full board on September 25. We are awaiting, and expecting, the approval letter as this report is being prepared. ASU has preliminarily reviewed the proposal and is awaiting the approval letter from BNI before proceeding. We do not expect difficulties with approval.

### Persuasion Team

The Persuasion Team made considerable progress toward its first quarter Phase 1 goals in terms of startup tasks, advising the narrative team on design of the stimulus videos, and the outside-the-scanner persuasion study. The persuasion team regularly attended and actively participated in all full team, the human subjects' team, and the narrative team meetings to refine our experimental design. The persuasion team also designed a preliminary experiment to test the persuasive effects of two of the videos to make sure they are on the right track.

Regarding stimulus videos, the persuasion team helped design focus group procedure that will allow us to pretest narrative stimuli, and developed a study/survey that will allow us to pretest the videos as soon as they are created. The focus groups are scheduled for the first two weeks of the next quarter and we do not anticipate any difficulty recruiting or conducting those focus groups.

Regarding the outside-the-scanner persuasion study, the persuasion team collected measures and designed some preliminary formative studies/experiments to pretest the persuasiveness of the videos before large scale implementation inside or outside the scanner. These studies will also be conducted early next quarter.

## **3. Results or Problems and Solutions**

### Narrative Team

In addition to the obstacle of mitigating 'style burnout' and stylistic variability, two additional problems were encountered by the Narrative Team. The administrative delay of IRB approval postponed the Focus Group events and the anticipated results resolving exclusivity, story recognition and style questions. Originally, this confirmatory step of analysis of audience response through beta-testing the stories with a sample subject population was to be conducted in July-Sep reporting period. The impact of this delay is that the production method/style choice will be impacted more significantly by available time and labor resources (in addition to budget resources).

A second anticipated problem is Master Narrative "leakage". Since American culture contains many references of Christian origin and all subjects, regardless of religious affiliation, reside in and are exposed to American culture, the stories written for potential of vertical integration with Christian master narratives may be recognizable to other cultural group members. If these stories are not meaningful to the Muslim and Hindu subject members, then there is little cause for concern. But if they are highly recognizable, then there is the potential that different Christian master narratives must be selected. The Focus Groups should provide insight into this concern.

### Neuropsychology Team

The Neuropsychology anticipates four challenges for Phase 1. First, data collection could be delayed depending on a variety of variables including limitations on the number of EEG caps (they must dry after each participant), scanner usage (the MR machine can be needed for hospital emergencies), and research assistant availability (there must be a team of researchers available to run each participant). We have begun developing a research plan that will ensure that these risks are marginalized and will not create sufficient detriments to our progress.

Second, neurophysiological and MR data are host to a many of artifacts emerging from the recording environment, equipment, and even participants. The Neuropsychology Team has been actively evaluating strategies for mitigating artifact noise in the neurophysiological and MR signals; however, this problem is nontrivial and poses serious risks to the interpretation of the data.

Third, multimodal (EEG & fMRI) data fusion is a time intensive and extremely challenging process with a general lack of coherent data analytic plans existing in the literature. The Neuropsychology Team have begun developing research projects aimed at developing coherent data analytic strategies but these projects are in their infancy. Our success will be partly determined by our ability to effectively process, combine, and make inferences about our neurophysiological data.

Fourth, the computational intensity for these types of data analyses can be inordinately burdensome. The Neuropsychology Team has actively searched for super computer time at Arizona State University and we have also begun examining equipment purchases that will allow us to effectively manage the computational dynamics of this project.

#### Subjects Team

As stated above, the first IRB application was finally approved. To insure quicker secondary approval of our second IRB application, we plan to more closely monitor progress through DOINBC/MRMC. This is now possible because we have direct contact with the contractor handling the case.

Recruiting minority (Hindu, Muslim) participants is a challenge, along with getting participants with the requisite demographic and psychological characteristics (e.g., story familiarity). To address this challenge we are discussing using snowball sampling (though this presents potential problems of “independence” with regard to random sampling) and we continue to cultivate relationships with individuals and local organizations for subject recruitment resources.

#### Persuasion Team

One potential problem for the persuasion team was identified during the first quarter. Regarding staff hiring, the persuasion team originally hired a post doc who ended up withdrawing after accepting the position but before officially starting because he received a tenure-track assistant professor position at another institution. As a stopgap, two graduate students were hired and assigned to the persuasion research team. Dr. Roberto has taken on the primary responsibilities of the post doc (with the help of the graduate students) until we can determine out how best to proceed (i.e., if we should attempt to hire another post doc in the middle of the academic cycle or assign addition tasks to Dr. Roberto and the graduate students).

## **4. Significant Accomplishments Anticipated During Next Reporting Period**

### Narrative Team

- Draft a theoretical paper describing vertical integration and stating formal theoretical propositions that will be tested, in part, by this project. We are currently targeting a publication outlet in the communication field, such as *Communication Theory* or *Communication Monographs*.
- Complete Focus Group analyses to verify production style choice balancing available budget (time and money).
- Make preliminary assessments of story comprehension, interest and engagement. Complete development of all treatments from concept treatment to story treatment (a detailed, prose version of the story from which a screenplay can be written).
- Complete detailed scripts for all videos including revise existing scripts (4) and create new scripts (16). All pre-production requirements will be completed complete including any support vendors identified/contracted, casting, location scouting, and other matters.

### Neuropsychology Team

- Purchase EEG equipment.
- EGI set up and tested after purchase.
- EEG algorithms written for single trial analysis.
- Pilot data collected with EEG equipment on narrative.
- Clarify experiment timing and data methods.

### Subjects Team

- Compile a list of potential participants for all phases of the research.
- Develop a prescreening questionnaire with religious affiliation, story familiarity, and other variables.
- Use prescreening questionnaire to complete the quantitative evaluation of the videos, the persuasion experiments, and the scanning experiments.
- Complete the quantitative evaluation of the videos, including ratings of their cultural resonance, interest, etc.

### Persuasion Team

- Conduct 6 focus groups for the narrative team.
- Conduct several mini-experiments to test and help fine tune the videos created by the narrative team before they are implemented in the other two main studies.
- Pilot test all of the measures that will be used in all other aspects of the project.

## **5. Publications (relevant effort)**

There have been no relevant publications during the reporting period.

## **6. Meetings and Events (please include meetings with subcontractors if applicable)**

- Bi-weekly all-hands project meetings (includes subcontractor)
- Weekly team meetings
- August 24 EEG/fMRI demo by EGI at Barrow
- September 25 IRB Board Meeting at Barrow

**7. Other**

We have yet to receive an award modification for the budget plus-up. We will be unable to proceed with purchase of the EEG equipment until we receive this, as we have selected more expensive equipment and to cover the increased cost we will need to spend additional funds from the plus-up and shift other funds from personnel savings (unhired postdoc and late hire of ARP). We are working with Grace Rigdon to get this resolved.