Summer Research: Joint Student/Faculty Proposal

Studying interactions between people has always fascinated me, and taking social psychology last year revealed systematic ways to define and refine my observations. Since that time, I have decided to pursue an honors psychology major with a focus on social psychology. Having taken the social psychology lecture course with my professor last year, I am now enrolled in the social psychology seminar with a visiting professor to both get a different perspective and better inform my honors thesis. With this in mind, my proposal plans to extend previous research that my professor has conducted on the increased susceptibility to salient cues in the environment when under a high cognitive load\(^1\). Given how we are seemingly permanently under a barrage of stimuli commanding our attention, investigations into cognitive load are highly relevant to our mental health and abilities.

High cognitive load is the state of having one’s working memory operating near or at its highest capacity (Paas, Renkel, & Sweller, 2004). I propose to investigate how cognitive load may produce an increased susceptibility to suggestion from salient cues. This increased susceptibility is perhaps most obvious in the case of alcohol myopia, the “acute state of shortsightedness in which intoxicated individuals process fewer tasks less well” (Steele & Josephs, 1988). Steele, Critchlow, and Liu (1985) documented the effects of alcohol myopia when they found that inebriated participants were more likely to help on a boring task when salient cues prompted them to do so; however, when salient cues were absent, inebriated and sober participants were equally unlikely to help. They believed that the evidence suggested that in situations of inhibitory conflict, where pressures to engage in and resist a behavior are both present, inebriated people simply attend to and act on the most salient cues in that environment. Extensions of studies similar to alcohol myopia have led to what is called attentional myopia, namely, that any cognitive load can produce shortsighted attentional deficits (Mann & Ward, 2004; Mann & Ward, 2007). Evidence supporting this hypothesis includes studies showing that while under cognitive load, salient cues to eat and smoke influenced individuals’ eating and smoking behavior (Ward & Mann, 2000; Westling, Mann, & Ward, 2006). In unpublished data, Wallaert, Ward, and Mann (2013) examined whether attentional myopia occurs in the presence of salient cues for helping, using participants under cognitive load, as researchers studying alcohol myopia had done with inebriated participants. I propose to extend the research of the unpublished study, described below.

Participants were asked to complete a boring task of crossing out certain letters from pages of text under the guise of performing a linguistic test for 10 minutes. They then played a computer game involving engrossing or non-engrossing conditions under the guise of a test of spatial ability. While the participant was still playing the game, the experimenter made either a weak or strong request for help; namely, participants were asked, using different levels of urgency, if they would be willing to complete more of the aforementioned boring task. The number of pages participants agreed to complete was taken as the measure of willingness to help.

The computer game participants played was known as Armagetron, so named for its inspiration by the original motion picture Tron. The player maneuvered a motorcycle that created a virtual wall behind it. Players had to avoid other players’ walls and attempt to make other players crash or exit a confined playing space. In the non-engrossing version, participants competed against a single slow-moving computer opponent. In the engrossing version, participants competed against three other computer-controlled opponents who moved at eight times the speed of the cycle in the comparison condition.

\(^{1}\) Professor Ward and his collaborator at the University of Minnesota have applied for a no-cost extension for their NIH grant, which is otherwise due to expire this April.
Participants who played the engrossing version of the computer game were willing to complete more pages than were those in the non-engrossing condition, but only when they faced a strong request for help. These results supported the predictions of the attentional myopia model, with attention presumable narrowed to the reasons for helping (rather than for not helping) when individuals were engrossed by the video game. However, additional data are required to bolster this argument. For example, although participants’ mood was assessed, the study did not measure whether actual performance in the game influenced helping behavior. If participants believed they performed poorly in the more engrossing (and difficult) version of the game, they may have taken the opportunity to self-affirm as a good person to counteract any negative state induced by failing to perform well on the game (the lack of any difference in assessed mood notwithstanding). Additionally, the study did not measure whether any putative difference in the levels of violence in the two versions of the game influenced helping behavior.

Violence in video games has already been implicated in instances of aggression by habitual players. The debate over its effects has come into the public’s awareness, resulting in recent articles in both the New York Times and The Phoenix (Carey, 2013; Sahai, 2013). The issue garnered so much attention that following the Sandy Hook school shooting, Vice President Biden met with executives of the video gaming industry to discuss their possible roles in producing violent and aggressive behaviors (Castillo, 2013). Some studies suggest that playing violent video games may increase aggressive behavior and decrease prosocial behavior (Anderson & Bushman, 2001; Anderson et al., 2010). In the case of the unpublished study by Wallaert et al., the question remains whether the different versions of the computer game varied in their levels of violence. Given that the non-engrossing, easier version involved attempting to make one opponent crash whereas the engrossing version involved an attempt to make three opponents crash, it is certainly possible. I propose to replicate the unpublished study with the following additions: a participant’s performance score in the video game will be recorded, and participants will both rate the violence of the computer game and provide a judgment of their perceived performance in the game, using standard measures. Scores on these measures will be correlated with the propensity of each participant to help in an effort to determine if they predict helping behavior. I hypothesize that satisfaction with game performance will be negatively correlated with propensity to help and that the violence rating for the more difficult version will be greater than that of the easier version, and that this difference may also interact with helping behavior intentions in some fashion.

It is my hope that this research will reveal further insight into the role of cognitive load in influencing the effect of salient cues. Should the hypotheses prove correct, follow-up research would be necessary to isolate the variables in the hypothesis, which will likely form the basis for my senior honors thesis. Notably, if more violence is observed in the engrossing version, the presence of violence in a game may not be as strongly linked to exclusively aggressive behavior as some studies suggest. Even if the hypotheses are not supported, ruling out their implications about violence and performance satisfaction would help to refine and broaden the scope of the attentional myopia model. Under the supervision of my professor, I will spend ten weeks over the summer in Swarthmore reviewing the relevant literature to greatly expand my knowledge, preparing and administering a psychology experiment to learn how to properly design a study to test a hypothesis with appropriate controls, and writing a report that will challenge and hone my analytical skills.
References


