**Abstract**

This study looked at the effects of top-down and bottom-up processing on memory, as well as the influences of gender and time of day. The thirty-seven participants (22 female & 15 male) were from two Psychology 100 classes, one in the morning and one in the afternoon. Each class was presented with a series of 28 two-digit numbers on powerpoint slides. Each number was followed immediately by an instruction to remember or not remember the number. Half of each set of numbers was presented in silence; the other half of the set with white noise. A significant main effect was found for instruction (*F*(1, 33)=38.5, *p*<.001, ɳp2 = 0.52), which reflects intention’s strong influence on memory. A significant main effect for the time of day the class participated in the study (*F*(1, 33)= 5.44, *p*<.05, ɳp2 = 0.13) was also found with students in the morning session performing better than those in the afternoon session.  Also a significant three-way interaction between instruction, group, and noise (*F*(1, 33)= 4.33, *p*<.05, ɳp2 = 0.11), suggests that the memory processes involved in this seemingly simple task are quite complex.