SUBLIMINAL MESSAGES IN FILMS AND THEIR POTENTIAL EFFECTS ON ESP

By

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This thesis is dedicated to the memory of my grandmother Ilse Madden for her love and dedication to teaching and knowledge.

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Thanks go out to all the family, friends, students and instructors that made this experiment possible.

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One hundred fifty undergraduate students at the University of Florida participated in a replication of John Palmer's 1994 psychological experiment testing the effects of subliminal messages on ESP. The current experiment was adapted using two different types of subliminal embeds in a relaxing and disturbing film from a mass communication perspective. The test groups either received subliminal ESP-encouraging messages stating, "I have ESP" and "Jessica and I are one," or the exact sequence of caret test arrows, which was the answer key to a caret test that followed. Participants who were in the relaxing conditions demonstrated statistically significant levels of post-ESP test confidence, and those receiving the caret test answers reported higher levels of ESP test difficulty than those in the control conditions. The difference between the caret and control groups for ESP test difficulty was significant. These findings need to be confirmed in further research. The implications of the findings are discussed.

CHAPTER 1
INTRODUCTION

This thesis project is a replication of Palmer's (1994) experiment testing the effects of subliminal message information on ESP hit rates. One hundred fifty undergraduate college students were recruited to watch a 5-minute film clip from one of two films, with subliminal (33.3 ms) presentations of various ESP messages. Following this, they were given a caret test to measure psi-hitting capabilities[1] a 7-question affective judgment scale adapted from Palmer's (1994) Appendix, a[1] State Trait Anxiety Inventory (STAI) and a Dissociative Experiences Scale (DES). This will be further discussed in the methodology section.

The films chosen for embedding subliminal information in this experiment were *Gozu* (Miike, 2003) and *WAVES: Virtual Vacations: The Best Virgin Islands Beaches* (Voevodsky, 2004). These films were selected as ideal visual facilitations of psychologically anxiety-producing and relaxing states. Both directors created these respective films in order to produce specific emotional responses in the viewer and were used for their similarity to Palmer's (1994) initial subliminal flashing of either a threatening male face peering down at the subject, or a control of a pleasant male countenance smiling. Palmer (1994) did not actually find significant results for this condition, but he did later with the monster condition, in which a monster was

[1] "Psi-hitting" is a term borrowed from Palmer (1994), which refers to positive correlation between subliminal/supraliminal ESP messages and participant demonstration of ESP with correct "guesses" in the caret test.

subliminally flashed behind the caret. Instead of using a subliminal fear response, this experiment tested whether a conscious psychological condition of either unease or comfort caused by a motion picture and sound could assist in participant reception of subliminal ESP messages as measured by subsequent demonstration of psi-hitting in the caret test. The *Gozu* (2003) conditions served as the test groups receiving the discomforting emotional state, and baroque music was played in the background to the two conditions watching this film. The three conditions watching *The Best Virgin Islands Beaches* (2004) listened to Gregorian chant music in the background while watching the film to further produce a meditative, relaxing state. Pre-testing revealed that exposure to 5-minute clips of either film without the corresponding music did not produce relaxing or anxious states; however when the music was added the mean differences between anxiety levels were significant.

In Palmer's (1994) experiment, Gregorian chant music was used in a condition along with the subliminal message "You are safe here." This condition, where participants were presumably the most relaxed, had results that were psi-missing, and they expressed the least posttest confidence in ESP abilities (p. 117). Palmer (1994) also used baroque music in one of his conditions due to the belief that the music would be distracting, and henceforth produce a dissociated state in the viewer. He found that this condition did produce the highest rates of dissociation, which was directly correlated with significant rates of ESP hitting.

The films selected for the current experiment, *Gozu* (2003) as disturbing or dissociating, and *TBVIB* (2004) as relaxing or comforting correspond to the unpleasant/pleasant male countenances used subliminally by Palmer (1994). The main

difference in this experiment is that the films induced conscious states of perception, as opposed to subliminally flashed still pictures during the caret test. By embedding only subliminal ESP messages and caret directions into these films, this experiment tested the effects of subliminal ESP messages on psi-hitting, and did not add visual embeds such as threatening/pleasant male countenances and monster/no monster conditions. Additionally, this experiment is different from Palmer's (1994) in that it tested how conscious facilitation of psychological and emotional states in participants through films and music affects subjects' reception of subliminal and supraliminal messages as demonstrated by correct ESP hit scores in the caret test.

CHAPTER 2
LITERATURE REVIEW

Subliminal information, whether text, audio or visual embeds, is based on psychological literature which demonstrates that information can be received without conscious awareness (Smith and Rogers, 1994). Erdelyi (2004) defines it in an equation as will be detailed later, where availability exceeds accessibility. The way in which subliminal messages are created by embedding information into other material, such as a commercial, film, or psychological test so that the participant is distracted, not waiting to see the message. The working definition of "subliminal," as defined by this study, is a message flashed for 33 ms. This definition is grounded in previous literature, as Palmer's (1994) experiment used subliminal messages of 2 ms.

It is difficult to find a clear-cut definition that all researchers have agreed on as to what speeds constitute subliminal categories, as Dijksterhuis and Smith (2002) used a string of "subliminal" words flashed at a rate of 200 ms. Orbach et al. (1994) used "subliminal" message flashes of 4 ms, Watanabe and Seitz (2003) used "subliminal" flashes of 375 ms, and Kunde (2004) used a subliminal message of 14 ms for his experiment.

A recent biological experiment done by Hoffman, Janssen, and Turner (2004) is relevant to this experiment in that it utilized the juxtaposition of film clips and subliminal images (both sexual and non-sexual) to both males and females in a physiological response test for sexual arousal. This experiment administered both arousing/pleasant images (an abdomen of the opposite sex) and non-sexually relevant/non-pleasant images

(a gun) both consciously (10 s) and subliminally (30 ms) to both sexes, followed by an Unconditioned Stimulus of a heterosexually explicit video.

The findings of the experiment by Hoffman et al. (2004) are especially interesting concerning both gender and subliminal vs. conscious presentation of the images. Females in the conscious condition had higher sexual arousal rates with the non-sexually relevant image (the gun) than they did with the image of a man's abdomen. With men, it was just the opposite. However, in the subliminal conditions, both men and women responded with arousal to the sexually relevant image of the opposite gender's abdomen (Hoffman, Janssen, and Turner, 2004). When the authors explain why this might be the case, they state that:

> [e]xposure to stressful events has been shown to enhance the neural representation of cues in the environment, directing attention to those cues and facilitating associative learning (Beylin & Shors, 1998; Shors & Matzel, 1997)… Additionally, sympathetic nervous system activation, induced by anxiety-invoking films (Hoon, Wincze & Hoon, 1997), exercise (Meston & Gorzalka, 1995, 1996), or stimulant drugs (Meston & Heiman, 1998), increases genital responding to erotic film in women. Hence gun-arousal associations may have been facilitated by increased attention or excitation transfer. (p. 51)

These findings could also explain the results from Palmer's (1994) experiment in which correlations between high-anxiety persons and ESP hitting occurred at statistically significant rates. When a person is in a stressful state, it is potentially more likely that their subconscious activity is heightened, and that they would therefore more susceptible to pay attention or be influenced by minute details, such as subliminal messages. Excitation transfer theory could illustrate how this happens, albeit there were be no physiological arousal tests in this experiment. Zillman (1971) explains it as residual excitement from an arousing stimulus, which may serve to intensify a later emotional state (Meston and Frohlich, 2003). As it pertains to this experiment, it was hypothesized

that those watching the film *Gozu* (2003) would be aroused by the sexually relevant scene of a man sucking a woman's breast, coupled with excitement or confusion from the bizarre cow's head licking a man's face. It was believed this would heighten attention subconsciously to the subliminal messages of caret test directions and make subjects perform with greater psi-hitting capabilities.

H1: It was theorized that subjects who were more aroused in the Gozu (2003) conditions would score higher in the following ESP caret test than those in TBVIB (2004) conditions and those in the control conditions.

Meston and Frohlic's (2003) experiment showed subjects a photograph of an opposite-sex person before riding a rollercoaster, and ratings of attractiveness and dating desirability to the photographed individual were higher among persons exiting than entering the ride. If attractiveness of an opposite-sex individual could be increased through an exciting situation, it could be that higher adrenaline levels would increase other hormone levels as well. It was thought that the higher excitation levels induced by the *Gozu* (2003) test conditions would increase attention span to the subliminal caret test answers, however heightened emotional affect does not increase psi-capabilities, as demonstrated in the current experiment, see the results section.

Cantor, Zillman, and Bryant (1975), and Zillman, Katcher and Milavshky (1972) explain that when a person is excited, the sympathetic nervous system does not immediately terminate this state. Rather, the subject experiences a period of residual excitement, in which they may misattribute their residual excited state to the current situation, resulting in a subsequently heightened emotional state (Meston and Frohlich, 2003). The current experiment tested for a person's ability to receive and respond to

subliminal messages, and whether the differences in a particular film (whether exciting or not exciting) can affect the reception of the encouraging message (in this case, "I have ESP," and "Jessica and I are one").

H2: It was hypothesized that subliminal messages would encourage subjects in their belief that they performed well in the caret ESP test. Therefore, those in the subliminal message conditions would report higher post-ESP test confidence.

As will be detailed later in the literature, however, this would not increase the psi-hitting capabilities of those subjects who do not already believe they have this ability, it would only affect those who, coming into the test, thought they could demonstrate ESP.

According to Schacter (1987), implicit perception is defined as "the effect on the subject's experience, thought, or action of the object in the current stimulus environment in the absence of, or independent thought of, conscious perception of that event" (Kihlstrom 2004, 94). A fine line exists between implicit perception, that is, perception without awareness, and subliminality, which is defined as below the subjective threshold and above the objective threshold of awareness. In other words, subliminal perception, though far from conscious awareness, is *usually*, but not always, unconsciously perceived. The current experiment tested implicit perception and the ability an encouraging subconscious message could have on a person's psi-hitting capability.

The difference between explicit and implicit perceptions has been well defined in the 19th and 20th centuries in psychological research. According to Petr Bob (2003), explicit awareness is characterized by a person's consciousness of their awareness concerning a message, which they can verbally describe (p. 307). Implicit awareness can only be confirmed indirectly through observation or measurement, and is thus subject to

individual interpretation and characteristic variances due to differing researcher methodology, hence the disparity between experimental conclusions.

In his theorizing on subliminal perception, Erdelyi (2004) introduced an important dimension to the consideration of unconscious processing: the time factor. He posed that the standard characteristic equation of subliminal awareness as defined by the dissociation paradigm become a function and be assessed in relation to a time factor, as availability (ε) and accessibility (α) are separate entities. The equation for subliminal perception has long been defined as $\varepsilon > \alpha \mid \alpha = 0$, "availability in the total absence of accessibility" (Erdelyi p. 76). However, the question remains as to whether these are exclusive and mutually exhaustive categories. Although discussed at length by various other theorists in the field of psychology, this phenomenon has not yet been definitively settled, nor can it be. Erdelyi proposes that "conscious accessibility is not either-or but more or less, and variable over time" (p. 73). Since time is a variable factor in the subliminal perception equation, an area for further study in this experiment would be a person's long-term ability to perform well in other ESP tests after unconsciously receiving the caret answers.

In questioning subliminal perception and its relation to memory, Kihlstrom (2004) points out that memory is a byproduct of perception—that is, perception can exist without memory, but memory cannot exist without perception. Therefore, the existence of a memory of an event should mean that the event was perceived at some level. Memory is linked to availability (one couldn't have a memory if it wasn't available) and accessibility is a product of its retrieval. Kihlstrom (2004) states that "[m]emories can be accessible implicitly even if they are not accessible explicitly, and implicit memory gives evidence

that memories that are inaccessible to conscious recollection are available after all" (p. 95).

This quote illustrates the difficulty researchers have had over the years to test for subjects' availability of subliminal messages, because they are by definition not consciously aware of having received the message. The current experiment is testing the availability of subliminal message information in subjects indirectly in an ESP caret test after they have received the correct answers, an encouraging message, or no message subliminally, to determine whether the unconscious information had an effect on the subjects' performance of this task.

Bachmann (2004) provides a great amount of knowledge in his discussion of the relationship between conscious perception and stimulus strength. He states that subliminal messages are basically extremely weak signals perceived by the brain in relation to their strength. When stimulus duration is reduced and masking is stronger, perception becomes less distinct, reaching subjective and finally objective thresholds. Also, the complexity of the stimulus is a factor, in that detection requires almost no conscious perception, identification more, and semantic classification a stronger level of perception. Higher-level analysis, he states, cannot occur without all these levels functioning in a holographic unity.

Snodgrass (2004) hypothesized that conscious and unconscious perception functions exclusively, which he asserted is based upon the fact that conscious influences override unconscious ones when both are present. Similar to conditioning, conscious perception overrides unconscious perception and eventually eliminates those influences.

Another contested aspect is the presence or absence of a limen, that is, a stimulus value at which the stimulus becomes detectible. If there is not a subliminal threshold—that is, a point at which the brain has above objective but beneath subjective perception—then subliminal perception, by definition cannot exist. Several studies have offered support for this perspective (Harris et al., 1996; Kouider and Dupoux, 2004; Smith and Rogers, 1994).

In an experiment done by Smith and Rogers (1994), subjects were exposed to subliminal messages in television commercials with the words "choose this," flashed at an unnamed speed. The conclusion was formed that the largest possible effect of subliminal messages is still less than those that are supraliminal. It is highly unusual that Smith and Rogers (1994) did not specify at which speed the message appeared, however, as the subliminal threshold is of key importance in defining subliminal (usually around 150 ms or less) messages (Bob, 2003). Subliminal messages have been shown to have an effect, however, even when flashed at durations less than 1 ms (Sohlberg and Birgegard, 2003). Smith and Rogers (1994) also found that the addition of subliminal messages to television commercials reduced participants' recall of a product, and stated their bleak opinion in regards to subliminal additions in advertising due to participants' eventual diverted attention to the flash over many replays, and subsequent increased suspicion.

A study done by Kouider and Dupoux (2004) found negative correlations between semantic activation without conscious identification in their experiment with two sets of 12 participants. It seems that 24 people would be a small number to generalize results from as a whole, however, and they acknowledge this in their concluding paragraph. Kouider and Dupoux's (2004) experiment is an excellent example of how difficult it is to

generalize results about subliminal messages due to a variety of definitions concerning the appropriate speed for subliminal categories. Since there is no accepted universal definition of subliminal, Kouider and Dupoux's (2004) definition of "subliminal" as used in this experiment is anywhere from 29 – 500 ms. In Part 2 of their experiment, however, they acknowledge the fact that not all of the previous categories were subliminal and state their decision to only use the 29 and 43 ms categories, "in which the stimuli are truly subliminal" (p. 78).

The method Kouider and Dupoux (2004) used for testing subjects for the availability of subliminal messages was also worrisome, as they asked the participants directly if they had seen the stimuli. They then concluded from negative participant responses that subliminal messages have no effect. If subjects do not recall having consciously seen subliminal stimuli, this would only indicate that the participants have been exposed to truly subliminal stimuli. It would be a false conclusion to decide this means the stimuli had no effect. By definition, subliminal stimuli should not produce immediate conscious recognition in the subjects' mind. The present study is different from Kouider and Dupoux's (2004) experiment in that it does not only test for participants' direct cognition or perception of the messages to determine their effectiveness. Instead, this experiment uses an indirect method of testing whether subliminally flashed correct ESP test answers or encouraging ESP messages could increase psi-hitting in a subsequent ESP caret test.

In another experiment by Harris et al. (1996), testing Merikle's (1998) experiment regarding audio subliminal messages, a total of 17 participants were only able to consciously identify a 15 ms encoding of the word "light" inserted subliminally in an

audio track with white noise in one condition. Once again, this study's external validity is questionable, as 17 people are hardly a number to which parametric statistical measures should be applied. Harris et al. (1996) do point out, however, that the subjective/objective paradigm could be an ineffective means of evaluating audio subliminal messages. Another problem that Harris et al. (1996) list could be the fact that they are "setting S/N [signal-to-noise detection ratio] levels to be truly 'subliminal' rather than simply unreported" (p. 49)—which contradicts the very nature and definition of a subliminal message, which is that a person's brain has registered the message *unconsciously* and therefore the participant should only be tested for perception without awareness. This experiment will only ask participants if they were aware of seeing any messages, and their conscious awareness of the messages will not be the only method of testing whether a participant received the message. Rather, it is hoped this will be demonstrated in the ESP caret test following the stimulus.

A more accurate method of testing for subliminal messages was illustrated by Kunst-Wilson and Zajonc (1980), whose testing showed evidence for the mere-exposure effect operating at absolute subliminal levels. In their experiment, subjects were flashed a series of shapes for 1 ms each and then tested for recognition of pairs for each of the shapes they were shown before. Participants performed at chance levels (48 percent where 50 percent was chance), yet they preferred the subliminally flashed stimuli at above-chance levels (60 percent). "Thus, the subjects preferred the stimuli that they had presumably not seen. Such absolute subliminality effects satisfy what the severest critics of subliminal perception originally demanded" (Erdelyi, 2004, p. 75).

Unsurprisingly, when subliminal messages are tested for as what they are, as unconscious and implicit processes, they can be found as having indirect effects on people's attitudes toward themselves, others, and brands with statistically significant results. An example of one such experiment showed empirical support for unconscious processing in subjects' response to ads concerning snack foods with subliminal sexual embeds. Aylesworth et al. (1999) found that subliminal embeds have an affective, rather than cognitive effect on people's reactions toward a message. In a convenience sample taken from college students, Aylesworth et al. (1999) found evidence that contends subliminal messages evoke an emotional response. They examined three affective variables in relation to the words "sex" being spelled out in pretzels and popcorn and the word "fuck" written out in cheese curls: these included upbeat, warm and negative feelings in regards to the subjects' attitude toward the ad and brand (p. 76).

The reason they gave for using sexual embeds is due to Key's (1973) and earlier theorists such as Jung's (1936)

> claim that subliminal messages work because they incorporate archetypal imagery. Archetypes are "universal symbols which sustain a constant meaning and efficiency in their applications" . . . One particularly good example of archetypal imagery is sexual imagery. Many of the supposedly subliminal stimuli in the media today seem to consist of sexual images. Such imagery is allegedly able to affect our attitudes and behaviors without our conscious awareness. (Aylesworth et al., 1999, p. 74)

Further research has validated most of Key's (1973) claims, (excepting the parts concerning behaviors) as subliminal messages have been demonstrated to only slightly and indirectly influence subjects' behavioral intentions. Aylesworth et al. (1999) found subliminal sexual embeds had statistically significant positive correlations with men's upbeat attitudes toward the ad and brand, with less upbeat feelings from women. In regards to negative feelings, Aylesworth et al. (1999) found statistically significant

positive correlations concerning both genders' attitudes toward the ad and brand, and no effect on warm feelings. This poses interesting possibilities for future research concerning subliminal processing with regards to gender and attitude. Aylesworth et al. (1999) state that previous research dismissing the subliminal effects of advertising did not examine the relationship between people's feelings and their responses to ads, an important distinction. Another component that could be added in a second experiment would be to test subjects in the exciting and relaxing conditions for how much they liked the films. It would be useful to break the respondents down by gender and compare men and women's affective attitudes towards the films as did Aylesworth et al. (1999). Enjoyment of the ESP test was measured in this experiment and will be detailed in the results section.

Ravi and Parameswara Kurup (2003) from the Medical College Hospital in India offered an enlightening model for how conscious and unconscious perception function together in the brain. Kurup and Kurup (2003) explained in great detail through their studies with the rat brain how the hypothalamus produces an endogenous membrane ATPase inhibitor known as digoxin, which increases intracellular calcium rates. Once calcium enters the cell, it signals a host of other processes, such as decreasing the availability of magnesium and influencing the transport of amino acids and neurotransmitters (p. 816). This hypothalamus-thalamus-cerebral cortex circuit plays an important role in mediating conscious perception. When all the neurons in layer 5 of the cerebral cortex fire, it creates a perceptual binding, which equates to short-term memory. All the axons that pass through the cerebral cortex and the thalamic nucleus then must go

to the reticular nucleus, which provides an inhibitory innervation back to the thalamic nucleus (see Figure 1 below).

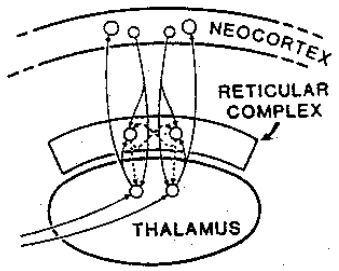

Figure 1: The Hypothalamus-Thalamus Cerebral Cortex Circuit-"The thalamic reticular nucleus (complex) is really only a thin sheet of inhibitor neurons which are believed to function to "gate" signals to the cerebrum from the thalamus. Most thalamic neurons have few, if any, collaterals, but the reticular neurons have extensive collaterals. Since projections to the cortex from the thalamus must pass through the reticular nucleus complex, it is believed that this complex acts as a "gateway." The reticular complex may control which sensory inputs are the subject of attention of the cerebral cortex." (Best, 1990, p. 7)

Whether the cerebral cortex decides to focus or detach attention is determined by the feedback between the hypothalamic digoxin and the glutamatergic collaterals, respectively. Kurup and Kurup (2003) detailed how the brain functions as a quantum computer which corresponds to Lockwood's (1989) term SQUIDS- superconducting quantum interference devices- layered superimpositions of macroscopic states (p. 818).

The incoming quantal data maps of the external world are built by subliminal perception in a logical sequence and exist as corollaries to the cerebral cortical external world maps built by conscious perception. They are two separate processes, then, that work together in facilitation through hypothalamo-cerebral cortical connections mediated by digoxin acting on the neuronal membrane to fire consciousness. Subliminal perception is subservient to consciousness in the way "quantal nonlocal quasicrystal

tiling effects . . . mediate the activation and deactivation of synapses through the contraction and growth of dendritic spines" (p. 819).

The conclusion the authors came to finally serves as a physical, biological validation of a century's worth of psychological theorization related to unconscious and conscious perception. Kurup and Kurup (2003) wrote:

> It is consciousness that converts the world of probabilities into the classical objective real world of matter by the act of making an observation. Digoxin by modulating conscious perception contributes to the observer function of human consciousness. Human consciousness depends on the information perceived from the external world by conscious or subliminal perception and is momentary… Thus, human consciousness and the external world have an interrelated existence. (p. 820)

Not only do these findings have great implications for social science research, specifically related to quantum phenomena in the brain and unconscious processing but Kurup and Kurup (2003) pose a very interesting conclusion—that our brains are directly related to the external world. If quantum phenomena's relation with the external world is proven accurate, then it is not so far off to say that human thoughts have an indirectly perceivable effect on not just our reality as we perceive it, but on the collective reality of the universe. The conclusions Kurup and Kurup (2003) come to about the human brain and consciousness/perception as interlocking quantal data maps have influenced this experiment in that, if statistical significance had been found as predicted in Hypothesis 1, in the subliminal caret test answer condition watching *Gozu* (2003), unconscious perception would have been demonstrated as having a direct correlation to the external world (that is, the answers to the ESP test).

Palmer (1994) must have sensed this could be true in his model experiment regarding the interrelation between extra-sensory perception and subliminal messages. In two experiments done with 40 volunteer subjects with the Perceptual ESP Test (PET),

participants were flashed caret test directions subliminally for 4 ms and then asked to select the arrow direction on a keypad which corresponded to the subliminal flash. Subjects also took a test measuring anxiety levels (STAI) and a questionnaire utilizing a Dissociative Methods Scale (DMS). While completing the PET, participants were distracted from subliminal messages by targets pointing in various directions in which it was hoped a paranormal process would guide the viewer's eye toward the most salient target direction, which would match the target direction being viewed by the facilitator. The purpose, according to Palmer (1994), was to minimize the linear thought process, which has been proven by previous research to be psi-inhibiting in forced-choice ESP tests. *Psi* as defined by the Merriam-Webster online dictionary is taken from the word *psychic*, which refers to "parapsychological psychic phenomena or power" (2005, p. 2).

Palmer (1994) flashed a subliminal image of a monster with the target superimposed to half the treatment group as well. It was found for the first experiment that statistical significance was only reached with those exposed to the subliminal message "Ashley and I are one," without the monster image. From these results he concluded that subliminal messages are more effective than supraliminal messages in evoking *psi*. He also found that high-dissociation subjects, and high-anxiety subjects were more sensitive to the targets and therefore both groups showed a significant positive correlation with ESP hits. In the second experiment, Palmer (1994) grouped high-dissociative types with high anxiety types into a treatment group, and these participants scored statistically significant positive correlations with psi-hitting in the monster condition. Palmer (1994) remarked that these conclusions stem from the fact that "certain subliminal messages can have beneficial effects on task-performance" (p.142).

Palmer (1994) also concluded from his experiments that subjects are more receptive to subliminal messages when they are in a dissociative state, and suggests that hypnosis may facilitate this. This statement clearly suggests possibilities for future research, in which a trained hypnotist could perform a session on a certain condition of participants before the testing begins to determine whether this increases their ability to perform a specific task after receiving encouraging subliminal messages.

Another experiment completed by Seitz and Watanabe (2003) shows that perceptual learning does not only occur, as commonly thought, when conscious attention is applied. Seitz and Watanabe (2003) stated, "perceptual learning occurs unconsciously as a result of frequent exposure to an irrelevant feature" (p. 36).

A motor skills study done by Wilfried Kunde (2004) also supports this finding. He found that actions are induced in the body by its subconscious and automatic perception of their effects, a sort of unconscious visualization of the desired response. When Kunde (2004) used subliminal messages in a study involving use of quick response time to computer-mediated stimuli, he found that the affirmative subliminal message preceding the questions "good job!" facilitated a faster and more accurate response than the veto response "attention, irregular effect!" and "careful, effect was correct!" (p. 93).

Kunde (2004) pointed out that he did not explore, however, how participants associate certain actions with effects they were unaware of during their acquisition. Overall the experiment relays that consciousness is irrelevant for already-learned action-effect associations, but necessary for the acquisition of them in the first place. How Kunde's (2004) conclusions support the current experiment's findings will be detailed in the discussion section.

Applying Kunde's (2004) conclusions to this experiment could prove to further validate Kurup and Kurup's (2003) conclusions about the human brain, that our internal thoughts are related to everything external to us. If ESP-hitting during the caret test were enhanced in the conditions receiving the encouraging subliminal messages, this would mean that some humans have the ability to know what another is thinking and not be aware of this fact. In other words, according to Kunde (2003), the subliminal information subjects are receiving shows them the visual desired response (the correct caret answers) for the future ESP caret test. Through the ESP caret answers being subliminally flashed in the current experiment, subjects are unconsciously learning the desired response. The ESP-encouraging message conditions would not have significant effects, according to Kunde (2003), in those participants who did not already believe they had this ability.

Bachmann (2004) had an important contribution to make in terms of the unconscious relationship with perceptual bias. He stated that bias can have a conscious-sensory component, in that response biases in the decision stage of processing is regulated by perceptual biases. How these influences are realized, though, he explained, is beyond the current scope of comprehension. To further the previous argument for Lockwood's (1989) SQUIDS as quantum interfaces of networked information in the brain, Bachmann (2004) proposed that "for the brain to become the device for conscious experiences, there should be a wide-ranging communication between different brain areas at different levels" (p. 105). He explained that the "slow wave" effect of subliminal messages' retrieval times in conscious awareness is due to localized neurons sending action potentials from distant nerve cells. This explains the delayed and indirect effects

of subliminal processes occurring "due to the change in the level of readiness in the neuronal pools for discharging at later times . . . only if properly cued" (p. 105).

Bachmann's (2004) conclusions in relation to memory could shed additional support to the possibility that some people have had ESP in their lives and not known they were experiencing this. Conscious awareness only occurs after much subconscious awareness takes place in the brain, and only if the potential for conscious awareness is released. In other words, a person might perform a specific activity many times and not be consciously aware of their behavior.

Petr Bob (2003) explained that the process of subliminal stimulation recollection can be heightened through hypnosis. He cited studies by Stross and Shevrin (1962, 1968, 1969) as illustrating the similarities hypnosis shares with dreaming in regards to thought organization. He expertly detailed the relationship between pathological phenomena and repression of subliminal material in stating:

Psychopathological phenomena are, in many cases, induced by the mechanism of repression and lead to a dissociated state by lowering the corresponding psychic content beneath the threshold of consciousness. Probably both dissociative reactions induced by repression and also post-hypnotic suggestion are connected to implicit or subliminal perception and information processing . . . Hughlings Jackson used the term "dissolution" and also "the dreamy state" which meant a splitting of consciousness leading to amnesia and other symptoms such as de-personalization, de-realization, hallucination or dissociation of perception (p. 309).

Bob's (2003) theorization regarding the similarity between psychopathological phenomena and subliminal awareness is enlightening in regards to the fact that humans

can easily dissociate with what they perceive. This commonly occurs in situations of crisis in which a person does not consciously remember the traumatic event due to repression. Subliminal messages function in a similar manner, in which a person does not consciously remember seeing the message, yet the message information was received and stored in a specific location in the brain, and certain states of excitation or dissociation can elucidate them or demonstrate their presence. It was believed in the *Gozu* (2003) conditions, that subjects would be sufficiently excited to pay attention to the caret test answers and remember them during the subsequent ESP caret test.

Hilgard (1986) described a term relevant to unconscious perception known as the "hidden observer," a phenomenon that the body has consciousness of itself even when the mind is not consciously aware of this. This is characterized by a central stream of consciousness into which a great many other streams or personalities converge. Other theorists have remarked that this concept is similar to multiple-personality disorder, and Bob (2003) affirmed that multiple personality may be conceived of as a structural model for the dissociated human personality. Jung (1972) remarked that dreams could serve as a method of disseminating information among the dissociated elements of the human personality. Experiments in Canada have indicated that the "hidden observer" does in fact exist. Hilgard (1986) has cited other examples in reference to this phenomenon, where a subject's hand under hypnosis-inducing anesthesia is pricked with a needle, and the person writes, "You hurt me," with the other hand, even though they did not consciously feel any pain. Another example was a person's description through their "hidden observer" while under anesthesia during surgery that they could remember a specific statement a doctor made regarding their loss of color and needing more oxygen.

The “hidden observer” effect is also seen to describe events such as mystical, out-of-body and near-death experiences (OOBE & NDEs). It was found to be present in 80 percent of individuals in a relaxed state (p. 312).

The “hidden observer” that Hilgard (1986) described further posits that subliminal awareness is possible, that a great many events our brains perceive are not made conscious. Simply because a person does not report seeing caret test answer directions or subliminal messages on the computer screen during the film doesn’t mean they haven’t seen the message. This assumption was tested in the ESP caret test.

Bernat, Bunce and Shevrin (2001) found in an experiment providing event-related potential (ERP) evidence for visually presented mood adjectives that many affective, mood-related brain behaviors take place without subjects ever being conscious of them. Also, similar to other experiments, they found that extreme pleasant or extreme unpleasant stimuli are related to increased arousal and that “event-related brain potentials can be used to assess the affective dimension of attitudes people are unwilling to report” (p. 13).

Bernat et al. (2001) found that unpleasant stimuli increased positive amplitude more than pleasant stimuli—therefore unpleasant words were more capable of producing physiological arousal than pleasant ones, in both subliminal and supraliminal conditions.

However, Bernat, Bunce and Shevrin (2001) found that the cognitive differences between extreme pleasant words and extreme unpleasant words do not achieve statistical significance without pictorial stimuli. Bernat et al. (2001) stated that their experiment points to the notion that affective processing occurs in a broad range of brain activities in

which conscious perception plays only a small role. The current experiment achieves this requirement as subliminal messages are embedded into films.

An experiment investigating non-conscious transference of significant-other representations by Glassman and Andersen (1999) found that subliminal messages could facilitate this process. Transference operates without the subject's awareness, and occurs in everyday social perception. Glassman and Andersen (1999) found that if a person was subliminally flashed descriptors of another participant's significant other, they were more likely to think their opponent was more similar to their significant other than a control group of descriptors. This led Glassman and Andersen (1999) to conclude "a subliminally activated significant other representation leads to inferences about a new person that are not attributable to self-generation effects" (p. 1153).

Glassman and Andersen (1999) further proposed that it is specifically significant other features that can be processed easily and fluently due to their salience, that is, we frequently think about our significant other therefore we are likely to unconsciously transfer this information onto new people in social situations.

The experiment described by Glassman and Andersen (1999) furthers the opinion that transference can occur in subliminal messages to another task or idea. The current experiment tested this theory, to determine whether subliminal messages have an effect on subjects' ESP when the correct caret test answers or ESP-encouraging messages are unconsciously presented during an exciting or relaxing film.

According to Palmer's (1994) conclusions, it was hypothesized that the condition receiving encouraging subliminal messages and watching the film *Gozu* (2003) would demonstrate the highest psi-hitting in the caret test. This is due to the fact that sexually

relevant and suggestive images were presented briefly after tension building montage sequences. Playing baroque music for the group watching the *Gozu* (2003) film, it was thought, would increase the amount of dissociation or distraction amongst viewers, even amongst those in the control conditions not receiving the messages or caret test answers.

According to conclusions drawn by Hoffman, Janssen and Turner (2004), if a conscious gun image would increase physiological arousal in women, then it was thought possible that the dissociated condition produced by the *Gozu* (2003) film would especially facilitate women's psi-hitting in the caret test.

H3: Women would score higher psi-hitting in the ESP test than men.

In the present study, there was not a conscious threatening image, but a strange cow head wearing men's underwear licks a man's face. It was believed this would divert the viewer's attention away from the fact that they are receiving embedded messages and produce a high-anxiety and dissociative state. In a truly dissociative state, a person will not remember what they are doing and will be highly distracted.

RQ1: Would subjects watching the Gozu (2003) film would report higher levels of dissociation on the Dissociative Experiences Scale (DES) than those watching The Best Virgin Islands Beaches (2004)?

If DES scores and the anxiety level of the films were significantly correlated, it would further validate Hoffman, Janssen and Turner's (2004) conclusion that stressful events increase a subject's attention and excitation transfer rates.

Meston and Frohlich's (2003) experiment posited that excitation transfer occurs after a rollercoaster ride in which opposite sex people rate the attractiveness of another higher than before the ride. Subsequently a hypothesis for the current experiment was

that the film *Gozu* (2003) in this experiment would increase people's reported enjoyment of the experiment due to the fact that their hormone levels will be elevated due to watching and listening to a more stimulating film and music track.

RQ2: Will those subjects who watched TBVIB (2004) report less overall satisfaction with the experiment than those in the Gozu (2003) conditions?

If statistically significant psi-hitting rates in the caret test were found for the caret test conditions, then Schacter's (1987) definition of implicit perception would be further supported by research.

RQ3a: Would subliminal messages actually be subliminally perceived? Or would some subjects be able to read the messages or see a flash?

RQ3b: From Turnbull's (1996) suggestions that ambiguity is "lonely," would any of the participants be conscious of having received the correct answers to the caret ESP test (p. 94)?

These research questions will be answered in the discussion section.

If, in the present study, no statistical significance was achieved for the ESP-encouraging message conditions or the caret test answer conditions, experiments by Kouider and Dupoux's (2004) and Harris et al. (1996) would further be validated, both of which found that subliminal messages have no effect. However the method Kouider and Dupoux (2004) and Harris et al. (1996) used to test for subliminal messages was troublesome because subjects should not be able to recall having seen truly subliminal stimuli. If many subjects were consciously aware of having seen the messages, the messages wouldn't be subliminal, they would be conscious.

Kunst-Wilson and Zajonc's (1980) experiment where subjects were tested for recognition of shapes shown at 1 ms and operated at above-chance levels in their selections, however, would lend great support to the current experiment. If any of the three test conditions has statistically significant, or above-chance levels of ESP demonstration in the subsequent caret test as opposed to the control conditions, it can be assumed that the subliminal caret test answers or ESP-encouraging messages facilitated an effective response in subjects. This would support previous research stating that subliminal processes occur unconsciously and have statistically significant effects.

Kurup and Kurup's (2003) conclusions in their study showed that our brains function as interlinking devices both internally and externally. Therefore, according to this theory, subjects would demonstrate ESP in conditions where they have paid attention to the film and have a conscious desire to demonstrate psi-hitting in the caret test. It would be a question, then, not just of how many students at the College of Journalism and Communications at UF have psi-capabilities, but of how many participants actually are interested enough to be concerned about the experiment and allow their internal thought processes to relate to the subsequent caret test. This experiment, if found to have significant results in the two message type test conditions, would support Kurup and Kurup's (2003) conclusions and demonstrate that the internal world of our brains (which received the subliminal information) does have a direct correlation with the outside world (the ESP caret test).

Erdelyi's (2004) conclusions as related to this experiment would affect subjects' awareness of having demonstrated significant psi-hitting in the caret test. The research questions derived from Erdelyi's (2004) theories are as follows:

RQ4a: Would subjects accurately assess whether or not they have demonstrated ESP? (This is tested by post-test confidence as compared to ESP hit scores). RQ4b: Would a majority of subjects believe they have demonstrated ESP when they have not?

RQ4c: Would some subjects demonstrate significant ESP hitting and not believe they have?

Sohlberg and Birgegard's (2003) conclusions could be further validated by this experiment if subjects from 10 days to two weeks later would still demonstrate positive psi-hitting in their everyday lives. Would subjects score as well on the same caret test two weeks after receiving the subliminal caret test answers?

According to Bernat, Bunce and Shevrin's (2001) experiment, which found that people are more physiologically aroused by unpleasant words than pleasant ones, subjects would pay more attention, and possibly demonstrate higher psi-hitting if an unpleasant word was used as opposed to pleasant descriptors. If Bernat, Bunce and Shevrin's (2001) conclusions could be replicated, would the conditions receiving the subliminal unpleasant words be more successful in demonstrating ESP in the caret test than those receiving positive words?

Glassman and Andersen's (1999) experiment concerning significant other transference through subliminal messages would be further validated if the present experiment demonstrates significant effects in the ESP-encouraging message conditions. Glassman and Andersen (1999) posed that transference occurs with subliminal messages (in this case, that the subject has ESP and can demonstrate this in a subsequent caret test). If the present experiment has no significant effects, it is possible that transference is not

as simple in the case of having ESP because this is not a salient issue in most people's minds.

H4: It was predicted that the condition with the most psi-hitting in the ESP caret test would be those students who scored the highest in the DES questionnaire following the exam with the highest posttest confidence ratios for ESP.

CHAPTER 3
METHODOLOGY

In the first condition of this experiment, 25 respondents received a control stimulus without subliminal messages embedded into the exciting film *Gozu* (2003). The second condition had 25 respondents who received the exact sequence of caret (◄►▲▼) directional arrow answers used as the key in the ESP test, flashed individually first x 3, then as a series x 10 in the exciting film *Gozu* (2003). These messages were flashed for 1/3 of a second or 33.3 ms. This series was as follows: (where 1=left, 2=right, 3=up, 4=down) "3,2,4,1,4,4,1,3,2,1,3,3,2,4,2." In the third condition, 25 respondents received the subliminal messages "Jessica and I are one" x 3 and "I have ESP" x 10 flashed for 33.3 ms during the film *Gozu* (2003). The fourth, fifth and sixth conditions were identical to the first three, but the subliminal messages were flashed in the relaxing film *TBVIB* (2004). Table 1 below illustrates the number of subjects used in each condition.

Table 1: Number of Participants in Each Condition

		Message Type		
		Control	Caret	Symbiotic message
Anxiety Level in Films	High *Gozu*	25	25	25
	Low *TBVIB*	25	25	25
	Subtotals	50	50	50
	Total participants			150

Participants chosen for this experiment were University of Florida college students 18 and older. The majority of them were students of one of the instructors in the College of Journalism and Communications who had agreed to inform their students of the experiment. After briefly explaining to participants that this thesis experiment tests

the effects of subliminal messages in films and their relationship with ESP; the students wrote their name, email address, gender, race, UF ID and the teacher's name that referred them on a sign up sheet. This took about 4 minutes. Following this, the subjects were given the Informed Consent form found in Appendix A. The group of students who showed up for each allotted experimental time were randomly assigned to the same condition depending on the time and day and which conditions still needed to be filled at that time. After students had read and signed the Informed Consent, an 18-question Trait Index adapted from the State Trait Anxiety Index (STAI) was given. The state index was chosen as opposed to the trait index as Palmer (1994) had only used the trait section, because he wanted to test the subject's general, daily level of anxiety, not just how they felt due to the experimental setting. During the time the students were filling out this questionnaire, the corresponding music for the film's anxiety level was played on a Sony stereo (either baroque for the high anxiety condition or Gregorian chant music for the low anxiety condition). This portion took another 5 minutes. Afterwards, students were given Part One of the Participant Questionnaire adapted from the one Palmer (1994) used, a brief 4-question rating scale concerning their current mood and confidence in demonstrating ESP. This took another minute, totaling ten minutes for the first section of the experiment.

The specified CD was then disseminated which contained one of six test conditions coded with their condition, either 1A-2C. Students opened a Quicktime file on their PC station and watched the film for 5 minutes. If some students had started the film after others, the group waited for everyone to finish watching the clip.

Directly following the screening, students were told to turn their Participant Questionnaire to the back for the ESP test. The test instructions were explained, that the facilitator would be holding 15 index cards containing a sequence of caret arrow directions, either pointing up, down, to the left or right. They were instructed to write down for each arrow the facilitator looked at, which direction they thought it was pointing. It took approximately 5 seconds for each caret guess, and each arrow number was announced. The caret test was designed to work in accordance with the subliminal messages in that, for the groups receiving the subliminal encouraging messages ("I Have ESP") and symbiotic messages ("Jessica and I are one") that these would encourage the participant and create a rapport between the participant and Jessica, the instructor of the test. In this manner, the subject would feel both encouraged and socially comfortable with the facilitator. If a connection was established, much as Palmer (1994) did with Ashley, his facilitator, it was thought that this would help participants to demonstrate ESP in the caret test.

The ESP caret test took about two and a half minutes. Following this, students filled out Part Two of the Participant Questionnaire, which was a brief 3-question rating scale concerning their post-ESP test confidence, how enjoyable they thought the experiment was and how difficult it was for them to select an arrow direction. This took another 30 seconds. Lastly, the students were given a 20-question Dissociative Experiences Scale (DES). This section took another 12 minutes, totaling a 30 minute experimental time.

The Participant Questionnaire, as previously mentioned, was adapted for this experiment directly from the one Palmer (1994) provided in his Appendix. The DES and

STAI used compares to the 2 tests Palmer (1994) used to follow-up with his participants, which were the Questionnaire of Experiences of Dissociation (QED) and the trait portion of Spielberger's State-Trait Anxiety Inventory (STAI). Finally, the participants were asked, as Palmer (1994) did, if any of them noticed a message in the films, and if so, to state what it was. Then the participants were then thanked, their questions were answered if they had any, and they were provided a selection of chocolate candy for refreshment.

The main differences between Palmer's (1994) experiment and this one are first, that he tested subliminal fear responses, not conscious ones. He also utilized two caret tests, the first with embedded subliminal messages, then allowed a break, and followed with an ESP caret test. This experiment tested what effect films have on a viewer's emotional state, and if a relaxing or disturbing film with the corresponding Gregorian chant or baroque music Palmer (1994) utilized would assist subjects in demonstrating the effects of encoded caret test answers.

If this experiment truly replicated Palmer's (1994) experiment, the conclusions would have demonstrated significant results in the following conditions: 1) those receiving the subliminal ESP messages and watching *Gozu* (2003) film with psi-hitting; 2) positive correlations between ESP hit rates and those watching the *Gozu* (2003) film among high dissociation (DES) subjects; 3) significant correlations between those scoring high on the STAI anxiety section and ESP hitting (p. 139).

In Palmer's (1994) experiment, he sought to minimize participants' linear thought processes by first flashing quasi-random assortments of lower-case letters on the screen to his subjects, then asked them which letter was the most salient to them. He states, "the broader purpose of the procedure was to minimize the intellectual kind of mental activity

often associated with more traditional ESP tests in which subjects are required to conjure up an image or impression. There are indications in the literature that such linear thought processes are psi-inhibiting, especially in forced choice ESP tests" (p. 115).

Neither of the films chosen have linear plots. Both *Gozu* (2003) and *The Best Virgin Islands Beaches* (2004) strictly rely on visuals to create meaning, and those meanings are primarily emotional and non-rational. In this manner, the non-linear film is more like a hypertext than a traditional book, in which the viewer creates his or her own meaning, which is personal to that individual (Essid, 2004).

Both scenes from the films chosen are 5-minute clips; the rationale for this was to minimize lag during the experiment so that participants are finished with the sequence at the same time. From *Gozu* (2003), the scene chosen is a dream sequence in which the protagonist is inside a hotel room late at night, he is shivering under a blanket and obviously afraid. After the protagonist throws open doors several times and false montage build-ups, the screen darkens for a few seconds, after which a cow-headed demon appears in a corner of the room. The man walks slowly toward the demon, it licks his face and he faints. The camera then cuts to a woman lying down and a man suckling her breast, after which the protagonist sits up in bed suddenly, waking up from his nightmare. From *The Best Virgin Islands Beaches* (2004), the scene used is of waves calmly lapping onto the shore of the island of St. John. The ocean water is a transparent aqua green; the cloudless sky is shining blue, and the sand bright white. The camera dissolves to another scene about halfway through, where a sailboat is docked right on the beach. Slowly the sun begins setting as the sky reveals shades of hot pink and lavender. These specific selections were chosen for their dramatically different natures: in the first,

unexplainable and impossible events are happening in an artificial environment, and in the second, an organic beach scene is pictured which is readily understandable. This experiment also differed from Palmer's (1994) in that it assessed the impact of gender and race on performance in the experiment and ESP test. Reliability scores for the indices created with 8 STAI Pleasant items gave a Cronbach's alpha score of .84. For the 10 STAI Anxiety questions, the Cronbach's alpha score was .75 for 10 items. Lastly, the Cronbach's alpha score for the 28-question Dissociative Experiences Scale was acceptable with a score of .94.

CHAPTER 4
RESULTS

Contrary to the initial hypothesis (H1), ESP hitting was not significant with the anxiety-producing *Gozu* (2003) condition. The ESP hit rate was approaching statistical significance, however, for the anxiety level of the films. Opposite from what was thought, *TBVIB* (2004) film group had the highest psi-hitting of the two films (F= 3.43, df= 1, p= .066). Within the relaxing group, the control message type actually had the highest ESP hit rate, but the message type was not significant for psi-hitting. The possible meanings for these findings will be elaborated on in the discussion section.

A significant finding of this experiment was between post-ESP test confidence levels and the anxiety level of the film. Those subjects in *TBVIB* (2004) film condition reported the greatest post-ESP test confidence with statistically significant results as F= 6.3, df= 1, and p= .013. Hypothesis 2 predicted that the subliminal message conditions would have higher post-ESP test confidence than other message groups. This hypothesis was supported because both the caret (M= 30) and message groups (M= 29) reported higher confidence in their ESP scores than did the control groups (M= 24.6), however this difference was not statistically significant. The mean post-ESP test confidence score (out of 100 percent possible) for those subjects exposed to *TBVIB* (2004) was 33.3, whereas with those watching *Gozu* (2003) their ESP-test confidence level was, on average, only 22.5 percent. Figure 2 below shows participants' levels of post-ESP test confidence for the type of subliminal message versus the anxiety level of the film.

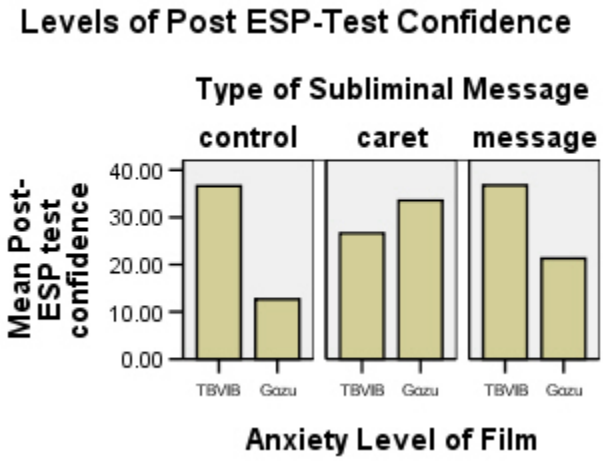

Figure 2: Means Graph of Participants' Levels of Post ESP-Test Confidence

This finding is most interesting because it is so different for each group. In the control condition, those in the low-anxiety group had a very high level of post-ESP test confidence (M= 36.6). Those watching *Gozu* (2003) had a much lower level of confidence (M= 12.7). This should not be surprising, as *TBVIB* (2004) control group did in actuality, score the highest psi-hitting. However, in the caret condition, those watching the high-anxiety film reported the greatest level of ESP-test confidence (M= 33.6), but not by a great amount (low-anxiety group M= 26.6). Once again, in the message group those in the low-anxiety group reported the highest ESP-test confidence (M= 36.8) with a fairly wide difference (high-anxiety group M= 21.3).

There were 60 male and 90 female participants in this experiment. The sex of participants had an effect on their psi-hitting with results that approached significance (p= .079). The third hypothesis was confirmed, that women did score better psi-hitting than men. A Pearson's correlation post hoc analysis revealed the correlation coefficient to be +.144, which means that if the respondent's sex was female (M=1, F=2) the respondent

would be more likely to have correct ESP hits than if they were male. Table 2 below shows the Pearson's correlations for respondent's sex with ESP hit rate.

Table 2: Pearson's Correlations for ESP Hit Rate with Participants' Sex

		ESP hit rate	Respondent's Sex
ESP hit rate	Pearson Correlation	1	.144
	Sig. (2-tailed)	.	.079
	N	150	150
Respondent's Sex	Pearson Correlation	.144	1
	Sig. (2-tailed)	.079	.
	N	150	150

Sex of the participant also made a difference in participants' rated enjoyability of the ESP test. Without controlling for gender, the enjoyability rating of the ESP test approached statistical significance for the message type variable (p= .082). Within this category, the ESP-encouraging message condition had the highest ESP test enjoyability rating. The mean score of enjoyability of the ESP test in the message condition was 57.9 percent, whereas for the control group it was only 46 percent. The test condition with the greatest ESP test enjoyability rating was *TBVIB* (2004) message group, however the anxiety type of the film made no significant differences. When gender was controlled for, however, the enjoyability rating of the ESP test no longer approached significance. It was predicted in hypothesis 3 that females would score higher psi-hitting. A Pearson's correlation revealed this was at least partially true. Respondent's sex was found to be approaching significance with psi-hitting at the p= .079 level (2-tailed).

Research Question 1 asked if subjects watching *Gozu* (2003) would have higher DES scores than those watching *TBVIB* (2004), however this did not occur, and the results were not significant. The anxiety level of the film had no impact on the Dissociative Experiences Scale score of the participants.

Research Question 2 was found to be true, which asked whether subjects watching *TBVIB* (2004) would report less overall satisfaction with the experiment than those watching *Gozu* (2004). Overall participants who were in the *Gozu* (2003) condition reported enjoying the ESP test more, but this difference was not statistically significant. The message type of the film did approach significant effects, however, for the enjoyability of the ESP test ($F= 2.6$, $df= 2$, $p= .082$). Here those subjects in the message conditions ($M= 57.86$) found the ESP test more enjoyable than did those in the control conditions ($M= 46.02$). This importance of this finding in terms of research on subliminal messages will be further discussed.

In answer to Research Question 3a, subjects for the most part were not able to see a flash of the subliminal message. Only one student in about 50 was able to see a flash, and they would announce this fact before the question was raised following the film. To answer Research Question 3b, the subjects, when watching the film without pausing it, were not aware of subliminally receiving the answers to the ESP caret test. Some respondents did pause the QuickTime file during their viewing to try and slow down the subliminal messages to read what they were. This could have had an effect on the results, which will be elaborated upon in the conclusions section.

Research Question 4a asked whether subjects would accurately be able to assess whether or not they had demonstrated ESP. This was not supported, as it was found in this experiment that subjects were not able to accurately assess their psi-hitting capabilities. More often than not, subjects who demonstrated ESP were not confident they had, and those who had not were confident that they had. These findings were not significant. Research Queston 3b asked if a majority of subjects believed they had

demonstrated ESP when they had not. This was not found. Subjects, for the most part, even when they demonstrated ESP did not believe they had. The average participant's post-ESP test confidence score for all message types was 27.9 percent. Therefore Research Question 3c is correct, that some subjects would demonstrate significant (8 out of 15 ESP hits) psi-hitting and not believe they had.

Finally, the fourth hypothesis was not supported, and these results did not approach significance. H4 predicted that psi-hitting would be correlated with DES scores. This was not found to be true. Psi-hitting was only approaching significance with the test groups watching *TBVIB* (2004), as previously mentioned.

Ethnicity/culture of the participants also had no significant effects on the findings. Out of 150 total respondents, 75.3 percent (113) of them were White, 2.7 percent (4) were Black, 14.7 percent (22) were Latin/Spanish or Hispanic, 2 percent (3) Indian (not Native American), 2.7 percent (4) were Arabic and 2.7 percent (4) were Asian. In order to test for correlations with ethnicity, a new dichotomous variable was created where 1=Other and 2=White.

A Pearson's correlation test which achieved statistical significance similar to what Palmer (1994) found was with participants' STAI scores and DES scores. Palmer (1994) found a positive correlation between the anxiety scale (STAI) and the dissociation scale (QED) which was not quite significant ($p = .068$). The findings for the correlations in the current experiment achieved statistical significance with several categories. The mean for the DES (out of 2800 possible) was 633.7 ($SD = 416.1$); the mean for the STAI anxiety scores was 33.1 (out of 80 possible, $SD = 11.9$); and the mean for the STAI pleasant scores was 40.16 (out of 64 possible, $SD = 7.5$). The index of DES scores

achieved statistically significant correlations with STAI pleasant scores at the p= .05 level, with a correlation coefficient of -.195. As DES scores went up, STAI pleasant scores were found to decrease. Significant correlations were also found with DES scores and STAI anxiety scores at the p= .01 level (2-tailed), with a correlation coefficient of +.324. This positive relationship shows that STAI anxiety scores increased DES scores. STAI pleasant scores additionally achieved a statistically significant correlation with STAI anxiety scores at the p= .010 level (2-tailed). The correlation coefficient for this relationship was -.645, which means that as STAI pleasant scores increased, STAI anxiety scores were found to decrease. Another significant correlation was found in relation to the hypothesis that psi-hitting, DES scores and post-ESP test confidence levels would be significant. Psi-hitting did not reveal any significant results in this correlation, but Pearson's correlation revealed DES scores and post-ESP test confidence levels were significant at the p= .05 level (correlation coefficient +2). Table 3 below shows the correlations for these results.

Table 3: Pearson's Correlations for Participants' DES scores, STAI Pleasant and STAI Anxiety Scores

		Index of DES scores	Index of STAI anxiety scores	Index of STAI Pleasant scores	Post-ESP test confidence
Index of DES scores	Pearson Correlation	1	.324(**)	-.195(*)	.200(*)
	Sig. (2-tailed)	.	.000	.017	.014
	N	150	150	150	150
Index of STAI anxiety scores	Pearson Correlation	.324(**)	1	-.645(**)	-.013
	Sig. (2-tailed)	.000	.	.000	.873
	N	150	150	150	150
Index of STAI Pleasant scores	Pearson Correlation	-.195(*)	-.645(**)	1	.043
	Sig. (2-tailed)	.017	.000	.	.602
	N	150	150	150	150
Post-ESP test confidence	Pearson Correlation	.200(*)	-.013	.043	1
	Sig. (2-tailed)	.014	.873	.602	.
	N	150	150	150	150

** Correlation is significant at the 0.01 level (2-tailed).
* Correlation is significant at the 0.05 level (2-tailed).

Statistically significant results were also found for participants' reported difficulty of the ESP test with message type at the p= .044 level (F= 3.2, df= 2). The anxiety level of the film did not have an effect. Table 4 below shows the ANOVA scores for the difficulty of ESP test compared to the anxiety level and message type.

Table 4: ANOVA Significance for Participants' Rated Difficulty of ESP Test

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	9131.473(a)	5	1826.295	1.764	.124
Intercept	229008.807	1	229008.807	221.140	.000
messagetype	6625.423	2	3312.712	3.199	.044
anxietylevel	340.507	1	340.507	.329	.567
messagetype * anxietylevel	2165.543	2	1082.772	1.046	.354
Error	149124.220	144	1035.585		
Total	387264.500	150			
Corrected Total	158255.693	149			

a R Squared = .058 (Adjusted R Squared = .025)

The significant difference was found between the mean of the caret test (M= 48.29) and the mean of the control group (M= 32.87). Figure 1 below shows a means comparison for participants' reported difficulty of the ESP test for the anxiety level and subliminal message type. The largest, most significant difference here was between *TBVIB*'s (2004) caret and control groups. A Pairwise Comparison revealed the mean difference between the control and caret groups was -15.42, which means that the control group found the ESP test a great deal less difficult than those in the caret condition. The caret group had the highest reported difficulty level with the *Gozu* (2003) film as well. Figure 3 below is a means graph for the reported difficulty of the ESP test for the type of subliminal message and the anxiety level of the film.

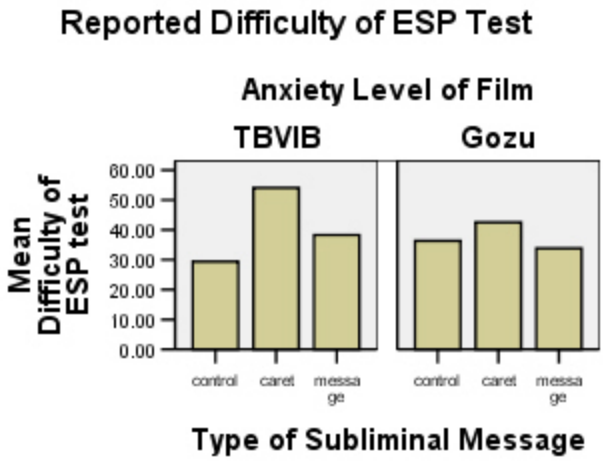

Figure 3: Means Graph of Participants' Reported Difficulty of ESP Test

The group receiving the caret test answers subliminally, then, rated the ESP caret test as being the most difficult. A Tukey's post hoc comparison revealed a difference between the caret and control groups with significance at the .05 level. Explanations for why this occurred will be elaborated upon in the following discussion section.

CHAPTER 5
DISCUSSION

In the present replication of Palmer's (1994) experiment, opposite results than those hypothesized were found; the most relaxed conditions had the greatest psi-hitting in the caret test with results approaching significance ($p < .10$).

Since the findings for this experiment did not confirm most of the hypotheses, it can be theorized that while excitation transfer can increase affective salience, it interferes with psychic processes (it is psi-inhibiting). In the present experiment, those subjects with the greatest psi-hitting capabilities were in the relaxing (*TBVIB*) condition with results approaching significance ($p = .066$). A means comparison revealed that the control group watching *TBVIB* (2004) scored the greatest psi-hitting. An explanation Palmer (1994) offers is this could be due to the subliminal stimuli's presentation having had a negative effect on the participant (p. 116). It is possible, and quite likely, then, that viewing subliminal messages made participants' unconsciously suspicious of the messages they were receiving, and they did not remain open to their contents. In the testing of the experiment, some students would continuously pause and then restart the film throughout the clip, looking for the subliminal message. When a student found one, they would show their friends or call out the contents of the message, which had the effect of no longer making the messages subliminal. For the caret test answers, viewing the directional arrows beforehand could have only made the participants confused. The only effects the ESP-encouraging message "I have ESP," and the symbiotic message "Jessica and I are one" seemed to make on this group of college students at UF was to

make them enjoy the ESP test more than the control group with results that approached significance ($p < .010$). It did not affect their performance on the ESP test.

A suggestion for further research here would be to have students take the experiment, as Palmer (1994) did, individually, at a station, however this experiment would need to have a much smaller number of participants (Palmer had 40 total).

Post-ESP test confidence in the present study approached significance for the anxiety level of the film ($p = .013$). Here, those participants exposed to the low-anxiety (*TBVIB*) film were more confident about their ESP test scores than those watching the high-anxiety film (*Gozu*). Amongst all conditions, the highest post-ESP test confidence mean score was in *TBVIB* message condition ($M = 36.78$ percent out of 100 possible). A reason for this occurrence could be that those who were most relaxed had the greatest post- ESP test confidence as opposed to those who were anxious and disturbed by the *Gozu* (2003) film, who probably didn't much care about the ESP test after viewing something so bizarre as a cow's head in men's underwear licking another man's face.

A simple reason for reported difficulty of the ESP caret test being significant for the subliminal message type ($p = .044$) was because the participants in the caret group were confused, rather than helped by the sequence of directional arrows. Fifteen directional arrows received subliminally could have gotten melded together in the respondent's mind and actually have made the subsequent caret test selection of an arrow more difficult rather than easier. These findings are further supported by the fact that the significant difference was between the control ($M = 32.9$) and the caret ($M = 48.3$) groups. The control groups found the ESP caret test the easiest perhaps because they were not

distracted by subliminal messages, which could have either made participants suspicious or inhibited their natural abilities for psi-hitting.

Correlations between the Dissociative Experiences Scale (DES) and State Trait Anxiety Inventory (STAI) for trait anxiety scores would follow because a person having a dissociative experience, for example, when their body does not feel like it belongs to them, would produce an anxious condition. It would not be relaxing either, for another example, not to recognize friends and family members, nor would they be relaxed if you didn't remember them! DES scores were also significantly correlated with STAI pleasant scores, however, at a lower level than the anxiety scores (the p= .01 level for anxiety as compared to the p= .05 level for pleasant scores). A reason for this could be that those people who have extreme emotions (very pleasant to very unpleasant) also score higher on the DES than people who generally do not feel especially pleasant. This conclusion is further supported by the tight correlation (at the p= .01 level) for STAI pleasant scores with STAI anxiety scores. Strong personality types, then, are likely to feel extremely happy, extremely anxious, and have dissociative experiences, possibly all at the same time. Less emotional people, then, would report both less pleasant and less anxious scores for the STAI, as well as lower DES scores, as the three were found to be tightly correlated in the present experiment.

An interesting finding from this experiment was that, although the relaxing control condition had the highest psi-hitting in the ESP caret test, their enjoyability rating for the experiment was less than the message group with results that approached significance (F= 2.6, df= 2, p= .082). The message group watching *TBVIB* (2004) reported a 59 percent (out of 100 possible) rating for enjoyability of the ESP test. These

participants enjoyed the ESP test more than those who scored better! The control group for the low anxiety condition reported a mean enjoyability score of 46.5 percent, and the caret group reported an even lower rate of enjoyability at 45.4 percent.

A Pearson's correlation also revealed that post-ESP test confidence and DES scores were correlated with significance at the p= .05 level (+2). This is interesting because it would seem that respondents with higher dissociative experiences scores were also more confident about their abilities to demonstrate ESP. It also could be that subjects who over-reported confidence levels also over-reported answers to the Dissociative Experiences Scale.

Two out of four hypotheses were confirmed in this experiment. The first was the 2nd hypothesis, that the subliminal message conditions would report higher post-ESP test confidence than the control groups, however the mean was slightly less than the post-ESP test confidence of the caret groups. The control group had the lowest level of post-ESP test confidence, which was strange because they had the highest psi-hitting of all the other groups. However, confidence is not related to actual performance, as demonstrated in this experiment.

The third hypothesis was confirmed, that women would have greater psi-hitting scores than men with results that approached significance. A great deal more females did score higher psi-hitting, and this could be because they cared about the experiment more than males, or perhaps because of the larger female sample size. Also, research question 2 was confirmed, that subjects watching *TBVIB* (2004) would report less overall satisfaction than those watching *Gozu* (2003). This could have been because participants were more stimulated in the *Gozu* (2003) conditions, and were not bored. However, the

condition with the highest overall enjoyment of the ESP test was *TBVIB* (2004) message condition (M= 59), and the group with the second highest enjoyment scores was the *Gozu* (2003) caret condition (M= 58.34). The condition with the least enjoyment was *TBVIB* (2004) caret condition (M= 45.42). This could be because the caret condition was confusing for participants, which increased their enjoyment when they were already confused by watching a bizarre and anxiety-producing film. *TBVIB* (2004) film was visually relaxing, but when paired with the caret test answers, it confused participants, creating subliminal cognitive dissonance.

Some of the limitations of this experiment were that it, like Palmer's (1994) study, used a convenience sample of college students. College students are well known to have higher DES scores than the average adult population, which could have affected the results. Also, unlike Palmer's (1994) experiment, the present experiment did not test subjects individually. Students either had their own computer station to view the film or shared with a partner if there were more students than stations. This happened in four of the experimental sessions, where an unexpectedly great volume of students showed up for the experiment times. In one of the sessions, there were 65 students and they had to be located to another experiment room and they were not able to hear the music for the relaxing *TBVIB* (2004) caret condition. This could have negatively affected the results. In order to see if these twelve participants who did not hear the Gregorian chant music had any effects on the overall results of the study, they were taken out for exploratory testing. Some interesting differences were found when these twelve subjects were taken out of the results. The difficulty of the ESP test was no longer significant for message type, and the ESP hit rate no longer approached significance for anxiety level. The most

important difference is that when the participant's sex was accounted for as a covariate, the ESP hit rate was statistically significant with gender (F= 5.1, df= 1, p= .024). A post-hoc Pearson's correlation revealed that gender and ESP hit rate were correlated significantly at the p= .05 level (+.186). In this adjusted, exploratory group, sex of the participant greatly affected their ESP hit rate so that if they were female, they were almost twice as likely to score significantly more correct psi-hitting. Table 5 below illustrates this adjusted group's significant relationship for gender.

Table 5: Pearson's Correlations for Adjusted Participants' ESP Hit Rate with Sex

		Respondent's Sex	ESP hit rate
Respondent's Sex	Pearson Correlation	1	.186(*)
	Sig. (2-tailed)	.	.029
	N	138	138
ESP hit rate	Pearson Correlation	.186(*)	1
	Sig. (2-tailed)	.029	.
	N	138	138

* Correlation is significant at the 0.05 level (2-tailed).

Another limitation of this experiment is that participants were informed of the nature of the study in full beforehand, which conditioned them prior to being tested. A reason for this is that Palmer (1994) informed his subjects prior to being tested, and as this experiment is a replication, all efforts were made to make this experiment as similar to the former as possible. Also the IRB was another concern in a subject as controversial as hidden or subliminal messages, it was necessary for the participants to be informed of any possible risks that might be involved before making the decision to participate.

CHAPTER 6
CONCLUSION

This study replicating Palmer's (1994) experiment surprisingly did not replicate the results he found. In fact, this experiment produced opposite results from Palmer's (1994) study, which was namely that subjects in the relaxing conditions scored higher psi-hitting than did those in the anxiety conditions with results approaching significance. The subliminal messages used in this experiment had no effect on the psi-hitting of respondents, in fact it had a somewhat negative effect as the control groups scored slightly higher than the caret groups for ESP hitting. Similar to Palmer's (1994) findings, however, the STAI and DES scores were significantly correlated, as was post-ESP test confidence and DES scores. Post-ESP test confidence was found to be significant for the relaxing conditions as well, which furthers the theory that participants in a relaxed state are more likely to facilitate *psi*. In accord with Petr Bob (2003)'s explanations that the process of subliminal stimulation recollection can be heightened through hypnosis, it is possible that those watching *TBVIB* (2004) were soothed by the repetitious falling of the waves on the beach enough to truly engage in psychic processes, and subliminal messages had no effect on relaxation or *psi*. Women did facilitate psi-hitting better in the current experiment than did men; and the only effect the subliminal messages had which was statistically significant is those who were in the subliminal caret test answer groups reported a higher level of difficulty for the caret test than those in the control groups with results that were statistically significant. This is accorded to the confusing nature of the subliminal caret test answers. In this experiment it appeared that subliminal messages

had no significant effects, other than slightly increasing participants' overall enjoyability of the ESP test with results that approached signficance (p= .082). Here, the message conditions "I have ESP," and "Jessica and I are one" made subjects more likely to enjoy the experiment. It can be concluded, then, that ESP is an instinctual or already-acquired ability that people cannot "learn," at least, not through subliminal messages. Also it can be inferred that subliminal messages have an indirect, though not completely significant effect on subjects' affective salience. It might have been more conclusive if this experiment tested the effects of subliminal symbiotic messages and encouraging messages for subjects' emotional affect towards a product or a simple task performance that was not already learned. Further research needs to be done in order to test the results of this experiment on subliminal messages and their effects on recall. If this experiment were to be done again, it would perhaps be more suitable to include subliminal images along with the messages, or to use subliminal images alone. This is due to the ready salience of images as opposed to messages. If this project would be replicated, perhaps other symbols besides the directional caret arrows should be used, such as a cross (⊤), heart (♡), or star (κ). These symbols are used more commonly than directional arrows and have an affective dimension, which might make them more suitable for subliminal messaging. Females only, perhaps, should be assessed for ESP in future experiments.

APPENDIX A
INFORMED CONSENT FORM

Protocol Title: Subliminal Messages in Films and Their Potential Effects on ESP.

Please read this consent document carefully before you decide to participate in this study.

Purpose of the research study: The purpose of this study is to replicate a previous experiment on subliminal written messages in a caret test to test their effects on ESP. This study will differ from the previous study in that the embedded messages will be within films to determine their effects on ESP.

What you will be asked to do in the study: Following a brief 5 minute film clip from the film The Best Virgin Islands Beaches (2004) or Gozu (2003), you will be asked to fill out a brief 4-question rating scale concerning your current mood, and how you feel about demonstrating ESP in this experiment. Following this, you will participate in an ESP caret test. I will be holding 15 cards with one of 4 directional arrows on each, pointing either right, left, up or down. You will be asked to write down on a flash card which direction you think the arrow is pointing on each of my cards. I will go through them one by one. Following the ESP test, refreshments will be provided and you will have a 5-minute break. Then you will be asked to answer 3 more rating scale questions concerning your perceptions of the ESP test, and a Dissociative Experiences Scale (DES) which is a longer questionnaire concerning what is commonly known as "dissociative experiences," which are unusual states of attention, perspective, concentration, or distraction, and a State Trait Anxiety Inventory (STAI), which measures the general level of stress you feel.

Time required: 30 minutes

Risks and Benefits: We do not anticipate that you will have any risks from participating in this study. None of the film clips are graphic. We do not anticipate that you will benefit directly by participating in this experiment.

Compensation: You will be paid no compensation for participating in this research, but refreshments will be provided.

Confidentiality: Your identity will be kept confidential to the extent provided by law. Your information will be assigned a code number. The list connecting your name to this number will be kept in a locked file in my faculty supervisor's office. When the study is completed and the data have been analyzed, the list will be destroyed. Your name will not be used in any report.

Voluntary participation: Your participation in this study is completely voluntary. There is no penalty for not participating.

Right to withdraw from the study: You have the right to withdraw from the study at anytime without consequence.

Whom to contact if you have questions about the study: Jessica Hilton, Graduate Student, College of Journalism and Communications, 376-5376, Jmh715@ufl.edu.

Spiro Kiousis, PhD., College of Journalism and Communications, 2028 Weimer Hall, 392-9359, Skiousis@jou.ufl.edu.

Whom to contact about your rights as a research participant in the study: UFIRB Office, Box 112250, University of Florida, Gainesville, FL 32611-2250; ph 392-0433.

Agreement: I have read the procedure described above. I voluntarily agree to participate in the procedure and I have received a copy of this description.

First Name: _____ Last Name: _____

Sex: M F

Age: _____

Ethnicity: _____

Signature: _____ Date: ____/____/_____

Principal Investigator Signature: _____

Date: ____/____/_____

APPENDIX B
PARTICIPANT QUESTIONNAIRE

Part One

Adapted from Palmer's (1994) Experiment

Code No._____ Date:_____

Unless indicated otherwise, please answer the questions below by placing a stroke on the line between the two extreme responses given for each question to represent your own experience. For example, if you are in a very good mood today, you should place a stroke at or near the right-hand end of the line in question one; if in a very bad mood, at or near the left-hand end; if your mood is between these two extremes, place the stroke on that part of the line where your experience falls along the continuum between the two extreme responses.

1. What kind of mood are you in today?

0_____99

Very Bad Very Good

2. How energetic are you feeling?

0_____99

Not at all energetic Very energetic

3. How confident are you that you will show ESP in this experiment?

0_____99

Not at all confident Very confident

4. How important is it to you personally that you will show ESP in this experiment?

0_____99

Not at all important Very important

Part Two

Adapted from Palmer's (1994) Experiment

Code No._____ Date:_____

Unless indicated otherwise, please answer the questions below by placing a stroke on the line between the two extreme responses given for each question to represent your own experience. For example, if you are in a very good mood today, you should place a stroke at or near the right-hand end of the line in question one; if in a very bad mood, at or near the left-hand end; if your mood is between these two extremes, place the stroke on that part of the line where your experience falls along the continuum between the two extreme responses.

5. How confident are you that you showed ESP in this experiment?

0_____99

Not at all confident Very confident

6. How difficult did you find it to choose a directional arrow during the ESP test?

0_____99

Not at all difficult Very difficult

7. How enjoyable did you find the experimental session?

0_____99

Not at all enjoyable Very enjoyable

APPENDIX C
DISSOCIATIVE EXPERIENCES SCALE

Eve Bernstein Carlson, Ph.D. Frank W. Putnam, M.D

Code No._____ Date:_____

Directions

This questionnaire consists of 28 questions about experiences that you may have in your daily life. We are interested in how often you have these experiences. It is important, however, that your answers show how often these experiences happen to you when you *are not* under the influence of alcohol or drugs.

To answer the questions, please determine to what degree the experience described in the question applies to you and circle the number to show what percentage of the time you have the experience.

Example

0% 10 20 30 40 50 60 70 80 90 100%

(Never) (Always)

1. Some people have the experience of driving or riding in a car or bus or subway and suddenly realizing that they don't remember what has happened during all or part of the trip. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

2. Some people find that sometimes they are listening to someone talk and they suddenly realize that they did not hear part or all of what was said. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

3. Some people have the experience of finding themselves in a place and having no idea how they got there. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

4. Some people have the experience of finding themselves dressed in clothes that they don't remember putting on. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

5. Some people have the experience of finding new things among their belongings that they do not remember buying. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

6. Some people sometimes find that they are approached by people that they do not know who call them by another name or insist that they have met them before. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

7. Some people sometimes have the experience of feeling as though they are standing next to themselves or watching themselves do something and they actually see

themselves as if they were looking at another person. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

8. Some people are told that they sometimes do not recognize friends or family members. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

9. Some people find that they have no memory for some important events in their lives (for example, a wedding or graduation). Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

10. Some people have the experience of being accused of lying when they do not think that they have lied. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

11. Some people have the experience of looking in a mirror and not recognizing themselves. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

12. Some people have the experience of feeling that other people, objects, and the world around them are not real. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

13. Some people have the experience of feeling that their body does not seem to belong to them. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

14. Some people have the experience of sometimes remembering a past event so vividly that they feel as if they were reliving the event. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

15. Some people have the experience of not being sure whether things that they remember happening really did happen or whether they just dreamed them. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

16. Some people have the experience of being in a familiar place but finding it strange and unfamiliar. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

17. Some people find that when they are watching television or a movie they become so absorbed in the story that they are unaware of other events happening around them. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

18. Some people find that they become so involved in a fantasy or daydream that it feels as though it were really happening to them. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

19. Some people find that they sometimes are able to ignore pain. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

20. Some people find that they sometimes sit staring off into space, thinking of nothing, and are not aware of the passage of time. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

21. Some people sometimes find that when they are alone they talk out loud to themselves. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

22. Some people find that in one situation they may act so differently compared with another situation they feel almost as if they were two different people. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

23. Some people sometimes find that in certain situations they are able to do things with amazing ease and spontaneity that would usually be difficult for them (for example, sports, work, social situations, etc.). Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

24. Some people sometimes find that they cannot remember when they have done something or have just thought about doing that thing (for example, not knowing whether

they have just mailed a letter or have just thought about mailing it). Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

25. Some people find evidence that they have done things that they do not remember doing. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

26. Some people sometimes find writings, drawings, or notes among their belongings that they must have done but do not remember doing. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

27. Some people sometimes find that they hear voices inside their head that tell them to do things or comment on things that they are doing. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

28. Some people sometimes feel as if they are looking at the world through a fog so that people or objects appear far away or unclear. Circle a number to show what percentage of the time this happens to you.

0% 10 20 30 40 50 60 70 80 90 100%

APPENDIX D
STATE TRAIT ANXIETY INVENTORY

Your responses will be treated completely **confidentially**, and results will only be referred to in statistical form or anonymously.

Please read the following statements about how people feel **in general**. Circle the number that best describes how you generally feel. There are no right or wrong answers.

1 I feel pleasant

Almost never 1 2 3 4 5 6 7 Almost always

2 I feel nervous and restless

Almost never 1 2 3 4 5 6 7 Almost always

3 I feel satisfied with myself

Almost never 1 2 3 4 5 6 7 Almost always

4 I wish I could be as happy as others seem to be

Almost never 1 2 3 4 5 6 7 Almost always

5 I feel rested

Almost never 1 2 3 4 5 6 7 Almost always

6 I am 'calm, cool and collected'

Almost never 1 2 3 4 5 6 7 Almost always

7 I feel that difficulties are piling up so that I cannot overcome them

Almost never 1 2 3 4 5 6 7 Almost always

8 I worry too much over something that doesn't really matter

Almost never 1 2 3 4 5 6 7 Almost always

9 I am happy

Almost never 1 2 3 4 5 6 7 Almost always

10 I have disturbing thoughts

Almost never 1 2 3 4 5 6 7 Almost always

11 I lack self-confidence

Almost never 1 2 3 4 5 6 7 Almost always

12 I feel secure

Almost never 1 2 3 4 5 6 7 Almost always

13 I make decisions easily

Almost never 1 2 3 4 5 6 7 Almost always

14 I feel inadequate

Almost never 1 2 3 4 5 6 7 Almost always

15 I am content

Almost never 1 2 3 4 5 6 7 Almost always

16 Unimportant thoughts run through my mind and bother me

Almost never 1 2 3 4 5 6 7 Almost always

17 I take disappointments to heart and I can't put them out of my mind

Almost never 1 2 3 4 5 6 7 Almost always

18 I get in a state of tension or turmoil when I think about my recent concerns and interests

Almost never 1 2 3 4 5 6 7 Almost always

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BIOGRAPHICAL SKETCH

Jessica Hilton attended the University of Florida in Summer 2000. She graduated in 2003 with a Bachelor of Arts in English with a focus in film studies. During her undergraduate career, she was a member of the National Collegiate Honors Society. Starting in Spring 2004, she attended University of Florida's graduate program in the College of Journalism and Mass Communications with a major in telecommunications. She will graduate in May 2006.